



Artwork by Alyssa General 2016

May 10-13, 2017



SOCIETY OF ETHNOBIOLOGY

Table of Contents

Welcome.....	3
About the Society of Ethnobiology.....	4
Awards.....	5
Meeting Summary.....	8
Presentation Schedule.....	11
Presentation Abstracts.....	20
Map of Meeting Venues.....	51
Save the Date, SoE 2018.....	53

Welcome

The annual conference of the Society of Ethnobiology is an opportunity to disseminate research, learn about field methodologies, and connect with fellow scholars. 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.

This year's conference is hosted by the Montréal Botanical Garden, in Québec, Canada. We would like to acknowledge and thank the Mohawk Nation, and all of the Indigenous nations of the greater Montréal area, for hosting us on their territory. Through the plenary session, special roundtable, the banquet, fieldtrips, and more, the Haudenosaunee have helped to shape the content and purpose of our conference this year. We are grateful to the Kanien'kehá:ka (Mohawk people) of Ahkwesáhsne, Kahnawà:ke, and Kanesatake, and other Indigenous contributors for the time, care, and energy they have put into welcoming the Society of Ethnobiology conference.

Conference Coordinator: Elizabeth Olson

Organizing Committee: Alain Currier
Jessica Dolan
Michel Rapinski
Dorothee Schreiber

Thank you to the many volunteers who have helped at various stages in planning and running the conference!

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 of Ethnobiology 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.

Want to know more about the Society? Be sure to come to the General Membership Meeting on Friday afternoon.

Society Officers

President	Scott M. Herron
President-Elect	Cynthia T. Fowler
Treasurer	Denise Glover
Secretary	Karen Park
Board Members	Joyce LeCompte
	James R. Welch
	Daniela Shebitz
	Alex McAlvay
	Ray Perotti
	Elizabeth A. Olson
	Steve Wolverton

2017 Distinguished Ethnobiologist Award



Dr. Steve Emslie is a professor in the Department of Biology and Marine Biology, University of North Carolina Wilmington, where he has taught courses in ornithology and ecology since 1998. He received his BA and MA degrees in Anthropology from the University of Colorado, Boulder, in 1975 and 1977, respectively, an MS degree in Biology from Northern Arizona University in 1982, and a PhD in Zoology from the University of Florida in

1987. He has maintained an interdisciplinary research program his entire career and first became involved in ethnobiology when completing his MA thesis on faunal remains from archaeological sites in southwestern Colorado. He worked with Dr. Lyn Hargrave, an eminent archaeo-ornithologist, from 1977-1978 and organized the First Ethnobiology Conference that was held in Lyn's honor in Prescott, Arizona, in April 1978. With Steve Weber, he initiated and edited the first two volumes of the Journal and Ethnobiology in 1981-1983, and they also founded the Society of Ethnobiology in 1981. Steve has studied fossil and archaeological birds and mammals throughout his career and has published over 130 peer-reviewed papers and one monograph. He currently is studying the paleo-history of penguins in Antarctica, using archaeological methodology to recover well-preserved penguin remains that date to over 40,000 years old. He also maintains his archaeological interests with collaborative research on Neolithic sites in Iberia where he is investigating mercury exposure from the cultural use of cinnabar.

Dr Steve Weber is a professor in the Department of Anthropology at Washington State University at Vancouver. He received a B.S. and M.A. in Anthropology from Northern Arizona University. After working several years as a consulting archaeologist, Steve returned to graduate school at the University of Pennsylvania where he received his



Ph.D. in 1989. The theme of his research has continued to be how and why people adopt new subsistence strategies, and how change in subsistence systems relates to change in material culture and settlement systems.

With colleague Steve Emslie, he co-founded the Society of Ethnobiology and the Journal of Ethnobiology in order to promote the interdisciplinary study of human interaction with the natural environment. He remains committed to promoting the creative fusion of biological and anthropological approaches to the study of humans and their surroundings. Since arriving at WSU-Vancouver in 1994, he has been involved in projects throughout Asia, including India, Pakistan, and Thailand. He maintains a special interest in paleoethnobotany, but regards himself first and foremost as a field-oriented archaeologist.

2017 Undergraduate Ethnobiologist Award

Hope Loiselle is a junior at the University of Maryland studying anthropology and archaeology. Her research interests include zooarchaeology, historical ecology, and island and coastal archaeology. She hopes to pursue graduate studies in archaeology with a regional focus in the Pacific and study past human interactions with marine ecosystems. Currently, she is completing her honors thesis under the guidance of Torben Rick at the Smithsonian Institution's National Museum of Natural History, conducting a zooarchaeological analysis of small cetacean bone from Seaside, Oregon. She is also working with Miguel Vilar, lead scientist of National Geographic's Genographic Project, to study the peopling of Micronesia from a genetic perspective. She studied abroad in New Zealand last semester, where her passion for Pacific archaeology first developed. Her love of zooarchaeology started as a sophomore when she began working in the UMD Zooarchaeology Lab under the guidance of George Hambrecht and Barnet Pavao-Zuckerman. Hope is also the president of the undergraduate Anthropology Student Association.



2017 Student Fellowship Awards

Urban Ethnobiology Fellow:

Amanda L. Ellwanger, PhD candidate in the Anthropology Department at the University of Texas at San Antonio. As an ecological anthropologist and ethnoprimate, Amanda's research interests center on niche construction, primate behavioral ecology and behavioral flexibility, peoples' attitudes and experiences with animals and the environment, social network analysis, human-animal-environment relationships, and conservation and management strategies to promote



coexistence between people and nonhuman primates. The Urban Ethnobiology Fellowship will support her doctoral research to examine how human niche construction, via cultural behaviors and ecological impacts, influence chacma baboon foraging and social relationships in Western Cape, South Africa. Amanda's research supports a broader perspective of community ecology by investigating how humans and animal mutually shape each other's ecological and social environments.

Ecological Knowledge Research Fellow, Nicole Mathwich, PhD student in



Archaeology, University of Arizona, School of Anthropology. Nicole pursues her research interests in the intersections of ecology and colonialism at the University of Arizona and the Arizona State Museum. For her PhD research, Nicole investigates how indigenous peoples in southern Arizona and northern Sonora negotiated the colonial introduction of livestock into their own preexisting practices of agriculture, hunting, and gathering. Her research will examine seasonal livestock grazing and watering in the Sonoran Desert using stable isotopes, and shifts in hunting patterns as a result of ranching by using zooarchaeological analysis. Funds from the Ecological

Knowledge Research Fellowship will be used to conduct stable isotope analysis of cattle and sheep teeth from Spanish colonial sites.

Meeting Summary

WEDNESDAY

9:00-4:00 **Board Meeting**, IRBV - D362

6:30-8:00 **Welcome Reception**. Main Entry of Botanical Garden & Atrium

THURSDAY

8:30-10:00 **Plenary Session: Elder Talks & Welcome**. Main Entry of Botanical Garden & Atrium

Opening and Welcome by Kanahsohon Kevin Deer

Grand Chief of Kanesatake Serge Simon will speak

Elder Nellie Winters speaks on the importance of home

Elder Annie Evans speaks on connections to family places

10:00-10:30 **Coffee Break**. Biodiversity Center Alcove

10:30-12:00 **Presentation Sessions**

Biodiversity Center, B104	Birds, Plants and Other People: Ecological and Cultural Relationships Across Species Boundaries, Part I
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Biodiversity Center, B106	Engaging Communities & Ethics in Context: The Process of Initiating Ethnobiological Fieldwork, Part I
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Amphithéâtre Henry-Teuscher	Roundtable: Haudenosaunee Perspectives on Environmental Responsibility
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IRBV Classroom, B352	Historical Ecology & Ethnoecology, Part I
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12:00-1:00 **Short Tours at Botanical Garden**. Small groups of up to 12 or 15 will participate in a free, short, tour of one area of the Botanical Garden: Greenhouse, First Nation Garden, Medicinal Plant Garden, Herbarium. Please arrive on time to the designated meeting spot. We cannot guarantee we will hold a spot for you on the tour if you are not there on time. **Tours will depart from the Main Entrance Lobby.**

12:00-1:00 **Student/Mentor Lunch**. Meet in Main Entrance Lobby & Eat Outside. Pre-registration required.

1:00-2:30	Presentation Sessions	
	Biodiversity Center, B104	Ethnomedicines, Part I
	Biodiversity Center, B106	Solidarity, Allyship, & Justice in an "Applied" Ethnobiology, Part I
	Amphithéâtre Henry-Teuscher	Role of Ethnobiological Traditional Knowledge in Conservation of Biodiversity
	IRBV Classroom, B352	Zooarchaeology
2:30-2:55	Coffee Break. Biodiversity Center Alcove	
3:00-4:30	Presentation Sessions	
	Biodiversity Center, B104	Food & Water Sovereignty
	Biodiversity Center, B106	Community Dynamics, Identity, & Natural Resources
	Amphithéâtre Henry-Teuscher	Ethnobotany, Part I
	IRBV Classroom, B352	Archaeobotany
6:00-7:00	Keynote Speaker Linda Black Elk. Amphithéâtre Henry-Teuscher	
7:30-9:00	Student Networking Social. TBA – Meet after the Keynote Address	

FRIDAY

8:30-10:00	Presentation Sessions	
	Biodiversity Center, B104	Birds, Plants and Other People: Ecological and Cultural Relationships Across Species Boundaries, Part II
	Biodiversity Center, B106	Stewardship & Education
	Amphithéâtre Henry-Teuscher	Ethnobotany, Part II
	Biodiversity Center, André-Bouchard Room	Historical Ecology & Ethnoecology, Part II
10:00-10:25	Coffee Break. Biodiversity Center Alcove	

10:30-12:00 **Presentation Sessions**

Biodiversity Center, B104	Ethnomedicines, Part II
Biodiversity Center, B106	Solidarity, Allyship, & Justice, Part II
Amphithéâtre Henry-Teuscher	The IPBES Global Assessment of Biodiversity and Ecosystems Services: Calling upon the contribution of Ethnobiology
Biodiversity Center, André-Bouchard Room	Engaging Communities & Ethics in Context: The Process of Initiating Ethnobiological Fieldwork, Part II

12:00-1:00 **Lunch Forum: Indigenous and Local Knowledge and Practices in the Global Assessment of Biodiversity and Ecosystems Services of IPBES,** Biodiversity Wood Room

12:00-1:00 **Short Tours at Botanical Garden.** Small groups of up to 12 or 15 will participate in a free, short, tour of one area of the Botanical Garden: Greenhouse, First Nation Garden, Medicinal Plant Garden, Herbarium. Please arrive on time to the designated meeting spot. We cannot guarantee we will hold a spot for you on the tour if you are not there on time. **Tours will depart from the Main Entrance Lobby.**

1:00-2:00 **Poster Session.** IRBV Classroom, B352.

4:15-5:30 **Society Business Meeting.** Amphithéâtre Henry-Teuscher

7:00-9:00 **Banquet & Awards Ceremony.** Planetarium
The banquet will be held at the Montreal Planetarium and will feature the 2017 Distinguished Ethnobiologists Steven Weber and Steven Emslie, the co-founders of our Society. We will conclude the evening with a Haudenosaunee social dance with Kaniehkeshon.

SATURDAY

9:00-4:00 **Mycology Excursion & Mushroom Picking.** Depart from the Hôtel Universel, to go to Parc des Chutes de Sainte-Ursule, return to Hôtel Universel around 4pm. Pre-registration required.

9:30-4:00 **Visit to Mohawk community of Kahnawà:ke: Traditional teachings at the longhouse and black ash baskets.** Pick up at Hôtel Universel, travel to Kahnawà:ke, return to Hôtel Universel around 4pm. Pre-registration required.

Presentation Schedule

(Note that presenters with an asterisk are being considered for the Barbara Lawrence Award)

THURSDAY MORNING

Birds, Plants and Other People: Ecological and Cultural Relationships Across Species Boundaries, Part I

Biodiversity Center, B104 Organized by Sault and Vásquez-Dávila;

- 10:30 *Hecht, David
A Kingdom of Deities: Spiritual Landscapes, Protected Areas, and the Role of Conservation Mapping in Bhutan
- 10:45 Vásquez-Dávila, Marco Antonio, Juan Elmar Jiménez-Díaz, Reyna Allende-Nazario
Avian Metamorphosis: Birds, Humans and Deities in Mesoamerican Mythology
- 11:00 Herron, Scott
Bineseewug: The Relationship of Thunderbeings and Thunderbirds to the Anishinaabek Great Lakes Native American People
- 11:15 Whaanga, Hemi, Paul Scofield, Priscilla Wehi, Tom Roa
Indigenous Methods of Naming Avifauna and its Relevance in Biodiversity Reporting, Monitoring and Mapping

Engaging Communities & Ethics in Context: The Process of Initiating Ethnobiological Fieldwork, Part I

Biodiversity Center, B106 Organized by Medinaceli and Cano

- 10:30 Flores, Fabio
Towards a Respectful Ethnoarchaeological Practice: Zoo Archaeological Materials and Biocultural Heritage
- 10:45 Desrosiers, Sarah, Greg Henry, Kugluktuk High School Students, Nunavut
The Berry Project – Insight on Conducting Research in the Canadian Arctic
- 11:00 Medinaceli, Armando
Taking an Early First Step for Ethnobiological Fieldwork
- 11:15 Shebitz, Daniela, Angela Oviedo
Indigenous Knowledge and the Search for Plant Medicine: A Teaching Case Study Involving Prior Informed Consent with the Maya ICBG
- 11:30 Fowler, Cynthia
Initiating Research on Igniting Fires in the Blue Ridge Mountains during the Autumn 2016 Conflagration

Roundtable: Haudenosaunee Perspectives on Environmental Responsibility

Amphithéâtre Henry-Teuscher 10:30-12:00

Organized by Dolan and Pyke-Thompson; moderated by Dolan

On this panel, environmental caretakers from Akwesasne, Kahnawà:ke, and Kanesatake will speak about environmental responsibility. [Each person will speak for 15 minutes, and then we will allow 1/2 hour for questions or discussion.]

- Peggy Pyke-Thompson, Director, Mohawk Council of Akwesasne Department of the Environment
- Lynn Jacobs, Environmental Advisor/Project Coordinator, Kahnawà:ke Environmental Protection Office
- Alicia Cook, Ase Tsi Tewaton aka Akwesasne Cultural Restoration Program, Master in Medicine
- Iekennorehstha: Amberdawn LaFrance – Ase Tsi Tewaton aka Akwesasne Cultural Restoration Program, Database Administrator
- Eugene Nicholas, Director, Mohawk Council of Kanesatake Department of the Environment
- Jessica Dolan, McGill University (Moderator)

Apprentices from the Ase Tsi Tewaton aka Akwesasne Cultural Restoration Program will serve teas that participants can try.

Historical Ecology & Ethnoecology, Part I

IRBV Classroom, B352

10:30 Smith, Nicole, Skye Augustine, Keith Holmes, Dana Lepofsky, Chrissy Neudorf, Misha Puckett, Christine Roberts, Kirsten Rowell, Anne Salomon, Natasha Salter, Ginevra Toniello, Louie Wilson

Ancient Mariculture in British Columbia: Documenting the Past for the Future, Part 2

10:45 Armstrong, Chelsey Geralda, Alex McAlvay, Jesse Miller, Dana Lepofsky, Nancy J. Turner

Biodiversity and Functional Traits Reflect Indigenous Forest Gardens in the Pacific Northwest

11:00 *Oberndorfer, Erica

Forgotten Fires? A People's History of Fire in Labrador

11:15 Savo, Valentina, Dana Lepofsky, Pauline Waterfall, Community of Bella Bella, Heiltsuk

Observations of Climate Change in the Heiltsuk Territory (British Columbia, Canada)

11:30 Eloheimo, Marja

Suomalaiset Marjat (Finnish Berries): A Role for Heritage in Cultivating Ecocultural Relationality

11:45 Arias-Bustamante, José

Learning from the Experts: A Case Study of Adaptation to Change in the Context of Mapuche People

THURSDAY AFTERNOON

Ethnomedicines, Part I

Biodiversity Center, B104

- 1:00 Bond, Matthew, Orou Gaoue
Beating Around the Bush: How Plant Availability Shapes Medicinal Plant Knowledge
- 1:15 Stiegler, Christopher
Gastrointestinal Health as a Stimulus for Native American Attraction to Medicinal Asteraceae and Further Implications for Human Evolution
- 1:30 Cannon, Carrie
Grand Foods of the Grand Canyon; A Nutritional Analysis of Traditional Food Plants of the Hualapai Tribe
- 1:45 Teixidor-Toneu, Irene, Gary J. Martin, Rajindra K. Puri, Ahmed Ouhammou, Julie A. Hawkins
The Practice of Frigg: Sociocultural Changes Affect Traditional Treatments in Southern Morocco
- 2:00 Tareau, Marc-Alexandre, Lucie Dejouhanet, Marianne Palisse, Guillaume Odonne
Phyto-Pharmacopoeias in Motion: An Ethnobotanical Approach to Geographical and Cultural Circulations on the French Guiana Coastal Region

Solidarity, Allyship, & Justice in an "Applied" Ethnobiology, Part I

Biodiversity Center, B106 Organized by Armstrong and McAlvay.

- 1:00 Blazina, Ashley
Whitewashed Time: How Academic Calendars and Funding Duration Affect Meaningful Cultural Work and Exchange
- 1:15 Emshwiller, Eve, Lauren Moscoe, Raul Blas
Making Research Findings Relevant and Accessible in the Communities Where We Work: Our Experience Creating Agrobiodiversity Catalogs in the Peruvian Andes
- 1:30 Reo, Nicholas, Coleen A. Fox, Dale A. Turner, JoAnne Cook, Frank Dituri, Brett Fessell, James Jenkins, Aimee Johnson, Terina M. Rakena, Chris Riley, Ashleigh Turner, Julian Williams, Mark Williams
The Indigenous Confluence Project
- 1:45 Hunn, Eugene S.
Place Names as Moral Deeds to Traditional Homelands
- 2:00 Sault, Nicole
How Condors Led Me to Mining and Water Issues: Walking in Solidarity with Latin American Communities

Role of Ethnobiological Traditional Knowledge in Conservation of Biodiversity

Amphithéâtre Henry-Teuscher Organized by Sehgal (unable to attend)

- 1:00 Puri, Rajindra
Ethnobiology and Human Adaptation to Biodiversity Change: Concepts and Methods Applied to a Study of Herder Responses to Lantana Camara L.
- 1:15 Molnár, Zsolt, Daniel Babai, Marianna Biró, József Kis, János Máté, Anna Varga
Herders, Farmers, Conservationists and Ecologists Working Together for Better Grassland Management in Hungary
- 1:30 Linares, Edelmira, Robert Bye, Luz María Mera
Documentation of Traditional Foods and Agrobiodiversity of the Rarámuri (Chihuahua, Mexico) by Means of Videos: Pinole and Esquiote Derived from Maize (Zea mays)
- 1:45 Orozco, Jessica
Post-Fire Monitoring on the Hualapai Reservation, Peach Springs, Arizona
- 2:00 Smith, Tyler, Erica Oberndorfer
"What Our Ancestors Planted, It's Good to Bring Here": Retracing the Shared Travels of Rhubarb and Inuit in Labrador

Zooarchaeology

IRBV Classroom, B352

- 1:00 Wolverton, Steve, Clara Otaola, Miguel Giardina, Gustavo Neme, Adolfo Gil
Encountering Contemporary Pastoralism via Zooarchaeology: New Data from the Argentine Andes
- 1:30 Main Johnson, Leslie, Riva Benditt
Plants, Land and Language—Gwich'in Elders' Perspectives on Traditional Living and Well-being
- 1:45 *Grindle, Dalyn, Austin Rita, Courtney Hofman, Torben Rick
Zooarchaeology of the Native American Sturgeon Fishery in Coastal Oregon, 350 BC to AD 1150
- 2:00 Forth, Gregory
Humans and Dugongs in Eastern Indonesia

Food & Water Sovereignty

Biodiversity Center, B104

- 3:00 *Dolan, Jessica
Our Sustenance, the Plants, and the Trees: Cultural Persistence Wild and Heirloom Food Species in Haudenosaunee Communities
- 3:15 Monterrubio Solís, Constanza
Bringing Joy Back to the Table: Food Traditions' Dynamics in Two Different Regions of Chiapas, Mexico
- 3:30 Dixon, Anna
Coontie: From Staff of Life to Threatened Species in Florida
- 3:45 Salick, Jan
Narragansett Food Sovereignty Initiative and Climate Change
- 4:00 Mt. Pleasant, Jane
Indigenous Food Sovereignty Requires Diversity and Radical Natural Resource Management

Community Dynamics, Identity, and Natural Resources

Biodiversity Center, B106

- 3:00 Olofsson, Ebba
Gender Inequality in Swedish Legislation of Sámi Reindeer Herding
- 3:15 Thiel, Amanda
Q'eqchi' Maya Home Gardens
- 3:30 Stepp, John Richard
Towards An Ethnobiological Theory of Biodiversity and Sociolinguistic Diversity
- 3:45 Montanari, Bernadette
Shifting Priorities for the Inclusion of Rural Women in the Initiatives of the Green Moroccan Plan
- 4:00 Nazarea, Virginia
Tasting Love and Legacy

Ethnobotany, Part I

Amphithéâtre Henry-Teuscher

- 3:00 *Best, Sunshine
Ethnobotanical Networks Thru Community Gardens
- 3:15 Garineaud, Clément
Ethnoecology During Crisis: Adaptation of Seaweed Harvester's Knowledge and Practices
- 3:30 Heckelsmiller, Cynthiann
Exploring the Children's Domain of Edible Plant Knowledge in a Maasai Village
- 3:45 Pierotti, Raymond, Nimachia Howe
Naapi and Niche Construction: Traditional Stories Discuss How Organisms Direct the Shaping of Their Environments
- 4:00 Flachs, Andrew
Squeezing Agrobiodiversity: Herbicides and High Density Cropping on GM Cotton Fields in Telangana, India

Archaeobotany

IRBV Classroom, B352

- 3:00 Mueller, Natalie
Agricultural Communities and the Rise of Cahokia: Evidence from Seeds
- 3:15 Mathews, Darcy
Savannahs of Living Fuel: The Coast Salish Management of Douglas-fir Bark Fuel
- 3:30 * Goldfield, Anna, Kristen Wroth
Using Nutritional Ecology and Energetic Modeling to Reexamine the Role of Plants in Neanderthal Diet in Southwest France

FRIDAY MORNING

Birds, Plants and Other People: Ecological and Cultural Relationships Across Species Boundaries, Part II

Biodiversity Center, B104 Organized by Sault and Vásquez-Dávila

8:30 Park, Karen

Might a Flight of Swallows a Covey of Concerned Characters Beget?

8:45 Ignace, Marianne, Ronald Ignace

Secwepemc Loons as Symbols of Power and Transformation

9:00 Sault, Nicole

Vulture and Condor Bringing Seeds: Relationships Embodied Through Oral Traditions in Costa Rica and the Andean Altiplano

Stewardship & Education

Biodiversity Center, B106

8:30 Anderson, E. N.

Conservation Ideology Revisited: Northwest Coast Myths that Teach Environmental Care

8:45 *Tom, Whitley, Nancy Montoya, Daphne Sewings

The Stories of the Past: Creating a Relationship with the Paiute Indian Tribe of Utah and Cedar Breaks National Monument to Help Preserve Cultural History

9:00 Paul, Andrew

Ethnoecology for Peace: Karen Environmental Relations and the Salween Peace Park in Karen State, Burma

9:15 Lepofsky, Dana, Jennifer Carpenter, Mark Wunsch, Nancy Turner, Julia Jackley

Exploring Hanyat: A Cultural Keystone Place of the Heiltsuk, British Columbia, Canada

9:30 Walshaw, Sarah

Teaching Food History Against the Grain

Ethnobotany, Part II

Amphithéâtre Henry-Teuscher

8:30 Antonio, Thomas

Indigenous Biotechnology/Corn Nixtamalization

8:45 *Gagnon, Terese

Seed Memory/Body Memory: The (Re)production of Karen More-Than-Human Culture Across Borders

9:00 Mbugua, Paul

The Sansevierias Ethnobotany

9:15 Sato, Yasuaki

Social Aspects of the Maintenance of Banana Landrace Diversity in Central Uganda

9:30 Bisulca, Christina, Chika Mori, Marilen Pool, Nancy Odegaard

Dye Components in Insect Lac (Shellac) of the American Southwest

Historical Ecology & Ethnoecology, Part II

Biodiversity Center, André-Bouchard Room

- 8:30 Greening, Spencer, Dana Lepofsky, Bryn Letham, Nancy Turner
Historical Ecology of Laxgalts'ap – Remembering Indigenous Knowledge in a Gitga'at Cultural Keystone Place
- 8:45 Toniello, Ginevra, Dana Lepofsky, Kirsten Rowell
The Ecological and Cultural Effects of Clam Gardens on Northern Quadra Island, British Columbia
- 9:00 *Zeng, Lily
Regeneration as a Socioecological Process in Sacred Groves of Xishuangbanna, Southwest China
- 9:15 *Lullfitz, Alison, Carol Pettersen, Ron (Doc) Reynolds, Joe Dortch, David Guilfoyle, Stephen Hopper, Aden Eades, Averil Dean, Lynette Knapp, Gail Yorkshire-Selby, Eliza Woods, Treasy Woods, Eugene Eades
The Noongar of South Western Australia: A Case Study of Long-Term Biodiversity Conservation in Old, Fragile Landscapes
- 9:30 *Hagwood, Austin
Seeing REDD: The Political Ecology of Logging in Papua New Guinea

Ethnomedicines, Part II

Biodiversity Center, B106

- 10:30 Musch, Tilman
Herbal Medicine for Naja nigricollis Bites in Western Niger: Symptomatic Treatments and Possible Antidotes
- 10:45 *Phumthum, Methee, Henrik Balslev
Plant Ethnomedicinal Knowledge Changes Following Ethnic Migration
- 11:00 Gardener, Erica
Narcotics, Empire, and the Marijuana Frontier
- 11:15 Bye, Robert, Edelmira Linares, Guadalupe Carrillo
Toronjil Medicinal Plant Complex: Ethnobotany and Domestication of Agastache (Lamiaceae) in Mexico

Solidarity, Allyship, & Justice in an "Applied" Ethnobiology, Part II

Biodiversity Center, B106 Organized by Armstrong and McAlvay

- 10:30 *Baker, Janelle
For Profit or Print: Reflecting on How to be a Useful Ethnobiologist
- 10:45 McAlvay, Alex
Barriers, Resources, Questions: Moving Forward as an Advocate-Academic
- 11:00 Fowler, Catherine S.
Applied Ethnobiology, Advocacy and the Timbisha Shoshone Tribe of Death Valley, California
- 11:15 Armstrong, Chelsey Geralda
A Cartography of Struggle: Cultural Landscapes and Contested Archaeology in Northwest British Columbia
- 11:30 Rapinski, Michel, Vanessa Sit, Caroline Ouellet, Lise Lamothe, Thomas Saïas,

Pierre Haddad, Damien Davy, Alain Cuerrier

Representation of Traditional Medicine Between Community Members and Healthcare Providers in Quebec's First Nations Communities

The IPBES Global Assessment of Biodiversity and Ecosystems Services: Calling upon the contribution of Ethnobiology

Amphithéâtre Henry-Teuscher Organized by Molnár, Zayas, Díaz, Brondizio

10:30 Molnár, Zolt, Cynthia Neri Zayas

A New Global Biodiversity and Ecosystems Services Assessment: What Do Ethnobiologists and Traditional Knowledge Holders Could Benefit from It?

10:45 Bond, Matthew, Barbara J. Anderson, Priscilla Wehi

Incorporating Biocultural Relationships into Climate Change Modeling

11:00 Ulicsni, Viktor, Dániel Babai, Csaba Vadász, András Báldi, Zolt Molnár

Traditional Ecological Knowledge of Wild Animals: An Underestimated Opportunity for Knowledge Co-Production for Biodiversity Assessments and Conservation

11:15 White, John

Crop Wild Relative Conservation In Situ: The Ethics and Benefits of Local Indigenous Knowledge

11:30 Brondizio, Eduardo, Sandra Diaz, Josef Settele, Members of the IPBES

Secretariat, ILK Task Force, ILK GA Liaison group, Intergovernmental S-P Platform on Biodiversity & Ecosystem Services (IPBES)

Operationalizing Indigenous and Local Knowledge and Practices (ILK) in the Global Assessment of Biodiversity and Ecosystem Services of IPBES

Engaging Communities & Ethics in Context: The Process of Initiating Ethnobiological Fieldwork, Part II

Biodiversity Center, André-Bouchard Room Organized by Medinaceli and Cano;

10:30 McCune, Letitia

Academic Societies, Ethnobiology and Ethics Codes

10:45 Porter, Caitlin, Erica Oberndorfer, Jeremy Lundholm

Barrens in Nova Scotia: Biodiversity, Long-term Dynamics, Plants and People

11:00 Ferenczi, Natasha-Kim

Composing Plant Agents: Configuring Conservation Around People and Plant Relationships

11:15 Davy, Damien, James Panapuy, Guillaume Odonne

Tackling the Challenges of The Implementation of ABS Procedures in France: The Case of Teko Ethnobotany in French Guiana.

FRIDAY AFTERNOON

Poster Session 1:00-2:00

IRBV Classroom, B352

*Arbogast, Drew, Julia Arnold, Abigail Buffington, Andrew Weiland

How Mobile are Phytoliths in the Laboratory? An Examination of Cross-Contamination during the Extraction Process

Cannon, Carrie

TEK and Vegetation Restoration in Western Grand Canyon

Ducey, Mark, R. Andy Colter, Joann Hoy, Jessica Phillipe

Ecological Relationships and Potential Ethnobotanical Uses of the Forest Understory: A Case Study from the White Mountains of New Hampshire

Hamersley Chambers, Fiona

The 'Lost' Gardens: Heiltsuk Cultivation of Berry Resources on British Columbia's Central Coast

Johnson, Emily S., John M. Marston

Elite Feasting and Monumental Dedication at Early Phrygian Gordion, Central Turkey

Kachko, Liza, Theresa Dardar

Revitalizing Traditional Plant Knowledge in Coastal Louisiana: Pointe au Chien Indian Tribe Medicinal Plant Garden Project

Mustafa, Haya, Nirisha Commodore, Keryl Liburd, Raiyna Lanclos, Khadijah Estrill,

Brianna Scotland, LouAnne Wyllie, Ann Harmon, Yakini Brandy, Sandy Wyllie-Echeverria

Distillation of Myrcianthes fragrans: An Undergraduate Research Project

O'Sullivan, Megan, Liz Olson, Madeline Gines, Hannelore Lamers, Sara Ludlow, Christina Karpinski, Grace Rose

Knowledge, Attitudes, and Behaviors of Food and Nutrition for Elementary Aged Children in Iron County, Utah

Quinlan, M.B., R.J. Quinlan, M.A. Caudell, M/ Subbiah, L. Matthews, C.J. Roulette, J.W.

Roulette, D.R. Call

Ethnobiology of East African Animal Medication and Antibiotic Resistance among Maasai, Arusha and Chagga People and their Animals

Richards, Shanee, Faviola Barbier, Cheynee Briggs, Shadijah Crawford, Tamara Esdaille-

Carty, Regina Evans, Denikah Harrigan, Dylan Jobsis-Rossignol, Meritzer Lawrence,

Oshana Mitchell, Calwyn Morton, Anisa Otto, Guerline Palanque, Bree Sango, Ryan

Shaw, Ashley Thomas, Sandy Wyllie-Echeverria

An Ethnobotanical Study of Native Plants in the Virgin Islands

Ruggiero, Juliet, Sandy Wyllie-Echeverria

Ethnobotanical Pedagogy for Undergraduates: An Example from the University of the Virgin Islands

Wade, Kali, Lisa-Marie Shillito, Clive Bonsall

Phytolith Analysis of Cumbria's Prehistoric Populations

Witeck, Kayla

Ethnobotanical and Economic Importance of the Genus Passiflora

Wright, Roy

Northeastern Algonquian and Iroquoian Conifer Taxonomy

Presentation Abstracts

Anderson, E. N University of California, Riverside gene@ucr.edu

Conservation Ideology Revisited: Northwest Coast Myths that Teach Environmental Care

Northwest Coast Indigenous peoples have achieved a reputation over the last few decades for their extremely good and detailed environmental management and care, as detailed in works by Indigenous scholars such as Charles Menzies and Richard Atleo as well as settler scholars like Nancy Turner and Dana Lepofsky. Myths have been used to teach proper and improper treatment of animals and plants. I am now surveying recorded myths to get a full count, with attention to themes such as: punishment for disrespectful treatment (including overhunting and overcollecting); reward for respectful treatment; and actual direct instruction.

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Indigenous Biotechnology/Corn Nixtamalization

Nixtamalization is the traditional practice of preparing soaked corn with wood ash. Tribes of North America prefer to use nixtamalized maize for many traditional and staple dishes (such as hominy, posole, tortillas, tamales, and Piki bread, a type of Hopi tortilla). Science courses at Institute of American Indian Arts honor the centuries-old practice (indigenous knowledge systems) of how Native Americans make corn more digestible and nutritious, and then provide the scientific understanding of how this process works. Using pH meters we demonstrate how color changes are affected by the addition of sodium carbonate (ash) prepared from burned Four-wing saltbush (*Atriplex canescens*) or Juniper (*Juniperus monosperma*). This process releases the vital nutrient niacin (Vit.B3) making it available for absorption into the body. It also significantly reduces (by 90–94%) mycotoxins produced by *Fusarium verticillioides* and *F. proliferatum*, molds that commonly infect maize and are recognized carcinogens.

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Julia Arnold The Ohio State University

Abigail Buffington The Ohio State University

Andrew Weiland The Ohio State University

How Mobile are Phytoliths in the Laboratory? An Examination of Cross-Contamination during the Extraction Process

Phytoliths, amorphous opal silica bodies that form in plant tissues, are assumed to be stable components of a soil matrix, impacted little by normal physical forces. However, there is a small chance of phytoliths moving in a laboratory setting, especially after they have been isolated from other materials such as clay, organics and carbonates and when multiple samples are being processed. We designed a study to test the potential of cross-contamination in phytolith research. We examined the variable of distance as it relates to contamination on slides in different locations of the phytolith laboratory. The results of our study inform on how we can improve on phytolith processing protocols to reduce the potential effect of cross-contamination between samples.

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Learning from the Experts: A Case Study of Adaptation to Change in the Context of Mapuche People

The effects of climate change can result in changes to livelihoods, human settlements, land use patterns and tenure systems. These changes and variations will demand greater resilience and adaptive capacity from local resource users. Moreover, climate change impacts coupled with current stresses on the environment from past human land use, development, and pollution threaten the survival and recovery of some ecosystems. Particularly in Chile, where land tenure and governance are unclear and conflicts remain active across the ancestral territories of Indigenous communities, a change in policy is definitely necessary from a climate change development point of view. So, in this context, this study is collaborating with Mapuche communities to understand how people with a livelihood affected by the constant conflict with

forest companies, and other private landholders, adapt to the impacts of a changing climate in a way to secure their survival and their culture.

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A Cartography of Struggle: Cultural Landscapes and Contested Archaeology in Northwest British Columbia

Northwest British Columbia is amidst a massive expansion in oil and gas exploration and export. Archaeological assessments are mandatory prior to infrastructure development like pipelines and processing plants. Most archaeological assessments near the Skeena River, home of Gitksan and Tsimshian Nations, have been rote at best and have failed to consult the appropriate First Nations communities. This paper reviews two independent archaeological assessments conducted by the author, which cover the territory of Luutkuudiiwuz and Gitwilgyoots. It is widely recognized that the cultural landscape of these communities is much more extensive than the clearly visible archaeological record, however proponent-paid archaeologists recommend development based on reports which state neither community have sites on their territories worth protecting. Such archaeology effectively acts as handmaiden of development while neglecting important cultural heritage like place naming, oral stories and histories, social ecological features like forest gardens, and the larger spatial scales on which humans operate.

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Alex McAlvay University Wisconsin, Madison
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Biodiversity and Functional Traits Reflect Indigenous Forest Gardens in the Pacific Northwest

Globally, archaeological sites are often associated with distinct vegetation patterns. Modern plant species composition was surveyed at four archaeological villages in British Columbia (cal. 5000 BP–1870 AD) and inventories were used to test the influence of site history on species abundance and functional trait composition. Results indicate increased species richness and functional diversity at village sites (versus surrounding forests), as well as plants with larger seeds, and animal-mediated dispersal mechanisms. Abundant large, fruit-bearing shrubs were a distinctive part of the community at village sites (indicator species) but were rare in surrounding forests. This work builds on an increasing awareness that Indigenous people in the Pacific Northwest actively managed their lived landscapes to increase the productivity and proclivity of desired plants, in this case, by tending forest gardens near their ancestral homes

Baker, Janelle McGill University/Athabasca University janelle.baker@mail.mcgill.ca
For Profit or Print: Reflecting on How to be a Useful Ethnobiologist

In this paper, I will reflect on my experience as an applied ethnobiologist and as a doctoral researcher in Alberta's oil sands region. My inspiration for doctoral research was to dedicate the time, resources, and networks available through academia to investigate First Nations perspectives on wild food contamination; a topic being neglected in consultation and applied research. As I complete my PhD, I ask how my skills are best dedicated to meet the needs of the communities who house my work. I compare working on applied research projects that have the potential to support court cases and policy change with academic research and writing. I will examine who ultimately funds applied and academic research and whether any of this work could be valuable or useful to First Nations allies or whether it perpetuate imbalances in well-being and power. I conclude that relations of respect and reciprocity are of utmost importance.

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Ethnobotanical Networks Thru Community Gardens

Plants used by indigenous / pre-colonized societies throughout the world have gained Western attention as fad "exotic foods". Yet reliable evidence-based knowledge about indigenous plants has yet to be shared with the public, especially plants of the African Diaspora. I'll present how re-engagement of old-ways of plant use may be applied to various contemporary community health & wellness challenges through knowledge-sharing on local and transnational levels. Additionally I address the challenges of monoculture

in community gardens. A solution: expanding the variety of plants through inception of a user content-driven, online platform of collected traditional plants from various cultures. An ethnobotany database with various applications, including evidence-based scientific citations. I'll focus on the role of "Community Gardens" and benefits of establishing networks not only as vehicles for sharing diverse histories and cultures of food, but also as connecting points between people who share knowledge and skills.

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Dye Components in Insect Lac (Shellac) of the American Southwest

The exudate from lac insects (*Tachardiella spp.*) is used as an adhesive throughout the cultures of Southwest. It was used extensively by the O'odham and Seri, and in the archaeological record it has been found in Hohokam, Mogollon and Ancestral Puebloan artifacts. This insect exudate also contains a red dye: in Asian lac (*Kerria spp.*), this dye ("lac dye") is extracted and used commercially. The dye from *Tachardiella spp.* was analyzed with liquid chromatography mass spectroscopy and was found to contain the same dye components as Asian lac dye but in a different proportion. Using this unique distribution of dye components, it is possible to distinguish American from Asian shellac. This technique was used to analyze a sample from a repair on a Tohono O'odham vessel (1700–Present) in the collections of the Detroit Institute of Arts, and results show it is consistent with an indigenous repair.

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Whitewashed Time: How Academic Calendars and Funding Duration Affect Meaningful Cultural Work and Exchange

Academic calendars are based around annual segments of time. Scientific and academic grants are similarly limited to short timespans and deadlines. However, for work that involves multiple parties with different customs and practices surrounding time, these limits can be extremely restrictive. This paper examines how academic and grant timelines affect the amount of collaborative work or exchange a project will complete, as well as the depth and quality of associated interagency relationships and future partnerships. Examples of recent applied work and its challenges will be used to define and highlight more common struggles that researchers may experience on individual and institutional levels.

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Beating Around the Bush: How Plant Availability Shapes Medicinal Plant Knowledge

Medicinal plants play a critical role in ecosystems, economies, and societies around the world. However, there is currently limited understanding of how people select medicinal plants; one hypothesis is that plant accessibility and abundance increases likelihood of medicinal use. The handful of studies that directly test this hypothesis show mixed results, which may be due to limitations in human/environment sample size and selection. Our research rigorously evaluates the availability hypothesis by surveying four subsistence villages in Solomon Islands using interviews with every adult (315 participants), and assessing plant availability in 50 m² survey plots 0–2 km from the center of each village (160 plots total) in a systematic random sampling scheme. Results show that species distance, abundance, and maturity have different effects on medicinal plant knowledge. By testing how plant availability affects medicinal plant knowledge, this project clarifies the processes of cognition and learning, and informs new approaches for biocultural conservation.

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Priscilla Wehi Landcare Research Manaaki Whenua

Incorporating Biocultural Relationships into Climate Change Modeling

The recent 2016 IUCN Congress in Honolulu, Hawaii, highlighted the inextricable linkages between culture and nature, and the threats that indigenous peoples face in a changing world. Climate change is a major threat facing us all, but as yet there is relatively little research on how biocultural systems will be affected by climate change. Here, we have integrated cultural context and harvesting practices with projected future species ranges that be used to develop collaborative management strategies to strengthen biocultural resilience to climate change. We focus on two New Zealand plant species that have high cultural value to the indigenous Maori people - a wetland sedge used for weaving that has a wide distribution, but distinct regional value; and a regionally distributed, but widely valued medicinal plant. These models should improve future biocultural assessments and could be used to help mitigate the effects of climate change on cultures globally.

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Intergovernmental S-P Platform on Biodiversity & Ecosystem Services (IPBES)

Operationalizing Indigenous and Local Knowledge and Practices (ILK) in the Global Assessment of Biodiversity and Ecosystem Services of IPBES

The global assessment (GA) of biodiversity and ecosystem services of the IPBES will critically assess the state of knowledge on past, present and possible future trends in multi-scale interactions between people and nature, while considering different knowledge systems. The GA includes land, inland waters, coastal zones and oceans and is timed to assess the current (2011–2020) and inform the next (2020–2030) generation of Strategic Plans for Biodiversity, and provide input to the SDGs. The proposed strategy to integrate ILK in the GA will be presented. The ILK-strategy will contribute to scale-up the contribution of ILK to regional and global environments and understand the impact of regional and global pressures upon them, and explore policy and governance options going forward. The presentation seeks inputs and calls on the ethnobiology community to contribute to the GA in multiple ways. Presented on behalf of the GA Co-Chairs, and multiple contributors to the GA.

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Toronjil Medicinal Plant Complex: Ethnobotany and Domestication of Agastache (Lamiaceae) In Mexico

Toronjil medicinal complex consists of various native Mexican taxa of *Agastache* (5 of the 12 species of the section *Brittonastrum*) and European species (*Dracocephalum moldavica* and *Melissa officinalis*). Since the prehispanic period, they have been and continue to be used to treat such ailments as digestive disorders, culturally affiliated syndromes among other ailments. In recent years, the increased demand has resulted in decline of natural populations and intensification of cultivation. Humans broke isolation barriers between species and selected a hybrid (toronjil blanco: *A. mexicana* subsp. *xolocotziana*) [morphological, chemical and molecular evidences presented here]. Because of its sedative properties of *A. mexicana*, consumption has generated international market; recently, it was included in the official Mexican Pharmacopeia and is currently being evaluated in clinical trials. The attractive flowers are the basis for cultivating both wild species and horticultural hybrids as ornamental plants that provide food for pollinators.

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Grand Foods of the Grand Canyon; A Nutritional Analysis of Traditional Food Plants of the Hualapai Tribe

The nutritional values of many wild foods are only recently gaining attention of western dietitians. These foods however, have long been known by local Tribes for their nutritional and medicinal value. So called "superfoods" are those foods which contain high amounts of phytonutrients and antioxidants. Such foods can in some cases reduce the risk of chronic disease. This talk will examine several key traditional foods of the Hualapai Tribe who live along the southern rim of the Grand Canyon of AZ; foods that have been utilized by the Tribal people for centuries.

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TEK and Vegetation Restoration in Western Grand Canyon

The Hualapai Department of Cultural Resources is implementing a multi-year vegetation restoration project at two sites in the Western Grand Canyon on the Hualapai Indian Reservation. This poster will present about the ecological benefits of conducting riparian restoration. The project is taking place at an opportune time given the current demise of the invasive tamarisk along the Colorado River Corridor due to the introduction of the tamarisk beetle. The project provides an opportunity to reintroduce native species and integrate Traditional Ecological Knowledge in resource management decisions. From a Hualapai Tribal perspective, the promotion of native plants that are also used culturally for food, medicine, materials, and ceremony, additionally contributes to the overall ecological health of the landscape.

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Tackling the Challenges of the Implementation of ABS Procedures in France: The Case of Teko Ethnobotany in French Guiana.

Since the entry into force of the Nagoya protocol, researchers have to comply with a package of regulations. French Guiana, as an overseas territory, is subject to French and European laws, but presents a specific context due to the presence of indigenous peoples.

A CNRS team, asked by some Teko Amerindians to document their ethnobotany, is experiencing since 2013 the Access and Benefit Sharing procedures. This process is pioneering in France as it only applies, to now, within the Amazonian national park (PAG).

We will describe this case where cohabit, not without complexity, indigenous peoples, researchers, elected representatives, biodiversity managers (PAG) and indigenous organizations. We will then decipher the mechanisms leading to standstills or facilitations. Lastly, we will analyze their consequences and propose potential improvements in order to develop research in the service of Indigenous people, according to the Nagoya protocol, and give new insights into the practice of ethnobiology.

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The Berry Project – Insight on conducting research in the Canadian Arctic

Communities in the Canadian Arctic are experiencing the effects of a changing environment and the development of appropriate policies may only be gained with the inclusion of communities in research. It is under that scope that we developed a community partnership to engage youth in Kugluktuk, Nunavut in the monitoring of annual berry productivity. The program aimed to integrate science and *Inuit Qajimajatuqangit* through the interaction with Elders, land users and researchers. Using listening as methodology, the activities were developed holistically and evolved throughout the years. Through consultation and relationship building, this project used the study of the environment as a framework to foster Inuit youth's connection to the land, healing and wellbeing. Best practices for participatory research

are few and poorly documented although central to the conduct of ethical and successful projects. This presentation will showcase a critical evaluation of the Berry Project in the Canadian Arctic.

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Coontie: From Staff of Life to Threatened Species in Florida

The only North American member of the ancient cycad group, *Zamia floridana* was once widespread in tropical Florida, and was a source of food for humans and other animals for millennia. Its caudices provided a staple starch used by the indigenous peoples of Florida to make a bread known as *kunti hatke*. Foraging groups like the Calusa harvested it in large quantities. When Europeans arrived in the 16th century, they also used coontie as food and a thriving industry existed for over 200 years. Because the unprocessed caudex contains toxic cyanide compounds, processing was a complex procedure; yet, the product was so valuable that it was still profitable. Now, populations of these slow-growing plants have become attenuated and their collection from the wild is outlawed. *Zamia floridana* and the important role that it plays in Florida's indigenous culture and sensitive ecosystem is in danger of being lost.

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Our Sustenance, the Plants, and the Trees: Cultural Persistence Wild and Heirloom Food Species in Haudenosaunee Communities

Haudenosaunee culture is fundamentally connected to the ecology of their homeland through food traditions. Many people are devoted to education and restoration of wild and heirloom food practices as key components of nutritional security, sovereignty, and justice. These educational efforts to transmit the knowledge and skills of traditional foods are central to ethical ecological identities and to peoples' ability to be environmental caretakers. This paper will contribute to these processes, by demonstrating the temporal depth and continuity of Haudenosaunee plant practices through archival and community sources from three time periods: 1. Oral history; 2. Archival sources from the 1940s–1970s; 3. Recently compiled publications and my notes from 2011–2016. The paper will gather Haudenosaunee ethnobotanical knowledge, to be eventually depicted as a calendric cycle and in Indigenous ethnoecological mapping, to support cultural flourishing and the protection of biodiversity in the northeast.

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R. Andy Colter

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Ecological Relationships and Potential Ethnobotanical Uses of the Forest Understory: A Case Study from the White Mountains of New Hampshire

We conducted a botanical inventory of forest understories on the Wild Upper Ammonoosuc watershed in the White Mountains, a region inhabited by the Abenaki before European contact. We used a stratified random sample across soil groups and management types, with additional plots to capture unusual ecological communities. We explored hypotheses about species with documented ethnobotanical use: Are such species associated with particular soil types, with recently disturbed forests, or forests with little or no recent timber management? Of 190 taxa identified, 138 were associated in published databases with use by the Abenaki or by geographically proximate cultures. Overall patterns of species richness between those with known uses and of all species combined were highly correlated. Our results emphasize the degree to which the entire landscape offered potential resources. A culturally informed approach to conservation can likely be approached through the diversity of plant communities, rather than a purely individual-species level.

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Prairie Turnips at 15: A Good Model Goes BadSuomalaiset Marjat (Finnish Berries): A Role for Heritage in Cultivating Ecocultural Relationality

In Finnish, "eloheimo" means "clan of the harvest" and "marja" means "berry." Inspired by the importance of berries among people in Finland, including Indigenous Sámi, I modeled for my students at Evergreen incorporation of heritage studies into the academic program, "Arts, Culture, and Ecology." Utilizing texts by E.N. Anderson and Nancy J. Turner, we examined cultural ecology broadly, along with specific ethnobotanical knowledge and practice among Indigenous Peoples of Northwestern North America. Long interested in relationality—understanding and fostering relationships among diverse people (including other-than-human persons) and between people and place—I have previously emphasized the relational potential of an ethnobotanical garden. Now I am observing how exploration of historical and contemporary culture-environment dynamics within one's own heritage(s)—Native and non-Native alike—can contribute to cultivating ecocultural relationality. This presentation introduces Finnish berries, discusses relationality as paradigm, and considers an example of incorporating heritage exploration into studies of cultural ecology.

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Making Research Findings Relevant and Accessible in the Communities Where We Work: Our Experience Creating Agrobiodiversity Catalogs in the Peruvian Andes

Ethnobiology research often depends on healthy collaborations with communities. These collaborations, however, should not end with fieldwork. Instead, we must explore creative means to share findings with collaborators. We describe a project we carried out in an effort to 1) be transparent with respect to research process and findings, 2) respond to needs expressed by communities, 3) offer gratitude to participants, and 4) contribute to local and regional agrobiodiversity conservation. We created catalogs describing the diversity of the Andean tuber, *oca* (*Oxalis tuberosa*), with respect to traditional knowledge and genetic data. We then printed and distributed these catalogs to participating farmers, research collaborators, and local government officials in Cusco Region, Peru. Projects such as ours are often difficult to execute for reasons related to time, funding, and training. We reflect on our experience as it relates to these challenges and share the lessons we learned along the way.

Evans, Annie

Elder Annie Evans Speaks on Connections to Family Places

Annie Evans is an Elder from Adlavik Bay living in Makkovik, Nunatsiavut (Labrador). She was raised at her winter home in Adlavik Bay, and spent summers at family fishing places in October Harbour and Strawberry Harbour. At seven years old, Annie Evans went to mandatory boarding school in Makkovik. Her family moved permanently to Makkovik when she was ten. In Makkovik, Annie Evans has raised a family, worked at the fish plant and Air Labrador, served six years on the Board of the Labrador Inuit Association (now Nunatsiavut Government), served as a chapel servant and lay minister, and furthered her education as a community health worker. In her Elder counsellor role, she now supports Nunatsiavumuit at Elders gatherings, at the National Inquiry into Missing and Murdered Indigenous Women and Girls, and supports residential school survivors. Annie Evans would like to share her perspective on connections to family places and plants.

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Composing Plant Agents: Configuring Conservation Around People and Plant Relationships

Broadening understandings and conceptualizations of people-plant relationships is becoming a vital component in the disbanding of colonial legacies. This presentation focuses on some emergent constitutions of plants as active agents and the ways they configure different people and plant relationships and approaches to conservation. Drawing on ethnographic research carried out in Talamanca, Costa Rica and British Columbia, Canada, I discuss some concerns that people working with plant medicines have with conservation approaches based on imagined divides separating humans and non-humans. I examine some

of the consequences of various constructions of plants as subjective beings and causal agents and the ways that *plant-centrism* can also uphold strong nature and society dualisms. Supporting cultural and environmental conservation demands a robust reflexivity into the ways plant identities and agency are constituted to ensure that they do not engage hegemonic forms of normalization and regulation that are consistent with enduring forms of colonization.

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Squeezing Agrobiodiversity: Herbicides and High Density Cropping on GM Cotton Fields in Telangana, India

In practice, smallholder Genetically Modified (GM) cotton fields in Telangana, India, contain a surprising agrobiodiversity including food plants, ornamentals, trees, and medicinals. This persistent agrobiodiversity is sustained through cropping strategies and labor organization that encourage the planting and seed saving of non-cash crops in the field. The twin developments of herbicide-tolerant GM cotton and high-density cotton planting systems threaten this reservoir of plant maintenance and knowledge by replacing biodiverse, knowledge intensive farming practices with a more absolute capital-intensive cash-cropping system. While this shift may ultimately diminish the risk of pesticide exposure for cotton farmers and laborers, it also accelerates the trend toward smallholder capitalization, rural-urban migration, and monoculture. This paper draws on research conducted 2012–2016.

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Towards a Respectful Ethnoarchaeological Practice: Zoo Archaeological Materials and Biocultural Heritage.

In quite a few ethnobiological works, zooarchaeological data is needed to explain long lasting cultural processes. Even though such information is used for the configuration of the registry related to the techno-economic issues of old societies, the ethnoarchaeological point of view is particularly much more useful in countries where there is a great variety of indigenous societies with, along with the profuse historical data, becomes quite useful in ethnobiological research. It is normally thought that the validity of the analogies established by the ethnoarchaeological point of view does not come from the similarity between the source (present society) and the subject (old society), but rather from the logical structure of the arguments and similarity of the terms of the relationship. However, when dealing with alive societies, this must be subject to ethical rules and must not develop any kind of study without the consent of the social beings involved.

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Humans and Dugongs in Eastern Indonesia

Recent research on Flores Island (eastern Indonesia) concerning human relations with dugongs or 'sea-cows' *Dugong dugong* raises questions about the status of these marine mammals as revealed in indigenous mythology and folk taxonomy. A myth told by the Lio people of eastern central Flores describes dugongs as deriving from a human being, and apparently consonant with this mythical derivation Lio name dugongs *ata ruju* ('dugong people'). Other evidence, however, shows that Lio conceive of the human-dugong relation in at least three different ways, and furthermore that Lio, in their classificatory practice and use of dugong products, treat the creatures as a kind of 'fish' (*ika*). The implications of these findings will be discussed in relation to new theories of 'animism' and especially the suggestion that reputed human derivation entails a view of non-humans as continuous with humans in regard to intentional agency and subjectivity.

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Applied Ethnobiology, Advocacy and the Timbisha Shoshone Tribe of Death Valley, California

In the 1990s, the Timbisha Shoshone Tribe began a struggle for land within and surrounding Death Valley National Park. This was capped by passage of the Timbisha Shoshone Homelands Act in 2000. It granted the Tribe trust lands and the right to co-manage additional lands held by the National Park Service and the Bureau of Land Management. Applied ethnobiology was used during the negotiations to document the extent and uses of Timbisha traditional lands through ethnobotanical/ethnozoological, TREM and place name studies. The Tribe then initiated a pilot project to bring TREM back to their lands through a honey mesquite and pinyon pine management project, designed to demonstrate to the agencies the value of

traditional care. The project was in place for two years when complications arose that could not be easily resolved. The case study outlines some of these, and how they contributed to an overall outcome.

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Initiating Research on Igniting Fires in the Blue Ridge Mountains during the Autumn 2016 Conflagration

An unprecedented moment in the fire ecology of the Blue Ridge Mountains occurred in Autumn 2016 when severe drought, frequent anthropogenic ignitions, and seasonality in disturbed deciduous forests fueled widespread burning. As the wildfires burned, wildland firefighters from around the U.S. temporarily moved into the region to assist local land managers. As wildfire risks increased and air quality decreased, local residents became increasingly interested in fire ecology. The community shifted continuously as wildfires were extinguished, wildland firefighters returned home, and local residents disengaged. In conducting research during the conflagration, obtaining consent from community members varied depending on whether or not I had previously worked with and taken the “first steps” towards establishing ethical relationships with individual community members. In this presentation I discuss how best ethics practices fluctuate relative to shifts in the composition of human communities and the character of human-forest interactions.

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Seed Memory/Body Memory: The (Re)production of Karen More-Than-Human Culture Across Borders

Drawing on ethnographic research with Karen refugees in Syracuse N.Y. this paper considers garden planning from an embodied perspective. Eduardo Kohn in *How Forests Think* asks how forests think themselves in us. Complementarily, I consider how plants grow and move themselves in us and how this cross-species reproduction functions in displacement. I ask: how does Karen seed/body memory forget as well as remember, as Karen people and plants from Burma make themselves anew in resettlement? I investigate the plants gardeners seek out, noting those that cannot be obtained. I describe the sensuous experiences wrapped up in this searching and their cross-generational dimensions. Documenting the skills perpetuated (or not) by these practices, I examine the way motions call forth seeds/plants, and seeds/plants request or even require particular ways of being and knowing. Finally, I consider how these processes are relevant to understanding bio-cultural reproduction and relationships between humans and other beings.

Gardener, Erica

Narcotics, Empire, and the Marijuana Frontier

Marijuana legalization has been one and the same with redefining marijuana activity as respectable, and yet the respectability of some always relies on the lack of respectability of others. The “healing” activities of professional marijuana distributors and consumers are thus constructed against the “damaging” equivalent activities of persons of colour and the white working class. My project thus approaches marijuana legalization as a form of colonialist primitive accumulation, in which the local traditional knowledge of diverse marijuana workers is appropriated for the service of Empire just as the same workers watch their related livelihoods and the marijuana Commons itself disappear. Pro-legalization enthusiasts confuse consumer desire with a commitment to social justice when they suggest that neoliberal marijuana reform will translate into less violence and incarceration faced by Mexicans and black Americans. With attention to colonial history as well as current border politics, I proceed to illustrate a likely opposite scenario.

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Ethnoecology During Crisis: Adaptation of Seaweed Harvester's Knowledge and Practices

If like Nabhan et al. (2011) and Wyndham et al. (2011) we believe that ethnobiology is able to provide answers to global crisis over long periods of time, we also think it can be relevant at local scales to understand the impact of exceptional climatic hazards. During the 2013–2014 winter, several storms struck France, causing a crisis situation in the seaweed harvest in Brittany. How did the seaweed harvesters react

to this climatic hazard? We observed that many tools, harvesting techniques and harvesting timings adaptations based on very precise knowledge and representations have been implemented. This situation made it possible to better understand the harvesters' capacity of resilience. It also allowed to analyze the dynamics around the local knowledge, and in particular the hybridization between traditional and scientific knowledge that is currently influencing the management of the resource.

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Using Nutritional Ecology and Energetic Modeling to Reexamine the Role of Plants in Neanderthal Diet in Southwest France

Most subsistence and isotope studies suggest that European Neanderthals focused their diet on large herbivores. We currently know little about the plant component of Neanderthal diet. Direct evidence for Neanderthal plant use comes from studies of residues on stone tools, starch remains on dental calculus, and phytolith studies. Though hardy plant resources such as starchy underground storage organs would have been available in Neanderthal environments, few records of Neanderthal plant use survive.

We model the caloric and nutritional components of variable proportions of plant and animal foods in a hypothetical Neanderthal diet. We then determine the impact these diets might have had on the local ecology in terms of plant harvesting and rate of consumption. Finally, we compare the predictions derived from these models to a review of published literature on Neanderthal plant use, focusing on a case study of phytoliths from the site of Roc de Marsal (Southwest France).

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Historical Ecology of Laxgalts'ap – Remembering Indigenous Knowledge in a Gitga'at Cultural Keystone Place

Historical Ecology is ideally situated to blend the past with the present by integrating knowledge and worldviews from diverse academic and non-academic communities. Blending this approach with Indigenous knowledge plays an increasingly vital role in academic scholarship, Canadian law and policy, and the environmental awareness. We describe how our research team, composed of ecologists, archaeologists, ethnoecologists, and ethnographers, is documenting people's long-term knowledge of and interactions with Laxgalts'ap—a cultural keystone place of Gitga'at First Nation, in Northern British Columbia. Through interviews in Sm'algyax and English, archaeological survey and excavation, we document how Gitga'at identity is embedded in the landscape. The results of the project will eventually be presented in a multi-layered web site that represents the many dimensions Gitga'at's place-based identity. Through this project, we reflect on the process of strengthening rights, title, resource management, and language revitalization by incorporating Gitga'at knowledge and methodologies into historical ecological research.

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Zooarchaeology of the Native American Sturgeon Fishery in Coastal Oregon, 350 BC to AD 1150

Sturgeon remains are relatively rare in the archaeological record due to their largely cartilaginous skeleton. What remains are the scutes, bony scale-like plates found on the outside of the body, and some diagnostic cranial features. Consequently, questions remain about both the prehistoric dietary importance of sturgeon and the species that were being exploited in western North America. The Par Tee site on the Oregon Coast produced a massive faunal collection, allowing for the comprehensive analysis of usually under-represented faunal categories. Two sturgeon species on the Northwest coast, *Acipenser medirostris* and *Acipenser transmontanus* are both of conservation concern. Here we present the results of our analysis of sturgeon remains from the Par Tee site, including abundance and element data and ancient DNA species

identifications. These data provide the first species identifications for sturgeon from the Oregon Coast and enhance our understanding of the prehistoric fishery.

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Seeing REDD: The Political Ecology of Logging in Papua New Guinea

Papua New Guinea's rainforests contain 8% of terrestrial biodiversity, yet 25% of the country's forest cover was lost or degraded from 1972–2002. In Vanimo, West Sepik Province, trees provide everything from food and shelter to sacred medicines and political boundaries. But as Malaysian loggers build new oil palm plantations, a conflict grows between forest-dependent peoples and those seeking paychecks in a cash economy. In response to deforestation and associated climate change, the UN launched REDD in 2008 to incentivize forest conservation through carbon trading. While the initiative is gaining ground among resource owners, plant-based sorcery remains a powerful mechanism for political control in land disputes. And with forest disappearing at an unprecedented rate, plants used for magical protection are increasingly scarce. In my paper, I examine sorcery practices within the context of environmental politics, provide examples of sacred plants currently threatened by logging, and offer proposals for equitable REDD+ implementation.

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The 'Lost' Gardens: Heiltsuk Cultivation of Berry Resources on British Columbia's Central Coast

This research investigates traditional berry resource management practices in Heiltsuk territory on British Columbia's Central coast with the goals of identifying and studying this not yet recognized management system, and working collaboratively with the Heiltsuk to address their identified issues of food security/sovereignty and ethnoecological restoration.

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A Kingdom of Deities: Spiritual Landscapes, Protected Areas, and the Role of Conservation Mapping in Bhutan

As conservation scientists increasingly address human beliefs and values, greater attention is being given to spiritual landscapes and sacred sites. In the Himalayan Buddhist kingdom of Bhutan, the omnipresence of sacred sites and beliefs in local deity realms have led select conservation organizations to create programs that consider ways to align beliefs in sacred sites with goals of environmental conservation. Many prominent conservation projects in Bhutan include avian conservation priorities, particularly for species like the Black-necked crane and White-bellied Heron, at a time when institutional interest in spatial mapping tools (GIS) for monitoring species movement and home range are rapidly growing. In my research, I will explore how local conceptualizations of sacred/deity space relate to and interact with institutionally prioritized avian conservation space through the proxy of emerging spatial technologies and collaborative mapping techniques.

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Exploring the Children's Domain of Edible Plant Knowledge in a Maasai Village

Ethnobiological knowledge (EK) of plants and animals is acquired over an individual's lifetime according to environmental, behavioral, and cultural factors. Cultural factors such as dietary ideals and taboos dictate who can use resources like wild food plants in a society, and also can change from childhood to adulthood. These factors contribute to intra- and intergenerational variations in knowledge. This preliminary study explores the acquisition of edible wild plant EK among children in a Maasai village using interviews, free lists, and plant identification walks. The results suggest that there is a domain of wild plant foods that are specific to children. Future research should follow-up on free list data and include more systematic naturalistic observations to elucidate plant use and knowledge transmission. Applications for understanding child plant use in Maasai society include nutrition improvement initiatives and the preservation of traditional knowledge.

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Bineseewug: The Relationship of Thunderbeings and Thunderbirds to the Anishinaabek Great Lakes Native American People

In the Great Lakes Anishinaabek culture, the species boundaries between human beings, known as *Anishinaabek* (the man that was hence lowered down to earth from the skyworld), and *Bineseewug* (Ojibwe word for thunderbeings) are intertwined and culturally interrelated. This presentation will explore who the thunderbeings are, how they gave cultural fertilization to the humans that identify today as *Anishinaabek*, and what relationships exist and how they are maintained in today's multicultural, multi-religious North American ecosystem. Both field research and personal cultural experiential knowledge will inform this discussion. The gifts, medicines, and songs of the thunderbeings will be explored in an effort to help us understand these complex relationships across these species boundaries.

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Place Names as Moral Deeds to Traditional Homelands

Place names are cultural artifacts indicative of the cultural salience and occupational history of land-based communities. Indigenous place names are one key aspect of Traditional Environmental/Ecological Knowledge. I have recorded toponyms of the Sahaptin language (Columbia Plateau) since the 1980s by ethnographic, archival, linguistic and ecological research. I worked closely with the Tamástsiikt Cultural Institute (TCI) of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) to publish an atlas (*Čáw Pawá Láakni 'They Are Not Forgotten'*) of culturally significant Indigenous places of the traditional territory of three confederated tribes, Cayuse, Umatilla, and Walla Walla. We have documented over 500 named Indigenous places, mapped them on the tribal GIS system, analyzed the semantic force of the names, and indicated their cultural ecological and historical significance. These data are being used by the CTUIR to replace certain offensive "colonial names" with Indigenous names and to defend treaty boundaries.

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Secwepemc Loons as Symbols of Power and Transformation

A common diving bird on lakes throughout Interior British Columbia, loons (*Gavia immer*) occupy an interesting position among the Secwepemc. Like other Indigenous groups, the Secwepemc explain the origin of the loon's "necklace" as deriving from its characteristics. Beyond that, loons were known as one of the most powerful and cherished *seméc* or guardian spirits acquired by shamans (*tkwíc*) and other trainees for spirit power. In narratives of encounters with settlers, colonizers and British monarchy, loons play an important role as transcending colonial powers, vanquishing settler powers and speaking to the interactions of humans and birds in nature and spirit. We will address the role of loons in narratives recorded in the early 1900s by ethnographers, but also in previously little known Secwepemc narratives of colonial encounters which throw light on loons as natural species and as embodying powers of resistance.

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Elite Feasting and Monumental Dedication at Early Phrygian Gordion, Central Turkey

Within central Turkey, the site of Gordion has long been a major urban center, and was the capital of the Iron Age Phrygian kingdom. Recent excavations of a stratified pit in the elite core of the site revealed a large concentration of carbonized botanical remains and faunal material. Dating to the Early Phrygian period (800–700 BCE), these foods appear to have been consumed and discarded in a single event, followed immediately by the construction of buildings for elite use atop this trash deposit. Signaling a potential feasting deposit of ritual significance, eight diverse botanical samples are the focus of our analysis. As elite feasting has not yet been documented at Gordion, especially in coordination with monumental construction, multiple lines of evidence from this deposit provide an opportunity to explore how elite ritual dedications related to monuments were performed, in addition to providing insight into elite dining practices during public/ritual events.

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Theresa Dardar Pointe au Chien Indian Tribe

Revitalizing Traditional Plant Knowledge in Coastal Louisiana: Pointe au Chien Indian Tribe Medicinal Plant Garden Project

Pointe-au-Chien Indian Tribe is situated "at the end of the world" off the brackish waters of Louisiana's Gulf Coast. The coastal community has been heavily impacted by coastal erosion and land loss affecting their ability to remain in the place they have lived for generations. As the communities' very existence is threatened so are the many plants that were once relied upon for traditional medicine and food. The community is working to address this loss by building a medicinal plant 'garden', raised high off the ground to protect the plants from storm surge and encroaching salinity. Tribal members are working with elders to document and record traditional plant knowledge and pass it on to younger generations, utilizing the 'garden' as the center for sharing and keeping traditions and significant plant species.

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Exploring Hauyat: A Cultural Keystone Place of the Heiltsuk, British Columbia, Canada

There are some cultural landscapes that are inseparably intertwined with the history, identity, and well-being of particular groups today. These connections grow out of generations of people interacting with these landscapes in a myriad of ways. Hauyat, on the central coast of British Columbia, is one such place for the Heiltsuk First Nation. At Hauyat, studies of marine and terrestrial ecologies have been inspired and informed by documentary and oral histories of Heiltsuk connections to place. These connections are embedded in place names, songs, anthropological and archaeological records, oral traditions, and memories. To present these layers in a way that reflects their multi-dimensional connections, and to be accessible to the Heiltsuk and other communities, we have assembled the eco-cultural data in a web site and touch screen to be placed in the community. In our presentation, we will explore Hauyat together by presenting an overview of this web site.

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Documentation of Traditional Foods and Agrobiodiversity of the Rarámuri (Chihuahua, Mexico) by Means of Videos: Pinole and Esquiate Derived from Maize (*Zea mays*)

Due to alterations in the way of life of the Rarámuri and to the current school dynamics in the Sierra Tarahumara, large numbers of children live in boarding schools which serve industrialized meals based upon industrialized ingredients and only have contact with their families during weekends or vacation. This situation produces cultural changes in the food habits of children because the institutional meals contrast from their traditional diet that, upon returning home, they dislike and even spurn. As a consequence, the Rarámuri NGO, NATIKA, solicited us to document the preparation of some traditional foods so as to raise their social status in order to promote their consumption. Rarámuri foods are agrobiodiversity products of their milpas (multiple cropping systems). Because maize is the most important plant in their diet, the initial video focuses on ground popped-corn in the form of "pinole" and "esquiate".

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Eugene Eades Menang Noongar Elder

The Noongar of South Western Australia: A Case Study of Long-Term Biodiversity Conservation in Old, Fragile Landscapes

Home to an estimated 8000 native plant species, of which approximately half are endemic, south western Australia is recognized as one of 35 global biological hotspots. This complex and uniquely evolved flora is focused on highly weathered, nutrient poor soils within ancient landscapes that appear unusually resilient to fragmentation but highly vulnerable to disturbances. At least eleven other hotspots include ancient landscapes.

Noongar habitation of south western Australia dates to at least 48,000 years before present, representing one of the world's longest examples of sustained human ecological influence. Through collaborative, on-country research and review of historical records, we have examined contemporary and historic ethnographic, as well as archaeological evidence of Noongar cultural practice in the context of varying landscape age. Here we outline some key Noongar conservation strategies such as diverse biological resource use, habitat modification, seasonal calendars, place and resource restrictions, rights and responsibilities, and biodiversity teaching through storytelling.

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Plants, Land and Language—Gwich'in Elders' Perspectives on Traditional Living and Well-being

Our paper presents insights on the significance of plants, land and animals for well-being in the Mackenzie Delta region, Northwest Territories, Canada. We interviewed 12 Elders about relationships of land, language and traditional upbringing in healthy lives. Elders described use of plants as medicines, the gathering of berries as healthy foods, and learning about other traditional skills such as snaring rabbits or how to process a caribou. These stories were provided in the context of exploring how knowledge of language and growing up on the land contribute to life-long healthy life-styles. Tensions between the demands of jobs and the cash economy and the opportunities for pursuing a life on the land today were also described by the Elders as we explored how one might bring this knowledge forward for the youth.

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Savannahs of Living Fuel: The Coast Salish Management of Douglas-fir Bark Fuel

Coast Salish peoples of southern Vancouver Island valued Douglas-fir [*Pseudotsuga menziesii* (Mirb.) Franco; Pinaceae] as "Boss of all trees." Its bark was well-regarded as the hottest and longest-burning fuel available on the Northwest Coast. Savannah landscapes around traditional Coast Salish winter village sites are characterized by small groves of veteran Douglas-fir trees, many of which display evidence of intensive and sustained bark removal. Triangulating between an ethnoecological analysis of these modified trees, regional archaeological data, and traditional ecological knowledge suggests that bark methodically collected from living savannah-grown trees was a sustainably harvested resource for use in specialized cooking, heating, and funerary ritual. Furthermore, the specific need for Douglas-fir bark, and the risk of exhausting this fuel in those places where need was greatest, meant that Douglas-fir trees around village sites required special management to prevent bark fuel depletion.

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The Sansevierias Ethnobotany

This paper reviews the uses of Sansevieria plants in the various parts of the world where it grows in the wild. A few cases where its utility is mainly ornamental are also elucidated. The uses are world wide based on the thesis by the author which covered world wide vegetation of all Sansevierias then known—mid 1990s. The herbaria covered in the study included Kew, Missouri, Nairobi, Dar es Salaam. The uses notes on herbaria sheets are discussed and presented to those who may not know much about Sansevieria—the major uses being mainly ornamental, fiber and a plant that little else is known. Being succulent, this genus presents interesting plants many plant enthusiasts hardly engage in their green houses—yet here lies the secret, they are very hardy, few disease and little watering hence the cost of their husbandry is low.

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Barriers, Resources, Questions: Moving Forward as an Advocate-Academic

In the past several centuries the Wixáritari of western Mexico have defended their homeland, sacred desert, and pilgrimage route from mining, extraction of sacred plants by outsiders, and damming projects along major rivers. I present ongoing work done with the Wixáritari and the non-profit Herbal Anthropology Project to preemptively establish an Indigenous-run ethnobotanical herbarium to support land and intellectual property claims. I will also discuss general barriers I have faced to engaging in advocacy including: issues working abroad, reconciling roles and reputations of the "impartial" academic and the applied advocate, and navigating problematic colonial dynamics perpetuated as an applied researcher "helping" Indigenous peoples. Finally, I draw on insights from other applied social sciences, present a list of relevant resources for advocate-academics, and share questions provided by members of the Society of Ethnobiology about engaging in an ethical applied ethnobiology.

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Academic Societies, Ethnobiology and Ethics Codes

In 2016 two sessions on ethics, one at the conference of the Society of Ethnobiology and one at the conference of the Society for Economic Botany, resulted in the input by the audiences of what these societies could address in relation to ethics. This presentation will condense these comments, address some overarching themes and present some answers and potential means for these societies to continue giving guidance on ethics to its members. One of the biggest benefits of being a member of these societies is access to other member's experiences—how can these experiences be disseminated? Access to experiences on permit requirements, on development of agreements and creation of research partnerships can benefit members following a society's code of ethics. Information will be given related to the presenter's experiences with IRBs, agreement creation and contracts. The audience will be asked to log additional questions/comments during the presentation.

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Taking an Early First Step for Ethnobiological Fieldwork

Through my own research experience in Bolivia, Mexico and Guatemala I became convinced of the importance of engaging communities and obtaining their consent before I start any "proper" fieldwork, and I decided to incorporate a component of "engaging communities" in my own research proposals. Highlighting the collaborative nature of ethnobiological research, to obtain free, prior and informed consent from the communities is a vital component of any study, understanding that the consent agreements should be alive and follow the research in all its phases, from data collecting until the presentation of results. Codes of ethics in ethnobiology mark the importance of this step; also national (in some cases) and international treaties legally regulate this component of research. I use my own experiences of creating these agreements to invite ethnobiologists to a wide discussion regarding our ethics on approaching the communities we work with.

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A New Global Biodiversity and Ecosystems Services Assessment: What Do Ethnobiologists and Traditional Knowledge Holders Could Benefit from It?

IPBES (Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services) emphasizes the importance of strengthening dialogues and knowledge co-production between different knowledge systems. Ethnobiologists working together with indigenous peoples and local communities, and holders of traditional ecological knowledge were invited by the IPBES to work together in the assessments. This paper will introduce some of the key topics where ethnobiologists, TEK-holders and authors of the assessment would mutually benefit from knowledge co-production: What are the distinctive views of IPLCs regarding nature? What are the main changes and drivers affecting nature and nature's benefits to people in areas managed by IPLCs? How have institutions and policy tools involving IPLCs contributed to the conservation of nature? What have been the impacts of 'marine protected areas' on IPLCs? What are the evidences for the effectiveness of conservation management strategies involving IPLCs (biocultural approaches, co-management systems)? We invite all conference participants to join our discussions.

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Herders, Farmers, Conservationists and Ecologists Working Together for Better Grassland Management in Hungary

The mutual dependence of extensive land-use and conservation management has become apparent in Europe in the last decades. Extensive land-use and the connected traditional knowledge often survive in protected areas only, in the form of conservation management. However, there is a lack of understanding of the functioning of these traditional systems. We conducted participatory research to develop management practices in the Kiskunság and Hortobágy National Parks, Hungary. Using participatory techniques, we developed tradition-based conservation management practices and agricultural regulations that fit both the needs of conservationists, and the herders/farmers, and are region-specific and culturally appropriate. Twelve traditional herders, 7 mountain farmers and 14 conservation rangers participated in the research. Beside the usual reports and publications, films were produced, and one paper solely written by herders. Based on our common work, we introduce a new term, the 'conservation herder' - a traditional herder with an understanding of modern conservation concepts.

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Mountain Top to Ocean Floor: The Eco-Cultural History of Hauyat

The Mountain Top to Ocean Floor Project is a collaborative undertaking by the Heiltsuk First Nation, Simon Fraser University, and University of Victoria that seeks to document and explore the unique cultural and ecological history of Hauyat, a landscape in Heiltsuk traditional territory on the Central Coast of British Columbia. Over millennia, Hauyat has been transformed by a complex web of relationships between people, plants, animals and ecosystems. The rich and deep history of this place is known through Heiltsuk oral history and is also reflected in the number and diversity of archaeological sites and eco-cultural features. Ranging from the lower intertidal to the subalpine, the landscape has been modified to include clam gardens, fish traps, root gardens, berry patches, orchards, settlements, rock art, and defensive sites. These features are suggestive of long-term resource management systems that likely worked together to provide food, materials, and medicines for past communities.

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Bringing Joy Back to the Table: Food Traditions' Dynamics in Two Different Regions of Chiapas, Mexico

Small-scale agriculture in this border Mexican state is in constant transformation due to changes in land tenure and use patterns, market dynamics, and the consequent cultural transitions. This research explores the transition and processes of two groups of women who commercialize corn at the time they reflect on the need for food sovereignty in two regions of Chiapas. By looking at knowledge transmission, the dynamics in their diets and preparations in relation to the production of local market goods, I look at the roles and adaptations of women and culinary traditions in transforming food systems. This work also illustrates the potential of native seeds and culinary traditions that are important for the sustenance of the household and recovering/maintaining food sovereignty. Results of this research are analyzed through the light of the potential of food traditions for food sovereignty and bio-cultural heritage conservation.

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Indigenous Food Sovereignty Requires Diversity and Radical Natural Resource Management

Many indigenous communities are returning to traditional foods and practices, referred to as Food Sovereignty, to support values and practices that encourage human and environmental sustainability. Traditional Haudenosaunee foodways provide a model to implement food sovereignty in contemporary indigenous communities. The Haudenosaunee relied on many plant and animal species, harvested at multiple times and places in the landscape. Their food plants included wild and cultivated species, trees, shrubs, grasses, and herbs, and included annual and perennial plants. This diversity of plants stabilized the ecosystem, while also supporting peoples' health. The food system was also grounded in a radically different relationship between people and their natural environment. Haudenosaunee view all parts of the natural world as kin, members of an extended family. Compared to western agriculture, this worldview led to profoundly different agricultural practices, particularly in annual crop production. This paper explores these issues and their relationships to Food Sovereignty.

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Agricultural Communities and the Rise of Cahokia: Evidence from Seeds

Humans are the ultimate ecosystem engineers, and in transforming ecosystems we also change the selective environment for the plants and animals that live among us. The bodies and behaviors of domesticated plants and animals are thus rich artifacts of traditional ecological knowledge and practice. I study the morphology and behavior of domesticated plants as a proxy for ancient agricultural communities of practice. Evidence from the analysis of archaeobotanical assemblages at sites in the American Bottom and Lower Mississippi River indicate the formation of distinct agricultural communities of practice prior to and during the coalescence of eastern North America's first and only pre-Columbian urban center, c. 1050 CE.

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Herbal Medicine for *Naja nigricollis* Bites in Western Niger: Symptomatic Treatments and Possible Antidotes

The contribution discusses the use of five plants relevant in "traditional" treatments of envenomation by *Naja nigricollis* Reinhardt Elapidae bites among Zarma and Tuareg in Western Niger. First, it comments on envenomation symptoms with reference to local representations of illness and to scientific reports. Then herbal treatments with their phytochemical constituents are described and the possible activity of the latter is commented. Finally, particular interest will be paid to the question if constituents of medical plants, besides their activities on envenomation symptoms, may also have antidotal properties.

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Distillation of *Myrcianthes fragrans*: An Undergraduate Research Project

Myrcianthes fragrans (Simpson's stopper, Twinberry), a small tree or large shrub, grows in many tropical areas in the Caribbean and along the southern coast of Florida. This species is indigenous but rare on the island of St. Thomas, United States Virgin Islands. As part of an undergraduate research project we collected *M. fragrans* leaves on 21 November 2016. Then using a wet distillation process, we extracted hydrosol and essential oil from these leaves on 22 November. The Essential Oil University, New Albany, Indiana, will analyze these natural products. After analysis we will 1) identify the concentration and composition of essential oil in our samples and 2) compare our results with previous work to extract natural products from *M. fragrans* growing in Costa Rica and Cuba.

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Tasting Love and Legacy

Culinary heritage revitalization and local food movements re-embed food into the socio-cultural fabric that gives it meaning and value while conservation in international gene banks and the Global Seed Vault guarantees more systematic, long-term storage but progressively dis-embeds germplasm from its various contexts. Small fields and rustic kitchens where seeds and knowledge are tastefully transmitted through commensality and storytelling are hardly recognized for their service to biodiversity conservation. Yet, along with memorialization in festivals and other social movements, these warm milieus nurture diverse seeds and foodways. How are boundaries and designations of milieus and sites shifting in modernity? What makes for sensuous conservation? How much work is involved in memorywork? I examine the life histories of Luisa Huaman, a potato farmer in Cusco, Peru and Isabel Alvarez, a rural sociologist who has researched traditional food and founded a popular restaurant that serves these dishes in Lima, Peru for clues.

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Madeline Gines	Southern Utah University
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Knowledge, Attitudes, and Behaviors of Food and Nutrition for Elementary Aged Children in Iron County, Utah

Hunger in the United States is an issue that is increasing despite the abundance of the world we live in. We are concerned that poor nutrition and food habits can have on physical and cognitive development and future food habits. We wanted to understand how these habits might be impacting our local community and attempt to identify resources that might be able to fill the knowledge and practices gap. We asked 137 local elementary school parents about their knowledge, attitudes, and behaviors related to food and nutrition. It is our belief that the results of this survey are critical for identifying issues where knowledge can be increased and practices can be improved. Our results provided a fundamental understanding of the community's knowledge, attitudes, and practices of nutrition and allow for customized research-based solutions to local problems of hunger and nutrition. Possibly through farm to school lunch programs and teaching gardens.

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Forgotten fires? A People's History of Fire in Labrador

Forestry literature describes past and present fires in Labrador forests as part of a natural and cyclical disturbance regime, with lightning the primary ignition source. However, historical writings show that earlier observers attributed a much larger role to humans in the fire history of the region. According to historical accounts, Indigenous peoples and visitors deliberately used fire to (variously) create berry habitat, alter caribou routes, create dry firewood, clear land, improve soil fertility, and signal one another. Labradorians today use localised fires in springtime to encourage new grass growth, and build small fires throughout the year at "boil-ups" on the land. Wood stoves are a primary heat source for many residents, and smoke from burning sod preserves fish. It is important to consider these many relationships with fire—historical and contemporary, direct and indirect, widespread and localised—and their cumulative effects to better understand how cultural practices shape northern landscapes.

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Post-Fire Monitoring on the Hualapai Reservation, Peach Springs, Arizona

Fire as a land management tool has been employed by indigenous communities to maintain and extend native grasslands as well as prevent fire-intolerant trees and shrubs from taking over. The Black Canyon fire occurred in June 2012 on the west side of the Hualapai Indian reservation, burning approximately 18,300 acres. The fire burned communities of cactus, oak, pinion pines, juniper, and native grasslands in rangeland habitat. The Hualapai Department of Natural Resources has been conducting post-fire monitoring since the fire occurred. This post-fire monitoring project provides the opportunity to assess how natural landscapes respond to naturally occurring fires. Today, fire can help tribal communities dependent on ranching by improving the grazing land and forage for cattle. The baseline data gathered will be used and incorporated in future grazing management plans and will help the Hualapai tribe further exert their autonomy and stewardship over their tribal land base.

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Gender Inequality in Swedish Legislation of Sámi Reindeer Herding

The focus of the presentation is understanding how the role and the status of Sámi women in the kinship system and in the reindeer herding were transformed over time in Norway and Sweden. What is the reason for men being considered the reindeer herders and not the women? Has it always been like that, i.e., that the men play a more important role in reindeer herding and so has a higher status in the Sámi society? In this research it is argued that this has not always been the case instead reindeer herding has become a dominant male occupation the implementation of the nation-states' reindeer herding legislation. The gender roles in the Sámi communities are changing and new strategies for surviving and maintaining a Sámi identity are being formed. Many women in the reindeer herding Sámi communities are today working as wage-laborers and professionals, bringing in money to the family.

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Might a Flight of Swallows a Covey of Concerned Characters Beget?

The Western practice of grouping and classification extends beyond the natural world to the very identities and practices of the people who engage daily in acts of investigation, preservation, and even simple appreciation. Different institutions and pursuits create human dichotomies – practice or theory, conservation or scholarship, local or outsider. Within this professional and personal typology, cross-disciplinary, cross-institutional, and cross-cultural collaboration can prove challenging. Yet the power and necessity of such collaboration with regards to the human role in safeguarding our planet in all its spectacular diversity is well recognized. Taking up the familiar theme of biocultural conservation, and the parallels between biodiversity and linguistic diversity, this presentation briefly explores the triumphs and pitfalls of previous cross-expertise collaborations before turning to the birds to suggest a future model of biologically and culturally defined interrelationships that has the potential to further contribute to best practices in biocultural resilience and environmental protection

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Ethnoecology for Peace: Karen Environmental Relations and the Salween Peace Park in Karen State, Burma

The Salween Peace Park is a grassroots initiative to promote peace and biocultural conservation in an area emerging from decades of armed conflict between successive Burmese military governments and the Karen movement for self-determination. My Masters research, in collaboration with the Karen Environmental and Social Action Network, is a case study of Indigenous environmental relations in a Karen community within the Salween Peace Park. My research explores the rich ceremonial and spiritual traditions of this animist community, and how these traditions promote a praxis of Indigenous conservation. I further investigate the ways in which these beliefs and practices are being taken up and reworked to create the Salween Peace Park, a 5,205-square kilometre Indigenous Community Conserved Area (ICCA) encompassing dozens of customary community territories, community forests, and wildlife sanctuaries, all dedicated to conserving biological and cultural diversity while promoting peace and national reconciliation in Burma.

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Plant Ethnomedicinal Knowledge Changes Following Ethnic Migration

Plant ethnomedicinal knowledge (PEK) is abundant among ethnic minorities who migrated to Thailand centuries ago. However, the flora in Thailand is different from where they migrated from. We asked whether their current PEK is conserved knowledge developed in their original habitat or whether it is new knowledge developed after settling in Thailand. Data on PEK from all accessible sources from 1990 to 2014 were collected. All studied villages were clustered based on their PEK. Similarity of PEK in villages of each tribe was evaluated using Informant Consensus Factors (ICFs), which ranges from 0–1, where the higher of ICF values, the more similar of PEK. The results showed that the clustering diagram showed different patterns depending on their migration history and ICF analysis showed low similarity of PEK in any given tribe. This suggests that much PEK possessed by the ethnic minorities has developed after they settled in Thailand.

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Naapi And Niche Construction: Traditional Stories Discuss How Organisms Direct the Shaping of Their Environments

Western science acknowledges *niche construction*, where life forms create niches across a range of scales. Multigenerational changes affect selective environments of offspring and other species. Niitsitapii (Blackfoot) peoples of the northern plains embody their creator figure, *Naapi*, through movement or changes in the environment, involving all species. *Naapi* stories are rooted in movement; in points of transformation between types of matter or locations. Ontological connections link actions of plant and animal species through growth patterns, structures, seasons, and interactions. Animal species' activities are noted and related to the constant exchanges between earth and sky, also impacts on plant species and on one another. *Naapi* stories involve immediate, abiotic reality with ecological relational levels. Both niche construction and *Naapi* stories involve apparent directional activity within unpredictably varying environments. This resolves a major evolutionary question, i.e. evidence of purpose and directed outcomes within a system resulting from apparently random events.

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Barrens in Nova Scotia: Biodiversity, Long-term Dynamics, Plants and People

Barrens are ecologically and culturally important ecosystems that provide habitat for a diversity of species. Within the maritime provinces of Canada, barrens are concentrated in Nova Scotia and span a variable geography of environmental and cultural contexts. Our current model of barrens vegetation suggests that some barrens are persistent over long time scales, primarily maintained by climatic and environmental processes. There is strong evidence that other barrens are dynamic; their area expands or contracts over decadal time scales. We are just beginning to learn about the likely cultural role in explaining the persistence

and dynamics of barrens. For some sites, written and oral histories document intense interactions between people and barrens such as fire or sheep grazing. Given the cultural importance of many sites and evidence for human interaction with vegetation dynamics, much more research is required to understand the role of people in creating the current mosaic of barrens.

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Ethnobiology and Human Adaptation to Biodiversity Change: Concepts and Methods Applied to a Study of Herder Responses to *Lantana camara* L.

Across the planet, species are being lost or changing their ranges rapidly, leading to possibly major changes in human-ecosystem processes. Climate change is one of several interacting drivers of change. People must adapt to such change, and the ways they adapt will affect ecosystems and biodiversity, and human well-being. This presentation examines the importance of knowledge in responses to change, through a study of Indian cattle herders responses to *Lantana camara*, which now dominates their forest understory. Important knowledge includes the characteristics of the biodiversity that is changing, how it's changing and why, and how these changes affect other types of biodiversity and ecosystem processes at various scales. Our work in India demonstrates that knowledge change can be both cause and consequence of biodiversity change. This co-evolving and modular character of knowledge systems makes human adaptation to changes in biodiversity a more complex issue than one might first imagine.

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Ethnobiology of East African Animal Medication and Antibiotic Resistance among Maasai, Arusha and Chagga People and their Animals

Ethnobiology compliments biomedical, veterinary, and ecological perspectives on human-animal interactions relevant for environmental health. Here we outline ethnobiological contributions to interdisciplinary "one health" research focusing on antibiotic use in livestock and antibiotic resistance in humans and animals in Northern Tanzania. We examined local ethnoveterinary and veterinary practices, livestock management practices, and human-animal interaction among Arusha, Chaga, and Maasai ethnic groups (415 households). Reported use of self-administered antimicrobials varied by ethnic group as did consultation with professional veterinarians and withdrawal of meat and milk from consumption during and following antibiotic treatment. Differential environmental and cultural niche factors, associated with antibiotic use in these smallholder populations. Preliminary results indicated that people and dogs showed substantially higher prevalence of antibiotic resistant *E. coli* among Maasai compared with Arusha or Chaga. Milk handling appears to play an important role in dissemination of resistant bacteria from livestock to people and dogs.

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Representation of Traditional Medicine Between Community Members and Healthcare Providers In Quebec's First Nations Communities.

Type 2 diabetes in Canada's indigenous communities is 3 to 5 times higher than the national average. Regardless of efforts to increase access to healthcare services, diabetes continues to disrupt health and quality of life. Because healthcare services are largely perceived as an occidental import, increased access to traditional medicine may increase treatment outcomes. Objectives were to define and highlight community representation of health and traditional medicine in contrast to local healthcare providers. Semi-structured interviews were conducted in two Québec First Nation communities. These were held with community members (knowledge keepers and healthcare service users) and healthcare providers (professionals and administrators). For community members, traditional medicine was identity-defining thus comprising language, culture and the land (i.e. plants, animals, water), whereas healthcare providers focused more on tangible aspects (i.e. medicinal plants, animals). Services could be culturally adapted, namely, through strengthening knowledge transfer in community networks and increasing land-based healing.

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The Indigenous Confluence Project

For researchers working in Indigenous territories, being effective allies requires strong, authentic relationships with Indigenous nations and their citizens. But what exactly is the connection between these relationships and "the work", and how do we build authentic relationships if they do not already exist? We recently engaged in collaborative research with representatives from Anishnaabe and Māori nations to explore Indigenous forms of river care and protection. My presentation focuses on our research process and how relationship building was largely how we "did research". We conducted an "Indigenous knowledge exchange", involving visits to the communities and their rivers. We actively participated in local cultural protocols and practices, creating opportunities for cross-cultural dialogue and learning. Our process was informed by the exchanges described by Gearheard et al. 2006 and the "dialogic networks" described by Davidson-Hunt and O'Flaherty (2007). Immersive field experiences and open-minded team members were key elements of this successful exchange.

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An Ethnobotanical Study of Native Plants in the Virgin Islands

We designed a research project to determine the extent of ethnobotanical knowledge of individuals living on St. Thomas in the U.S. Virgin Islands. First we collected, dried and preserved plant species, growing in the Cooperative Extension Orchard, University of the Virgin Islands. Species chosen are indigenous to St. Thomas and included *Moringa oleifera*, *Manihot esculenta* (cassava), *Averrhoa carambola*, *Myrciaria floribunda* and *Manilkara zapota*. Next, we created questionnaires informed by relevant literature from similar studies used to test the ethnobotanical knowledge of local residents at other locations. Following this we interviewed nineteen people ranging in age from 18 to 60+. One important finding was that there seems to be a positive correlation between age and ethnobotanical knowledge with older residents knowing more facts about plant species than those who are younger. From the data, we conclude that the people of St. Thomas may be experiencing cultural erosion of ethnobotanical knowledge.

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Ethnobotanical Pedagogy for Undergraduates: An example from the University of the Virgin Islands

In fall semesters of 2015 and 2016, we designed a course to acquaint students with the blend of botanical and socio-cultural perspectives integral to Ethnobotanical Investigation. Each year we focused on the theory, history and method that sets Ethnobotany apart as a science and then guided students in an Ethnobotanical Practicum with the objective of introducing a real world example of ethnobotanical research. In both years the quality of student research was exemplary and there are plans afoot to publish methods, findings and implication.

To determine the success of our approach we developed assessment tools such as pre-semester and post-semester exams focused on the same set of questions, analysis of responses to essay questions crafted to measure a student's understanding of ethnobotanical rigor, and evaluation of oral presentation by a student and teams of students. Herein we explain our approach and results of our assessment metrics in more detail.

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Narragansett Food Sovereignty Initiative and Climate Change

Climate change on the northeast coast is prominent with rising seas, breaking high temperature records, droughts and floods, all resulting in a rapidly changing environment. The Narragansett (Algonquin) are struggling to revitalize their historically decimated culture while the environment upon which their culture is based is changing rapidly. Their Indigenous Knowledge (IK) is being applied within the Narragansett Food Sovereignty Initiative—including strategies for adaptation to and mitigation of climate change. Food

Sovereignty, as opposed to sustainability or security, is a bottom up (local) process that defines goals and power relations before methods and outcomes are identified. Through the UN Climate Change COP-22 we *advocate* environmental and social justice for indigenous peoples, in general, and the Narragansett, in particular. International and national agreements are *ethical* only as they recognize indigenous rights and are just only as they are *applied* equitably to include indigenous peoples and their traditional ecological knowledge.

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Social Aspects of the Maintenance of Banana Landrace Diversity in Central Uganda

The Baganda people of Central Uganda have embraced the diversity of banana landraces while developing a unique livelihood system based on banana cultivation. To elucidate the mechanism of how this diversity is maintained, it is essential to consider the social aspects of this population. This paper describes the processes involved in receiving, keeping and exchanging the banana landraces. In this area, farmers continue treating the banana plants individually at the same places, and they clearly remember when and how they received each landrace. The land tenure system has ensured them to repeatedly cultivate the same landraces of bananas at the same places, as well as to preserve the sentiments and memories attached with these landraces. The interviews revealed that the landraces have accumulated over decades in the homegardens of each household. In other words, the increase in the number of landraces parallel to the household formation results in the diversity.

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How Condors Led Me to Mining and Water Issues: Walking in Solidarity with Latin American Communities

My research has always depended on the trust and generosity of people in Latin America, and the many teachings they have imparted include appreciating interrelationships, reciprocity, responsibility toward others, and the power of each person's contribution. Given these values as a model for action, how can I live with people and witness their suffering without responding somehow? In various places I have borne witness, documented issues, and stood with Indigenous peoples in their struggles. This has included working with School of the Americas Watch, joining the Caravan for Peace with Justice and Dignity, and promoting recycling programs. Often I am surprised by where this path takes me, as when learning about Andean condors revealed threats to sacred lands and water from mining. Such interconnections abound, even when unnoticed at first glance. Yet as ethnobiologists we are called to be aware of more than meets the eye.

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Vulture and Condor Bringing Seeds: Relationships Embodied Through Oral Traditions in Costa Rica and the Andean Altiplano

Biologists have long recognized the importance of birds for pollination and distributing seeds, but the connections between birds and plants are broader and deeper than what scientists have observed. For indigenous peoples of Latin America birds not only contribute to plant growth through pollination and seed dispersal but also assist through underlying spiritual relationships. Examples from Costa Rica and the Andes illustrate how birds such as vultures and condors that outsiders do not associate with plants are perceived as carrying seeds, protecting tubers, and enabling plants to grow. For these societies, the key cultural boundaries that define the world into separate categories are not simply animal, plant and stone. Rather, the meaningful categories express spiritual relationships that go beyond physical form to incorporate ritual alignments and kinship ties based on reciprocal rights and obligations. Vulture, Condor and even Fox participate in activities that benefit plants, people, and other beings.

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Community of Bella Bella, Heiltsuk

Observations of Climate Change in the Heiltsuk Territory (British Columbia, Canada)

Heiltsuk First Nation have relied on and sustainably managed the marine and coastal ecosystems in their territories for millennia. Today, many factors are threatening the social-ecological health of the Heiltsuk. We conducted semi-structured interviews (~30) with traditional knowledge holders to assess potential impacts of climate change in the Heiltsuk territory. Heiltsuk people are observing several changes. The most common observation is increased temperature and the consequent reduction of snowfall over the winter. Moreover, warmer temperatures are affecting animals and their hibernating or migrating patterns (e.g., bears, humpback whales). Informants are observing also changes in the environment that they are not relating to changes in climate, such as the decline in fish stocks due to overfishing, regulations, and allocations that do not take into consideration local knowledge of traditional fishers. These observations can contribute to increasing our understanding of how climate change and other factors are affecting the Heiltsuk territory.

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Indigenous Knowledge and the Search for Plant Medicine: A Teaching Case Study Involving Prior Informed Consent with the Maya ICBG

In the 1990s, the Maya ICBG (International Cooperative Biodiversity Group) was one of the major bioprospecting projects in Chiapas, Mexico and was designed to incorporate traditional knowledge into pharmaceutical research. The researchers had hopes of benefiting indigenous communities economically and technologically while conserving plants and traditional knowledge. Unfortunately, the project experienced local and international opposition who accused the project of exploiting indigenous people and privatizing their knowledge. The opposition claimed that commercially using medicinal plants conflicts with collective traditions and religions of the Maya. We present a teaching module in the form of an interrupted case study in which participants learn about the ethnobotanical study that shifted from one of promise to one of controversy. This case study is appropriate for undergraduates in various majors pertaining to ethnobiology and aims to teach about the complexities associated with bioprospecting and the reasons for an ethnobotanical project's success or failure.

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Ancient Mariculture in British Columbia: Documenting the Past for the Future, Part 2.

At the 2013 SoE Conference, Dana Lepofsky discussed how traditional mariculture practices in British Columbia are linked to issues of food security, health, economic development, governance, and community engagement in heritage. She presented emerging results on behalf of researchers in the Clam Garden Network, a collaborative team of First Nations knowledge holders, archaeologists, ecologists, geologists, and resource managers focused on clam gardens, one form of traditional marine resource management on North America's Northwest Coast. Four years later, this expanding group of researchers has learned 1) how to age this ancient form of mariculture; 2) that clam gardening is a future-focused management technique;

3) the role of substrate in clam productivity; 4) that clam gardens can be more productive than non-walled beaches; and 5) that diverse communities are deeply interested in the learning, collaborative opportunities, and moves towards reconciliation that emerge from restoring and celebrating this example of indigenous ingenuity.

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"What Our Ancestors Planted, It's Good to Bring Here": Retracing the Shared Travels of Rhubarb and Inuit in Labrador

Rhubarb/*Sennâluk* (Labrador Inuttitut)/*Rheum* sp. is a prominent plant in Labrador. It grows in gardens, and persists at former settlement sites through self-seeding. Native to Asia, rhubarb was likely introduced by Moravian missionaries in the late 18th century at Labrador mission stations as a medicinal plant, and has since become a valuable local food plant that has been widely shared and transplanted along the Labrador coast. Combining oral family stories and microsatellite markers, we have started to look at how the "genealogy" of Labrador rhubarb is tied to relationships, travels and sharing among families in northern and central Labrador. Our preliminary results show several rhubarb genetic clusters. One cluster corresponds to recently introduced commercial stock. However, the distribution of alleles in the other clusters is consistent with oral histories documenting the exchange of plants through extensive family networks that may trace back to the original Moravian introductions.

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Towards An Ethnobiological Theory of Biodiversity and Sociolinguistic Diversity

It is now generally accepted that, in most instances, areas of high biodiversity are also areas of high sociolinguistic diversity (and vice-versa). What is less well understood is why these patterns occur. Researchers have promoted various (mostly reductionist) theories but a convincing holistic explanation has yet to emerge. This paper explores ways that the field of ethnobiology can contribute. Research is presented based on fieldwork in Latin America and Southeast Asia as well as a global database we have been developing over the last several years. Several reasons (ranging from the well-grounded to the merely speculative) are presented that explain the occurrence of biocultural diversity.

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Gastrointestinal Health as a Stimulus for Native American Attraction to Medicinal Asteraceae and Further Implications for Human Evolution

The Asteraceae is globally the largest family of flowering plants, and its economic and medical value is apparent cross-culturally. This study examines why genera of the Aster family have remained integral in human medicinal plant knowledge, and thereby reveals potential physiological mechanisms underlining patterns of Asteraceae use. Native American plant use frequencies and their corresponding applications for symptoms relating to human organ systems are examined. Analyses reveal that gastrointestinal ailments comprise more medical uses for the Asteraceae than any other organ system targeted by taxa within the family. It is posited here that the Asteraceae's biochemical effects on the gastrointestinal tract continues to sustain human attraction to medicinal genera within the family. Data also suggest potential evolutionary advantages for human populations able to exploit the Asteraceae for medicine. While this study is limited to Native North America, the conclusions inform anthropological understandings of human-plant selection and co-evolution with the Asteraceae.

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Phyto-Pharmacopoeias in Motion: An Ethnobotanical Approach to Geographical and Cultural Circulations on the French Guiana Coastal Region.

French Guiana is a French overseas territory located in South America, between Surinam and Northern Brazil. There, Amerindian peoples, Maroon and Creole populations, as well as recently immigrated communities, meet. Cultural interactions are then complex and continuous. Both plants and their knowledge travel between the different communities, contributing to the renewing and continuous re-hybridization of present day phytotherapie. Based on almost 200 interviews conducted on Guiana coastal area, and thanks to multivariate analyses, we draw an exploratory description of ethnobotanical flows. Our talk considers interchanged medicinal plants, involved stakeholders and knowledge circulation patterns, especially on border zones with Brazil and Surinam. Our ethnobotanical approach then appears quite relevant for understanding the role of knowledge and plant circulation in hybridization of Guiana pharmacopoeias and spreading of health practices.

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The Practice of Frigg: Sociocultural Changes Affect Traditional Treatments in Southern Morocco

Traditional medicine practices are embedded in dynamic sociocultural systems, and are therefore context dependent. In Morocco, especially in rural areas such as the High Atlas Mountains, specialist healers called *ferragat* are a key health resource to treat infants for ailments believed to be caused by supernatural forces: *taqait*, *taumist* and *iqdi* present symptoms similar to those of ear infections, tonsillitis and gastroenteritis. Their treatment, known as *frigg*, involves ritual and the use of medicinal plants. Our research shows that the emphasis on using plants may be a recent phenomenon in the practice of *frigg*. In the past, coloured wool and blood were used, but these have been substituted as local religious values aligned with orthodox Islam and the State organized biomedical system has come to dominate healthcare options. We illustrate a change in the objects of cultural meaning as a strategy to adapt to new sociocultural realities.

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Q'eqchi' Maya Home Gardens

The Q'eqchi' Maya in a tropical village in Alta Verapaz, Guatemala, grow and manage home gardens alongside field-based horticultural subsistence activities. Home gardens are not named as such by the Q'eqchi' Maya, but still serve functions such as provisioning of food, medicine, construction materials, ornament, and ecosystem services, among others. Based on semi-structured "plant walk" interviews with villagers ages 19–70, names and uses of home garden plants are analyzed across sex, age, and acculturation level to understand factors at play in local ethnobotanical knowledge and practice. Preliminary findings suggest relative equality of men and women's knowledge which is consistent with other studies of Q'eqchi' Maya home gardens in Alta Verapaz but contrasts with those of other Mayan groups. Many informants report theoretical knowledge but no practical experience using one or more plants for the identified purpose, possibly representing a decrease in plant use due to acculturation or other factors.

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The Stories of the Past: Creating a Relationship with the Paiute Indian Tribe of Utah and Cedar Breaks National Monument to Help Preserve Cultural History

The Stories of the Past project: Hosted by Cedar Breaks National Monument with the help of Southern Utah University Intergovernmental Internship Cooperative agency. The project was design to help create a relationship with the Paiute Indian Tribe of Utah and Cedar Breaks National Monument. To help preserve the Paiute culture and history with the help of involving the Paiute Elders and tribal members. By inviting them to the monument to share their stories, history, and traditions. This project was a great success as well as informing and educating the public about the Paiute Tribe.

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The Ecological and Cultural Effects of Clam Gardens on Northern Quadra Island, British Columbia

Clam gardens along the Northwest Coast of North America are the physical remains of traditional mariculture practices. On northern Quadra Island, British Columbia, the dense concentration of clam gardens and associated large shell middens reflect the cultural importance of clam harvesting. Spatial analysis of clam gardens demonstrates this importance, as clam gardens represent 15.5 hectares (ha) of clam habitat surface area, and building the gardens increased the surface area of clam habitat by up to 8.3 ha (54%). Microscopic analysis of butter clam (*S. gigantea*) shells over a 11,500-year period provides a long-term history of clam growth. These data suggest that with the exception of the late Pleistocene, there is little difference in clam growth throughout this time. Thus, increasing clam habitat, rather than the effects of tilling, controlled harvesting, or changing substrate, is the single largest benefit to overall clam production.

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Traditional Ecological Knowledge of Wild Animals: An Underestimated Opportunity for Knowledge Co-Production for Biodiversity Assessments and Conservation

Often zoologists cannot find the means of effective cooperation with traditional knowledge. They do not know which species they could expect to get relevant local knowledge about or which are suitable for knowledge co-production. To help bridge this gap, we examined 1) how accurately the 20 interviewed zoologists predicted the richness of local knowledge and 2) we developed a linear model, which estimated the proportion of local people who will know the species. We compared these data with our own data on local knowledge of about 410 wild animal species in Central European regions. The zoologists' and the model's estimates of knowledge have been ca. 60%, and 70 % correct, respectively. Tendencies show that zoologists' accuracy has been decreased by undervaluation of local folklore and local usefulness and overvaluation of morphology. The model has also put too much emphasis on morphology, but it overemphasized size and abundance as well.

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Avian Metamorphosis: Birds, Humans and Deities in Mesoamerican Mythology

This work is based on oral material gathered during fieldwork in Oaxaca and Chiapas in southern Mexico and compares this with the ethnographic literature on Mesoamerica, in which diverse groups share sacred

stories about the metamorphosis of birds. We found there are at least three types of transmutations: 1) the Tzeltal believe that vultures can transform into humans and vice versa; 2) the Nahua of the 16th Century thought that warriors who died in combat were transformed into hummingbirds and the behavior of the war god, Huitzilopochtli, was based on the ethology of these small birds; 3) another group of stories (Zapotec, Mixes and Huave) shows how one species can transform into another and thus explains the appearance or conduct of animals. The mythic transformation, like the biological, affects the form, function and way of life of birds, humans and gods.

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Lisa-Marie Shillito University of Edinburgh
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Phytolith Analysis of Cumbria's Prehistoric Populations

This work addresses prehistoric activity and fuel use at the multi-period occupancy site of Williamson's Moss, Cumbria, England, through phytolith analysis. Microbotanical investigations contribute to the larger Eskmeals Project, a multidisciplinary endeavor exploring Mesolithic, Neolithic and Bronze Age populations around the River Esk Estuary. These findings offer comparative and collaborative information to previous pollen analysis regarding activity use and paleoenvironment at Williamson's Moss. Large quantities of microcharcoal, diatoms, and sponge spicules indicate periods of burning and flooding at the site. Samples derive from a Mesolithic trackway and Bronze Age hearth, offering the potential to examine spatial activity areas, plant utilization regarding fuel use and, due to samples' contextual origins, effectiveness of phytolith analysis from archived bulk samples. Analysis of phytoliths from British soil is uncommon and one that contributes not only to the field of phytolithology but to a deeper understanding of Williamson's Moss.

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Teaching Food History Against the Grain

Teaching history through ethnobiological and food lenses permits a fresh examination of stories we think we know, and can open new avenues of inquiry altogether. When constructing the African past, however, much historical documentation is shaped and narrowed by Eurocentric bias, including gendered expectations, racialized power structures, and grain-centric agricultural ideals. Moreover, popular conceptions of African food and farming are influenced by narrative tropes of famine, political insecurity, and exoticism perpetuated by mainstream media. How do we approach African agricultural practices, foodways, and food security against these shortcomings? Taking cues from recent headlines and research findings, I discuss ways to present students with alternate understandings of food history, and even food itself, rooted in logics local to several communities in Africa.

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Paul Scofield Canterbury Museum, New Zealand
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Indigenous Methods of Naming Avifauna and its Relevance in Biodiversity Reporting, Monitoring and Mapping

Our names narrate our lives both lived and living and naming is a strong, entrenched branch of Mātauranga Māori (Māori knowledge). Naming in Māori society is a relationship formulated on establishing and reinforcing connections, identity, and place through genealogy, between the person or group doing the naming and the thing being named. Over the past 8 years we have been investigating naming protocols and Māori classificatory systems for flora and fauna. In this paper, we discuss processes associated with Māori naming systems, the relationship between indigenous based systems and the naming of avifauna in Aotearoa/New Zealand and the development of a protocol for the naming of birds in Aotearoa/New Zealand. We highlight the importance of increasing awareness of the cultural values behind species' names, and its value, relevance and significance in biodiversity reporting, monitoring and mapping.

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Crop Wild Relative Conservation In Situ: The Ethics and Benefits of Local Indigenous Knowledge

The in situ conservation of genetically diverse crop wild relatives (CWR) is vital to the development of new crop varieties capable of satisfying the demands of Earth's growing populations and changing agricultural conditions. Centers of CWR diversity commonly overlap with the territories of indigenous peoples and local communities (IPLC). This has sometimes resulted in collaborative in situ conservation programs between CWR scientists and IPLC. Despite the recognized value of collaborating with IPLC in their roles as land users and owners, relatively few studies have explicitly investigated how in situ CWR conservation projects and policy designs may also benefit from the study and implementation of Indigenous Local Knowledge, Practices and Innovations (ILKPIs). Moreover, the ethical dimensions of such collaborations remain critically underexplored. In this discussion I seek to highlight the benefits of incorporating IPLC and ILKPI in CWR in situ conservation research while paying special attention to associated ethical issues.

Winters, Nellie

Elder Nellie Winters Speaks on the Importance of Home

Nellie Winters is an Elder from Okak Bay living in Makkovik, Nunatsiavut (Labrador). She was raised in Okak Bay, on the north coast of Labrador. Her family was relocated to Makkovik in 1956 when services to the area were cut off by the provincial government. Nellie Winters is a respected artist whose work is commissioned and exhibited by galleries, museums and private collections both in Canada and internationally. Her *Inukuluk* drawings are featured in a recently submitted co-authored paper to the Journal of Ethnobiology special issue on fishing. Mrs. Winters' other work includes sealskin boots, grasswork, embroidery, coats, caps, dresses, beading, jewellery, carvings, wall hangings, purses, paintings, and a lamp. In 1976, she was personally invited to demonstrate her artistic work at the Montreal Olympics. Forty years later, Mrs. Winters returns to Montreal to speak from her experiences on the importance of her home.

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Ethnobotanical and Economic Importance of the Genus *Passiflora*

Plants of the *Passiflora* genus have impressed many people over time with their extravagant flowers. Europeans have valued the aesthetics of these plants for many years. Dating back even further, is the use by Native Americans for its medicinal properties as an anxiolytic and sedative and for its delicious fruits that were eaten as desserts. Today, the fruit of *Passiflora edulis* are a unique crop and serve as a \$16 million industry in Australia. This angiosperm has been documented in North America to have very important and unique coevolving mutualistic relationships with its butterfly pollinator species, *Heliconius* spp. Due to the nature of this plant-pollinator ecology, this economic crop has very specific pollinator requirements. This relationship has great potential to answer some very important questions about pollinating insects and the plants they inhabit. This research could give insight to other plant and pollinator relationships and the issues they face today.

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Encountering Contemporary Pastoralism via Zooarchaeology: New Data from the Argentine Andes

Puesteros are pastoralists who live in many parts of the Andes. Many puesteros practice seasonal transhumance, and others are sedentary. All puesteros are smallholder herders who raise goats, sheep, cattle, and horses. Like many pastoralists, puesteros are confronting rapid cultural and environmental change. We examine zooarchaeological data from puestos to study geographic variability in subsistence, with a particular emphasis on animal resource use. Our study focuses on puesteros who live in western, southern Mendoza Province, Argentina who live within the Rio Atuel and Rio Diamante valleys. In terms of

political ecology, our study highlights the diversity and novelty of constraints faced by puesteros during a period of rapid social and environmental change.

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Northeastern Algonquian and Iroquoian Conifer Taxonomy

Traditional ethnobotanical taxonomy, here of conifers among Iroquoians and Algonquians of the Northeast Woodlands, is shown in their indigenous-language names, presented and analyzed here as attested in many dictionaries and word lists, and the following primary sources: (1536) Jacques Cartier described the conifer Annedda whose infusion cured his scurvy; Rousseau 1954 discusses its contentious identity. (1748–51) Pehr Kalm traveled in North America, noting new species with some indigenous names; English edition 1770, Dover reprint 1966. Kalm's manuscript Canadian journal is copiously annotated and translated in Rousseau 1977. (1910s) F.W. Waugh conducted ethnobotanical field work, partly published in his 1916 Iroquois Use of Foods. (1930s) William Fenton made ethnobotanical field notes with Iroquois indigenous names, still unpublished and accessible only in the doctoral dissertation of James Herrick, cited from the University Microfilm edition. Ethnohistorical references: Charlotte Erichsen-Brown's 1979 source book "Uses of Plants..", Dover reprint 1989.

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Regeneration as a Socioecological Process in Sacred Groves of Xishuangbanna, Southwest China

The recent promotion of sacred groves among conservation scientists tends to assume a static and unchanging brand of indigenous culture and traditional knowledge, whereas indigenous peoples have long negotiated the maintenance of sacred groves and understandings of sacred nature with land use shaped by sociopolitical and economic pressures. In Xishuangbanna, a region home the world's northernmost tropical rainforest and China's richest biodiversity, I examine the regeneration of sacred groves and cultural knowledge in ongoing community-based projects by indigenous Dai people, scrutinize the influence of conservation research organizations, and analyze successes and failures of outsider-led forest restoration projects. I couple ethnographic analyses with the study of botanical regeneration processes in sacred groves to understand how changing ecological conditions can influence environmental politics and the co-production of dynamic socio-ecological landscapes. I argue that regeneration has functioned as a "reinvented tradition," a means through which communities can reshape identity and negotiate collective interests.

VERS AUTOROUTE
MÉTROPOLITAINE



Map of the Insectarium and Jardin Botanique area in Montreal.

Streets: BOUL. ROSEMONT, 29^e AVENUE, BOUL. PIE-IX, AVENUE MONT-ROYAL, RUE RACHEL, RUE VIAU, RUE DE MARSEILLE, AV. PIERRE-DE COUBERTIN, 4777 AV. PIERRE-DE COUBERTIN, 4581 RUE SHERBROOKE EST, RUE SHERBROOKE EST, RUE VIAU.

Landmarks and Buildings: PARC MAISONNEUVE, JARDIN DES PREMIÈRES-NATIONS, JARDIN JAPONAIS, JARDIN DE CHINE, INSECTARIUM, CHAPITEAU (AIRE DE RESTAURATION), BILLETTERIE, P2, CHALET (DÎNER), COMPLEXE D'ACCUEIL AUDITORIUM, RESTAURANT, COUR DES SENS, IRBV, BILLETTERIE, P1, CENTRE SUR LA BIODIVERSITÉ DE L'UNIVERSITÉ DE MONTRÉAL, STADE OLYMPIQUE, PLANÉTIARIUM RIO TINTO ALCAN, BILLETTERIE, CENTRE PIERRE CHARBONNEAU, CINÉMAS STARCITE, ARÉNA MAURICE RICHARD, BIODÔME/PLANÉTIARIUM, STADE SAPUTO, STATIONNEMENT INTÉRIEUR ENTRÉE POUR AUTOBUS, AUBERGE UNIVERSEL, VERS AUTOROUTE 25.

Other Labels: DÉBARCADÈRE-AUTOBUS, MAISON DE L'ARBRE, VOIE PIÉTONNIÈRE, 4101 RUE SHERBROOKE EST, 3200 VIAU, 800 VIAU, 4581 RUE SHERBROOKE EST, 4777 AV. PIERRE-DE COUBERTIN, DÉBARCADÈRE-AUTOBUS.

Logos: pour la vie montréal, insectarium, jardin botanique, rio tinto alcan, MTR (Metro).

Directions: VERS CENTRE-VILLE, VERS AUTOROUTE 25, AUBERGE UNIVERSEL.


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Notes:



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**TENTATIVE
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Cultural Events
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**Student Mentor &
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Contact Liz Olson @
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