

DIMENSIONS OF POLITICAL ECOLOGY
CONFERENCE ON
NATURE / SOCIETY



University of Kentucky, Lexington
February 28 – March 2, 2013



COVER IMAGE:
2012
Photograph by Jessa Loomis

WELCOME TO DIMENSIONS OF POLITICAL ECOLOGY: CONFERENCE ON NATURE/SOCIETY AT THE UNIVERSITY OF KENTUCKY

The University of Kentucky Political Ecology Working Group (UK PEWG) welcomes you to Lexington for the third annual *Dimensions of Political Ecology: Conference on Nature/ Society*. You are one of more than 225 participants who will present and discuss their work, join field trips, and attend panels over the weekend. We are pleased to see a wide geographic and disciplinary cross-section of expertise among participants and expect that this conference will foster collaborations beyond the three days we are all together. We plan to continue hosting this conference with even more events and opportunities for collaboration, so we hope you will consider making it a regular part of your academic schedule in the years to come.

DOPE Conference Organizing Committee

Alicia Fisher
Allison Harnish
Austin Crane
Brian Grabbatin
Daniel Cockayne
Eric Nost
Hugh Deaner
Jairus Rossi
Jessa Loomis
Jon Finnie
Kyle Burchett
Lily Brislen
Lindsay Shade
Marita Murphy
Mary Elizabeth Schmid
Megan White
Michele Flippo Bolduc
Nate Millington
Patrick Bigger
Ryan Cooper
Sarah Watson
Sophie Strosberg

GENERAL INFORMATION

OUR OPENING RECEPTION will be held at the Bingham Davis and Commonwealth Houses located on 232 East Maxwell Street. Some on-street parking is available along Lexington Avenue, Rose Street, and Maxwell. Additional parking is available in the E-lot behind the reception houses. This lot can be accessed from Lexington Avenue. *Some spaces are reserved so please read the signs carefully.*

THE OPENING AND KEYNOTE ADDRESSES will be held in Memorial Hall. Memorial Hall is located on campus across the street from where Prall St. meets S. Limestone St.

ALL PAPER PRESENTATIONS will be held at the Student Center, located on Avenue of Champions between S. Limestone Avenue and S. Martin Luther King Boulevard. The Student Center parking lot is free on Saturdays. If this lot is full additional parking is the directly behind Memorial Coliseum.

DIRECTIONS, PARKING, and INTERNET ACCESS

Parking – A limited number of visitor parking passes may be purchased at registration for \$2.50. In the event that these are not available, the same passes may be attained at parking structure #5 on South Limestone Road (next to the Student Center). These passes allow you to park in ‘E’ lots (but not parking structures), which can be found beside the Student Center (Avenue of the Champions and Lexington Avenue) as well as behind Memorial Coliseum (Lexington Avenue). Passes will be necessary to park in E lots on Friday. On Saturdays, E lots are free to use. Parking structure #5 is also available for parking on Friday with a visitor pass.

DOPE2013 Map can be found here: <http://goo.gl/maps/FuJKn>

Printable campus maps can be found here: <http://www.ppd.uky.edu/CampusMaps/>

For information about Lexington’s public transportation services:
<http://www.visitlex.com/trolley.php> and <http://www.lextranonthemove.org/>

Internet Access on Campus

UKYEDU is a campus-wide wireless network that is accessible to guests. After connecting to the network open your web browser and you will find a guest log-on option to use. The web address for the University of Kentucky is: <http://www.uky.edu> .

Printing

Johnny Print
547 South Limestone Street
Phone: (859) 254-6139
Mon-Fri 8:30 am to 5:30 pm
Sat 10:00 am to 1:00 pm

Kinko’s
333 E Main St, Suite 130
Phone: (859) 253-1360
Mon-Fri 7:00am -11:00 pm
Saturday: 9:00am -9:00pm

CONFERENCE HIGHLIGHTS

PRECONFERENCE ADDRESS: DR. VANDANA SHIVA

Thursday February 28, 8:00pm, MEMORIAL HALL

Organized by the Office of Sustainability

Sponsored by the Student Sustainability Council, UK Student Government, the UK Departments of Sociology and Geography, and the Central Kentucky Council for Peace and Justice

Sustainability

Vandana Shiva is an environmental activist, ecofeminist, physicist, and philosopher based in Delhi, India. Her recent research and activism has focused on water privatization, intellectual property rights, and biodiversity, especially with respect to food and agriculture. Shiva's work on biodiversity began with her involvement with the Chipko movement against deforestation in India in the 1970s, a movement which she demonstrated was largely the result of women's efforts. She has received a number of awards in recognition of her environmental work and efforts to revive and promote indigenous knowledge and culture, including her 1993 receipt of the prestigious Right Livelihood Award. In 1982, she founded the Research Foundation for Science, Technology, and Ecology, which helped launch a national movement in India known as Navdanya ("Nine Crops") that promotes biodiversity conservation, organic farming, the rights of farmers, and food sovereignty. Shiva is the author of more than 20 books. Her visit is organized and sponsored by the Office of Sustainability and the Student Sustainability Council at the University of Kentucky.

OPENING ADDRESS: DR. ARIEL SALLEH

Friday March 1, 5:15 pm, MEMORIAL HALL

Sponsored by the Student Sustainability Council and Student Government Association

From Green New Deal to Earth System Governance: Will there be Life after the "Green Economy"?

Ariel Salleh is a sociologist and activist whose theoretical work redefines humanity-nature relations in a way that helps integrate feminism, ecology, socialism, and indigenous struggles. Her book - *Ecofeminism as Politics* - subtitled *nature, Marx, and the postmodern* - argues an embodied materialist standpoint. A recent edited collection - *Eco-Sufficiency & Global Justice* - shows how unconscious sex-gender assumptions distort methods and concepts in ecological economics and sustainability studies. Salleh's political ecology developed hands-on while working in Aboriginal communities; as co-convener of the Movement Against Uranium Mining; founding member of The Greens; at Earth Summit with Women's Environment & Development Organization; in local catchment campaigning; on the Australian government's Gene Technology Ethics Committee, and

now climate change. She has taught in Australia, Asia, and the US and has been an editor of the journal *Capitalism Nature Socialism* since its inception. Salleh is currently Senior Research Fellow in the Institute for Sociology, Friedrich Schiller University-Jena, Germany, and Honorary Associate Professor in Political Economy at the University of Sydney, Australia. [www.arielsalleh.info]

KEYNOTE ADDRESS: DR. ARUN AGRAWAL

Saturday March 2, 5:15 pm, MEMORIAL HALL

Sponsored by the Student Sustainability Council and Student Government Association

Limits to Governance

Substantial bodies of scholarship invoke effective governance variously as the path to improved corporate performance, economic growth, development, sustainability, and even peaceful social change. Recourse to governance through purposive changes in regulatory arrangements and modulating influences seems a promising approach to address deep social, ecological, and economic problems that may otherwise lead to disastrous outcomes. But what exactly are the limits to the promising outcomes that can be ascribed to governance? We need more systematic knowledge about why interventions intended to improve governance may produce only limited effects, be ineffectual, or exacerbate negative outcomes. Drawing upon existing writings on the governance of social-ecological systems, this paper identifies four types of limits relevant to interventions seeking to enhance governance: a) limits of specification, b) limits of calculation, c) limits of translation, and finally, d) limits of anticipation. These limits, the paper suggests, are not coincidental: rather, they are inherent to the project of crafting, realizing, and refining governance arrangements.

Arun Agrawal is Professor in the School of Natural Resources & Environment at the University of Michigan. His research and teaching emphasize the politics of international development, institutional change, and environmental conservation. He has written critically on indigenous knowledge, community-based conservation, common property, population and resources, and environmental identities. His recent interests include adaptation to climate change, urban adaptation, REDD+, and the decentralization of environmental governance. He coordinates the International Forestry Resources and Institutions network, and is currently carrying out research in central and east Africa and South Asia. He is the author of *Greener Pastures* and *Environmentality*, and his recent work has appeared in *Science*, *PNAS*, *Conservation Biology*, *World Development*, and *Development and Change* among other journals.

FIELD TRIPS

TOUR OF MARKSBURY FARM MARKET IN LANCASTER, KY

Thursday, February 28

All tour participants meet in the Student Center Parking lot at 2:15. We will return by 5:30.

Marksbury Farm Market is a butcher shop, farm market, and animal processing facility located in Lancaster, Kentucky. Marksbury Farm Market opened in August 2010 to serve Kentucky's fast-growing local food communities. As a local food hub, the 12,000-square-foot, USDA-inspected animal processing and distribution facility produces a wide variety of natural meat products from locally grown, humanely raised and grass-fed cattle, hogs, lamb and poultry, all free of growth hormones, steroids and antibiotics, and all grown in partnership with local farm families. The company markets products through its retail shop, restaurants, grocers and institutional food buyers. In less than three years, Marksbury products have entered area Whole Foods stores, several other retail outlets, more than three dozen independent restaurants, and institutions such as universities, colleges and public school systems, demonstrating a clear market demand among local citizens for food grown and distributed from sources they personally know and trust.

THE "SPIRIT" OF KENTUCKY, FROM FIELD TO BARREL TO BOTTLE AND BEYOND!

Thursday, February 28

12:00-1:25: Lunch and discussion with local bourbon expert Nicolas Laracuate in Patterson Office Tower room 318.

1:30: All tour participants meet in the Student Center Parking lot. We will return by 5:30.

Political ecology is at the forefront of important research into food, water, and other basic building blocks of human life and culture. However, there's an essential element all too often overlooked. This liquid amber element is special to Kentucky, and the state produces much of the world's supply. At the opening of the DOPE conference, we are happy to offer you the opportunity to go on a straight Kentucky bourbon field trip so you can explore the ecological and social history of one of the world's favorite elixirs!

Even if bourbon wasn't ultra-trendy right now, there would be plenty of reasons to join the field trip. In a healthy mix of touristy hedonism and academic acumen, we'll begin with a lunchtime discussion about bourbon with leading scholars. We'll then take to the road for an afternoon of bourbon country adventure. Our program includes a specially tailored, environmentally focused "hard-hat" tour (and tasting!) at the Buffalo Trace distillery outside Frankfort, and a driving tour of the surrounding area. Other possible activities include: sniffing the controversial black patina left behind by the bourbon aging process, walking through at a typical limestone valley and white oak stand, and poking around an abandoned distillery.

We'll discover why bourbon was born in Kentucky, how bourbon slipped by during prohibition, why

the GMO debate is relevant to your mint julep, what happens to the corn scraps and single-use oak barrels after bourbon is made, and more.

To get the tour started, **Nicolas Laracuente** will provide a general overview of Kentucky's distilling industry and facilitate discussion on how the industry responded to broader changes in Kentucky's social landscape. Laracuente is an archaeologist for the Kentucky Heritage Council and PhD student in the Department of Anthropology at the University of Kentucky. Prompted by the nomination of the Bluegrass area as an endangered cultural landscape, he started research on bourbon and distilleries in the Bluegrass area in 2009. Currently, he is focusing on identifying the archaeological signatures of various activity areas associated with distilleries in order to address issues related to labor, identity, and landscapes.

UNDERGRADUATE SYMPOSIUM AND PAPER COMPETITION

Saturday March 2, 8:00am, STUDENT CENTER 206

Sponsored by the UK Department of Anthropology

One of the University of Kentucky Political Ecology Working Group's goals is to support young researchers with interests in nature/society dynamics. This year we extended a specific call for papers to undergraduate students engaging in political ecology research. This symposium provides undergraduate students with a forum to present their work, receive useful feedback, and connect with graduate students and faculty with similar research foci. The symposium will consist of three two-hour sessions (Saturday 8 am to 2:40 pm) featuring 14 undergraduate paper presentations.

The winner of the undergraduate paper competition will also be awarded during the closing session. This session is an exciting opportunity to interact with the next generation of political ecologists. See pages **37, 38, 45, 46, 53** and **54** for presentation abstracts.

PANEL DISCUSSIONS

POLITICAL ECOLOGY: PASTS, PRESENTS, FUTURES **Friday March 1, 1:00-2:40pm, CLASSROOM BUILDING 118**

Sponsored by the Vice President for Research

Since its emergence in the mid-1980s as a political project and intellectual endeavor, Political Ecology has been dedicated to creatively tracing the myriad social dimensions of environmental degradation and resource conflict. Strengthened by engagements with post-structural thought, feminism, critical race theory, and science studies, PE now encompasses a wide intellectual terrain. This growth has yielded considerable insights into our understanding of the intersections between the environment, politics, capital, and discourse. Yet PE risks being broadened to such an extent that its critical capacity to analyze the politics of nature is blunted. Additionally, this expansion comes as we face the increasing social and environmental costs of global climate change, dramatic shifts in global food production, and increasingly violent responses to imposed austerity in much of the world.

In this panel we invite respondents to discuss their relationship to Political Ecology as a discipline and method, and to discuss the present and future of political ecological research. We do not expect all participants to self-identify as “political ecologists,” but are instead interested in how understandings of nature/society relationships have been articulated across disciplinary and geographic boundaries. We ask respondents to reflect on the foundational texts that helped shape and define their engagements with research into nature/society relationships and discuss their personal trajectories within a broad definition of PE. We ask participants to reflect on how these texts shaped and continue to shape their intellectual engagements with politicized nature, and discuss what is needed if PE is to remain a viable source of political and intellectual engagement in the face of our considerable economic and ecological challenges. This panel is designed to be an informal and personal engagement with the past, present, and future of nature/society research, designed to bring together different analytical strands in order to better engage with pressing contemporary challenges.

Panelists

Dr. Tom Bassett (University of Illinois, Department of Geography and GIS)

Dr. Rebecca Lave (Indiana University, Department of Geography)

Dr. Becky Mansfield (Ohio State University, Department of Geography)

Dr. Damian White (Rhode Island School of Design, Department of Sociology)

Moderator

Dr. Paul Robbins (University of Wisconsin)

Tom Bassett is a professor of geography and geographic information science and an affiliate in the Global Studies program at the University of Illinois at Urbana Champaign. His research falls at the intersection of culture, the environment, and political economy. Bassett has written on issues ranging from the cultural politics of agrarian systems to popular versus scientific discourses on deforestation. His recent publications include *The Atlas of World Hunger* (with Alex Winter-Nelson, University of Chicago Press, 2010) and *Nature as Local Heritage in Africa: New Approaches to Biodiversity Conservation, Territory and Identity* (edited with Marie Cormier-Salem, International African Institute,

2007). Bassett's work, which appears in *Geoforum, Africa, Proceedings of the National Academy of Sciences, and Global Environmental Change*, contributes to interdisciplinary conversations regarding the social dimensions of environmental change and sustainable development initiatives.

Rebecca Lave is an assistant professor at Indiana University in the Department of Geography, and the foremost exponent of a new subfield called Critical Physical Geography which explores the boundaries and intersections of political ecology, science and technology studies, and different fields of physical science. This approach is demonstrated in Dr. Lave's new book, *Fields and Streams: Stream Restoration, Neoliberalism, and the Future of Environmental Science*, hailed by Jake Kosek as, "a brilliant and pathbreaking work." Dr. Lave has published across disciplinary divides, contributing articles to journals including *Social Studies of Science, Annals of the Association of American Geographers*, and *Journal of the American Water Resources Association*. Dr. Lave holds a PhD in geography from the University of California-Berkely in addition to her background as an urban planner.

Becky Mansfield is an associate professor in the Department of Geography at Ohio State University. Her work weaves together feminist, post-structuralist, and Marxist theoretical approaches to nature-society questions. Her recent research focuses on health and bodies with respect to environmental contaminants, and specifically how gendered neoliberal biopolitics is deployed in risk management approaches to public health concerns about women's seafood consumption. She has a long standing interest in neoliberalism and nature, which has informed her research on a wide array of themes, such as the body remade by contaminants, the socio-ecological process of forest recovery in Appalachian Ohio, the intertwined political economies of seafood and health, seed governance, and studies of the commons. She has published articles in the *Annals of the AAG, BioSocieties, Environment and Planning D, Antipode, Geography Compass*, and many others, and is editor of the 2008 collection *Privatization: Property and the Remaking of Nature-Society Relations*.

Damian White is professor of sociology in the Department of History, Philosophy, and the Social Sciences at Rhode Island School of Design (RISD). Dr. White also currently is serving at the department head. He holds a Ph.D. in sociology from the University of Essex, as well as a M.Sc. in political science and sociology from Birkbeck College, University of London and a B.A. with honors in politics and American studies from Keele University. Dr. White's work involves environmental sociology, political sociology, and political theory, combined with interests in science and technology studies, and the sociology of urban design, urban political ecology, and urban futures. Dr. White has numerous publications in a wide variety of professional journals as well as a number of books. A couple of his most recent books include *Technonatures: Technologies, Natures, Spaces, and Places in the Twenty-first Century* (with Chris Wilbert), as well as two forthcoming books: *The Environment, Nature and Social Theory* (with Brian Garreau and Alan Rudy) and the sole authored *The Future By Design: A History and Sociology of Design Utopianism*. Dr. White has received numerous awards for his research and teaching including being the multiple recipient of the John R. Frazier Award for Excellence in Teaching at Rhode Island School of Design. Recently he was awarded a teaching grant (along with Dr. Anne Tate) to design a new interdisciplinary course in architecture and sociology entitled, "Rethinking Green Urbanism: Justice, Desire, and the American City". Before arriving at the RISD, Dr. White was professor of sociology at James Madison University, as well as holding previous teaching posts at Goldsmiths College, University of London, and the University of East London. Dr. White is considered one of the foremost experts on the work of the anarchist-socialist-libertarian Murray Bookchin, the founder of the social ecology movement during the mid-twentieth century. Dr. White was born and raised in London, England, but maintains his roots in his Irish heritage.

Paul Robbins is the director of the Nelson Institute for the Environment at the University of Wisconsin, which he recently joined after serving as Professor and Director of the School of Geography and Development at the University of Arizona. Dr. Robbins has written about elk management in Montana, forest product collection in New England, and wolf conservation in India. Perhaps he is best known for his work on chemical use in the suburban United States, which has appeared in several high profile journals in Geography and culminated in the 2007 book *Lawn People: How grasses, weeds, and chemicals make us who we are*. Dr. Robbins is a central figure in contemporary political ecology, having written or co-edited a number of key textbooks and edited volumes on the topic, including the introductory cornerstone *Political Ecology* (2004).

SCHOLAR-ACTIVIST PANEL: BRIDGING THE DIVIDE BETWEEN ACADEMY AND ACTIVISM

Saturday March 2, 3:00-4:40pm, STUDENT CENTER 230

Sponsored by the Student Sustainability Council

This panel will focus on two environmental issues that are unique to Kentucky and the Appalachian region. Two scholar-activist pairs will serve as panelists. The first pair, composed of Donald Stull (Anthropology, University of Kansas) and Aloma Dew (Sierra Club, Owensboro), will discuss strategies for understanding effects of industrial agriculture and the 2004 termination of the federal tobacco program in Western Kentucky. The second pair, composed of Shannon Bell (Sociology, University of Kentucky) and Lauren McGrath (Sierra Club, Louisville) will discuss their ongoing collaborative efforts to understand the negative health effects of coal fired power plants and ways to involve students in the research process. In this roundtable setting, representatives from community organizations will be able to voice what they want from researchers, teachers will be able to network with activist groups, researchers will learn strategies for making their work more participatory, and students will learn the value of action research.

Panelists

Dr. Donald Stull (University of Kansas, Department of Anthropology)

Aloma Dew (Program Director, Kentucky Water Sentinels)

Dr. Shannon Bell (University of Kentucky, Department of Sociology)

Lauren McGrath (Associate Regional Representative, National Beyond Coal Campaign, Sierra Club)

Moderator

Dr. Ann Kingsolver (Appalachian Center, University of Kentucky)

Shannon Bell and Lauren McGrath: Shannon Bell, Assistant Professor of Sociology at the University of Kentucky, and Lauren McGrath, the Kentucky Organizer for the Sierra Club's Beyond Coal Campaign, have been collaborating for the past year to involve undergraduate students in community-based action research projects focused on coal and energy. There are presently more than 400 coal-fired power plants in the U.S., many of which were built between 1940 and 1969 and were grandfathered in under the 1977 Clean Air Act amendments. These coal plants do not have modern pollution controls in place and are legally emitting more toxins and pollutants than coal plants that were built after 1977. The Sierra Club's Beyond Coal Campaign has been working with communities and college campuses across the country to replace these out-dated coal plants with cleaner energy solutions. Bell and McGrath have involved students in researching the health and environmental impacts of coal plants in the Lexington area, the barriers that make a transition away from coal difficult, and how other universities and communities have successfully moved away from coal as an energy source.

Don Stull and Aloma Dew: Don Stull, professor of anthropology at the University of Kansas and Sebree, Kentucky, native, has studied the impact of the meat and poultry industry on local communities, processing workers, growers, and the environment for 25 years. Aloma Dew is program director, Kentucky Water Sentinels and a resident of Owensboro. From 1999 to 2012 she served as a staff organizer for the national Sierra Club. In this capacity she has led citizen opposition to industrial poultry and pork production in western Kentucky for a decade and a half. Her accomplishments include the Tour de Stench and the Healthy Foods, Local Farms conference held annually in Louisville. She is presently organizing efforts to stop Farbest Foods from locating industrial turkey production in McLean and Daviess Counties. Their

common concerns over industrial agriculture and its confined animal feeding operations in western Kentucky have fostered long-standing dialogue and collaboration between Dew and Stull.

Ann Kingsolver is a professor of Anthropology and American Studies at the University of Kentucky, where she is also the Director of the Appalachian Center and Appalachian Studies Program. Her research focuses on social inequality and situated experiences of globalization. Kingsolver has carried out ethnographic fieldwork in eastern Kentucky since 1986, studying interpretations of identity, place, and livelihood through development discourses (especially linked to tobacco production). In 1992 she initiated a long-term, collaborative research project on interpretations of NAFTA and related neoliberal policies in Morelos and Mexico City, Mexico, and in Kentucky and California. In 2004, as a Fulbright Lecturer/Researcher, she interviewed Sri Lankans associated with the tea industry about globalization. Kingsolver's recent publications include *Tobacco Town Futures: Global Encounters in Rural Kentucky* (Waveland Press, 2011), *The Gender of Globalization: Women Navigating Cultural and Economic Marginalities* (Co-edited with Nandini Gunewardena, SAR Press, 2008), and *NAFTA Stories: Fears and Hopes in Mexico and the United States* (Lynne Rienner Publishers, 2001).

CONFERENCE SCHEDULE

THURSDAY February 28, 2013

INFORMAL WELCOME AND REGISTRATION: PAZZO'S PIZZA PUB

We'll have registration open, and likely will be eating pizza. All are welcome to join before Vandana Shiva's opening address. This is a great way to meet conference participants if you're in town and looking to gather. We'll be in the lower level of Pazzo's. Please join us.

Location: 385 S Limestone St

Time: 5:30 PM - 7:45 PM

OPENING ADDRESS - VANDANA SHIVA: 8:00-9:30 PM

Memorial Hall

Sustainability (See page 5 for abstract)

Note: This address is organized by the UK Office of Sustainability and is not an official DoPE event. The Office of Sustainability has encouraged UK PEWG to publicize this event in concert with our conference.

FRIDAY March 1, 2013

REGISTRATION

Location: New Student Center 2nd Floor - Information Desk 3

Time: 7:30am – 10:00am

CONCURRENT SESSIONS I: 8:00 – 9:40 am

Session: Political Ecologies of Health 1

Student Center 206

Organizer and Chair: Michele Flippo Bolduc (Geography, University of Kentucky)

“The Health of the People is the Foundation of the Power, Progress, and Prosperity of the State”: State Power and Tuberculosis in Kentucky

Bill Hunter (Geographer, Cultural Resource Analysts, Lexington, KY)

Tuberculosis is an airborne disease caused by the bacterium *Mycobacterium tuberculosis*, which primarily affects the lungs but can cause extra-pulmonary complications throughout the body. Tuberculosis historically killed indiscriminately, although in modern times, outbreaks tend to cluster within specific demographic or geographic groups. The persistence of tuberculosis in the twentieth century posed a complex set of questions about the scope and effectiveness of state and local governments in responding to a crisis of public health in Kentucky. The changing role of the state in providing remedial medicine dates as far back as the establishment of the Kentucky State Tuberculosis Commission, which adopted the sanatorium as the vehicle for combating the disease. The isolation of the infected in sanatoria undoubtedly contributed to the curtailment of the disease. Its successor, the Kentucky Tuberculosis Sanatoria Commission, set the geographic scale of the state response at the regional level by planning district sanatoriums, supported by taxes levied at the county and district level. A sanatorium is a particular type of institutional space that was explicitly developed for treating long-term illness, most typically associated with treatment of tuberculosis before widespread availability of antibiotics. The development of the network of hospitals emerged out of a postwar synthesis between the political and scientific dimensions of modernity that had reached its pinnacle. The integrated approach to public health began to increasingly splinter in the post-modern era and a resurgence of private provisioning of healthcare combined with new patterns of capital investment made homogenous technological landscapes such as the state sanatoriums functionally and normatively obsolete. All six state hospitals were permanently closed and were converted to other uses, abandoned, or razed. The erasure of facilities from the landscape is symbolic of the fragility and historical specificity large-scale state sponsored response to disease. This paper examines the geography of tuberculosis in modern Kentucky and the animation of state apparatuses to manage treatment of the disease through systems of classification, coercion, incentives and the production of distinctly modern institutional assemblages, now devalued, abandoned and erased from the contemporary landscape.

Learning to be Healthy in Kentucky: again and again...?

H. Paul Lovelace (Education Policy Studies and Evaluation, University of Kentucky)

In the 1930s, Kentuckians were too thin. In 2013, they are too fat. By comparing the 1930s film “The Children Must Learn” with Kentucky Educational Television’s 2011 Documentary “More Than Child’s Play: While Physical Activity Matters” an interesting trans-temporal consensus is reached. While the bodies of Kentuckians change to fit the latest in poor nutrition, ignorance remains the causal root. “The Children Must Learn” looks at malnutrition and hunger in an East Kentucky community. “More Than Child’s Play” is, essentially, a Kentucky focused response to the White House Task Force on Childhood Obesity’s 2010 Report to the President entitled, Solving the Problem of Childhood Obesity Within a Generation. Both documentaries suggest that Kentucky schools are part of the problem and, necessarily, part of the solution. Schools across the Commonwealth are attempting to educate their way back to bodily normalcy and related health by fostering “energy balanced” policy. Nutrition (food and education) and physical activity are to be served (in equal, responsible portions) throughout the school day. This balance equation is already complicated by fiscal woes and added pressures to perform on high-stakes tests. Simultaneously, additions and subtractions to school lunches have been met with student concern, revulsion, and resistance. As always, educators will be creative. Successful innovations, some merging tested subject areas (reading, science, mathematics) with nutrition and movement are already underway. Such projects will, no doubt, render relatively positive results. However, successes, like any achieved in the 1930s, will be tempered--failing to address the dominant role of political economy in shaping our environment and, thus, our bodies, our health. Absent these potentially transformative discussions and subsequent action, Kentuckians are on track to be re-examined, re-poked and re-prodded in future documentary films.

The ‘Obesity Epidemic’ in the United States: Constructing and Implementing Medical Knowledge

Curtis Pomilia (Geography, Indiana University)

Since 1997 the World Health Organization has formally recognized obesity as a ‘global epidemic’, with current estimates putting the number of obese adults worldwide at about 500 million. In the United States, this health crisis is made intelligible largely through the collection of statistics from the Behavioral Risk Factor Surveillance System and the National Health and Nutrition Examination Survey. This paper explores how this medical

knowledge about obesity is constructed and transformed into policy prescriptions, looking carefully at the ways current strategies create certain types of subjects and perpetuate certain types of management. To explain this, I draw on the analytical frameworks of both Michel Foucault and Pierre Bourdieu, arguing that the establishment of statistical norms for the purposes of health management serves not only to promote the optimization of population health and productivity, but also to legitimate certain body types and cultural practices, with serious class implications.

An EcoFeminist Critique of the Current American Medical Model Chase Buttice (Sustainable Communities, Northern Arizona University)

With US spending projected to approach the 4.5 trillion mark in 2019, the U.S health care model is grounded in a system of exploitation working within a highly developed medical-industrial complex. Working under the guise of 'care' this system arguably diminishes the wellbeing of people seeking health. Humans that are ill are placed in a position of unique vulnerability. The medical industry preys on that vulnerability by aiming to profit on sickness, creating a deeply dysfunctional doctor-patient relationship that aims for complete control over the patient's bodily autonomy. The extraction of financial resources from those that are in a vulnerable state is a central tenant of patriarchy as seen from an EcoFeminist perspective. Those that suffer most through the current medical model are marginalized communities who are unfairly exposed to environmental toxins and thus placed in an increasingly more vulnerable space. In addition there are those populations that lack access to health insurance and those that are simply unable to afford adequate health care. Overall, women tend to take on a large part of the burden, as the average price of childbirth is around \$15,000 and the responsibility of child rearing promotes women becoming the ones most affected by the health issues that may arise within any member of their family. This paper will apply an EcoFeminist analysis to the current American medical model in order to address the hierarchal injustice of withholding access to medical care in vulnerable populations. Based heavily on the Ecofeminist political analysis offered by Ariel Salleh, Ecofeminism works to feminize this male dominated 'business of sickness' through a thorough deconstruction of its endemic destructive Eurocentric patriarchal capitalist practices. Its goal is to hold a critical examination of the power structure dominating so many people, from an earth centered female perspective.

Session: World Turning: New Perspectives on Race, Class, Gender, and Global Climate Change

Student Center 249

Organizer: Phoebe Godfrey (Sociology, University of Connecticut)

Chair: Vanessa Marquez (Geography, University of Kentucky)

The Political Ecology of Pachamama: Race, Class, Climate Change, and Kallawayá Traditions Dylan Harris (Geography, Bolivian Mountain Institute)

When asked about why he thought the river next to his village was dry, Ramón Alvarez, a traditional Kallawayá healer, teacher, and elder, lamented that the river was only an omen for what was to come. For the past few years, the potatoes were being harvested earlier. They looked the same, tasted the same, but Alvarez could feel in his body that he was dying. His bones told him that he would not live as long as his father because the weather is warmer, the river is dryer. For Kallawayá healers, largely indigenous people who depend on agriculture for not only physical sustenance but also for spiritual sustenance, climate change is detrimental. Because the crops are changing, the village is sending their children to work in the cities, leaving the thousand-year-old mountain terraces to trace the landscape from the river valley to the unbelievably high peaks of the High Andes barren and wasted. This small anecdote taken from my fieldwork in the Apolobamba region of Northern Bolivia highlights the various ways in which class, race, and now climate change intermingle, resulting in the potential decline of the centuries-old Kallawayá healing tradition. The confluence of race and class relations has become entangled in the local, national, and international climate change discourse, which is especially relevant in the context of the current pro-indigenous, pro-'Mother Earth' Morales government. This paper will use a political ecology framework to tie together and explore how the intersections of race, class, and now climate change impact the Kallawayá healing tradition.

Rediscovering Everyday Wisdom: Marginalized Voices, Western science, and "proof" of climate change Andrea Simonelli

Western conceptions of science and technology have become the preeminent vehicles which inform politicians and relevant decision makers. They are derived from a delicately crafted process that expects and values precision, recreation, and controlled environments. When it comes to the issue of climate change, the science is much less definitive as it is based on long term trends which can acknowledge a destabilization, but which a direct timeline is uncertain. However, the lived experience of many peoples around the globe already demonstrates these detrimental changes to environments and livelihoods. These individual experiences come through the voices of marginalized people in traditional ways which are antithetical to mainstream Western science. The outcome of this has been a devaluing of the emotional human struggle for sterile laboratory statistics. This essay seeks to explore the intersection of science and the lived experience. Additionally, it argues that traditional experiential knowledge is a necessary partner to the Western scientific paradigm.

The need for self-reflexivity in critically examining India's position in climate negotiations Shangrila Joshi Wynn (Environmental Studies/Geography, Colgate)

My paper examines ongoing climate negotiations from a postcolonial political ecology lens, using India's participation in them as a case study. India's non-negotiable position in climate negotiations over the last several years has been that it will not accept a binding cap on GHG emissions. This position has been based most conspicuously on the UNFCCC's Principle of Common but Differentiated Responsibilities and Respective Capabilities. Interviews with Indian negotiators and other climate officials in Delhi revealed that the perceived historical responsibility of industrialized countries or countries of the Global North and the relatively low per capita GHG emissions of India (particularly when compared with that of the US), coupled with the sense of injustice regarding the position of Third World countries such as India in a global political economy long dominated by the US and other countries of the Global North, contributes to the staunch Third Worldist position India exhibits in climate negotiations. While this Third Worldist position has been critiqued both from a Marxist perspective as well as a critical geopolitics perspective on the grounds that differences in emissions need to be examined not from a state-centric or a North-South perspective, but rather from a class-based perspective, I argue that more useful than such an either/or approach is an intersectional approach that examines the inequities and injustices of climate change from both a class-based and state-centric or postcolonial perspective. Furthermore, it is troubling when critiques of a postcolonial North-South approach to climate negotiations come predominantly from scholars and practitioners based in the Global North, and when these scholars dismiss the perspectives of scholars and practitioners based in the Global South. I argue that a postcolonial political ecological analysis of the conflicts over the atmospheric commons must be self-reflexive, in the sense that scholars undertaking such an analysis must be cognizant of their class and geopolitical positionality and its implications for GHG emissions and contribution to climate change. In the absence of such self-reflexivity it is far too easy for our critiques and analysis to veer into the domain of hypocrisy and complicity with the status quo.

Transforming Despair into Creativity: Ecopedagogy as Empowerment Work Phoebe Godfrey (Sociology, University of Connecticut)

In *Despair and Personal Power in the Nuclear Age* (1983) Joanna Macy developed what she calls 'despair and empowerment work.' The essence of this work is to provide individuals, in a supportive workshop setting, the opportunity to express their despair about society's destructive relationship with the Earth so that they might move through it to empowered and yet compassionate action. In *Critical Pedagogy, Ecopedagogy, and Planetary Crisis* (2010) Richard Kahn defines ecopedagogy as "an alternative global project concerned with nature preservation and the impact made by human societies on the natural environment" while also being "a new model for sustainable civilization from the ecological point of view" (p.17). However, for all his emphasis on 'praxis', Kahn fails to give any concrete examples of what ecopedagogy actually looks like in a classroom and how it proposes to move all students, regardless of their intersectional identities (race / social class / sex / gender / abilities ...etc), from a possible state of apathy and / or despair to one of creative self and collective empowerment. In building upon Macy and Kahn's work, this interactive presentation will critically analyze and share the ways that I have synthesized these two theoretical frameworks into my own pedagogical practices. Key to students' senses of empowerment, I will argue, is to balance extensive reading, critical thinking and academic writing with extensive creative work, while all the time creating a highly supportive, democratic classroom climate that first and foremost attempts to put into practice the intersectional social justice changes we want to see and be in this world. To support my argument participants will get to practice a little of what I am preaching.

Session: Mapping the Potential for Landscape Political Ecology Studies Student Center 205

Organizers and Chairs: Sophie Strosberg & Laura Sharp (Geography, University of Kentucky)

Everyday Landscapes: Exploring socio-ecological relations and the urbanization of nature in Southeast Asia's coastal cityscapes

Creighton Connolly (Geography, University of Manchester)

It has now been increasingly lamented that much work on political ecology offers little insight into the different experiences and perspectives of social and ecological change at the local level. Social struggles over the look and feel of the urban landscape, particularly in the context of my particular case study on urban bird's nest harvesting in Southeast Asia, are simultaneously environmental, ethnic, political and cultural. As such, the landscape constitutes a discourse through which identifiable social groups frame themselves and their relations to other social groups. So, focusing on landscape and political ecology becomes a useful way by which to measure the effect that socio-ecological changes have on the normative landscape of a particular place, and to examine how these changes are politicized in the public realm by "invoking feelings of belonging, taste, beauty, usefulness, prejudice, fear or hope" (Rangan and Kull 2009, 41). This attention to aesthetic and emotional qualities of landscape has only been recently taken up in political ecology (see, e.g. Loftus 2012), but has not received widespread attention yet. This is a gap that my work seeks to address in order to broaden approaches to the relatively new discipline of political ecology, which has until now been relatively narrowly focused, despite its interdisciplinary background. This paper will be primarily theoretically based, as I have not yet entered the fieldwork stage of my research project on urban bird's nest harvesting in Southeast Asia.

Understanding Power, Politics, and Practice of Sustainable Landscape Development in Contemporary India: A Political Ecological Approach

Senjuti Manna (Real Estate and Planning, University of Reading)

Developing countries like India are facing great challenges as unprecedented urban growth is exerting tremendous pressure on urban infrastructure on one hand and new found economic growth and neoliberal agendas are dictating the physical developments of the urban areas on the other. Landscape architects' involvements with large scale urban development projects are heavily influenced by larger political, economic, social, cultural and

environmental power plays which need to be balanced by the professional group. Political ecology provides a useful conceptual framework to situate the works of contemporary landscape designers from India so as to understand the complex place based issues such as political agendas, social visions, ecological complications, socio-cultural creativities, institutional limitations, economic strategies etc. that influence the final design decisions of the professionals. I argue that it is the power of politics and politics of power which is dictating the contemporary large scale urban landscape projects in India and provide a theoretical framework to unpack these power equations to understand the material and dialectic relationships between nature and society in order to produce a sustainable urban environment.

The Representation and De/Commodification of Nature in *Dersu Uzala* (1975)

Laura Sharp (Geography, University of Kentucky)

Constructed for visual consumption, both landscape and cinema are inherently spectacles. As such, landscapes have been attracting filmmakers as an ideal subject matter since the early days of cinema's history and alluring audiences to the silver screen with the chance to tour exotic, dangerous or far away places. Over the years filming technologies have changed and with them our ability to visualize and experience the natural world, becoming progressively more focused on nature as a physical sensation, cinema as a recreational sport. And yet, while technology allows us to experience nature more fully than ever before through our cinema and television screens, the representational process of these forms of visualization have been criticized as deceptive. Whereas some see cinema as creating an illusion of human intimacy with nature at the same time that it separates us from it, others view particular representational tropes of "pristine nature" as perpetuating a false dichotomy between humans and nature. Still others perceive nature representations in cinema, regardless of critiques that they facilitate an attitude of nature domination, as necessary in order to promote environmental awareness and encourage stewardship of the land. In light of these debates, in this paper I consider various strategies of landscape representation in cinema in order to understand the complicity of cinema in the process of nature commodification. Juxtaposing the cinematic landscapes of Kurosawa's *Dersu Uzala* (1975) and Stölzl's *North Face* (2008), which both self-reflexively critique the representational process they are a part of but which otherwise utilize very different representational strategies, I demonstrate the critique of cinema as part of the process of nature commodification and discuss the potential for filmmakers to work from within the cinematic form in order to break with this practice.

Urban Permaculture: A New Food Geography for the Global North

Adam Jadhav (Global Environmental Politics, American University)

Increasing urban demand will strain the food system in coming decades; this demand is likely to amplify the social inequality, food insecurity, environmental degradation and lacking food sovereignty embedded in the dominant model of food production and distribution in the Global North. Through a review of literature as well as participant observation and interviews among urban permaculture practitioners, foresters and policymakers in Washington, D.C., this paper explores a nascent, alternative food movement that represents a departure from vogue community vegetable gardens, farmer's markets, city farms and community-supported agriculture programs. Practitioners of urban permaculture — also sometimes called forest gardening or urban agroforestry — exist on the margins of the alternative food dialogue yet they nonetheless constitute an intentional response to the impending urban food crisis. Transplanting practices more common in the rural Global South, urban permaculturists envision multiple and substantial benefits: food access, community development, social inclusion, ecological knowledge, biodiversity and ecosystem services. Permaculture sites remain young and involve much experimentation and trial-and-error. The urban permaculture movement also faces a set of unique challenges and drawbacks, some of which may be overcome through policy, others of which require ideological changes. Ultimately, this paper argues that the urban permaculture movement creates a new urban agricultural geography, one that engages the food sovereignty debate and even conjures a new notion of 'food anarchy.'

A Landscape of Vulnerabilities and Sea-level Rise along Georgia's Coast

R. Dean Hardy (Geography, University of Georgia)

Global climate change is a manifestation of innumerable human-environment interactions, which have effects at multiple spatiotemporal scales. One consequence of climate change is sea-level rise (SLR), which is forecasted to reach between 1-5 meters by 2100, and to have substantial ramifications for coastal landscapes. Many efforts to comprehend the socioecological impacts of SLR overemphasize a quantitative perspective. For example, overlays of SLR model outputs with social vulnerability indices developed from demographic variables endeavor to predict how human populations will be affected by climate change. However, these metrics do not incorporate the complex sociopolitical processes that continuously shape and reshape coastal communities through time. In particular, they fail to adequately engage with the situated context of the social, political, and ecological environments. To understand the complexity of coupled human and natural systems, it is imperative to avoid reducing the analysis of these systems to a nature-society binary. They are bound up in site-specific processes and relationships; they are, in essence, social natures. These landscapes are constituted by patchy networks of a plurality of people, politics, ecologies, and objects. They are constantly in flux, though moving through ostensibly stable states. As climate change is poised to "push" the apparent stability of these patchwork assemblages into new spaces, it is important that scholars focus a political ecological lens on such shifts. Drawing on previous SLR modeling research and incorporating the concept of site ontologies, this presentation explores how to examine the landscape of social vulnerabilities in relation to SLR along Georgia's coast.

Landscapes of Power: A Framework for Understanding the Political Ecology of Energy on the Diné (Navajo) Nation

Dana Powell (Anthropology, Appalachian State University)

The American Southwest has been described as a "nuclear landscape" (Kuletz 1998, Masco 2006), recognizing the historic networks of uranium mining, milling, weapons production, testing, tailings piles, and waste storage that partially define New Mexico and Arizona. Oil, coal, and natural gas also shape this landscape, as intensive energy mineral extraction primarily on Native territories has fueled the development of the urban "Sunbelt." Alongside coal and gas, Native energy entrepreneurs, social movements, and tribal governments pursue wind and solar power technologies — sometimes as counter-projects to fossil fuel dependency other times as complementary technologies. On the Diné (Navajo) Nation, energy extraction is perhaps the most urgent arena in which governance, ecological degradation, and sustainable development are debated. However, there are other valences of power shaping these complex Diné landscapes that often escape political economic analyses: cosmologies, political identities, energy infrastructures, deities, creative

production, identity formation, and environmental movements. Conflicts over energy minerals are, in this political-ecological instance, also conflicts over competing visions of the future, senses of self, and ethical attachments to how land, built worlds, and livelihoods "ought" to be pursued. In this presentation, I explore these dynamics through the concept of "landscapes of power" a framework that brings the polyvalence of "power" into orbit with shared concerns in political ecology, cultural anthropology, critical Native American/Indigenous Studies, and landscape studies.

Session: Towards a Relational Political Ecology 1

Student Center 211

Organizers: Daniel Cockayne & Ryan Cooper (Geography, University of Kentucky)

Chair: Daniel Cockayne (Geography, University of Kentucky)

Discussant: Keith Woodward (Geography, University of Wisconsin)

The reveal, the encounter, the experiment, the promise: the ethics of more-than-human geography

Franklin Ginn (Geography, University of Edinburgh)

This paper reviews the ethical and political force of 'relational geography', focusing in particular on recent more-than-human and animal geographies. I identify three ethico-political modes: a 'revelatory ethics' of disclosure or uncovering complexity and hybridity; an ethics and 'micro-politics' of encounter in which inter-corporeal and inter-agent engagements are supposed to shift our sense of the possible; an ontological politics of experimentation and intervention; finally, an emergent 'promissary ethic' that seeks to redress the emphasis on presence by embracing the indeterminacy of relations and the impossibility of 'meeting'. By making explicit these different ethico-political forces I aim to shed light on a problem that lingers through successive attempts to bridge the sub-disciplines of political ecology and more-than-human geographies (Anderson 2012; Bakker and Bridge, 2006; Castree 2002; Kirsch and Mitchell 2004; Lorimer 2012; Perkins 2007; Robbins 2007). This problem stems not from ontological incompatibility, but rather, I argue, from suspicions that the four ethico-political modes rely on the force of vitality and materiality that partake of the actual –in including existing neo-liberal naturecultures – in subversive, creative but ultimately troubling ways. I conclude that the stakes are high, and that political ecology certainly needs to engage with the animating and vital strengths of more-than-human geographies, while more-than-human geographers to engage with the political commitment of eco-Marxist approaches, and its ready engagement with neo-liberal natures outside the global North.

TechniCity: Urban political ecology and the force of infrastructure

Laura Cesafsky (Geography, University of Minnesota)

Geographers now commonly assert that non-human entities co-invent our collectivities and social worlds: the non-human acts. Yet political ecologists have largely considered the lively relations among humans, capital, and the "natural" environment, to the exclusion of the objects and technical systems that increasingly populate our lived environments. Recently, assemblage and actor-network thinkers have insisted on the vibrancy of these "inanimate" things, revealing the technical as a crucial missing term between the natural and the social. The problem, however, is that the descriptive and political content of this material agency can be somewhat thin. Things act, but in what sense? If (as the session organizers suggest) the theoretical distribution of agency to objects in heterogeneous actor-networks depoliticizes by diluting social responsibility, are there, conversely, ways in which the recognition of material agency opens onto a profoundly political terrain? This paper explores these questions via currents in the philosophy of technology, especially the work of Gilbert Simondon on "technicity." My empirical object is urban infrastructure systems. Technicity highlights the genetic, evolutionary tendencies of designed objects and the virtuality, or eventfulness, associated with the interweaving of human and technical tendencies. While both urban political ecology and infrastructure studies often equate "the political" with problems of unequal access to urban natures and services, I argue that the political can also be understood in terms of the relational production of human sociality and political community through the lively materiality of the urban infrastructure systems.

Environmental Justice and Relational Materialism: Theorizing Connections

Lisa Wallace (York University, Toronto)

This paper interrogates environmental justice through the lens of relational materialism. Environmental justice and relational materialism have emerged as novel fields in environmental studies which have nevertheless generally remained separate spheres of investigation. The application of a relational-materialist approach to environmental justice analysis, however, may do much to open environmental justice to new actors, questions, and methods—an important project given the critique of conventional environmental justice research as overly narrowly defined and empirical in nature. In turn, the convergence of environmental justice and relational materialism might more firmly entrench the currently questioned critical politics of a relational political ecology. As a means of theorizing connections, the paper draws on feminist scholars working at the interstices of "difference" and "becoming" as well as a related and emergent branch of multispecies research that takes as its focus the making and remaking of human/non-human worlds (e.g. Haraway, 1992; Barad, 2003; Kirksey and Helmreich, 2010). The resulting integration broadens research on both environmental justice and relational and non-human agencies.

Discovering Ecological Citizenship in Nature Writing

Eric Oifer (Political Science, Santa Monica College)

A key question in environmental politics is how to develop and inform an effective and just ecological citizenship and ecological democracy. Thus far, this question has been answered by taking a conception of citizenship developed out of the field of political philosophy and finding a way to alter it to argue that legitimate democratic citizenship must include a consideration of the interests of the non-human natural world. In this paper, I will argue that we ought to root an effective and just conception of ecological citizenship in the discourse of nature writing. Nature writing points the way toward a deliberative and collectively produced ecological citizenship. This ecological citizenship is necessarily relational and includes the human and non-human natural world in democratic politics. Nature writing employs a relational method that includes six key relations that include human and non-human nature. A relational democratic politics corrects for what has been a shortcoming of democratic citizenship, transforming the atomistic subject into a relational citizen ecologically committed to the flourishing of those living on the planet, including humans, fauna, and flora. Ecological citizens informed by the practice of nature writing can re-organize the spheres of politics to reflect a political and democratic commitment to flourishing. A theory of ecological citizenship should inform both the practice of politics and the teaching of politics. This theory can alter the practice of citizenship by altering how we teach and engage students to be ecological citizens.

Session: Forest Management and Conservation

Student Center 228

Chair: Marita Murphy (Geography, University of Kentucky)

Ecotourism— Could It Be The Alternative For The Local Communities Living Around The Sundarban Tiger Reserve (STR), West Bengal, India?

Priyanka Ghosh (Geography, University of Kentucky)

This paper examines the scope of ecotourism as an alternative livelihood opportunity to the local people including the local fisher-folk living in the fringe villages of the Sundarban Tiger Reserve (STR), West Bengal, India. The STR is the forested part of the Sundarban Biosphere Reserve (SBR) and is one of the protected areas (PA) in India where endangered Bengal tigers are conserved. For the better management of the STR the state Forest Department had divided the STR into core and buffer areas. There are several popular ecotourism spots in the buffer area of the STR. The Forest Department encourages ecotourism in the STR as a tool for wildlife and forest conservation by providing alternative livelihood opportunities to the local people living on the edge of the STR. The West Bengal Tourism Department also promotes ecotourism around the protected areas in the state and encourages participation from local stake-holders. In this background the paper seeks to explore the impacts of ecotourism on the local communities of the Sundarban, including the fishers who earn their livelihood from fishing in the rivers and rivulets of the STR.

The Intersection of Economic Practice and Resource Politics: A Case Study of Honey Producers in Rural Northwest Florida

Kelly Watson (Geography and Geology, Eastern Kentucky University)

Public lands represent interesting and relevant socio-natural spaces. Within public lands across the US, “natural” environments are given boundaries, subject to regulation, and managed for various uses—sometimes in the name of conservation, other times for timber, hunting, and other human uses. However, the effective and judicious management of these socio-natural spaces for the greater good of both long-term sustainability and to the mutual benefit of disparate stakeholders remains a challenge. One such stakeholder group includes forest-dependent communities, specifically gatherers and producers of non-timber forest products (NTFPs). NTFPs include a large number of wild edibles and other forest goods. Forest-dependent communities possess a wealth of knowledge and experience, which could be of great value to land managers, government, and policy makers. Yet, in post-industrial societies this knowledge is often dismissed as anachronistic, overlooked, or challenged. This paper relies on a case study honey producers in rural Northwest Florida, where competing notions of forest management pit local resource users against powerful policy makers and resource managers. This study is illustrative of land management policies and practices which exclude local resource users and diminish the effective use of natural resources on public lands. NTFP research poses interesting and timely questions relevant to scholars within political ecology and diverse economies, by examining the intersection of economic practice, resource politics, and issues of contested land access across multiple scales.

A Political Ecology Of Forest Biomass Energy Generation In Vermont

Justine Law (Geography, Ohio State University)

Woody biomass energy, or energy derived from trees, is being pushed as a climate mitigation strategy, an energy independence strategy, and a rural development strategy across much of the developed world. In the US, woody biomass energy currently accounts for 27% of our renewable energy budget, and the US Department of Energy projects that it will make up 9% of our total energy consumption by 2030. Still, there is no guarantee that the use of woody biomass energy—or renewable energy more generally—will achieve sustainable or socially-equitable results as it spreads across rural landscapes. In fact, previous research and numerous case studies have shown woody biomass energy to be carbon neutral or carbon intensive; ecologically-benign or degrading to forest ecosystems; and supportive of alternative local economies or fundamentally exploitative of rural land and labor. Here I draw from qualitative research in Vermont, the hub of community-scale woody biomass energy generation in the US, to evaluate how an energy strategy based on woody biomass might contribute to the long-term vitality of rural communities and ecosystems. I argue that woody biomass energy represents an ideal laboratory for exploring what a low-carbon community economy might look like, and I explore some of the conditions and practices under which this renewable energy demonstrably contributes (or does not) to the sustainability and equitability of rural landscapes.

Ecological and Economic Dimensions of the Paradoxical Invasive Species- *Prosopis juliflora* and Policy Challenges in Ethiopia

Yibekal Abebe Tessema (Agriculture and Natural Resources, Haramaya University, Ethiopia)

Prosopis juliflora, a dry land tree or shrub, introduced in Ethiopia in the 1970's for land reclamation and windbreak has become a serious policy challenge. The species has replaced large areas of pasture lands and has grown to be a noxious weed in Ethiopia. It has had serious repercussions on the biodiversity of the area, and livelihood of pastoralists and agro-pastoralists. *Prosopis* is now identified as "Ethiopia's number one priority invasive weed" and one of the leading development challenges in the invaded regions of the country. However, *Prosopis* has the potential to provide various socio-economic and ecological benefits. It is a most important source of fuel wood, animal feed, timber, gums, medicine, etc. Despite the potential of the species for various uses, in Ethiopia *Prosopis juliflora* is only utilized for animal feed, fencing and charcoal at smaller scale. An over-exploitive utilization scheme has been initiated by FARM-Africa, an international NGO, and the government in the most invaded parts of the country towards eradicating the species. However, other key stakeholders claim that this initiative may facilitate the invasion rather than controlling it. *Prosopis* is currently a center of controversy for policy design. The conventional control methods are expensive and it could be argued that the utilization of the species is the best option to control the invasion for many invaded areas. There is an urgent need for identification and implementation of optimal strategies in Ethiopia which, however, seems very difficult given the absence of clear national policies and strategies in the management of invasive species.

Multi-Scale Conservation Planning For Connectivity

Louis F. Cassar (Institute of Earth Systems, University of Malta)

This study addresses a key topical concern in biodiversity conservation planning, that is, how to effectively link individual conservation areas within a cohesive region-wide system. Connectivity has emerged as a key requirement for successful conservation, both because of changing physical habitat conditions and also for reasons of genetic viability of metapopulations. This research project seeks to identify, evaluate and map different potential avenues for connectivity within the landscape matrix, namely (i) stepping stones, (ii) linear corridors, and (iii) landscape corridors. A case study area in the Maremma region of Italy was utilized, centred on the Parco Regionale della Maremma, a protected area which harbours within its boundaries a range of species of conservation interest, a number of which are known to move into/out of the park. Landscape patches in the hinterland of the park were mapped and evaluated in terms of their land cover characteristics. The study then considered the niche requirements of selected fauna, in order to identify the compatibility of landscape patches with these species' resource requirements. This was followed by an identification of corridors and barriers which facilitate/impede movement for different species within this landscape matrix. Other forms of risk to species movement were also considered in the study. The final phase of the study takes into account the views of stakeholders within the landscape matrix, as stakeholder attitudes towards different species may also affect their conservation status (in the case of, for example, the wolf, an apex predator). The results of the study provide insights for conservation planning in the region, which are particularly relevant in the light of habitat change within the park, resulting from phenomena such as climate change.

Session: Critical Learning in Critical Spaces: Pedagogical Implications of Engaging 'Community' 1

Student Center 231

Organizers and Chairs: Elizabeth A. Olson & Shaunna Barnhart (Allegheny College)

To Frack or Not to Frack: Performance as a Tool for Environmental Activism at Allegheny College

Shannon Wade (Environmental Studies, Class of 2013, Allegheny College)

Direct action comes in many different forms, from blockading streets to climbing trees to sit-ins. Radical street performance, or guerrilla theater, is one form of direct action that has been particularly effective in communicating issues to the affected communities. Performance encourages audiences to step back and consider information presented in a different way than they've received it before. For this reason, using performance as a tool for presenting contentious environmental issues can be beneficial for stakeholders and concerned community members. Allegheny College was recently approached about exploring the possibility of natural gas exploration and hydraulic fracturing (fracking) in its Bousson Environmental Research Reserve. The Reserve is an off-campus forest that covers 283 acres and includes ponds, streams, and wetlands. At this point, there is little hard evidence to say how fracking would impact the reserve. The question of fracking has quickly become a hot-button topic on campus as administration, faculty, and students alike weigh the potential economic benefits of fracking against Allegheny's reputation as a bastion of sustainability. Using this local environmental issue as a springboard, my paper combines Augusto Boal's Theater of the Oppressed techniques, examples of successful pieces of environmental guerrilla performance, public opinions collected through participant observation, and data on proven effects of fracking. By drawing from these sources, I work with and facilitate Allegheny student activists to develop a performance piece based on the Bousson fracking issue. The performance objective is to educate the broader campus community on hydraulic fracturing and the conflict surrounding whether or not to frack at the Bousson Environmental Research Reserve. Through this process, activists engage with the community and collectively develop a course of action in response to the proposal to frack on Allegheny property.

The Motivated Farmer: Peer Learning Relationships and Meaning-Making at the UC Davis Student Farm

Maggie La Rochelle (Geography, UC Davis)

This paper explores the impact and importance of peer learning relationships in place-based pedagogy that aims for critical engagement. What role do peer relationships play in rendering the learning process both relevant and motivating in the eyes of learners? How do learners conceive of community in their participation in an experiential learning program in sustainable agriculture, and how do these perceptions inform the ways that learners draw meaning from their experiences learning to garden and farm? Finally, if critical pedagogy is about the empowerment of learners to act with a high degree of self-efficacy in regard to issues of social and environmental justice, how does an emphasis on peer learning relationships and communities of learners enable learners to build and practice skills required for effective (recognizing the multiplicity of this term) social action? This questioning is drawn from an ethnography conducted with members of the UC Davis Student Farm from 2010-present. Observing and discussing the experiences of student farmers working together to produce vegetables for a 70 member weekly Community Supported Agriculture (CSA) produce service, I found that learners placed high motivational value on strong social bonds and a sense of belonging in the farm “community”; that these bonds were influenced and reinforced by the presence of dynamic teaching and learning roles in peer relationships over time; that the experiential context of farming and gardening at the Student Farm especially lends itself to the formation of these bonds; and that while we often and ultimately discuss motivation at the level of the individual, peer learning relationships in experiential learning host the space in which individuals come to understand their personal, social, political and professional motivations to learn in relation to each other.

Place-based Pedagogy: A Student’s Perspective

Max Lindquist (Global Health, Class of 2014, Allegheny College)

Place-based pedagogy has expanded my understanding of global health as an undergraduate student by allowing me to apply my knowledge of the subject in non-traditional classroom settings. Although specific problems, theories and ideas are often introduced and explored in the classroom, they seem useless without application. Likewise, the effectiveness of service-based opportunities outside of the classroom is limited by what is learned inside the classroom. A combination of learning in both traditional and non-traditional classroom settings has been most beneficial to me as a learner. Experiences ranging from volunteering at the local soup kitchen to working alongside an NGO in Virginia and Tennessee to provide free health care services to rural populations have reinforced and expanded my knowledge of poverty and privilege originally introduced to me within a traditional classroom setting. I was able to view these activities in the contemporary moment through a critical lens, thereby enriching the experience itself and deepening my understanding of the material presented to me in class. Using what I have learned from the classroom to create a positive change in impoverished communities has only propelled my interest in global health advocacy. Non-traditional classroom experiences have proven to be valuable within the traditional classroom. Volunteer and service activities have allowed me to critically assess what is taught to me as a student. When accompanied by a professor or administrator, these opportunities become integrated into the classroom as part of the curriculum. Group reflection serves a large purpose in service and volunteer activities, exposing students to and encouraging them to share new ideas and emotional experiences that may not be discussed in a traditional classroom setting.

Allegheny College Students in the Context of Community Development

Brian Anderson (Environmental Science, Class of 2013, Allegheny College)

My paper asks: “How well are Allegheny College students prepared to do community development work and how they might be better prepared?” Allegheny College has expressed two relevant goals: (1) the College will soon require all students to study away; (2) the College will look to improve its community outreach activities through better coordination and consolidation (Combinations 2020, Allegheny College). Because of the institutional and pedagogical focus on study away, we need to critically examine the role of students in community development work. Community development work can fail when there is a lack of understanding, and different goals and beliefs, held by the key stakeholders. Allegheny College students may be ‘outsiders’ in the communities where the development projects take place, which is why I propose that the College needs to properly prepare students through a special training sequence prior to embarking on the study away. I look to a range of experiences from the undergraduate student perspective to explore reasons that preparatory trainings have worked well, and where they come up short of expectations. My analysis is based on interviews with five current Allegheny College students who have navigated the outsider/insider dynamic during their college experience. From the interviews, I will provide suggestions for training areas that Allegheny College can provide to produce more effective student study away experiences.

Transformers and the Transformed: Communities as partners in the development of a place-based learning curriculum

Joseph Lanning (Anthropology, University of Georgia)

This paper examines how community members interpret, evaluate, and contribute to the curriculum development and enacted learning of the students and educators in the Malawi Immersion Seminar, a place-based learning initiative in Malawi, Africa. While addressing the participation of community members in a particular case study, this paper asks broader questions about 1) how to integrate the diverse expectations of community members in the formation of curricula and 2) how the transformative impacts of place-based learning may be unevenly distributed among community members. Given the heterogeneity of expectations and impacts, partnership formation and continuity between educators and community representatives are explored as foundational elements in the development of models for place-based learning initiatives. Place-based learning asks educators and students to not only look out the classroom window, but to step outside and engage communities. From many windows of the western world, 21st century Africa looks eerily similar to the 19th century view of David Livingstone when he described the continent ripe for “commerce and Christianity.” Movies, media, the myths of past explorers, and stories of many modern day study abroad students shape the popular impression of Africa, as a place of tribes, disease, hunger, and warfare. While educators intend for place-based learning to challenge biases and contextualize poverty, suffering, and social-ecological constraints and opportunities, a desire to “help” often motivates students to study in Africa. Place-based learning calls educators to develop curricula that “examine more distant and abstract knowledge from other places” (Smith 2002) allowing students to “witness and develop forms of empathetic connection with other human beings” (Gruenewald 2003). Initiatives like the Malawi Immersion Seminar stand to benefit from partnering with community members in the

development of curricula that addresses their diverse goals and expectations, while addressing the inherent complexity of getting involved in community problem solving.

CONCURRENT SESSIONS II: 10:00am – 11:40pm

Session: Political Ecologies of Health 2

Student Center 206

Organizer and Chair: Michele Flippo Bolduc (Geography, University of Kentucky)

Comparing Asthma's Multiplicities: A Political Ecology of Environmental Health in U.S. Cities

Alison Kenner (Science and Technology Studies, Rensselaer Polytechnic Institute)

This paper takes asthma as an object of analysis to explore the multiple layers and dynamics that produce environmental health problems. Focusing on urban spaces, this paper examines the relationship between scientific understandings of asthma triggers and the ways in which asthmatic patients manage their environmental contexts; how asthmatics make daily and long-term decisions in order to accommodate their chronic condition. Decisions based on disease management significantly shape quality of life and may impact socioeconomic opportunities. Yet asthma burden is not evenly distributed; public health studies show that asthma impacts communities and demographic groups that are most politically marginalized. Comparative data on U.S. cities illustrates relationships between weak environmental laws, high asthma incidence, and poverty rates. Using a political ecology of health framework, this paper analyzes connections between public policy, health infrastructure, demographics, and environmental conditions, and in doing so, argues that approaches to asthma must take into account local and regional dynamics. The paper will review how local policies designed to reduce asthma triggers (such as smoking and idling laws, air alerts, and ride share programs) speak to the particulars of local contexts. The paper contributes to the political ecology of health literature by connecting different scales of analysis—the decisions and impacts on everyday life, the contours of community environments, city and state policies, and health infrastructure.

Engineered Poverty – An Analysis of Engineering Approaches to Sanitation Conditions in the United States and Tanzania

Jennifer Carrera (Sociology and Environmental Engineering, University of Illinois at Urbana-Champaign)

According to the World Health Organization (2012), roughly 2.5 billion people worldwide lack access to sanitation. Although 1.8 billion people have gained access to sanitation since 1990, because of population changes, the net improvement in access has been only 0.3 billion people. The restrained success of sanitation improvement efforts is due in part to cultural incompatibility of engineered designs and failures to engage community members in the sustained maintenance of sanitation technologies. Compounding matters, these numbers are conservative in their estimation of the number of individuals living in unsanitary conditions. The official numbers primarily measure the presence of technological infrastructure without an assessment of the functionality of that infrastructure or individuals' ability to make use of that infrastructure as impacted by other factors (access to water, adequate finances for maintenance and repair, energy costs, etc.). This paper examines two rural contexts (the absence of properly functioning septic systems in Alabama and deficiencies in access to improved toilets in Tanzania) in an effort to compare engineered approaches to conditions of extreme poverty in both a developed and a developing nation. The data for this paper are derived from ethnographic dissertation research collected in Lowndes County, AL in 2010 and from preliminary findings from a site visit with a household pilot survey collected in rural Tanzania from January 30-February 16th, 2013. The paper discusses ways in which engineering knowledge regarding sanitation struggles in poor communities is constructed and how those constructions limit path dependent options for environmental remediation and health improvement. The aim of this analysis is to characterize the production of engineering knowledge related to sanitation under conditions of poverty and to expand the potential engineered options for integrated solutions to improve living conditions in poor communities.

Exploring Political Ecologies of Health and Vulnerability in the Mikea Forest Region, Madagascar

Amber Huff (Anthropology, University of Georgia)

The relative security or vulnerability of rural livelihoods is affected by complex processes that present significant analytic challenges to researchers interested in understanding relationships among political ecologies and human health. In response to the need for increased theorization of how political ecology can contribute to studies of health and disease, this paper proposes an approach to understanding how variation in health is produced in contexts of rapid sociopolitical, economic, and environmental change. Using analyses of ethnographic and nutritional data, I seek to understand variation in livelihoods vulnerability among Mikea people living in three communities in rural southwestern Madagascar. In 2009, research participants were affected to different degrees by long-standing regional insecurities and more recent factors of socio-environmental change including drought and increasing climatic unpredictability, changing entitlements, and the establishment of a new restrictive protected area. Livelihoods vulnerability is assessed in terms of the nutritional status of adults and children. Analyses demonstrate significant variation in this manifestation of vulnerability among research sites, and dynamic changes occurring across two seasons of data collection. These results are explained within a synthetic political-ecological framework inspired by two complementary contextual approaches to vulnerability: the Multiple-Stressors approach (Casale et al. 2009; O'Brien et al. 2009) and the Space of Vulnerability approach (Leatherman 2005; Watts and Bohle 1993). Rather than focusing on linear pathways of causation, the proposed framework focuses on articulation among processes that (1) are associated with long-term adaptability in the region, and (2) on factors that are perceived and experienced as acute stressors. By identifying such spaces of articulation, we can better understand how factors that cross spatial and temporal scales are associated with variability in observed patterns of health and wellbeing. Frameworks that synthesize complementary theoretical and methodological approaches to understanding contextual dimensions of human security are a promising way to develop our understanding of human adaptability in the face of dynamic social and environmental change.

Viral Anxieties: Orangutans and Microbiopolitics on North Sumatra's Rainforest Borderlands

Joe Klein (Anthropology, Beloit College)

On the edges of the political forests of Northern Sumatra, multi-species clouds (Lowe 2010) of pathogens are changing what is possible for Indonesian natures. Viruses, helminths, protozoa, and bacteria have enlisted an assemblage of vectors for their globe-crossing disease making projects. Many species of primates, tourists, pigs, fruits, farmers, and others are drawn into these microbial futures where no group's survival is guaranteed—especially that of the critically endangered Sumatran orangutan. This disease ecology, one based on romantic vision, shared genetic history, and affect between humans and apes, indexes old and new ideologies of difference and belonging in Indonesia, forcing many questions. How do we know “who is who”? Who may govern how certain bodies relate and intra-act? How can we imagine different futures for nature in a time of global environmental danger, where the assault comes not only from outside, but from within? In this ethnography, I tell the story of how these microscopic actors came to matter, and of the new forms of (micro)biopolitical intervention, management and observation they engender. Drawing on participant research conducted with a team monitoring the health of wild and semi-wild orangutans, I discuss how these pathogenic networks reconfigure the political ecology of North Sumatra's forest zones.

Session: Weaponizing Nature

Student Center 249

Organizer: Patrick Bigger (Geography, University of Kentucky)

Chair: Eric Nost (Geography, University of Kentucky)

Creating a Great Green Fleet: The United States Navy's intervention into the synthetic biofuels industry

Patrick Bigger (Geography, University of Kentucky)

In the summer of 2012, the United States Navy conducted a test of synthetic biofuels during the biannual Rim of the Pacific War Games. The Navy purchased 900,000 gallons of biofuels derived from a number of feedstocks, including algae oil and recycled cooking oils. This test was part of a larger initiative within the Navy to transition to a 'Great Green Fleet', an explicit nod to Roosevelt's 'Great White Fleet' which switched from coal to oil power on Navy Vessels. Purchasing synthetic fuels is one component a suite of six energy initiatives justified through a discursive mélange around the global projection of US military power, sustainability, uncertain energy and economic futures, and mitigating climate change. The US Navy's commitment to more energy-sensitive practices represents a new form of military Keynesianism that takes environment degradation seriously while seeking to prop up new industries that have military utility. However, this commitment runs counter to at least two dominant strands of contemporary American political discourse: rejection of climate science and (selective) refusal to intervene in the economy. Ultimately, the conflict between the Navy's energy goals and factions within US government represents a fissure within institutions integral to the functioning of contemporary US imperialism. This intra-imperial conflict has ramifications for both militarized understandings of nature and the possibilities for military intervention into energy markets.

Climate (In)security: Development as Intervention in the EU's 'Neighbourhood Policy' Responses to Environmentally Induced Migration

Austin Crane (Geography, University of Kentucky)

With respect to migration, climate change can be viewed as a matter of spatially differentiated (in)security. This paper takes an interest in how European Union leaders are recognizing the realities of land degradation and changing temperatures, precipitation patterns and sea levels in North Africa, and constructing a security threat from environmentally induced migration that justifies certain material interventions and exclusions. The EU's European Neighbourhood Policy (ENP) establishes an 'inner circle of friends' with neighboring non-member countries to the east and south, who are politically expected and concretely incentivized to cooperate with EU dictates on issues such as security, sustainable development, and migration. Through ENP mechanisms, the last decade has seen ongoing EU-financed development projects to 'externalize' its migration control to countries such as Libya and Tunisia, strengthening their capacity to 'manage' flows of migrants before they reach the EU's shores. This paper locates within the ENP framework an impetus toward interventionism in North Africa that blurs security and development policies. It considers how 'European' geographical imaginations of the threat of out-migration stemming from climate insecurity in North Africa result in development interventions that operate across space to stymie the environmental migrant's mobility, and further, to extend discourses and practices of sustainable development into the realm of security and border politics. Ultimately, the EU's insecurity is juxtaposed with that of the environmental migrant's, calling attention to the fundamental incoherence between neoliberal globalization's climate effects and the idealized security of the nations and institutions that most aggressively advance and secure it.

Securing Ecology: Aerial Drones, Environmental Harm, & the Fetish of Security

Tyler Wall (Justice Studies, Eastern Kentucky University)

Aerial drones, or Unmanned Aerial Vehicles (UAVs), have emerged as the “cutting edge” of contemporary state power, particularly in regards to US pacification projects in Iraq, Afghanistan, and Pakistan. Therefore, from the start military drones must be situated as a key sociotechnical weapon system of ecocide, as attested to by their participation in the coercive extraction of overseas natural resources, destruction of foreign habitats and bodies, and contamination of distant landscapes and airscares. Yet drones are also being deployed in a wide variety of other spaces and in service of ostensibly non-military objectives, namely for our purposes here, the policing of environmental crimes and more general concerns of “the environment” such as conservation, sustainability, agriculture, and weather-related developments. Indeed, drones are but one of the most nascent “boomerang effects” (see Graham 2010) where military technologies designed and deployed in service of the pacification of foreign bodies and markets migrate back to the metropole in order to “secure” domestic populations, territories, and markets in regards to a plethora of contexts and issues. Although on first glance, the emergence of “environmental police drones” or “conservation drones” might appear unproblematic and a welcomed approach to help forge a more

responsible and sustainable ecology, this paper suggests that the use of drones to police environmental destruction should be contested and critiqued forcefully. I suggest that one reason to think critically about the emergence of drone-ecology is the extent to which the logic of security, here understood as a foundational logic of state power and capital accumulation (Neocleous 2008), circumscribes both drone technology and ecological politics. If security is, as Marx once wrote, “the supreme concept of bourgeois society,” then it might prove for useful for those interested in political ecology to consider how the discursive framing and material reality of “the environment” comes to be animated and circumscribed by the logic, or fetish, of security. In this light, what the case of environmental drones demonstrates is how popular and widespread concerns over “the environment” is often articulated first and foremost as an issue of insecurity and hence a problem demanding to be “secured” by the capitalist state.

Deaf whales/whale death: sonar use and the militarization of the ocean
Jessi Lehman (Geography, University of Minnesota)

What does the specter of massive whale beachings have to do with the militarization of nature? What can hearing loss among some of the planet’s largest living mammals tell us about changing geopolitical relations of violence? In this paper, I explore the phenomenon of whale beaching and hearing loss as a result of naval use of sonar in the world’s oceans. Sound, through sonar technology, allows naval forces to navigate and locate underwater targets or other vessels. But humans are certainly not the only sonic actors in the sea: whales and other marine megafauna are highly sensitive to sound, as they rely on acoustic means of navigation and communication. The use of sonar by military vessels (and commercial fishing, shipping, and drilling) has been shown to cause hearing damage and disorientation among whales and other marine animals, resulting in mass beachings and even deaths. These events and effects have increased dramatically in recent decades, as has media publicity and public outcry about the issue. This corresponds with the increasing range and power of naval technology as well as advancements in bioacoustics that allow scientists to better understand the impacts of anthropogenic undersea sound. Yet, the real consequences of sonar and other sources of undersea noise on different species and entire ecosystems remain largely unknown, shrouded in the mysteries of the deep. This paper argues for taking undersea sound seriously as a way to approach contemporary relationships of power and violence between and across species in the space of the sea, lending new dimensions to understandings of military/nature entanglements.

Session: Resource Extraction
Student Center 205

Chair: Priyanka Gosh (Geography, University of Kentucky)

Environment not/regulated and not/controlled: four mini-case studies from the Alberta oil sands
Hugh Deaner (Geography, University of Kentucky)

This paper investigates the messy relationships between environmental governance in Alberta and the productions of its oil sands industry. The objective is to penetrate the fog of sustainability discourses by shedding light on labor practices at the sites of commodity and waste production surrounding Fort McMurray. Four mini-cases rough up sustainability discourse's depictions of control and smooth improvement through their findings of heavy regulation and little control, heavy regulation and tight control, no regulation and no control, and no regulation and tight control. These same findings problematize scapegoating; laborers whose direct activities constitute immense environmental impacts are themselves among the people directly affected by those same environmental impacts, as well as in some cases involved in internationally-recognized achievements in environmental abatement and restoration. Moreover, these same workers are fulfilling normative obligations to contribute to the economy, raise families, pay debts, and consume.

The Politics of Oil in Southeastern Turkey: A Deeper Look into Local Tensions Produced by Foreign Oil Companies
Defne Sarsilmaz - (Geography, Florida International)

Oil exploration and production operations carry the potential to transform rural communities. While transnational corporations, neoliberal development agencies, and governments tend to highlight the positive outcomes of such operations, studies show serious environmental, political, and social degradation. Through entering the free market economy in the 1980s and privatizing its oil and natural gas sector, Turkey has opened its borders to foreign oil explorers.

This paper will explore some of the local tensions produced by foreign oil companies in rural communities of Southeastern Turkey. Showing how multiple actors contribute to the tensions (the Turkish military, Kurdish guerillas, North American and local Kurdish workers), I will try to detangle some of the complex narratives. My research builds upon a personal visit to the region in 2010, lengthy interviews with a local Kurdish oil field manager, news articles, and Turkish public and government websites.

I draw on Arturo Escobar and his study on local tensions in the Colombian Pacific; Jake Kosek and his study of the Northern New Mexican forests as hubs of racial and ethnic tensions; and Bruce Braun and his study on the capitalist imprint in the rainforests of British Columbia. This study is important in understanding how governments adjust petroleum laws in order to attract foreign investors, how privatization affects the dynamics of the oil sector, and how foreign presence can escalate tension and violence in already racialized and conflicted regions.

The Role of the Public in Effecting Renewable Energy Transitions through Engagement in Renewable Portfolio Standard Policy
Xi Wang (Environmental Studies, University of Colorado-Boulder)

Energy as the ability to do work is the productive force at the heart of many economic, social, and environmental changes associated with modern transformation. In light of climate change and predicted fossil fuel depletion, many nations have mandated transitions away from traditional energy sources, and are focusing on augmenting their renewable energy portfolios. In the United States, federal Renewable Portfolio Standard (RPS) proposals, which require electricity producers within a jurisdiction to supply a certain minimum share of their electricity from designated renewable resources, have

failed in Congress in recent years, so no such strategy exists at the national level. In the absence of federal action, states have acted: 29 U.S. states and territories (60%) have mandated Renewable Portfolio Standard (RPS) requirements and eight (15%) have non-enforceable RPS goals.

The spectrum of state-level RPS promulgation and the variation in requirements create an ideal experimental environment for understanding the factors that facilitate or impede transitions to renewable energy sources. Policy changes, such as RPS requirements, are the product of large-scale social, economic, and political changes and also of attempts by various stakeholders to compete for power and efforts to develop more knowledgeable means of addressing a policy issue. This research focuses on the latter, on how policy stakeholders' engagement of the public facilitates or impedes transitions; the results of this study can in turn begin to offer some understanding about the former, of how to effect macro-scale policy regarding transitions to renewable energy sources. My research aims to map the level and influence of public engagement and rhetoric in renewable energy transitions by specifically examining how this engagement correlates with various levels of success in achieving RPS requirements. This will be done through state-level case studies focusing on key pieces of legislation.

The State is dead, long live the State: Re-inserting the State in the gold mining industry in Zamora-Chinchipec, Ecuador Cristian Melo (International Relations - Instituto de Altos Estudios Nacionales)

We analyze how historical successes influence Ecuador's neo-developmental regime attempt at regulating mining. We point out the failings of neoliberal regulatory frameworks in comparison with the post-neoliberal one. Our findings suggest the neo-developmental project inherited a blind spot in regards to subsistence mining. This lacking is worrisome, as it will lead to a protracted three way conflict between the State, subsistence miners and their medium and large scale counterparts. We argue that post-neoliberal policies mistake increased presence of the state in the economy as a substitute for effective regulation.

The politics of foreign land acquisition in Ghana's small-scale alluvial gold mining industry Heidi Hausermann (Human Ecology, Rutgers University)

Scholars have argued recent foreign expropriations of natural resources in Africa are based on reinforcement of alliances between international capital and African political elites (Ayers 2012, Shivji 2009). This paper untangles the political relationships mediating land acquisition by foreigners in Ghana's unregulated gold mining industry. Based on interviews with state officials, traditional leaders, small-scale farmers, miners and others, I argue foreign acquisition of land for unregulated mining, which is not permitted under Ghanaian law, is negotiated through complex relationships between differently situated individuals, including government officials. This paper also examines the outcomes of such relationships on land-cover and livelihoods, including food security concerns as farmers are dispossessed of land. I conclude that while land deals are shaped through corruption and largely benefit political-bureaucratic actors and foreign investors, they also reveal a splintered state wherein some state officials lament and criticize the socio-ecological outcomes of foreign land acquisition while others use their positions to ensure its reproduction. This paper contributes to political ecologies of the state. In particular, it picks up on recent calls to better understand state dynamics in land deals (Wolford et al. 2013).

Session: Towards a Relational Political Ecology 2 Student Center 211

Organizers: Daniel Cockayne & Ryan Cooper (Geography, University of Kentucky)

Chair: Ryan Cooper (Geography, University of Kentucky)

Landscape Ecology and the Quest for Holistic Natural Resource Management Russell Hedberg (Geography, Pennsylvania State University)

Relational theories like those developed by Latour and Deleuze and Guattari have great explanatory strength to provide powerful insights into complex relationships that entangle humans, non-humans, and even the immaterial realm of ideas. The great challenge for relational theory is to move from explanation to action. This is especially true in the context of resource management and conservation where management often leads to human suffering with negligible ecological benefit. Unfortunately, conservation decisions (or policy decisions of any kind) generally require simplification – the hobgoblin of relational theory. Furthermore, conservation decisions are frequently based on biophysical science that tends to neglect human/social processes and understands research problems through a wholly different set of terms. In this paper I endeavor to utilize landscape ecology as a relational framework for both conceptualizing ecosystems and devising effective holistic conservation strategies. Drawing on fieldwork in the Bolivian Andes, this paper uses systems theory, non-equilibrium ecology, and Naveh and Lieberman's "Total Human Ecosystem" to argue for a relational theory that focuses on ecological connection, and provides a common language for conservation planners and physical and social scientists alike.

Geopolitical Maize – Socioecological Collectives and Mexico's Agricultural Modernity Emma Mullaney (Geography and Women's Studies, Pennsylvania State University)

This paper examines everyday practices of maize production and agricultural extension work and research in Mexico's Central Highlands to discuss how the scales of sovereignty over food systems are constituted and contested by relationships between different actors, both human and otherwise. Drawing on a combination of ethnographic research, oral histories, and my own corporeal experience of living and working in the region, I traverse the two distinct maize systems that dominate this agrarian landscape and are produced in tension with one another. Whereas the first centers on locally-adapted criollo varieties that farmers have bred themselves, the second is defined by non-renewable, high-input-demanding hybrid seed. I examine how maize germplasm and volcanic highland valleys work to constrain and enable particular practices of maize cultivation and commodification and how, as actors in geopolitical processes, they delineate who has authority and control over which forms of life. These nonhuman actors disrupt the daily livelihood practices of the various humans (including members of smallholder farmer families, agricultural extension agents, and agricultural researchers) at work

in maize production in this agrarian landscape, and present unexpected challenges to decades of concerted government attempts to restructure seed sovereignty and food security according to nationalist and capitalist priorities. As my research demonstrates, attending to the agency of nonhumans in development processes challenges conventional explanations for the persistence of small-scale, diverse maize systems as somehow vestigial, and has potential for identifying new political ecological possibilities.

Giving Shenandoah Mountain a Seat at the Table: Ecological Symbolism in Collaborative Land Use Planning

Rob Alexander (Political Science, James Madison University)

The eastern edge of the Appalachian valley and range province in Virginia is home to a unique network of recreation, ecologic, hunting, and federal agency interests working together to produce a land management proposal for the Shenandoah Mountain area of the George Washington National Forest. This area has been tagged as an ecologically significant area by the Virginia Wilderness Committee and its allies. The uniqueness of this partnership entails the extent to which this diverse set of actors has achieved mutual agreement on proposed uses of the land involved given the high levels of conflict between similar sets of actors in other regions of the country. This paper examines how ecological advocates created high levels of process satisfaction amongst network actors by analyzing the use of ecologic rhetoric in network negotiations. Utilizing theories of network power dynamics and collaborative management, this paper asks “to what extent does the use of ecological symbolism interact with perceived power amongst network actors to produce satisfactory outcomes?” A goal of this paper is to provide insights regarding how ecological advocates in land use planning networks may address power disparities inherent to federal land use planning by leveraging the moral appeal of preserving wilderness entities.

Networking Azraq: Cutting/isolating for responsibility?

Sylvie Janssens (Social and Political Sciences, Ghent University, Belgium)

The attractive power of a relational ontology that calls for a re-distribution/non-centering of agency cannot be underestimated for the social sciences. The framing of agency as “an effect of authority produced in a network” (Kirsch and Mitchell 689: 2004) and therefore attributable to both humans and non-humans has no doubt enhanced our understanding of the political ecologies of uneven development. Yet, critical reflections have been raised about the implications of this distributive and networked agency for notions of responsibility and accountability. The relational understanding of agency, according to which effective capacities can be trans-acted amongst multiple heterogeneous elements within diverse networks, seems to leave responsibility as an endlessly expansible and complex mosaic of dispersed power-effects for which no one can be held accountable.

Focusing on Azraq, a village in the Northeast of Jordan craving for water, this paper rethinks the notion of responsibility in hybrid networks as well as the (human) will and need to locate it. I (somewhat arbitrarily) start by mapping past and current hybrid networks that have crystallized and dissolved around a non-human actant (migratory birds). I then trace the diffused and differently lived effects of these networks on the unequal water allocation within Azraq. This allows me to explore and discuss the ways in which responsibility gets diffused and passed on through these hybrid networks. Finally, following Marilyn Strathern, I investigate if and how boundaries can be drawn within Azraq’s metaphorical mosaic of responsibility - i.e. to “cut” or isolate networks - in order to better locate responsibility.

Toward a Political Ecology of Home

Jennifer Coffman (Integrated Science and Technology, James Madison University)

Fletcher Linder (Anthropology, James Madison University)

Drawing on phenomenologically inspired theory on architecture and craftwork, this paper maps out how the home-as-subject can broaden and personalize classic questions of political ecology. The authors begin by examining the contributions of Martin Heidegger’s concept of dwelling as a way to frame the home as a proximal environment that influences and is influenced by habits of mind and affect, rife with complex and contradictory political and ecological dimensions as they are. The paper then proposes that the home as a site of maintenance foregrounds the power of the built environment itself to structure human action. As such, the home serves as a locus (source and sink) in which political actors are cultivated, challenged, and potentially transformed. These relational processes are manifest through the aesthetics and physical layout of the home, as well as what happens within it – including the creation of selves via material throughput, divisions of labor, and more.

Session: Food, Identities and Political Possibilities in a Trans-regional Perspective

Student Center 228

Organizer: Eloisa Berman-Arévalo (Geography, University of North Carolina at Chapel Hill)

Chair: Mary Beth Schmid (Anthropology, University of Kentucky)

Towards a geographic theory of food sovereignty: mobilizing subversive spaces, temporary territories and insurgent citizenship

Amy Trauger (Geography, University of Georgia)

Food sovereignty identifies the state and capital as complicit in the inequities and injustices in the contemporary food regime, including and especially the alienation between producers from consumers. Among food sovereignty’s many demands, is a call to a return power and control in the food system to reconnect nature and society through reconfiguring systems of food production and distribution. This article uses geographically informed theories of space, territory and sovereignty to explain the discourse and practice of food sovereignty. I draw on the insights of post-structuralist social theorists, political geography and anthropologists to engage critically with what I see are specifically spatial and geo-political epistemologies of food sovereignty. I position food sovereignty as temporary territorial claims to space as an insurgent assertion of power over territory and a demonstration of allegiance to

the moral universals in nature and community. This paper works to position empirically based literature on food sovereignty within a framework of geographic thought and provide a theoretical frame for future research on food sovereignty in geography.

Geographies of Food and Place: Towards a Theory of Urban-Rural Rift Levi Van Sant (Geography, University of Georgia)

This presentation argues that geographies of food and agriculture must more fully take into account the degree to which the relationship between country and city shapes everyday life. Drawing from postcolonial and Marxian thought, I lay out a theory of the urban-rural rift as a set of antagonisms which produce and sustain the difference between “urban” and “rural”. This rift, I argue, is fundamentally intertwined with the creation of the so-called First and Third Worlds. After laying out this theoretical framework, I will explore the implications of the urban-rural rift for efforts to challenge global agribusiness. Ultimately I argue that studies of the so-called First World have over-emphasized food consumption while those situated in the “global South” have given it too little attention. What is needed is more sustained attention to the ways in which the cultural politics of food connect city-dwellers with agrarian landscapes and livelihoods. I will sketch a framework for doing so through an analysis of the ways that urban elite definitions of the goodness of food shape rural futures. In conclusion, I argue that any radical effort to challenge global agribusiness must rethink the division of the world into urban and rural. As William Cronon argues, “We all live in the city. We all live in the country” (1991: 385).

“Yo sí como como india” (I do eat like an Indian): Food, cultural difference and struggles for indigenous territorial rights in the Colombian Caribbean

Eloisa Berman-Arévalo (Geography, University of North Carolina at Chapel Hill)

The political articulation of notions of “identity” and “territory” involved in indigenous people’s struggles has been widely discussed in the literature on new social movements in Latin America. The inclusion of food and agriculture into these discussions has generally centered in the recognition of the cultural, political and environmental dimensions of indigenous agricultural knowledges and practices, with an emphasis on the mobilization of discourses of food sovereignty, traditional agriculture, and ecological sustainability.

Drawing on feminist approaches in geography and political ecology, this paper shifts the attention to the symbolic, material and emotional dimensions of food preparation and consumption, and their political role in indigenous claims to territorial rights. Based on ethnographic fieldwork among displaced communities in the Department of Bolívar in Colombia, it discusses the role food in negotiating cultural difference, shaping political subjectivities and re-signifying notions of “land” and “territory”. It argues that a feminist approach to food provides a novel and interesting lens through which to understand contemporary indigenous identity politics, and broadens current debates on the political meaning of “territory” in indigenous peoples’ struggles.

Urban food gardening in the Global North: A mixed methods study of the home gardens of ethnic or immigrant households in Chicago, IL

John R. Taylor and Sarah Taylor Lovell (Crop Sciences, University of Illinois)

In the United States, interest in urban agriculture is flourishing, and community gardens sponsored by nongovernment organizations have sprouted across the landscape. At the same time, home food gardens—arguably an ever-present, more durable form of urban agriculture—and their contribution to the quality of urban life in the United States—and elsewhere in the Global North—have been overlooked by policymakers and understudied by academics. The lack of attention to these gardens is puzzling, given the demonstrated benefits of home gardens in the Global South. To begin to address this gap, we conducted a mixed methods study of 30 African American, Chinese-origin, and Mexican-origin households with on-lot or vacant lot food gardens in Chicago, IL. A series of semi-structured interviews with gardeners and other household members focused on gardening practices, personal history, foodways, family process, and neighborhood context. Gardens were inventoried and mapped, and the physical and chemical properties of garden soils were analyzed. Study findings suggest home gardening contributes to community development, household and community food security, and the reproduction of cultural identity. The majority of informants were internal or international migrants. For these individuals, gardening and the foodways it supports represent a continuation of cultural practices associated with their place of origin. The gardens of some migrant households may also harbor significant urban agrobiodiversity with roots in the Global South. At the same time, gardening practices—and a lack of public outreach to urban home gardeners—may expose vulnerable populations to environmental hazards such as soil contaminants.

Cultivating Development: Agroecology and Social Organizations in Bolivia

Erin Beasley (Forestry & Environmental Studies, Yale)

Non-industrialized agriculture in Cochabamba, Bolivia is characterized by diverse farmers’ associations and cooperatives that regularly interact with local, national, and international NGO’s. I examine these institutions and examine their justifications for promoting non-industrialized agriculture among smallholder farms. While organizations use similar vocabulary to represent the purpose and scope of their work, they reflect a practical chaos between two seemingly opposed visions of agricultural development: one recognizing outward-facing trade relationships and international buyers, and one espousing the household farm as the nutritional foundation for the country. While all groups seek “el vivir bien,” or the good life for Bolivia, I show that the terms “agroecology,” “food sovereignty,” “sustainable agriculture,” and “ancestral practices” are used differently between institutions to represent different agricultural practices that support their visions of development. Bolivia’s government is recognized in international discourse on sovereignty and respect for nature, but also supports agricultural expansion by “colonizing” protected forest lands. At the same time, women in smallholder communities are organizing for alternatives to purchased seeds and pesticides used in their production, collaborating to ensure the dietary needs of their families. It is on this dynamic backdrop of political articulations that definitions of alternative agriculture are being formed. My analysis focuses primarily on the term “agroecology” and its use by social organizations to argue that broad definitions permit collaborations in a region where

personal relationships are paramount. I also suggest that these broad definitions allow for adaptive organizations that morph to fill open niches, supporting the long-term survival and evolution of agroecological practices.

Session: Critical Learning in Critical Spaces: Pedagogical Implications of Engaging 'Community' 2

Student Center 231

Organizers and Chairs: Elizabeth A. Olson & Shaunna Barnhart (Allegheny College)

Pedagogies of Brazil's Landless: Towards a Political Ecology of Education

David Meek (Anthropology, University of Georgia)

Knowledge of the environment is a cultural product—one that is legitimated, disseminated, and contested at various scales. Although knowledge and power are hallmarks of political ecology, a theoretical lacuna exists concerning how education and politics intersect, differentially mediating entities relations to space, place, and resources. This paper begins constructively filling this void by sketching a theory of the political ecology of education. Such a political ecology recognizes that knowledge delineates cultural identity, and differentially controls access to land, skills, sustenance, and ultimately power. This paper begins by enumerating the foundational principles of political ecology that guide this new approach. It then illustrates its applicability through a case study of agricultural extension education in an agrarian reform settlement of Brazil's Landless Workers' Movement (*Movimento Sem Terra*, MST). The paper follows the diverse circuits of agricultural extension within this settlement's 17 year history. As education informs knowledge and conceptions of the environment, as well as access to it, through tracking these circuits a political ecology of education emerges—one grounded in place, power, and politics.

How do we measure the value of community-based engagements

Brandn Q. Green (Coordinator, Place Studies Initiative, Bucknell University Environmental Center)

Are the traditions within academia, those of organized knowledge, systematic investigation, and repetition as a means for learning and sequential skill acquisition compatible with participatory learning? In this talk I provide an analysis of the possible tensions between offering contextualized knowledge via community-based research and the contract that a student has with a university for acquiring sellable skills. When discussions of place-based learning take place, they do so in the context of a greater good view which may or may not be the province of an institution also functioning as a credentialing agent for the labor market. I investigate these concepts in this paper within the context of the Place Studies Initiative at the Bucknell Environmental Center which focuses upon Environmental Humanities, Sustainable Communities and Environmental Justice as main areas for connecting students to research on localized social issues and problems.

Knowledge production: new dynamics, new challenges

Martha Marquez (Philosophy of Science, UNAM)

This work deals with the way in which is transforming the production of knowledge in universities, where begins work hand not scientific experts and other stakeholders in research projects with attention from local problems, whereas the sustainable and harmonious development with nature. From the perspective of philosophical and social studies on Science and technology, this paper deemed necessary to scientific work occur hand with society and local contexts aside from the hegemonic discourse of the scientific expert to work shoulder to shoulder with the non-scientific expert, looking at problems from different perspectives that lead to joint and comprehensive solutions. These experiences can generate useful for other regions practices and can contribute to the construction of more appropriate and policies congruent for the resolution of both global and local problems. In the case of the National University Autonomous of Mexico, in some projects, gradually redesigned conceptions and research problems, to integrate communities and its environment in the solution of local problems, seeking thus integrating formal knowledge with the Tacitus, in the search for shared solutions that enable local development with respect for the ways of life of every social group and its surroundings. Some experiences made and underway in the UNAM will be raised in this paper.

Critical learning for whom? Reconsidering the importance of place in an era of globalization

Elizabeth A. Olson (Global Health and Development, Allegheny College) *Discussant*

Higher education is transformative. Critical theory provides an analytical framework for considering the nature of the transformation, thus allowing for a reflexive engagement with pedagogy for learners, teachers, and community members. Transformative education is not confined to the traditional classroom, nor barred from it – though cross cultural experiences and the opportunity to participate in non-traditional classroom settings has been a hallmark approach to provoking a positive transformative experience. Place-based education emphasizes the situationality of learners and teachers, thereby creating opportunities for action. In this panel, papers reflect on the importance of place-based learning and critical pedagogy for environmental and social justice issues. We invite authors to explore the spectrum of approaches to human-environment studies, including critical pedagogy and place-based learning, but we see these as merely orienting points of intersection on the range of experiential and engaged learning practices. We echo Gruenewald's call to higher education: "People must be challenged to reflect on their own concrete situationality in a way that explores the complex interrelationships between cultural and ecological environments," (2003, p. 6). In this session, we will reflect critically on our own roles as teachers, learners, and community members. With the appeal of community-based approaches to human-environment studies, there are a series of important questions that emerge for both learners and teachers. Some of the issues that we encourage a critical reflection on include: How do community members receive learners and teachers into their community-based problem solving? What are the challenges for learners and faculty involved in studying political ecology both in and outside of the classroom? Critical pedagogy is very conducive to trans-disciplinary and transformative educational approaches (Gruenewald 2003). What can traditional knowledge and critical studies of epistemology teach us about contemporary human-environment problems?

How are communities, learners, and teachers transformed through ‘engagements’ and participatory-action research? In a critical pedagogy teachers can take learners to the action. What are the connections (inherent or constructed) between college campuses and communities where ‘action’ takes place?

LUNCH: 11:40 am – 1:00 pm

PANEL SESSION: 1:00pm – 2:40pm

Political Ecology: Pasts, Presents, Futures

Student Center 249

Conference Welcome: Nate Millington (University of Kentucky, Department of Geography) & Lily Brislen (University of Kentucky, Department of Sociology)

Moderator: Dr. Paul Robbins (University of Wisconsin)

Dr. Tom Bassett (University of Illinois, Department of Geography and Geographic Information Science)

Dr. Rebecca Lave (Indiana University, Department of Geography)

Dr. Becky Mansfield (Ohio State University, Department of Geography)

Dr. Damian White (Rhode Island School of Design, Department of Sociology)

See pages **9 & 10** for description

CONCURRENT SESSIONS III: 3:00pm – 4:40pm

Session: Toward a Political Ecology of Health

Student Center 206

Organizers and Chairs: Abigail Neely (Geography, University of Minnesota) & Alex Nading (Anthropology, Franklin & Marshall)

Internal Ecologies: a Political Ecology of Tuberculosis and the Body in South Africa

Abigail H. Neely (Geography, University of Minnesota)

South Africa is known as for its high rates of HIV and tuberculosis, where the HIV pandemic has provide fertile ground for a wave of TB infections. Indeed, HIV-TB coinfection is widely understood as one of, if not, the biggest health problems in the country. In practice, doctors and nurses understand that any unusual case of tuberculosis in an indication of HIV and they make diagnoses and treatment plans accordingly. In fact, in popular understandings of health and death in South Africa, TB infection is seen as a proxy for AIDS. This understanding is informed by population-scale data with little attention to individual people and the political-economic, cultural, social, and environmental contexts in which they live. Political-ecology, with its place-based analysis and with its utilization of quantitative, scientific data alongside ethnography provides an excellent framework for understanding South Africa’s HIV and TB in the context of poverty. For a political ecology framework to be useful, we must expand our understanding of ecology by looking at the body as having its own, internal ecology. By combining this “ecological” framework with health geography’s and medical anthropology’s insights into the embodied experience of illness in its cultural, social, and political-economic context, a political ecology of health emerges. This paper begins with an ethnographic example of the diagnosis of a woman who was infected with milliary TB but not HIV to illustrate what Becky Mansfield and Julie Guthman have called, a “political ecology of the body.” By examining the science of miliary tuberculosis alongside population-scale understandings of HIV-TB coinfection in the specific context of rural, South Africa, this paper challenges the way understand the health impacts of the HIV/AIDS epidemic by suggesting that the epidemic has health negative implications far beyond those people who are HIV positive.

The Dengue Multiple: Trash Collection, Public Health and Ontological Politics in Rio de Janeiro and Beyond

S. Christopher Alley (Public Health, Columbia University)

Local and global health policies and practices are struggling to respond effectively to dengue fever, the fastest growing vector-borne disease in the world. The World Health Organization (WHO) reports 50-100 million infections every year in over 100 countries where the mosquito-transmitted virus is endemic. In Brazil, which consistently reports the highest number of dengue cases of any country, political abandonment of the poor leaves trash uncollected in slums and fuels environmental risks for dengue mosquito proliferation. Yet Brazilian authorities follow WHO guidelines for intersectoral coordination of vector control, most visibly in Rio de Janeiro’s community-participatory trash collection partnerships aimed at reducing vector breeding sites and promoting social inclusion. Still, as documented in ethnographic research conducted from June 2011 to July 2012, dengue control partnerships

in Rio involve an array of stakeholders whose complex relationships both mask and expose social cleavages, further politicizing dengue and revealing multiple realities of the disease. Key informants in this research included members of a thriving social and environmental movement of catadores (informal waste pickers and recyclers), recycling entrepreneurs, and public health workers. In order to learn how various local realities of dengue fever register (or not) in the process of translating dengue science into global health policies, the fieldwork component of this research was followed by two months of policy analysis at the Special Programme for Research and Training in Tropical Diseases (TDR) at WHO headquarters in Geneva, Switzerland. This paper advances an empirical philosophy for interpreting how dengue fever realities are generated by a range of practices relating to disease ecology, and concludes that mutually contingent goals of effective dengue control and improved social equity require a cooperative perspectival approach.

Technocratic Mastery of Socionature? The Tennessee Valley Authority's Malaria Control Program

Eric Carter (Geography, Macalester College)

The Tennessee Valley Authority (TVA) created a globally influential model of regional development through centralized planning of massive public works to re-engineer social and natural systems in impoverished areas. Yet its role in malaria control in the Southern U.S. is largely forgotten, perhaps because the technical design of its control program, heavily reliant on environmental sanitation, was quickly supplanted by house-spraying with DDT. However, the TVA made malaria control an integral part of its development planning. In their holistic vision of environment and society, strong concept of the region as a planning territory, and faith in experts in science and technology, the TVA's malaria control strategies reflected the ideology of the agency as a whole. Blurring the distinction between social and natural realms, the ecology of malaria vectors served as a perfect metaphor for the agency's desire to produce a comprehensive transformation of the region's socionature. The omniscient "planner's-eye-view" could be trained not only on the regional scale of dams, reservoirs, and power grids, but also on the microscopic happenings of mosquitoes and parasites. Thus TVA malaria control programs reflected supreme confidence in the ability of humanity to master nature and harness its power. Although the TVA's ethos of modernization may be problematic, its management of malaria may indicate the strengths of integrating malaria control with broader development policies.

The Body as "Host": A View from Political Ecology

Alex Nading (Anthropology, Franklin & Marshall)

In Nicaraguan dengue fever prevention programs, from participatory mosquito eradication to vaccination plans, bodies are frequently envisioned as "hosts" for viruses, and households as more or less "hospitable" to dengue-carrying mosquitoes. Drawing on theories of hospitality as a set of practices that places receptivity in tension with hostility, this paper analyzes how the trope of the hosting body operates in dengue prevention.

In 2009, the Nicaraguan Health Ministry decided against hosting clinical dengue vaccine trials. The vaccine is being developed through a partnership among pharmaceutical companies, humanitarian donors, and academic scientists. The partnership hinges on the will of states to invite trials, so that they may later purchase vaccines and give them to citizens. This paper begins with the imaginary of the body-host to interrogate Nicaragua's refusal to participate in these exchanges. Officials I interviewed noted that the offering of citizens' bodies in trials administered by pharmaceutical companies amounted to the commodification of those bodies.

Centered on this act of seeming inhospitality, the argument of this paper is twofold: first, that the making of disease hosts in the technoscientific sense requires the cultivation of hospitality in the anthropological sense, and second, that hospitality becomes politically problematic when the act of hosting is seen to occur across scales: here, from cell to body to nation to globe. I show how the hosting body acts as a medium through which the logics of gift and commodity and of health and identity inform one another. The fact that infectious disease governance requires people to act in simultaneously receptive and hostile ways troubles familiar Foucaultian interpretations of public health as a tool of governmental knowledge/power, just as it calls into question the facile manner which humanitarian/corporate global health "partnerships" situate bodies within neatly scaled (imaginary) ecological systems.

Session: Capitalist Natures

Student Center 249

Chair: Jairus Rossi (Geography, University of Kentucky)

Transboundary Groundwater Governance and Unsustainable Practices of Governance in the Guarani Aquifer: The Case of the Province of Misiones

Paula Gomez (Geography, Louisville)

Recent changes in the governance of the Guarani Aquifer System - a transboundary ground water resource in South America - reveal contradictory practices of water governance embedded in the individual politics and ideologies of sovereign states overlying the aquifer. Emerging practices of water marketization in the province of Misiones, Argentina, contest the current prescribed scale of transboundary ground water governance, at the "basin level," and its principle of equitable and reasonable utilization under the sustainable development framework of the United Nations International Law Commission (UNILC) Law on Transboundary Aquifers. Embedded in discourses of neoliberal ideology, these practices naturalize an economic scale enclosed in on-going processes of capital accumulation, spatial expansion and profit-making, largely resulting in the unsustainable appropriation and degradation of natural resources. Furthermore, the centralization of power at the provincial level and the current predominant economic scale of water governance observed in Misiones reveal new power asymmetries which pose direct implications for the integral long-term sustainability of the Guarani Aquifer System. Using Critical Discourse Analysis (CDA) in archival documents, such as national and international water policy instruments, provincial news media and interviews, I examine the role of provincial ideology, practices and discourses in shaping state-level water policy institutions in relation to the sustainable governance of the Guarani Aquifer System. In line with these arguments, I propose to show that water governance in the province of Misiones is not sustainable because it is contradictory to the prescribed regional scale of transboundary groundwater governance and its principle of equitable and reasonable utilization under a sustainable development framework.

The political ecology of globalization, peasant dispossession and ecological rift in Bangladesh Manoj Misra (Sociology, University of Alberta)

The Intergovernmental Panel on Climate Change and many other international organizations have cautioned against the devastating impacts of climate change on Bangladesh's agriculture, which has prompted the government to demand compensations from the industrialized countries of the West to alleviate the threats on its agriculture and food security. This understanding of the government of high carbon lives in the West leading to global environmental changes is at odds with its apolitical and rather technocratic framing of domestic policies that tacitly view local environmental changes as being independent of the socio-economic structure, which appropriate technological innovations can successfully mitigate. Its unwillingness to engage in any worthy discussion about the impacts of current economic policies on environmental degradations and the refusal to consider the socio-ecological implications of further intensification of chemical intensive agriculture -- supposedly to cope with climate-induced production losses -- is ominous and demands careful analysis. This research then seeks to advance empirical evidence within a political ecology framework to highlight the way globalization-induced changes in the country's economic and agricultural policies have locked peasant communities and the environment in a mutually destructive course. I use the conceptual apparatuses of 'accumulation by dispossession' and 'ecological rift' to argue that Bangladesh's economic policies have created a rift between peasant producers and their local environment, which ultimately is hastening their own downfall. This research concludes by questioning the validity of the government's technocratic thinking that technological solutions are the principal means to address the imminent agricultural crisis without rectifying the socio-economic arrangements under which peasants carry out their agricultural work.

Palmed off? Sustainable palm oil and the case of the missing smallholders Stian Rice (Geography, University of Illinois)

Global demand for palm oil is at an all-time high. To meet demand, Indonesian palm oil production has more than doubled every decade for the last 30 years, now making up over 48% of the global supply. For the last several years, palm oil expansion has elicited a sustained remonstrance from civil society over a wide range of concerns, including deforestation, loss of customary land, market pressure on smallholders, and violent repression. In response, the Roundtable on Sustainable Oil Palm was established in 2003 to develop standards for environmentally and socially sustainable production. To this end, the RSPO created a certificate trading system to increase profits for sustainable palm oil producers. Since then, certified sustainable palm oil has experienced rapid growth in the plantation sector. Smallholders, however, have not participated in this growth. Despite the roundtable's pro-smallholder efforts, sustainable palm oil production today is a uniquely big business affair. The purpose of this study is to find out why. This study will explore four hypotheses for the lack of smallholder involvement in certified sustainable palm oil. The "greening" of palm oil is a USD \$3.5 billion industry that doubles in size every three years. Today, all profits from this growth are absorbed by large-scale plantations. The failure of smallholders to participate in sustainable certification will have significant livelihood consequences for thousands of small-scale growers.

Session: Resilience and Resistance Student Center 205

Chair: Austin Crane (Geography, University of Kentucky)

Cultural Resistance to Extraction in NW Ecuador Lindsey Shade (Geography, University of Kentucky)

Recent shifts in Ecuador's economy as well as the global price of copper have reinvigorated the contentious politics of large-scale copper extraction in that country. I present a case study of the everyday practice of resistance in the Intag region of Northwest Ecuador, where large-scale copper mining has been persistently opposed and successfully blocked by residents for approximately 20 years, primarily through direct action and the construction and implementation of a radical environment-development discourse. Drawing from both political ecology and post-development scholarship, I conclude that local actors in Intag face significant structural barriers to implementing their vision for social and economic change, but in the process of attempting to do so, they also transform the very institutions that limit their efforts. Although the post-development literature has been heavily critiqued by prominent political ecologists (Peet 2009; Blaikie 2000), I find it useful to draw from both perspectives in this analysis, and hope to show that they can complement each other in environment-development studies that emphasize processes of social change. Specifically, I contextualize the every-day practices and perceptions of resistance in Intag in terms of the contradictions of "doing" resistance within neoliberal capitalism, without fetishizing either the "global" or the "local" as being determinant to the course of resistance. Rather, I attempt to trace how the Inteño strategy has emphasized interculturalism to strengthen both economic and political solidarity, which not only resists the incursions of global capital but also constructs transformative engagements with it.

Resilience in the Highlands of Guatemala: Transforming Community through Struggles Against Gold Mining Samantha Fox (Sociology, Binghamton University)

A boom in the price of mineral commodities such as gold, silver, nickel, copper and other metals has generated a dramatic increase in the exploration and extraction of minerals around the world but especially in Latin America. Innovations in mining technologies have seen an expansion of investment into regions with previously inaccessible mineral deposits. One such location is San Marcos, Guatemala where the largest, most productive open pit and underground gold mine is located. The Marlin Mine has caused a great deal of controversy as indigenous peoples organized community consultations to decide whether to permit extraction within the adjacent municipalities of San Miguel Ixtahuacan and Sipakapa which border the mine. The community

consultations occurred despite opposition from the Guatemalan government and despite a lack of knowledge on the scale and impacts of the proposed project. In the face of these adversities, the people of the municipality of Sipakapa organized a municipal-wide community consultation where ninety-eight percent of voters rejected the project. This paper uses the community consultations as a point of departure to argue that the defense of community constitutes an appropriation of government by local peoples acting in the interests of the community to wrest control over development and promote sustainable livelihoods for the area's residents. Community's organization and control over the consultations exemplifies the idea of social resilience as people act in ways that maintain the social structures, organization, and logic of the community despite the penetration of capitalist values and logics into the region.

Community Resilience and Hurricane Ida: How Marginalized Salvadorans Lacking NGO and Governmental Support Cope with Climate Shock

Beth Tellman (Environmental Science, Yale University School of Forestry and Environmental Studies)

El Salvador is extremely vulnerable to disasters due to many factors, including poverty, deforestation, urbanization, and mass internal migration during the Civil War (1980 – 1992). The low capacity of the national and local governments to address social vulnerability and respond to disasters left El Salvador again exposed to Hurricane Ida in 2009. This paper explores vulnerability and capacity in response to the landslides caused by Ida. It does so using three nested scales: national, municipal, and communal. The case study highlights the lack of both governmental and non-governmental response in two communities forced to rely on their own resources of social capital and emergent organization in the aftermath of Ida. Comparative quantitative analysis of the two communities identifies the social factors of the more resilient community, as well as the roles of remittances and migration for post-Ida reconstruction. El Salvador must foster and replicate local and international good practices in Community-Based Disaster Management to successfully adapt to climate change.

Building resilience thinking into protected area management evaluation

Elisabeth Conrad (Institute of Earth Systems, University of Malta)

The concept of resilience has emerged as a major focus of attention for the management of social-ecological systems, particularly given the inherent complexity of such systems and widespread trends of environmental change. Protected areas constitute a key element of conservation strategies within social-ecological systems, but there is growing recognition of the need to evaluate the extent to which such conservation areas are successfully meeting their goals, based on substantial evidence that there are often significant management shortcomings. This research explores the extent to which key resilience concepts are incorporated within Protected Area Management Evaluation (PAME) methodologies, through a review of selected assessment approaches. The aim of the study is to identify any 'gaps' in addressing resilience within PAME methodologies, and to develop indicators/scoring criteria to address such gaps. Resilience assessment and PAME methodologies were evaluated with reference to a case study park in Tuscany, Italy (Parco Regionale della Maremma), where the extent of environmental change is known to be significant. Preliminary results indicate that the spatial and temporal scope of PAME methodologies tends to be more limited than that of resilience assessment, and that there are also notable differences in the consideration of disturbance and in the boundary of analysis. Overall, PAME methodologies appear to approach protected areas as predominantly static systems, whereas resilience thinking calls for management approaches that embrace ideas of dynamicity and change. These results have implications for the successful long-term management of protected areas, particularly where these are nested within larger systems which are subject to significant anthropogenic influence and where such protected areas are susceptible to phenomena such as climate change.

'The system is a house of cards': Theorizing environmental resistance from the margins

Sean Parson (Politics and International Affairs and Sustainable Communities, Northern Arizona University); Emily Howard (Political Science, Virginia Tech)

Communities throughout the east coast are organizing to resist hydraulic fracturing, a process that is despoiling their watersheds, while tens of thousands are protesting the development of the Keystone XL pipeline, which will flood US markets with tar sands oil. At the same time, native communities in Arizona are organizing against Peabody Coal, a company that is stealing their water resources and polluting their air, and Oregonians are setting up road blockades to stop the logging of some of the last old growth forests left in the United States. Throughout the country, countless activists and community members are working to stop global capitalism from destroying their local land bases and stealing local resources. While ecological resistance has become a mainstay of contemporary life, the field of political ecology has provided few tools to help examine ecological political action. The field of political ecology has constructed useful frames to help critically examine a range of different ecological behaviors: urban sprawl, "green" consumerism, and the privatization of commons. Our research expands this use of political ecology to draw together multiple political responses by mapping these forms of resistance within a theoretical framework. This project enables consideration of agency and responsibility in environmentalism, particularly as those are exercised in radical and non-mainstream ways. This paper uses the tools, frames, and technique developed by political ecology to construct a "political ecology of resistance." We propose a framework to analyze these various resistances, how they speak to current states of environmentalism, and what it means to respond to environmental and social crises. This paper surveys literature in environmental activism and theories of responsibility and connects them to real life situations for a grounded exploration of radical responsibility in environmentalism.

Session: Towards a Relational Political Ecology 3

Student Center 211

Organizers: Daniel Cockayne & Ryan Cooper (Geography, University of Kentucky)

Chair: Jon Finnie (Geography, University of Kentucky)

Wind and Wings: The production and (re)production of wind energy landscapes

Benjamin Haywood (Geography, University of South Carolina)

The force of wind has been used by human societies for centuries for mechanical innovation, nautical power, and water distribution. Yet the power of wind has only been harnessed en masse within the past few decades, spurred by worldwide calls for the reduction of global carbon dioxide emissions. Assuming an Actor Network Theory perspective, this paper examines a landscape node known as the Altamont Pass Wind Resource Area (APWRA) in central California to trouble some of the taken-for-granted assumptions about the production and material development of energy landscapes. One of the earliest and largest wind farms in the United States, the APWRA has been shaped and reshaped since it was first developed in 1981, in part due to the contested nature of the site as one of the most deadly for flying animals like bats and birds. With an examination of visual photographs, graphics, and related documents about the Altamont site, the author will contend that this material-semiotic landscape has been shaped by multiple actors and competing discourses of conservation. In particular, this analysis acknowledges inanimate objects and non-human actors as part of complex networks that come to ground in a dynamic and evolving fashion. By reviewing the changing form of the Altamont site, this analysis argues that landscapes are not void and lifeless structures shaped exclusively by the goals and values of human actors. Instead, landscapes and their inhabitants often talk back so that new messages and “regimes of truth” may be revealed, negotiated, and enacted.

Knowledge is the Network: WWF and the Conservation of the Arctic

Ted Maclin – (Anthropology, University of Georgia)

WWF has been engaged in transnational Arctic conservation since 1992, when the organization first developed a specialized Arctic program. This paper is based on multi-sited ethnographic and textual research within the WWF Global Arctic Program from 2009 to 2012. In this paper, I explore WWF's Global Arctic Program as a set of interpenetrating heterogeneous networks, focusing in particular on reconfigurations of scale and development of knowledge in two Arctic conservation projects. In each case, action is carried out through networks of individuals, organizations, species, maps, texts, and tools. While the broad strokes of conservation project development here follow Callon's four moments of translation, the temporal and spatial inter-linkages of WWF's programs are also important. WWF defines itself as a knowledge organization—with an emphasis on conservation knowledge as the outputs of conservation initiatives. I argue that a second, possibly more important, type of conservation knowledge is embedded within the relations within and surrounding WWF in the process of project development. Drawing on actor-network theory, Bateson's Steps to an Ecology of Mind, and Clark and Chalmer's Extended Mind, I describe WWF's Arctic conservation as a form of cognition that is both extended and distributed. The resulting conservation knowledge is best viewed as relational action rather than as static information. Taking a relational view of conservation knowledge helps to explain differences in legitimacy across communities, as well the embedded constraints on program development within WWF.

Actor-Network Theory as a tool for examining development knowledge and practice

Sean Tanner (Rutgers)

This paper will describe fieldwork conducted in Alta Verapaz, Guatemala investigating one international development NGO through an ethnographic, embedded research approach informed by actor-network theory (ANT). Speaking to the theme of a relational Political Ecology, this paper explores the elusive and varied connections between knowledge and practice in regards to development that has been given, planned, and implemented as well as received, sought, and incurred by actors across the “developed/underdeveloped” divide. From this research, the co-constitutive nature of knowledge and practice can be readily observed and interrogated by conducting a “slow” ethnography of the site of the NGO office itself, where the vast actor-network including many mediators (i.e. donors, country directors, program managers, grant writers, field technicians, community leaders, training manuals, cellular telephones, PowerPoint, cacao seedlings, etc.) can be foregrounded and associated as a way of assembling contemporary development. The goal of this type of study of development is to illustrate all of the many decisions, subjectifications, identifications, and objectifications that necessarily have to come together to produce development as we know it and thus demonstrate the sites of intervention – where what is could have been otherwise. This paper will explore those sites in particular and posit that another development is possible in a global development landscape where NGOs and other actors have the ability to marshal surplus capital and good intentions yet have a rather poor track record in terms of stated lofty goals such as alleviation of poverty, and economic justice.

“It's good now, it's waste.”: material transformation and value at the compost pile

Mike Dimpfl – (Geography, University of North Carolina at Chapel Hill)

This paper takes up the question of the relational construction of waste and value using ethnographic field data from a small case study of composting at a community garden in Chapel Hill, NC. Recent work on waste presents unique opportunity for understanding the political entanglements of relational engagement and inter-corporeal practice with waste (e.g. Bennett, 2010; Gregson and Crang, 2010; Moore, 2011). Waste is not simply disruptive of normative spaces and practices, it structures understanding of value in daily life (e.g. Gidwani and Reddy, 2011). As Gregson and Crang (2010) argue, different waste matters matter in different ways. Taking a cue from this work, and building on Gabrys (2009) processual reading of environmental sinks, we show how the practice of making compost creates value out of the detritus of consumption in ways that are responsive to the specific materialities of

the component parts of the compost pile itself. Attendance to these specificities illustrates the multiple and incongruous sets of meaning that emerge in the transformation of food scraps and yard waste into a nutrient-rich soil amendment. As a type of environmental practice, composting relies on an embodied proximity to waste material, exposing the opportunities and challenges that emerge in the leaky interstices of dominant waste ecologies. A reading of composting as a relational process of transforming value is central to understanding the ways in which value is entangled with embodied practice at the scale of the individual, asking difficult questions of the political possibilities of composting as a popular touchstone of sustainability.

Session: Resource Politics

Student Center 228

Chair: Andrea Craft (Geography, University of Kentucky)

A Changing Balance: Logging, Stewardship, and Participation in James Bay, Quebec

Naomi Heindel (Social Ecology, Yale School of Forestry and Environmental Studies)

Since the 1970s, when resource development in James Bay began, leading to decades of social and environmental degradation, the Cree of northern Quebec have struggled against logging, mining, and hydropower to maintain stewardship over their land and sustain their land-based culture. Field research since 2006 explores the effects of the newest political agreement between Quebec and the Cree on Cree land use and traditional land stewardship. The forestry regulations in this agreement, now ten years old, designed as an adapted forestry regime to better accommodate the Cree way of life, address sustainable development, and incorporate Cree voices in forest management, have been celebrated at the political level for increasing Cree participation and acknowledging Cree land use. But research with the Cree reveals alarming ecological ramifications and radiating cultural consequences. The volume of wood cut on Cree territory has been excluded from the negotiations, patchwork logging has fragmented the forest, and there is no true participation of Cree hunters and land stewards. Changes to the land are leading to changes in Cree hunting practices, traditional ecological knowledge, and land stewardship choices, all cultural changes that exacerbate forest change in a positive feedback loop. Understanding the cultural ecology of this forest regime, and the political agreement it comes out of, not only illuminates the current trajectory of northern Quebec but also resonates across indigenous lands and communities globally.

From Collective Action to Collective Identities: Local Livelihood Defense and the Politics of Participation in Coastal Ecuador

Christine Beitzl (Anthropology, University of Georgia)

In coastal Ecuador the widespread conversion of mangrove forests for shrimp aquaculture since the 1980s has exacerbated problems of overexploitation in estuarine capture fisheries. The 1990s began to witness burgeoning local resistance to shrimp farming, the growth of civil society, and policy shifts in coastal management toward greater citizen participation. Since 2000, new policies and property arrangements aim to conserve mangrove forests and engage locals in community-based management of mangrove fisheries throughout various parts of the coast. This paper explores how ideational forms of collective action, or the language used by activists and others to mobilize coastal communities in the defense of mangrove resources and livelihoods. I examine the underlying reasons for differential participation in activism within communities and the complex historical processes or other forms of agency that reversed trends of deforestation to recovery in my study areas. I argue that popular support and activism around the defense of livelihoods and the environment is losing momentum largely due to declining trust that NGOs truly represent the interests of their local constituents. This lack of trust is further compounded by feelings of exclusion, hopelessness, and indifference among the poorest artisanal fishers. This paper has particular relevance for scholarship on social movements, institutions, and the political ecology of conservation with practical lessons for activists, NGOs, and civil society organizations.

A political Ecology of Coffea arabica gene pool conservation: Evidence from South Western Ethiopia

Kassahun Kelifa Suleman (Institute of Social Development, University of Western Cape)

In the past decades, the controversies and debates surrounding the link between biodiversity protection and poverty alleviation goals were controversial issues in the global development agenda. Under the wider umbrella of biodiversity protection, the notion and practice of protected area establishment and its direct and indirect implications on local peoples' wellbeing has been a concern for many countries in Africa. Similarly, the formulation and implementation of such conservation policy and its consequences on local people in Yayo Coffee forest of South West Ethiopia is a development concern that demands due attention, especially given that this area is among a few unique sites that are also gene pools for commercial crops. The South Western part of Ethiopia in general and Yayo coffee forest in particular is well known for being the cradle and the home of wild Coffee arabica genetic diversity (gene pool, also sometimes termed a Vavilov centre of diversity) which has a significant economic and social value for the local, national and global community. Hein & Gatzweiler (2006) have estimated the economic value of the gene pool alone to be between 420 million and \$1.45 billion USD per year. Given the ecological and economic relevance of this gene pool, a strict protectionist approach which is based on the exclusion of the local people has been in place by the state since 2000. There are also local as well as international actors involved in the process due to their diverse interests on the genetic resources and the forest at large. Their involvement became sensible when they launched a multi-scale research project called COCE (conservation and use of wild populations of Coffea arabica in the montane rainforests of Ethiopia). Despite these efforts, the social, economic and political implications of the conservation are not well recognized in the context of the study area. Anecdotal evidences show that the wild coffees that were previously utilized by the local people are included in the protected area during demarcation and access to these livelihood resources became restricted. Besides, displacement and conflict over control and use of resources were also among the reported incidents. On the other hand, the issue of benefit sharing from bio-prospecting is not, explicitly, dealt with and this poses concern over intellectual right of the indigenous people. In the context of a protected genetic resource, detailed empirical study is lacking regarding the benefits and disadvantages that are borne by the different actors, their economic and political relation, and the role and level of influence of each actor. Under the wider spectrum of human-environment interaction, therefore, the overall goal of this study is to investigate the socio-economic implications of coffee gene pool conservation on local people and to analyze

the social dynamisms related to power, role and interest. The study will begin by scrutinizing nature and type of actors, their relationship with each other, the extent of their influence on decisions pertinent to the conservation, the perception of actors regarding the economic value of the gene pool, and the benefits and disadvantages of gene pool conservation to the actors. The research will draw up on a political ecology framework where the 'politics of conservation' will be at the heart of the analysis.

Why "the Cove" makes me want to teach Critical Political Ecology

Taro Futamura (International Institute of American Studies, Doshisha University)

The Cove, a film that depicts dolphin fishing and accuses its cruelty—together with problematizing food safety issues and future seafood supply within Japan and beyond, was in heated attention before it crossed Pacific. Japanese media reported that an Australian city in the northeast decided to withdraw a sister city partnership that it had—with a history of economic ties in whaling industry dating back to the nineteenth century—with Taiji Town, a small Japanese town which was a major filming site for the film. Although the film won 2010 Academy Award for documentary film category, the discourse that dominated in Japanese media regarding this film was never very positive. There were even right-wing groups which made strong protest to theaters interested in showing this film. Although scenes of dolphins and red-colored seawater were popular clip of trailer occasionally appeared in TV or the web, what was less discussed among media was unspoken use of power held by directors and crews over local people—sort of resembling colonizers accusing indigenous practices, as if they are dividedly situated between civilized and primitive. In this paper, I argue why critical political ecologies are important tool for critiquing in understanding documentaries of non-Anglophone practices with case of the Cove, which many scholars might share the feeling but has rarely been discussed.

Session: Food Security and Justice

Student Center 231

Chair: Kyle Burchett (Philosophy, University of Kentucky)

Community Food Security: The View of Alternative Food Networks from a Food Desert

Angela Babb (Geography, Indiana University)

With the continuous growth of the alternative food movement, we've seen the emergence of farmers' markets, community-supported agriculture and community gardens across America. The lead actors developing and using these networks have stated personal motivations including sustainable agriculture, strengthening local food systems, and improving farm and food security. However, the impact of these alternative food networks on food-insecure households remains poorly understood. Implicit assumptions regarding nonparticipation in this movement include: poverty, lack of education, and apathy toward personal and environmental health. I argue that these assumptions must be replaced by a deeper understanding of the food desert experience before the alternative food movement can begin to increase food security for the most vulnerable citizens. I use data drawn from survey work in Bloomington, Indiana to tell the story of an underrepresented demographic and to elucidate the relationship between alternative food networks and food security.

The farmer in the food hub: the cheese never stands alone

Lilian Brislen (Sociology, University of Kentucky)

This paper explores the contributions of first world political ecology to a study of the effects of alternative market outlets (specifically food hubs) on the economic and environmental resilience of family farmers in the U.S. Issues of theorizing the first world land manager, the role of community, and the potential for resisting 'conventionalization' of alternative food networks are addressed.

Health Sovereignty: Community-Focused Response to Public Health Crises, Environmental Injustice, and Catastrophes

Ian Werkheiser (Philosophy, Michigan State University)

In this paper I will argue that "food sovereignty" can be thought of as a subset of the broader notion of "health sovereignty," and that sovereignty is a necessary approach to public health for reasons both of justice and efficacy. This efficacy is increasingly important in an era of escalating environmental catastrophes. At the same time, food security's goals of using the institutions of neoliberal globalization to provide maximum food to the world can likewise be subsumed under the larger category of health security. I will look at the example of the Karuk People of the Klamath River area to discuss the concepts of food security and food sovereignty, and then put forward a definition of health security and health sovereignty as superseding, larger concepts. I will then work through what health sovereignty might look like in practice, and discuss its advantages over health security for reasons of justice. Finally I will discuss how health sovereignty leaves communities better prepared for environmental catastrophes, which will most likely become more common in the future. Ultimately, I will argue that health security not only perpetuates unjust social relationships, but also fails by its own lights, as intervention in communities often increases public health problems, particularly in the wake of environmental disasters. Health sovereignty on the other hand, which sees public health as intimately bound up in how people create and replicate their communities, can leverage local knowledge, values, and interconnections to better address emergent health problems and decrease environmental injustice.

Producer-consumer Networks, Social Justice and Scale: A Comparative View of Alternative Food Movements

Marisa Wilson – (Human Geography, University of the West Indies)

In this paper I consider two alternative food movements and the spatial and normative 'glue' that binds them together. With ethnographic data, I compare Cuban agroecology to Fair Trade banana initiatives in St. Vincent. Like Cuban agroecology, Fair Trade acts as a 'just' alternative to the presumed anonymity of the market, while working within its interstices. Whether and how such 'alternative' projects counteract 'mainstream' trends,

however, depends on how successful they are at jumping scale from local perspectives to wider producer-consumer circuits. Fair Trade initiatives are tied to an anti-globalization discourse that emerged in the global North, which does not always conform to everyday realities of Vincentian farmers. Unifying discourses that support Cuban agroecology also eclipse heterogeneous experiences, but there is arguably greater cohesion between producers and consumers in Cuba than between Vincentian producers and Western consumers. This spatial and normative cohesion makes the Cuban agroecology movement more formidable, if less extensive, than similar projects elsewhere.

KEYNOTE ADDRESS - DR. ARIEL SALLEH: 5:15pm – 7:00 pm

Memorial Hall

- Conference Introduction: Jairus Rossi (University of Kentucky Political Ecology Working Group, Department of Geography)
- University Welcome: Shane Tedder (University of Kentucky Sustainability Coordinator)
- Speaker Introduction: Shannon Bell (University of Kentucky, Department of Sociology)
- Keynote Address: *From Green New Deal to Earth System Governance: Will there be Life after the "Green Economy"?* (See page 5 for abstract)

Light refreshments will be provided in Memorial Hall at 5:00

RECEPTION: 7:15 pm – 10:00 pm

Gaines Center (Bingham Davis and Commonwealth Houses located on 232 East Maxwell Street. Food and drink provided.

SATURDAY March 2, 2013

Registration: 8:00am – 10:00am New Student Center 2nd Floor - Information Desk 3

CONCURRENT SESSIONS IV: 8:00am – 9:40am

Session: Undergrad Symposium 1: Examining Local Solutions Student Center 206

Organizer: UK PEWG Undergraduate Committee

Chair: Jessa Loomis (Geography, University of Kentucky)

Urban Tension, Rural Friction: Environmental Sustainability in Modern China

Jared Flanery (History and Political Science, University of Kentucky)

China serves as the site of concern in this essay on urban and rural sustainability efforts in the early 21st century. The concept of an “alternative modernity,” as against Western developmentalism, is explored through two case studies. In Dongtan, near Shanghai, the municipal government paired with transnational corporations to create an “eco-city” with utopian potential. In Huangbaiyu, a northern Chinese village, the national government and a nongovernmental organization (NGO) founded by a Western architect promised sustainable livelihoods independent from coal extraction. In both cases the involvement of Euro-American interests provided key access to capital resources, but also ignorance of local conditions and popular knowledge. At the same time, both Dongtan and Huangbaiyu demonstrated a progressive focus on the city-region as the locus of environmental sustainability. In this essay I argue that more democratic control over similar sustainability projects could lead to a veritable “eco-topia” in China, and provide a valuable case study for mitigation and adaptation on the international scale.

GIS for Permaculture Design

Asa Strong (Geography, University of Iowa)

Geographic information systems are preeminent at handling, integrating and analyzing complex data to inform decision-making and management at multiple scales and across a variety of subjects. While the use of GIS for the management and design of large-scale agricultural systems has been well-studied, the use of GIS and other geospatial technologies for the design of small-scale farming projects is unexplored. Permaculture is an ecological design system for creating sustainable food production systems. The design of permaculture systems seeks to emphasize the natural patterns of landscapes, while minimizing waste, human labor and energy inputs. Geographic technology has the potential to inform the design of permaculture sites through the use of maps, overlay analysis and complex data integration to reveal patterns, trends and relationships in the system. A unique student project in northeast Iowa is at the beginning stages of designing a permaculture food production system aided by the use of GIS and other geospatial technologies.

Food Miles: A Study of Conflict, Policy, and Climate Change

Lauren Mashburn (Philosophy, Centre College)

In the face of rapid and potentially dangerous climate change, many scholars have undertaken research designed to assess the climate impacts of contemporary lifestyles in the world's most affluent societies. Drawing on lifecycle analyses and total embodied carbon calculations, these analyses are often used to make policy recommendations for lifestyle modification. A comprehensive and multidisciplinary review of the literature surrounding the climate impacts of the food production system reveals, at times, conflicting recommendations for sustainable living. This paper focuses on one variable in this conflict, the relative importance of reducing food miles, demonstrating both the complexity of impact calculations and the frequent politicization of science. While local food advocates argue that food miles make a significant contribution to carbon emissions, total carbon calculations reveal that reductions in food miles are often outweighed by inefficient or resource intensive production closer to home. Focusing on this debate in the academic literature, I argue that the current food miles debate is asking the wrong questions. Rather than arguing about the relative importance of reductions at one point in the food chain, both logic and governance studies suggest that the most appropriate solutions are multiscale and nested. Given the contemporary political climate and the politicization of climate science, however, it may be that an emphasis on sustainable local food production at a local level can be effective in reducing the carbon impact of the food we eat.

The utility of public participation GIS for community management of urban greenspace: A case study in the Hampton Beecher Nature Preserve, Atlanta, GA (USA)

Victoria Elmore (Environmental Studies, Brown University)

Public Participation GIS (PPGIS) aspire to inclusive systems of geographic knowledge production in which local residents and community-based organizations play an active role at all levels of research, from shaping research questions to collecting and analyzing data to disseminating results. PPGIS projects serve communities by providing immediate scientific utility to community members and building practical technical capacities that afford community actors agency and legitimacy within formal power structures. PPGIS can provide a useful framework for collecting and analyzing data on the extent of non-native invasive species in urban forests. This is important given that periodic surveillance of invaded communities has been proven crucial to the successful management of nonnative invasive plant species, yet information about the level and extent of invasions remains chronically under-documented at the local level. Maps of invasive plant abundance are particularly useful for communicating the scope of the problem to relevant

stakeholders and policymakers, and GIS can be used as a valuable tool for assessing and monitoring both invasions and management efforts. However, defining the goals of mapping projects at an extra-local level, whether by political or nonpolitical actors, may overlook the needs and goals of community stakeholders. The PPGIS model presented here provides an opportunity for community actors to define, design, and disseminate spatial knowledge about invasive species and other important elements of local urban forests in Atlanta, Georgia (USA). This paper seeks to address how PPGIS establish legitimacy for community organizations within the urban political discourse on greenspace management. The work has theoretical and practical implications for geographers, planners, and environmental scientists as future research examines urban forests.

Integrating Art and Science Methodologies: Creating artifacts that re-evaluate ecosystem relationships on the Milwaukee River

Nolan Bade (Environmental Science: Management, Northern Arizona University)

Effective societal response to an environmental challenge, such as ecosystem degradation or change, is often difficult when science is the major communication medium (e.g. climate change inaction). Rather, societal challenges are addressed most efficiently when “four cultures” of environmental science, creative arts, philosophy & religion, and social science engage fully and equally with each other. The Urban Ecology Center (UEC) (Milwaukee, WI) and connected riparian system was used as an experimental study area in connecting the four cultures through the production of a dozen artifacts that document present, past, future, and alternative ecologies. A “practice-led” artistic research method encapsulates issues, concerns, and interests by translating them into creative artifacts, and the feedback environmental art principle de-commodifies art by placing it in the public domain (e.g. archives, educational tools). Natural and religious metaphors, symbols, and aesthetic design theory connect Native Americans in the Wisconsin Territory and the colonial period with the construction of the Milwaukee parks system and river infrastructure, the control of natural resource use (water, copper, lead), and the “driver-passenger” ecology hypothesis. Reed Canary Grass (*Phalaris arundinacea*), Garlic Mustard (*Alliaria petiolata*), and Lead Plant (*Amorpha canescens*) all have established networks relevant to land management today. The Urban (Re)ecology project is a baseline for art-science integration, and has multidimensional social, political, and ecological science implications.

Session: Politics of Ecosystem Services 1

Student Center 249

Organizer and Chair: Eric Nost (Geography, University of Kentucky)

Ecosystem services and payments for environmental services: A critical analysis of the genesis and diffusion of these concepts

Denis Pesche (Sociology, CIRAD Montpellier)

Ecosystem services, ecological services, environmental services (represented together as ES) and payments for environmental services (PES) have recently become key references for international environmental policies. Brought to popular attention by the Millennium Ecosystem Assessment (MA) in 2005, these notions have spread rapidly in both political and scientific arenas. This paper offers a historical and institutional analysis of the emergence and dissemination of the concepts of ES and PES in both developed and developing countries. First, we examine the genesis of these concepts. Two relatively independent processes led to the emergence of ES on one hand and PES on the other. Secondly, we show how the two concepts have converged at the international level, during the MA process from 2001 to 2005. Certain stakeholders, who were involved in the MA, including the private sector, NGOs, and national civil servants, diffused the notion in several countries and sectors. Thirdly, we compare the diffusion of these notions in France, Costa Rica and Madagascar. Costa Rica is a pioneering country through the creation of its national PES program (1996). In Madagascar, PES have developed only recently, primarily by NGOs in an effort to supplant older tools with unstable funding. In France, the development of the ES concept arose much later, effectively appearing after the MA report in 2005, contributing to the development of Market Based Instruments (MBI) in the environmental sector. Both ES mainstreaming, through Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), and PES mainstreaming are now facing some critics and doubts.

Analytical framework for Green Infrastructure Policy: Assessment of the Potentiality of Policy Instruments

Suvi Borgström (Law, Finnish Environment Institute)

Ecosystems are under a great pressure from the intensive human use and habitat fragmentation. As a result many of the ecosystem services they deliver are degraded with negative impacts on human well-being. A Green Infrastructure (GI) is an emerging policy response to this undesirable development. The core of GI approach is to recognize that environmental recourses hold a tremendous potential for providing a wide range of ecosystem services and those recourses should be managed in a way that enables the various ecosystem uses and secures the provision of ecosystem services. The governance of green infrastructure requires institutional framework containing various instruments working at different spatio-temporal scales.

In this paper we aim to develop such a framework that can be used for assessing the potentiality of various existing and future policy instruments for green infrastructure policy. We start the building of our framework from the principles of infrastructure theory proposed by Frischmann. While acknowledging the advantages of this approach, we recognize its limitations including the inability to address the issue of active conservation measures. Our analysis is structured by using a typology of instruments, including economic, command-and-control, planning, and voluntary instruments. We identify types of instruments from each category and the advantages and disadvantages of those instruments for enhancing the provision of wide variety of ecosystem services, enhancing the active conservation measures and landscape scale management will be assessed. Finally we aim to make conclusions on conditions under which each instrument is likely to be effective.

Recognizing Value Pluralism among Ecosystem Services Experts and Public Stakeholders

Zach Piso (Philosophy, Michigan State University), Ian Werkheiser (Michigan State University)

Although ecosystem services management (ESM) generally endorses a utilitarian value framework that centers on cost-benefit analysis, several authors have called attention to the need for additional ethical perspectives that extend beyond utilitarianism by grounding value in non-economic relations with the environment. These non-economic relations include but are not limited to conservation ethics, restoration ethics, and many approaches in sustainability ethics that emphasize social sustainability. This paper opens with a review of these alternative positions in order to systematize the conceptual landscape of ESM values. This more theoretical discussion is part of a developing project that will investigate the value frameworks held by Michigan farmers in the hope that better attunement to community values will render ESM communication more effective. Because this research project is presently emerging, the paper will reflect on two methodologies (one quantitative and one qualitative) that the research group is still in the process of crafting. The quantitative approach will rely on a coding of the reviewed ESM literature toward the production of value-laden written scenarios, and this presentation will share some of these written scenarios to demonstrate how different text may influence whether stakeholder communities are receptive to ESM. The qualitative approach will revolve around focus groups to investigate whether stakeholder communities may share implicit value frameworks that extend beyond those developed in expert literature. Because this stage of the research will not commence before the conference, audience feedback will importantly inform focus group practices that might be most neutral with respect to value frameworks.

Stakeholder perceptions of ecosystem services: A pilot study in BC Canada

Bessie Schwarz (Environmental Science, Yale School of Forestry and Environmental Studies)

Despite the auspicious utility of ecosystem services (ES), the approach's current assessment methods are inordinately deficient of one particular ingredient: the non-expert stakeholder. This limitation effects ES assessments, leaving the approach without important sociocultural data, and restricts the application of the approach, as it is less accessible and usable by non-scientific audiences. Using Clayoquot Sound, British Columbia as a case example, this exploratory study used semi-structured interviews to generate lists of services recognized a priori by participants (n=17) and uncover their general understanding of the concept. Across all categories, participants and expert scientists (The Natural Capital Project scientists as case example) described services and the general concept of ES with different language and at different levels of specificity. For example, participants identified cultural services with greater detail and frequency than services in any other category and recognized more cultural services than the Natural Capital Project experts. The overall divergence between these experts and the participants in this study indicates a hurdle for communicating between the two groups that may inevitably hinder ES-based conservation initiatives. Moreover, these results demonstrate that underutilized cultural services may be more effective tools for messaging ES to the public in some instances. In conclusion, the social science method tested in this study could help better represent non-expert stakeholders in land management and more accurately analyze cultural ecosystem services in future ES work.

Woody Biomass as an Ecosystem Service

Kate MacFarland (US Forest Service)

Woody biomass is a byproduct of forest restoration work carried out to improve ecosystem function and reduce wildfire risk. This presentation outlines a framework for understanding woody biomass within an ecosystem services context and discusses the utility of doing so for making and implementing policies. While biomass is not typically considered among ecosystem goods and services, woody biomass is important to include when examining the multiple ecosystem goods and services that come from forested ecosystems. Its value can offset some of the costs of forest restoration. Better understanding the economic and ecological role of woody biomass helps to carry out forest restoration work. In addition, because woody biomass has a value that currently exists in the market, its changing policy context, price dynamics, and financial mechanisms make it an important, non-hypothetical example to consider when examining various decision making scenarios. The presentation examines the opportunities for both demand and supply side financial mechanisms to improve ecosystems, including increased woody biomass prices and reduced wildfire risk. It presents several examples of payment for ecosystem services programs that involve forest restoration, such as the Denver Water Board's forest health projects. Finally, it discusses the policies of woody biomass utilization that are being implemented at the national, regional, and state scale. The role of the Forest Service in supporting these policies and their progress is also discussed.

Session: Environmental Justice 1

Student Center 205

Chair: Tad Mutersbaugh (Geography, University of Kentucky)

For Love of the Frivolous — Lifeboat Earth and the Myth of Anthropocentrism

Kyle Burchett (Philosophy, University of Kentucky)

Homo sapiens is leaving its mark on Earth in much the same way that cosmic collisions leave massive impact craters—fundamentally altering the conditions that enable possible life forms to exist over vast scales of space and time. One of environmental philosophy's longest standing critiques is that our current ecological predicament is largely due to the overt anthropocentrism which informs the worldviews of consumers in industrialized nations. In this paper, I adopt a lifeboat Earth perspective to highlight the populations—both human and nonhuman—that are the chief beneficiaries of current consumption practices. I argue that, even if anthropocentrism is essentially inescapable (since humans must necessarily experience the world from an undeniably human perspective), populations in industrialized nations can hardly be accused of being overwhelmingly anthropocentric. On the contrary, the staggering amount of resources sequestered away from underprivileged human populations for the benefit of nonhuman companion organisms could almost be taken as conclusive evidence of a pathological misanthropism. This leads to an analysis of environmental justice on lifeboat Earth from ecocentric, biocentric, and anthropocentric frameworks. I conclude, along lines similar to those of Bryan Norton, that the most ecologically defensible worldview must be informed by a rational form of anthropocentrism.

The Sultans of Swine: An Analysis of Environmental Inequality Formation within North Carolina's Hog Industry Adam Driscoll (Sociology and Anthropology, North Carolina State) & Bob Edwards (Sociology, East Carolina University)

The environmental justice literature has done a better job of establishing that disadvantaged populations bear a disproportionate burden of environmental hazards than it has of identifying and empirically analyzing the causal mechanisms that generate such inequities. The example of swine production in Eastern North Carolina is a case in point. Over the last 20 years research has well established that confined animal feeding operations (CAFOs) and any related adverse impacts are concentrated in low-income areas and communities of color. Yet, how such inequities were put in place has not been elaborated. In this study, we use the environmental inequality formation (EIF) perspective to analyze the historical origins of the unequal distribution of swine industry externalities. We establish the time frame over which this industry came to be disproportionately located in socially, economically and politically disadvantaged communities. We frame the inequity as the result of a historical struggle among competing stakeholders, who include swine producers, swine processors, and local community residents and activists. We argue generally that studies of environmental injustice need to explore the origins of the injustices being examined and that those origins need to be understood as a historical process involving multiple stakeholders.

Nesting in the City: Environmental Justice and the Power to Define Wildness in an Urban Wetland - Patricia O'Kane (Environmental Studies, University of Wisconsin)

Today, over 80% of the US population lives in cities making the nature on our doorstep increasingly important to physical and mental health, according to a large body of literature in public health, environmental psychology, urban political ecology, and environmental justice. Urban biodiversity has been correlated to higher income as well as improved longevity and lower rates of obesity and diabetes, particularly for lower-income and minority children. Since more of these children live in urban areas, their nearest park and the animals in it are their nature. Urban greenspaces and wildlife also provide a vital mental buffer, particularly for adults and children in high-stress situations. However, despite their importance, increasing development threatens some urban greenspaces and their animal residents. Children are also excluded from parks planning processes, as well as other park users such as the wildlife itself, the elderly, the homeless, and practitioners of silent sports such as walking and birding. The systematic exclusion of these voices can determine who lives next to the park and who lives next to the parking lot. Thus these exclusions contribute to environmental degradation, increase environmental inequity, and affect public health. As public green spaces, urban parks also embody decision-making processes--they are the landscape of local democracy. Studies of these spaces can reveal how power operates locally. This paper originates from three years of activism and urban ornithological research in such a greenspace. In a case study and environmental history of Madison, Wisconsin's second-largest urban park, this paper explores historical attitudes towards an urban wetland and park, and how these attitudes affect its management and health. It will also examine how nature or wildness is defined in this urban park, who has the power to define it, and how this definition has changed over time.

Former Military Lands, New Sites of Battle: the Barriers to Public Participation in the Environmental Remediation of Military Bases - Jennifer Ohayon (Environmental Studies, UC Santa Cruz)

Scholars, activists, and practitioners have called for extending citizen participation programs in science policy due to the chronic uncertainty and value-laden calculations of environmental risk and in order to increase accountability and incorporate the priorities of communities in decision-making. Given the sharp increase in public participation programs in environmental and techno-scientific decision-making over the past few decades, it is important to evaluate the actual impacts of these initiatives on agency practices. Participation programs have been most widely implemented by federal agencies in decommissioned military bases, which comprise the bulk of the United States' worst hazardous federal waste sites (over 80%). Through an analysis of several military bases, I critique the barriers to meaningful public participation, including the distribution of resources in cleanup decisions and an agency focus on building community trust and minimizing conflict rather than addressing sentiments of long-standing environmental injustices within these forums. Furthermore, I discuss how these participatory initiatives emphasize technical information in contentious situations, rather than allowing for the programs to expand an understanding of both the scientific and social dimensions of environmental risks. While federal initiatives have responded to calls for expanded public participation in the process, they have been less effective at attending to the substantive reasons forwarded by the public for this participation. These include an increase in investigative and monitoring actions and a change to the systems that structure social and environmental health disparities.

"The Sea is Our Garden": Iñupiaq Subsistence, Indigenous Knowledge, and the 'Politics of Nature' in the Context of Offshore Drilling and Development – Alana Shaw (University of Georgia)

The Obama administration's 2012-2017 offshore-leasing program in the Arctic frames oil development in this region as key to the growth of our nation's 'energy economy' (Murphy 2012). However, this issue has also highlighted the subsistence concerns of the Iñupiat of Alaska who refer to the Chukchi Sea as "our garden." Shell Oil has vetted the safety of its proposed drilling operations based on the fact that it is using the best technology currently available. Yet, many environmental groups have characterized the drilling as both premature as well as technically problematic given the potentially profound impacts of an oil spill in such remote seas (Alaska Dispatch 2012). While it seems reasonable to suggest that the Iñupiat and such environmentalists are united in their opposition to Shell's drilling plans, the story is actually much more complex. This paper, in fact, explores the perspectives of two coastal Iñupiaq communities who at first glance seem to have taken very different stances on the issue of Arctic offshore development. While residents of Point Hope, AK have spoken out against the drilling on the grounds that it will ruin the ocean on which they depend for their subsistence needs (Vercammen & Patterson, 2012), the community of Wainwright, AK has moved forward in its relations with Shell Oil to become the shore base for Shell's pioneering efforts to sink several exploratory wells in the Chukchi Sea (Shell Gulf 2011). This paper thus seeks to approach the issue of Arctic offshore drilling as a matter of environmental justice, which recognizes how colonial and contemporary acts of cultural 'misrecognition' may act to structurally limit the ability of Native Alaskans to craft their own self-determined futures. Contributing to an environmentally sustainable and socially equitable template for development in the Far North is therefore the ultimate goal of this work.

Session: Property Rights Regimes and Ecological Preservation

Student Center 211

Organizer and Chair: Chris Wilhelm (History, College of Coastal Georgia)

Property Rights in the Everglades: Mineral Rights and Wetlands

Chris Wilhelm (History, College of Coastal Georgia)

As landscapes that are composed of both water and land, wetlands have been unevenly, ambiguously, and problematically seen as private property. This has been especially true in the Everglades. This paper will briefly examine property regimes in the Everglades from the Pre-Columbian Era up to the creation of Everglades National Park in 1947. The primary focus of this presentation, however, will focus on landowners' attempts to fight the creation of the park through the use of mineral rights. These landowners embraced a new form of private property in attempt to delay the park's creation while they drove up the value of their lands with rumors of an oil boom in the Everglades.

Mineral rights were an attempt to separate the ecology and hydrology of the Everglades from the mythic oil that existed beneath its surface. These landowners argued they could extract the oil beneath their lands and create profit while the federal government received the land itself and protected it as a national park. Landowners applied traditional rhetoric about property rights to these mineral rights and employed conservative arguments about government overreach, individual rights, and small government to fight the park's creation. The NPS largely rejected these claims and moved forward with condemnation proceedings against these landowners. However, the NPS did ultimately create a national park in the Everglades in which landowners retained some limited form of mineral rights over park lands. The Everglades was successfully converted to state property, but limited private property regimes existed in the park alongside these state property regimes.

Over-Grazing on the Navajo Nation: Colonial Policies and Local Governance Failures

Ezra Rosser (Law, American University)

This article explores how social and economic values are impacted by formalization of customary grazing rights and the select customary land use dispute resolution mechanisms among the Diné (better known by their non-Indian name, Navajo Indians). In rural parts of the reservation, the customary form of grazing regulation consists of local control through grazing committees. These committees have the power to adjust the annual animal head counts of area families are allowed and can change the corresponding customary land use rights as well.

But grazing committee processes and customary rights are not static. The Navajo Nation government recently pushed to devolve land use authority from the capital in Window Rock to local chapters. Though most chapters have yet to comply with the requirements for gaining Local Governance Act authority, this devolution reflects a return to decentralized governance. Increasing recognition of the role of local grazing committees by the central Navajo government comes with pressure to formalize use rights and ensure fair processes of dispute resolution.

This article begins with the roots of customary grazing oversight and the flexibility of the system as seen in local responses to the imposition of stock reduction, but the focus is on the advantages and disadvantages of moving from local committee control to a Navajo Nation centralized form of grazing regulation.

Environmental Flows and California Water Institutions

Duran Fiack (Environmental Studies, University of California, Santa Cruz)

In the Western United States, the role of property rights regimes in water resources management has significantly influenced the effectiveness of the acquisition of environmental flows as a tool to protect instream values. The erosion of common law property rights through statutes, regulations and judicial rulings has created the institutional frameworks through which environmental flows can be acquired. The evolution of these institutions has been a double-edged sword, weakening liability rules, while creating opportunity for interested parties to acquire water rights for environmental flows through market transactions. In California, the common law continues to play an important role, however the authority to manage water resources has broadly shifted to the legislative bodies and administrative agencies, where the recognition of environmental flows as a beneficial use has facilitated the opportunity to acquire environmental flows through regulatory and voluntary mechanisms. This study applies concepts from New Institutional Economics to evaluate and compare the relative efficiency of applying market-based, regulatory and common law approaches to acquire environmental flows and protect instream values. The study evaluates the effectiveness of three approaches (market-based, regulatory, common law) based upon the time required to achieve successful outcomes, and the transaction costs associated with each approach. Key factors that affect these indicators include the opportunity for influence by formal and informal political actors, availability of financial resources and the resistance to redistribution of private rights.

Real Estates in the Land of Fever: The historical political ecology of African American landownership in the South Carolina Lowcountry

Brian Grabbatin (Geography, University of Kentucky)

At the intersection of environmental history and political ecology, scholars have explored the temporal dimensions of enclosure and the commodification of natural resources. Not only do these studies trace the historical roots of environmental conflicts in the present, but they also uncover how the expansion of capitalism reshapes nature-society relationships, or what Peet and Watts call "the long-term capitalization of nature" (2004). In this paper, I explain how changes in the material and symbolic landscape of South Carolina's Lowcountry are linked to the accumulation and dispossession of

African American owned land. My evidence is based on ethnographic and archival fieldwork from three different historical periods in South Carolina's history. First, the colonial and antebellum period, when the Lowcountry's environmental infamy aided the development of informal, and extra legal, landownership by enslaved Africans within isolated plantation communities. Second, the Reconstruction era, when agronomic derision and persistent white fears of tropical disease facilitated the accumulation of land by African Americans. Third, beginning in the mid-twentieth century, a period of amenity-driven migration and development that has fueled patterns of coastal gentrification. The historical political ecology of African American landownership explains how a regional process of accumulation and dispossession is linked to changing environmental perceptions and economic interest in the Lowcountry landscape. It also reveals that the enclosure and privatization of land is an incomplete and ongoing process, linked to changing notions of economic and cultural value, as well as which material and social practices constitute valid ownership.

Session: Feminist Political Ecologies: Expansive Natures and Embodied Intersections 1

Student Center 228

Organizers: Vanessa Marquez, Sarah Watson, & Derek Ruez (Geography, University of Kentucky)

Chair: Brittany Cook (Geography, University of Kentucky)

A Reconceptualization of Safe Space, Part 1: Parable of the objects, or, beyond neoliberal bodies and environments and towards a feminist geography of safe spaces

Heather Rosenfeld (Geography, University of Wisconsin-Madison); Elsa Noterman (Geography, University of Wisconsin-Madison)

To put it simply: as geographers, we have conversation after conversation about space(s) and place(s). As feminists, activists, and martial artists, we regularly participate in creating "safe spaces" for the work that we do. Given that our scholar-activist positionalities are far from unique in the discipline, we wonder why geography has not yet contributed to praxical conversations about how we individually and collectively create and maintain safe spaces. Reviewing its use inside and outside academia, we find the term 'safe space' is invoked and discussed in context of environmental risk, in relation to personal safety, in activism, and in pedagogy. In this paper we examine safe space through a particular assortment of objects explicitly marketed towards making safe environments for individuals: healing crystals and electromagnetic field (EMF) protective devices, as well as rape whistles and cell phones. In the context of Michel Foucault's biopolitics in a disciplinary society and Gilles Deleuze's society of control, we critique but also take lessons from these objects (and their users) designed for safe-spacing. We then synthesize and build on feminist geographies of violence and Gillian Rose's paradoxical space, crafting a theory that, instead of focusing on, as Michelle Murphy puts it, "building a body in a safe space", emphasizes creating safe spaces with collective bodies ("I rebel, therefore we exist", Albert Camus reminds us). We conclude by outlining further questions for a research agenda on safe spaces.

Deforestation, Gendered Labor, and Social/Religious Organization in Kulaale, Zambia: A Feminist Political Ecology Perspective

Allison Harnish (Anthropology, University of Kentucky)

Deforestation and land cover change are pressing issues for researchers and policymakers with profound implications for people and ecosystems worldwide. With a deforestation rate that ranks among the highest in the world, Zambia provides a unique context from which to explore the social consequences of environmental change. The Gwembe Tonga of southern Zambia and northern Zimbabwe are one of many African peoples for whom non-cultivated "bush" resources constitute a fundamental aspect of livelihood. Over the last 20 years, Gwembe Tonga living the frontier farming area of Kulaale have witnessed significant declines in bush resources due to regional deforestation patterns.

Existing literature suggests that rural women—because they are traditionally responsible for gathering resources like water and firewood, and would presumably have to travel longer distances as these resources become depleted over time—are vulnerable to declines in natural resources brought about by climate change, changing property rights, and environmental degradation, more so than any other social group. With the mainstreaming of gender into development planning, iconic depictions of rural women hauling firewood over a barren landscape have become the staple in development discourse. In this paper, I describe what I perceive to be the "missing links" in current theorizing about gendered dimensions of environmental change. Specifically, I focus on gendered labor, social organization, and religious life as they play into Gwembe Tonga men's and women's differential experiences of deforestation. Drawing on Feminist Geography, Feminist Political Ecology, and African and 'Other' World Feminisms, I conclude that men and women are both vulnerable to the increased labor burdens associated with declines in bush resources. However, social, familial, and religious mechanisms cause them to experience physical and economic vulnerability in very different ways.

Relocating the Role of Gender – A Feminist Perspective on Climate Adaptation

Sarah Katharina Hackfort

Research on the role of gender for climate adaptation has slightly advanced during last years. However, it still lacks an empirical and methodological base and many studies are reproducing a discourse of vulnerability and victimization concerning the role of women. Social science research on climate adaptation lags far behind the insights of gender or feminists studies with regards to the role of gender in coping with and adapting to climate change impacts. This contribution strives to fill this gap by developing a perspective on gender, vulnerability and adaptation to climate change that draws on the work of New Feminist Political Ecology: I argue that on the one hand structural inequalities and hierarchies rooted in political economy that lead to differentiated climate adaptation capacities need to be identified. These include international and national political, economic as well as public and private regulations and their gender, race or class effects that broaden or widen individual or collective scope of action in adapting to climate change

impacts. On the other hand I argue that analyses have to focus more on the subjects in order to catch dynamics of identity politics that influence and shape individual strategies of adaptation of men and women differently. In doing so, I refer to empirical evidences from field research in Mexico. Finally, I propose some methodological approaches, that allow to link the two analytical levels from a perspective of a relational analysis and thereby open a new perspective on gender and adaptation to climate change.

Session: Appalachian Contours: Exploring Nature-Society Relations Across the Region 1: Coal, Conflict, & Capitalism

Student Center 230

Organizers: Christine Biermann (Geography, Ohio State University) & Sarah Watson (Geography, University of Kentucky)

Chair: Zina Merkin (Geography, University of Kentucky)

The Crisis of Capitalism in the Coalfields: Conflicts, Moments, and Beyond

Ben Marley (Geography, Syracuse University)

Coal dependent communities of West Virginia are facing a socio-ecological crisis that is constituted in its history and relation to a changing global political economy. The origins of the current socio-ecological crisis in the coalfields are in part due to the emergence of neoliberalism. The neoliberalization of the coal industry meant the restructuring of the coal industry to revive capital accumulation for coal companies and global capitalism. The restructuring entailed the elimination of large portions of the mining workforce in conjunction with higher frequency of large-scale surface mining, especially mountaintop removal (MTR) mining. The changes associated with MTR mining have fundamentally altered the relations between coal companies, coalminers, and the coal communities. In an attempt to transition out of the current socio-ecological crisis the coal industry, environmental groups, and communities are fighting for a sustainable future. This research investigates the potential for moving beyond destructive extraction processes by examining three 'moments' that signal a shift away from MTR mining and into a new phase of extraction. The moments are the March on Blair Mountain, the "war on coal", and the rise in hydro-fracking. Each of these moments is an expression of the contradictions of neoliberalism in the coalfields and the global political economy, which signals not only major changes in the coalfields, but also may indicate large-scale transformation of capitalism.

Polling on Coal Mining & Environment in Eastern Kentucky

Al Cross (University of Kentucky)

Coal dependent communities of West Virginia are facing a socio-ecological crisis that is constituted in its history and relation to a changing global political economy. The origins of the current socio-ecological crisis in the coalfields are in part due to the emergence of neoliberalism. The neoliberalization of the coal industry meant the restructuring of the coal industry to revive capital accumulation for coal companies and global capitalism. The restructuring entailed the elimination of large portions of the mining workforce in conjunction with higher frequency of large-scale surface mining, especially mountaintop removal (MTR) mining. The changes associated with MTR mining have fundamentally altered the relations between coal companies, coalminers, and the coal communities. In an attempt to transition out of the current socio-ecological crisis the coal industry, environmental groups, and communities are fighting for a sustainable future. This research investigates the potential for moving beyond destructive extraction processes by examining three 'moments' that signal a shift away from MTR mining and into a new phase of extraction. The moments are the March on Blair Mountain, the "war on coal", and the rise in hydro-fracking. Each of these moments is an expression of the contradictions of neoliberalism in the coalfields and the global political economy, which signals not only major changes in the coalfields, but also may indicate large-scale transformation of capitalism.

'No Profit in Reclamation': a Multi-scale Analysis of the Impacts of SMCRA

Shelly Biesel (Anthropology, University of Louisville)

Many Central Appalachian landscapes are rapidly transforming from deciduous forest to active and reclaimed mine land. Regulating the nature of this transformation is the Surface Mining Control and Reclamation Act (SMCRA), which recognizes the importance of coal in meeting United States energy demand, while attempting to delineate an appropriate relationship between the coal industry and the environmental impact of mining. Despite SMCRA's policy goal to protect society and the environment from the adverse effects of coal mining, SMCRA has done little to safeguard social and ecological resilience in Central Appalachia. In fact, in many ways the requirements of SMCRA have allowed further environmental and societal degradation. This paper has two objectives. The first is to assess variation in SMCRA's implementation and enforcement through its regulatory arm, the Office of Surface Mining (OSM). Within SMCRA, state regulatory authorities reserve the right to reclaim mine land according to their specific needs. However, SMCRA's implementation and enforcement is also highly variable based on a) the policy agenda of the Presidential administration; b) the discretion exercised by individual state or federal inspectors; and c) the resources allocated to ensure that states are able to fulfill SMCRA requirements. The second objective draws upon many scales of analysis in order to assess the effectiveness of SMCRA in achieving its stated policy objective of societal and environmental protection. Following Robbins (2004) definition of environmental degradation within the political ecology framework, an in-depth review of SMCRA's impact in the region reveals that the policy has in many ways contributed to a loss of productivity, loss of biodiversity, loss of usefulness, and the creation of risk ecology in Central Appalachian socio-natural environments.

The intertwining of the changing physical and social landscape in West Virginia

Mariya Marinova (Environmental Psychology, CUNY Graduate Center)

Mountaintop coal removal (MTR) in Appalachia is a proliferating industry that leaves its mark not only on the landscape and the morphology of the affected places but also on the lives of the people and communities who live in them. This mining practice has many well documented destructive and transformative consequences on the physical landscape and ecosystem, on the community's use and access to the mountains as well as public and private property ownership. These material transformations, however, are intertwined with transformations in people's health, personal lives, social relations and meaning-making of their homes and the environment. Focusing on Southern West Virginia, this study investigates how the physical changes of the environment due to mountaintop removal practices reflect transformations and fragmentation in the social structure and relationships within two communities in the region. Through interviews and ethnographic work, it looks at how the changes in the landscape are lived in, acted upon, talked about, and imagined in the everyday social and personal lives within these communities. The intertwining of the social and physical transformation is evident in the material production and discourse articulation of spatiality and the split between private and public ownership of the landscape. The ever present anxieties about the future and the expressed desire for possibilities for defining a common ground between the different perspectives and engagements that exist within these communities are revealed through the repeated theme of imagined sustainability of the communities. One possibility for achieving this goal is the use of public and community history as a way to establish a common context.

Session: Climate Change

Student Center 231

Chair: Austin Crane (Geography, University of Kentucky)

The post-political condition in environmental politics and development of the Arctic

Catherine Scott (Political Science, New School for Social Research)

While environmental politics may exhibit post-political characteristics, it is unclear if the post-political condition may well explain developments in the Arctic. As anthropogenic global warming produces climate change manifesting as melting ice, opening of sea routes, potential for resource extraction, and imperiled ecosystems in the Arctic, Arctic governance is contested. I explore the tension between the Arctic as a site of natural resource wealth and geopolitical conflict and the post-political condition in environmental politics characterized by global ideological consensus and rise of experts.

Identification of Local Adaptation Potentialities to Climate Change Based on Ancient Knowledge in Amarete (Kallaway Culture)

Fabrizio Uscamayta Espiritu (Ecology, UMSA, La Paz, Bolivia)

Effects of climate change represent a significant risk for the indigenous people who inhabit one head of the Amazon basin in Amarete, Bolivia. Nevertheless, the technical, logistical and scientific capacities of the Government to formulate and implement an adaptation strategy are weak when facing effects of climate change. Thus, the present study promotes the identification and reappreciation of local potentialities for adaptation to future climate change in Amarete, in order to provide locally and culturally viable strategies for indigenous communities, an experience that could be replicated.

Analysis discourses of Researchers' discourses about Global warming controversies as a revelator of relation to Nature and Modernity

Scotto D Apollonia – (Sociology, CRI-IRSA Montpellier France)

"Between modernizing and ecologizing, one has to choose", wrote the French intellectual Bruno Latour (2011), who thinks that "we have never been modern", (Latour, 1993). In this paper I analyze the relationship between global warming and modernity. Climate policy decisions are based on the expertise of IPCC, which considers that there is enough evidence in the responsibility of man in producing global warming. This problem intertwines ethical, ideological, political, philosophical, and epistemic issues. (Scotto d'Apollonia & Urgelli, 2011). The underlying question is what relationship we maintain with Nature. More generally, what links the Occident has with modernity?

After providing a background on the sociology of scientific controversies, I detail how I built a grid of analysis of scientific controversy, so as to avoid reductionism, based the model of Lemieux (2007) that is in the mainstream of Science Studies. In this way I will talk about the limit the cartography of Bruno Latour. I then discuss the results of my analysis (epistemic, political, ethical and ideological aspects) of the climate controversy. I will develop an analysis of half directive interviews of climatologists and researches from sciences studies who analyze climate change. In this way I will tackle the question of values in science studies and the lack of reflexivity on one hand. And I will discuss how my analysis of global warming controversies permits to re-think the relationship to "green modernity" on the other hand. (Beck, 2010)

Network Political Ecology and Meaning in the Local

Sam Schramski (Interdisciplinary Ecology, University of Florida)

The concept of "network political ecology" (Birkenholtz 2011) has been used to describe the ways in which climate change might affect social structure through the mediation of pre-existing vulnerabilities of regions. One such vulnerability is access to natural resources, especially in rural areas in the Global South. In my work on climate change adaptation in the rural Eastern Cape of South Africa I expand this argument and demonstrate that spatial position and natural resource reliance have little bearing on social structure in a setting of numerous scarcities (despite South Africa being a middle-income country) at the more local level of a community. I utilize whole and personal network approaches to focus on exchanges of food, natural resources, labor, money and health information as well as a sustainable livelihoods framework, in order to demonstrate that the relationship between a

cohesive social network and reliance upon the natural environment is weak. Spatial variables such as distance to wood, water, and wild food and medicine resources are also included in this analysis. A closer reading of the prevailing political economy of South Africa, particularly as it relates to the social grant system and to a lesser degree remittance monies, should be considered, as should the role of food security whereby rural areas continue to rely disproportionately on urban markets for staples. These factors may have as much, if not more, effect on a household's adaptive capacity.

CONCURRENT SESSIONS V: 10:00am – 11:40am

Session: Undergrad Symposium 2:

Student Center 206

Organizer: UK PEWG Undergraduate Committee

Chair: Michele Flippo Bolduc (Geography, University of Kentucky)

Social Change in a Changing Climate: Development and Agricultural Production in the Peruvian Andes Daniel Welsh (Anthropology and Spanish, DePauw University)

This paper explores the ties between rural development, climate change, and urbanization through an ethnographic case study of the indigenous agricultural community of Huatta, located in the Peruvian Andes. Specifically, it examines a recent shift from subsistence to cash crop farming in highland production zones, which has far-reaching implications for the ecological and economic viability of agriculture as both subsistence strategy and source of income in the region. The shift marks a regional trend toward capitalist, service-oriented economies in rural communities across the Sacred Valley of Cusco, Peru, coinciding with an increase in rural-urban migration of youth who have now begun pursuing higher education and building professional careers outside of agriculture. Climatic shifts in production zones have allowed for short-term experimentation with fast-growing, nontraditional cash crops, while regional market competition has led to short-term profits for households from the sale of these high-demand crops. In addition, foreign and state-based development programs have contributed to more commercial labor practices that have left gendered and generational impacts on social relations within the community. Grave uncertainties, such as scarce water, market instability, and lack of fertile land, put the long-term sustainability of agricultural development in Huatta into question. Through recorded narratives of individual community members, as well as archival research on these topics, this paper critically addresses the contradictions associated with the present situation and future prospect of social, ecological, and economic change in the Peruvian Andes.

"Women's Crops": The Feminization of Subsistence Agriculture in Andhra Pradesh, India Sanjana Pampati (Political Science, University of Kentucky)

"His mother and sisters worked hard enough, but they grew women's crops, like coco-yams, beans and cassava. Yam, the king of crops, was a man's crop," says Okonkwo in Chinua Achebe's novel *Things Fall Apart*. In Igbo society, harvesting yams was synonymous with masculinity. Yams were the most important crop and the men of Igbo society would proudly compare their crop yields. Though yams were the main form of nourishment in Igbo society, other crops such as beans and cassava did exist but they were not as plentiful and were therefore considered "women's crops." There are two important inferences that can be made after considering Achebe's *Things Fall Apart*. One, a gender division of agricultural labor has been used to empower men as the "breadwinners" of a patriarchal society and even though the women do participate in important agricultural work, their work is often considered "domestic" and less important. Second, men have a monopoly over the production of more profitable crops, such as yams. Both of these inferences are maintained when considering the cotton industry in India. I intend to examine the feminization of subsistence agriculture in Andhra Pradesh, India, focusing on the cotton industry, and take into consideration the effects of climate change, the World Trade Organization's neoliberal policies, and the rise of multinational corporations, such as Monsanto.

Marxist Materialism Matters

Tyler Hess (Sustainable Agriculture, University of Kentucky)

"Labor is not the source of all wealth. Nature is just as much the source of use values as labor, which itself is only the manifestation of a force of nature, human labor power." Reading most contemporary Marxist literature, one would hardly predict the previous statement to have been said by Karl Marx, though the above is a quote from his *Critique of the Gotha Programme*. Even in this less referenced writing by Marx, he incorporates a recognition of "nature" in his critique of the German Social Democratic Party. This exclusionary theme betrays Marx's historically significant ecological critiques that can still be found in his original writings. Beyond Marxist revisionism in particular, the social sciences more generally are in crisis. This is a crisis of silence toward the ongoing ecological collapse of the Earth's biosphere. For decades, the extractive and wasteful practices of capitalist production have been continuously laid bare. In the 150 years since Marx's original writings, all significant ecological indicators have continued in the wrong direction. Despite widespread deforestation and fossil fuel extraction, social scientists have not sufficiently incorporated such materialist realities into their various disciplines. I will first examine the plight of the social sciences, followed by the Marxist contributions to a historical and dialectical materialism. Jürgen Habermas will also be critiqued and included with regard to his commentary on the natural world. The theoretical cold shoulder of modern critical theory is at the discipline's own peril considering the growing and unpredictable influence of "nature." Relevant scholars contrarily must be actively reconstructing social theory to take into account ecological necessities.

Conspicuous Bodies: The Production of Marginalized Subjects and Spaces in Miami Joshua Mullenite (Anthropology/Sociology and Geography, Florida International University)

This paper looks at the ways in which masculinities and femininities are produced and reproduced by way of conspicuous consumption in Miami. By utilizing this broad framework, I look at how bodies are produced which are privileged or marginalized based on geographically varied ideals within a single urban environment. I also look at the ways in which these ideals are used as a means to grant or limit access to certain public and private spaces. I argue that value is placed on certain visible gender markers which are utilized to create markets that construct a connection between personal identity and the products being sold. What occurs is a privileging of bodies that display the marketed characteristics and an othering of those that do not. The result is a geographically varied political economy where gender identity markers form a part of a particular type of conspicuous commodity – an outward display of status which exerts a sort of dominance or superiority over others.

Session: Politics of Ecosystem Services 2

Student Center 249

Organizer and Chair: Eric Nost (Geography, University of Kentucky)

What Are We Conserving? The Problématique of Ecosystem Services and Ecological Resilience for Public Policymaking

Maria Papadakis (Geographic Science, James Madison University)

Over the past decade, both ecosystem services and ecological resilience have emerged as guiding concepts for the protection, conservation, and stewardship of both nature and natural resources. As systems-based heuristics, these concepts represent a radical departure from traditional environmental policies designed to protect discrete places or species. Instead, societies and governments are now being called on to protect and manage the intrinsic functioning of ecological systems themselves. Because public policymaking and policy design are problem-solving processes, how problems are defined and articulated (the problématique) shape the scope and character of policy action. This paper explores how the conceptualization and operationalization of natural resource problems and policies are in transition from their historical roots in relatively static species and place preservation/conservation to dynamic, systems-based models. The exploration will address this transition from both scientific and policy perspectives to highlight the challenges that uncertainty and ambiguity in science present for the policy sphere. After reviewing the historical basis of natural resource policymaking and the emerging scientific conceptualizations of ecosystem services and ecological resilience, the paper analyzes extant policies to illustrate the difficulties in implementing systems-based environmental protection. The central argument of the paper is that systems-based environmental protection requires discontinuous and unprecedented change in public policymaking. Key international treaties, European Union directives and conventions, and U.S. policies are all used to illustrate the continuities, discontinuities, and challenges in developing public policy strategies designed to protect the functioning of nature itself.

Ecosystem Service's Influence on Protected Areas: A Social-Network Analysis

Marie Bonnin (Environmental Law, Institut de recherche pour le développement)

The link between protected areas (PAs) and ecosystem services (ES) is both obvious and complex. On one hand, ES can be seen as a new tool that strengthens PAs by providing a straightforward economic argument for biodiversity conservation. But on the other hand, ES can also lead to the marginalization of PAs and biodiversity conservation policies through new prioritization methods. For those reasons, conservationists have developed different attitudes towards ES and their relevance for PA. The article offers a sociological insight into the way conservationists have produced, dealt with and adapted to the mainstreaming of ES in PA. It does so by analyzing two fields that have been profoundly transformed by the introduction of ES in conservation practices. This article first looks at the economic argument developed around ES in PAs, and more specifically the new payments for ES in conservation policies. Secondly, this article presents the inclusion of ES in planning and prioritization strategies in conservation policies and the effects it has on the design and management of PAs. In looking at the two fields of finance and spatial planning in PAs and their historical, sociological and controversial aspects, we can see different conservationist attitudes towards ES emerge. The article ends by providing a typology of such stances, from “positivists” to “tacticians” to “traditionalists.” This article is part of an ANR-funded program (Serena: Ecosystems Services and Rural Land Use) and of a BiodivERSA-EU funded program (Invaluable: Valuations, Markets and Policies for Biodiversity and Ecosystem Services).

The Mouse that Roared: Salvadoran ecosystem service policy from Durban to Doha

Fiona Wilmot (Geography, Texas A&M)

The paper analyzes the global environmental leadership ambitions of the smallest, least-forested, Central American country through a semiotic appraisal of the public rhetoric and behavior of the Environment Ministry concerning climate change during the period 2011-2012. This spans the two COP meetings at Durban and Doha and includes Rio +20, as well as regional and national performances in which El Salvador berated the developed nations for not assuming sufficient responsibility for addressing the causes of climate change, and fellow CAFTA members for not addressing the effects. Developed nations are using forests to absorb greenhouse gas emissions for climate change mitigation projects and some developing nations are eager to assist. The government of El Salvador intends to increase its national carbon forestry reserves through ecosystem restoration in order to participate in REDD+. It proposes to do this through a national program of restoring ecosystems and landscapes (PREP, to use the Spanish acronym), under the rubric of mitigation based in adaptation. Mangroves, pan-tropical inter-tidal wetlands are considered to be among the only remnant patches of pre-colonial forest types in the agricultural matrix of El Salvador and have been identified as a major component of PREP. REDD+ is opposed by indigenous and marginalized rural groups throughout Latin America, including critical groups of ex-combatant mangrove denizens in El Salvador, for, amongst other things, curtailing livelihoods. The Salvadoran government during Doha has enlisted some unlikely comrades-in-arms in its battle for common but differentiated responsibility for climate change (CBDR), while alienating elements of its electorate.

Hayekian Streams: the landscape signature of market-based environmental management

Rebecca Lave (Geography, Indiana University)

Market-based approaches to environmental management are increasingly common in practice and as subjects of scrutiny. To date, critical geographers have taken two primary stances towards the neoliberalization of nature. For some, anything neoliberal is obviously bad, so selling nature in order to save it must be bad, too; for others, the intransigent materiality of nature prevents any attempts to neoliberalize it from getting out of hand. To date, neither of these positions has had much in the way of physical science data to back it up. This paper is a first attempt to fill that gap, presenting a critical physical geography approach to the emerging practice of stream mitigation banking in the U.S. In the most common form of stream mitigation banking (SMB), a for-profit company (often backed by venture capital) buys land with a damaged stream on it and restores it to produce stream mitigation credits which can then be purchased by developers to fulfill their permit conditions under the Clean Water Act. SMB began in 2000, and has since spread rapidly across the U.S. with the strong support of the U.S. Environmental Protection Agency. Drawing on data from document analysis, interviews, and geomorphic fieldwork, I argue that while mitigation bankers have not dominated the policy-making process to the extent critical geographers might fear, their influence is clearly visible on the ground, as the types of streams restored and the design approaches employed in SMB projects are notably different than in stream restoration carried out for other purposes. For streams, at least, there is a clear landscape signature of market-based environmental management.

The Amazon in the Ecosystem Services Debate: Old Problems Affecting the Present Joanna Carlos Bezerra (Environmental Studies, The State University of Campinas)

With the end of the Kyoto Protocol approaching, discussions about the period that will follow are heating up. The Amazon is a guaranteed topic in this debate and the urge to protect the forest is exalted. Tropical forests store large quantities of carbon in their biomass, but also in their soils. How the forest is managed is crucial not only for the permanence of the carbon in the forest, but also for the conservation of biodiversity. In addition, management style directly impacts on the issues regarding the population of the forest, such as what they can produce, how they can produce it. This paper will analyze how the Amazon rainforest features in the climate debate, focusing on the proposals for including the forest within the climate change regime through the payment of ecosystem services. For success of such programmes achieving, there are a few questions that first need to be addressed. The research so far is mainly qualitative and focus on secondary reading on REDD and an analysis of ongoing REDD schemes in the Amazon. This paper is divided into four sections. The first section is dedicated to the climate change and tropical forests and it will focus on the reason why tropical forests are such a hot topic when it comes to climate change. The second section goes over the main aspects of payment of ecosystem services and REDD, which is the being put forward as a key element within the climate regime that addresses deforestation. The third section presents a discussion on key issues that need to be addressed before such schemes are implemented: drivers of deforestation, the institutional aspect, the property rights system and who will benefit from these schemes. The fourth section highlights the main conclusions.

Session: The Unevenness of Resource Extraction and the Production of Nature in Appalachia and the United States

Student Center 203

Organizer and Chair: Paul Gellert (Sociology, University of Tennessee)

Poor Development: Building an Environment of Uneven Development in the Smoky Mountains

William V. Taylor (Sociology, University of Tennessee)

This paper examines the socio-natural history of radical ecological and social transformations leading up to the creation of the Great Smoky Mountains National Park in the early 20th century. Uneven patterns of development in the region can be understood in terms of the environmental degradation of a place bound with the political economic reorganization of its people. The story of the park is popularly understood as the *preservation* of a “wilderness.” In fact, it was the *creation* of one. Contrary to dominant myths, Southern Appalachia was not an isolated wilderness. Taking a long historical perspective, for hundreds of years this peripheral region has been connected to global markets and has been the object of national political, military, and social elite actions. Trade and debt transformed the sustainable communal hunting and gathering activities of Cherokee and other Indians into commodified hunting and cultivation practices. Invasion by European settlers, livestock, and plants marked a period of agro-economic production and ecological homogenization. For embattled mountain people and ecosystems, the creation of a national park coincided with other stresses from a chestnut blight that killed one in four hardwoods in the region to the waning of industrial logging. The state superseded the rights and practices of local people, who had earlier usurped those of indigenous peoples. Lands taken from communities were changed from places of economic activities into natural(ized) categories of “protected” areas of state-controlled territory. Redefining the terrain this way reshaped struggles into ones over regulating and imagining nature. In sum, the park is better understood as a particular physical and social construction that has emerged from a complex, dynamic layering of space.

The Dynamic Layering of Place in Appalachia: A Case of Rural Gentrification?

Rhiannon Leebrick (Sociology, University of Tennessee)

In the Blue-Ridge Mountains of Appalachia a growing number of communities are experiencing inflows of affluent newcomers who move to the area in pursuit of utopian visions of creating sustainable communities. These in-migrant newcomers, charmed by low property costs and romantic interpretations of Appalachian culture, bring the money and social capital necessary to alter community practices and especially property relations. In this paper, I explore the relevance of gentrification, a concept largely applied to urban settings, as a theoretical lens to understand these processes in rural and small town Appalachia. Conflicts over newcomers’ quest for green economic development, including maintenance of idyllic vistas, have arisen between newcomers and old-timers. These conflicts are complex, affected by both demand or consumption dynamics within gentrification and also by larger global economic process. Implicit in seemingly local conflicts over community planning are issues of environmental privilege, class prejudice, and the production of (socio)nature as new places are selectively layered on top of existing places. Examining the rural gentrification in this layering

illustrates the intricacies of political participation in small, rural communities. This paper aims to lay the theoretical foundation for a larger empirical project on rural gentrification in multiple cases in the Blue-Ridge Mountains of Appalachia.

The Unconventional Boom: A Theoretical Analysis of Hydraulic Fracturing, Horizontal Drilling and the Extraction of Unconventional Natural Gas

Kayla Stover (Sociology, University of Tennessee)

The growth in domestic extraction and production of natural gas from unconventional sources has been heralded as the greatest energy production boom of our time, promising a cleaner burning fuel choice and greater energy independence. As conventional oil and gas began to show signs of depletion, important advances in technology such as horizontal drilling and hydraulic fracturing have ushered in a boom. These practices, however, are more invasive and environmentally risky than previous conventional drilling, endangering local water sources, air quality, and infrastructure. They also allow extraction of natural gas deposits in previously economically inaccessible and more highly populated regions of the United States. The Marcellus Shale formation runs through much of Appalachia from New York to Kentucky. Additionally, the proliferation of unconventional natural gas drilling in a period of state de-regulation has largely been unregulated. The existing literature on natural resource and energy booms in isolated areas does not adequately explain this unconventional boom. Therefore, I propose a new theoretical framework based in political economy to examine the boom as an uneven development within global cycles of energy extraction and production. This theoretical approach will focus on the role of capital investment cycles, development in technology, and environmental and spatial consequences in order to provide a critical understanding of how an unconventional boom evolved, what is driving it, and, potentially, what direction it will take in the future.

Rhetoric and Reality of Energy Policies: Energy Independence, Jobs, and the Environment on the 2012 Campaign Trail

Katherine Gerlaugh (Sociology, University of Tennessee)

The rhetoric of political campaigns reflects not only tactical decisions but also real policy agendas. During the 2012 presidential campaign cycle, United States energy independence was a prevalent issue, albeit one frequently coupled with a focus on the need for jobs and economic growth. In this paper, the rhetoric of Republican and Democratic Presidential campaigns are compared and juxtaposed with current trends in traditional and alternative energy production and consumption. By doing a comparative content analysis of the campaigns, specifically focusing on each candidate's vision for energy independence, uncanny similarities are exposed. Both campaigns centered around the expansion of traditional energy sources like oil, natural gas, and coal while simultaneously including the promise of "green jobs" to replace the declining well-paid manufacturing jobs and to help move the U.S. to a sustainable energy future. The distinction between Obama and Romney is more a matter of emphasis and speed, as well as the important question of the role of the state in the often conflicting goals of economic growth and ecological sustainability. After comparing the two campaigns, the paper compares both to official federal plans and projections for energy use over the next quarter century and argues that there is a serious lack of realism in the relationship between proposed solutions and the likelihood of addressing identified problems. Instead of replacing traditional sources of energy, the data indicate that "renewables" are instead likely to become additional, as analyses of treadmill of production and Jevon's paradox would predict.

The Politics of Protection and Promotion: the Case of the Coal Industry in Environmental Politics

Elizabeth A. East (Sociology, University of Tennessee)

By convention, social scientists and policy analysts think of the business sector or capital as in a structural position of power and domination. Yet, even capitalists can be threatened by oppositional politics. Fossil fuels industries, either as individual firms or through industry-funded organizations, have been particularly vocal in response to framings of their products or processes as "dirty," unreliable, or unsustainable. This paper provides an examination of the political motivations, strategies, and actions of a major coal industry-funded organization: the American Coalition for Clean Coal Electricity (ACCCE). The ubiquitous icon of "clean coal" is the product of the specific practices carried on by ACCCE on behalf of a range of corporations directly involved in coal extraction and indirectly related to it through rail transport and electricity. Based on an unusual use of web-based research on the history of ACCCE, I examine how and how much the organization participated in environmental politics over a 15-year period from 1995 through 2010. I focus on its organizational and ideological tactics and resources to demonstrate how the coal industry has framed not only their extractive processes but also their end-product as compatible with widely-held, environmental values. As such, the ideological message that protects and promotes the industry is that coal is an integral part of America's and the world's sustainable future. The paper concludes with a discussion of the consequences of these political strategies and reoriented framings for envisioning new and alternative energy policies and practices.

Session: Environmental Justice 2

Student Center 205

Chair: Kyle Burchett (Philosophy, University of Kentucky)

Analyzing the Use of Qualitative Methods in Environmental Justice Research

Ujjaini Das (Geography, University of Georgia)

From the mid-1990s onwards, environmental justice (EJ) scholars engaged seriously in theorizing the causes of environmental inequality advocating the use of qualitative research methods to understand the process by which environmental inequality is produced instead of searching for evidence of unequal distribution of environmental harm on disadvantaged communities using quantitative techniques. Since then, various qualitative research methods have been extensively used for nearly one and a half decades in EJ studies. However, the majority of the studies do not explain what epistemological perspective enables the choice of the research method and the framing of the research questions nor do they discuss in rich detail how a particular research method is used to analyze the research questions. This paper, first reviews the qualitative research methods used in environmental justice studies. Second, it discusses how the process of environmental inequality formation in the workplace, which is one of the fundamental concerns of

EJ theory, can be conceived from the meta-theories of critical realism and social constructionism. Third, the paper explains how forms of discourse analysis, as qualitative research methods can enable analysis of the process of workplace environmental inequality formation from critical realist and social constructionist

Water Inequality in Peru as a Result of Inefficient Water Management

Rachel Will (Geography, Kent State University)

Historically, Peru has experienced water shortages due to periodic droughts resulting from fluctuations in precipitation. Climate change is leading to prolonged and intensified periods of drought and glacial resources are rapidly melting. The majority of Peru's population currently lives in arid or desert regions along the coast where only two percent of the country's usable water resources are located. As urban densification in these areas is rapidly increasing, water resources are becoming extremely scarce. Due to inefficient water management policies in the past several decades, many citizens have not had access to clean and affordable water. As urban densification continues and water resources are dwindling, water management reform is necessary. This paper will explore the range of water inequality (in Peru due to inefficient management) and outline several potential management reforms to improve water security and efficiency and avoid crisis.

Scales of reference, reckoning & justice

Garrett Graddy (International Service, American University)

As a critical geographer-theologian in an international relations (IR) school, I return to the language of scale politics. Over the past decade, feminist spatial thinkers launched critiques of scalar hierarchies that nestled meek, quaint local economies below the virile, mobile global market—each scale gendered and racialized accordingly. A horizontal ontology, it was argued, would at least allow for egalitarian spatial imaginaries. Yet, such networked flatness needs revisiting for a few reasons: first, scalar invocations continue to drive political-ecological advocacy in complex and efficacious ways, thereby meriting scholarly analysis of/on their own terms. Meanwhile, IR realist theory—and subsequent policy—lock agency into discrete, territorializing nation-states, ever-competing, never secure. Scalar politics keep emerging to counter the dueling hegemonies of hyper-globalism and hyper-nationalism. Moreover, often these scalar invocations involve explicit value judgments, alternative ethical frameworks, in short: a re-prioritization of certain scales of reference over others. Flatness gives way to a rugged terrain of higher and lesser scales of normative reckoning—some even oriented toward axes of cosmological or religious principles. But can verticality reach equity? In this paper, I draw upon research engaging Andean and US agrarian politics to explore the possibilities of scalar theory: what if 'scales' exist as concurrent, dialogic scales of reference, each in first person plural, each articulated around different axes of power and significance. What if scales of reference describe and proscribe scales of reckoning, each with their own measure of accounting, of collective and mutual responsibility.

Climate Justice, Cosmopolitanism, and the UNFCCC - A COP 18 Case Study

Rebeka Ryvola (Forestry & Environmental Studies, Yale)

We're approaching 18 years of United Nations Framework Convention on Climate Change (UNFCCC) annual meetings, or Conferences of the Parties (COP). Ambition to reduce greenhouse gas emissions has fluctuated both globally and nationally over the lifetime of the COP process, while these emissions have continued rising steadily. Nations and groups most affected by climate change are presently, and increasingly, at risk as impacts unfold across the world. The current level of global-level action is insufficient to address these risks within ever-shrinking window of opportunity. Who is pushing for climate justice within the UNFCCC? Which groups, nations, and individuals take a more global and less international approach (where global is i.e. more cosmopolitan, and international is i.e. more focused on national borders) to the negotiations? What language and tools -- innovative communication techniques, collaboration across levels of the UNFCCC hierarchy, law, activism etc. -- are these entities using to push for climate justice within the UNFCCC framework? Drawing from experiences from UNFCCC's COP 18, in Doha, Qatar, this paper examines the aforementioned questions with a specific look at COP 18. It seeks to understand areas within the UNFCCC where a shift towards a more cosmopolitan -- and thus more promising -- perspective, is building, and how this shift is being brought about. The aim of the paper is to identify areas of greatest potential for bringing about more ambitious outcomes as we approach the 2015 deadline for formulating a new global climate change agreement.

Session: Conservation and Coloniality: Postcolonial Environments and Decolonial Developments 1

Student Center 211

Organizers and Chairs: Anne-Marie Hanson (Geography and Development, University of Arizona) & Sarah Moore (Geography, University of Wisconsin)

Discussant: Paul Robbins (University of Wisconsin)

The Politics and Ecology of "Incursions": Livestock, Protected Areas and Socio-Ecological Dynamics in East Africa

Bilal Butt (Natural Resources and Environment, University of Michigan)

Across the world, the presence of livestock in national parks is considered to be an "incursion" which threatens the economic and ecological viability of protected areas. However, these popular narratives inaccurately describe the relationships between people and protected areas because they are devoid of appropriate political, economic, ecological and historical contexts. In this paper, I rely on a political-ecological framework to argue for an alternative narrative. Through a case study from a world famous protected area in southern Kenya, I demonstrate how "incursions" are modern productions which arise from the intersections between changing political geographies of resource control and variable animal geographies of resource utilization. I rely on direct empirical and supporting evidence from place based studies to illustrate the spatial and temporal differences in resource access strategies of

wildlife and livestock within and outside the protected area. I contrast these against changing land tenure and resource management policies to highlight how livestock movements into protected areas are patterned in ways that reflect the changing nature of protected area management and the material conditions of the landscape. The paper highlights the role of geospatial technologies in unveiling patterns of resource utilization in ways that are unique and different from traditional rural appraisals. Through these investigations, this paper provides a more accurate and nuanced explanation for livestock movements into protected areas.

Who Belongs Where? Socio-spatial Barriers to Effective Baboon Management in Cape Town Crista Johnson (Geography, University of Illinois)

In Cape Town, remnants of South Africa's history of racial inequalities and segregated land allocation continue to impact the city's management of wildlife in a highly populated urban environment. The human-baboon conflict has intensified over the past ten years with an increase in reported encounters. Chacma baboons (*Papio ursinus*) of the Cape Peninsula are particularly famous for their lack of shame, quick hands and raiding intentions. Across greater Cape Town baboon troops occupy the foothills of Table Mountain National Park, an area markedly encompassed by largely homogenous upper-class white suburban neighborhoods, one such remnant of South Africa's Apartheid era. In an effort to manage the troops and decrease raiding episodes, the City of Cape Town, in partnership with other organizational bodies, entered into a contract with the Nature Conservation Corporation, a service provider and environmental consultancy, to implement an effective wildlife management program. The result was a baboon monitoring program which employed local previously economically disadvantaged citizens to physically monitor and herd the baboons in designated areas across the city. Though with positive development intentions in mind, the identities of these monitors, particularly their race, created a barrier to effective implementation in a socially stratified context where identity and space still remain deeply observable even in a post-apartheid environment. As with many human-wildlife conflict scenarios the human-wildlife interface is the focus, but the greater issue is the social disparities between the groups invested in the process and outcome of the management practices. This paper seeks to understand how identity and space can create barriers to wildlife management and conservation in urban environments. Additionally, this paper will highlight how this program provided an opportunistic space for individuals of different racial and economic backgrounds to surmount existing socio-spatial barriers through encounters provided by the baboon management program.

Plant exchanges between farmers and colonial administrators of Gambia during the early 20th century Susannah Chapman (Anthropology, University of Georgia)

This paper reconsiders contemporary debates over access to plant genetic resources in light of the rise of scientific plant breeding within the British Empire during the early 20th century. Through an exploration of early plant exchanges between farmers and colonial administrators in The Gambia, I trace the ways that colonial discourse and practice within the nascent Department of Agriculture obscured farmers' contributions to colonial plant breeding projects and helped produce very specific types of knowledge about colonized and colonizers or, specifically, farmers and agricultural "experts." Colonial discourse about Gambian farmers evokes Bhabha's (1994) discussion of the stereotype in that portrayals of farmers' skill were marked by both the recognition and disavowal of difference, where difference signified some form of lack. In The Gambia, these forms of discrimination rendered farmers and their knowledges, their contributions of germplasm, and their practices of access both "overdetermined" and "overlooked" within systems for colonial agricultural prospecting and plant exchange. This happened in three ways. First, in discussions about contributions of germplasm to colonial plant breeding efforts, colonial agricultural officials portrayed Gambian farmers and Europeans in very different ways, effectively eliding real contributions from Gambian farmers. At the same time, colonial discourse rendered omissions of farmers' contributions more valid by the perpetual devaluation of farmer skill and agricultural knowledge. Finally, the elision and devaluation of farmer skill ultimately privileged certain types of exchange practices and certain interpretations of exchange amongst those involved in the international cataloging and transfer of plant germplasm. In particular, farmer contributions came to be seen as anonymous, unskilled, open, and free. Consequently, this history forces us to reconsider the colonial antecedents of contemporary regimes governing access to, recognition of and remuneration for exchanges of plant germplasm.

Session: Feminist Political Ecologies: Expansive Natures and Embodied Intersections 2

Student Center 228

Organizers: Vanessa Marquez, Sarah Watson, & Derek Ruez (Geography, University of Kentucky)

Chair: Derek Ruez (Geography, University of Kentucky)

"You're basically going to have to do it for yourself": Constituting gender, homes, and regulation through household pesticides

Dawn Biehler (Geography, University of Maryland Baltimore County)

This paper examines the historical political ecology of domestic pesticide regulation in the U. S., focusing on the ways gender roles and pesticide policies helped constitute one another. Based on archival research, the paper argues that pesticides and pesticide regulations helped reconstitute familial roles and domestic space with respect to cleanliness, health, and safety. With the release of pesticides such as DDT for the civilian market after 1945, government agencies joined manufacturers in promoting new home-making practices and technologies to women. In spite of the government's role in promoting domestic pesticides, the U. S. Department of Agriculture insisted that safety remained the province of home pesticide users, as exemplified by the 1963 quote in the title by Agriculture Secretary Orville Freeman. I argue that this hands-off stance itself reflects the assumption that women could apply pesticides safely and protect their families from harm. Meanwhile, both women and men both experienced anxieties about the safety of domestic

pesticides, especially after 1962 and the publication of Rachel Carson's *Silent Spring*. The prevalence of these concerns among both men and women calls into question assumptions about gender roles and norms in the management of domestic environments.

Buried streams and hidden narratives: A sociomaterial approach to understanding urban water

Jennifer T. Mocos (Community Research and Action, Vanderbilt University)

The bodies of people are intimately connected to bodies of water. In urban systems, streams are often piped, channelized, paved, and diverted through an intricate network of infrastructures. These structural simplifications combined with widespread impervious surfaces across urban landscapes can alter water flow patterns and impair ecological functioning. Furthermore, as water molecules move through these water infrastructures, they can become physically incorporated into living organisms, along with discarded chemicals and contaminants. These parallels between people and water are both physical and ideological, social and material. They connect notions of pollution and health integrated with both physical boundaries and social classifications. In this paper, I present an approach to understanding the sociomateriality of urban water through the intersection of water infrastructures and human experiences. Through ethnographic research on water systems in the city of Nashville, Tennessee, I explore how urban water is both designed and natural. This paper focuses upon the specific methodological approaches utilized to identify the hidden dimensions of water and the practical considerations involved in interpreting natural and cultural synergisms. Attending to this complexity reveals the layered relations of power that are embedded within the urban water landscape and the hidden possibilities for resistance against predominant narratives and infrastructures.

Migrating in Place: Ugandan fishers who put the "place" in Political Ecology

Kevin Gibbons (Geography, University of Wisconsin-Madison)

The mobile fisherfolk of Lake Victoria are often blamed for causing environmental and societal woes such as overfishing, high rates of AIDS, alcoholism, and malnutrition. Policy-makers advocate for limiting migration to and between landing sites because of the difficulties that mobility poses to spatially bound governance. There is also an undercurrent aiming to socially engineer away from female vulnerability, prostitution, absentee fathers, and the pejorative "African" marriage. While political ecology perspectives have challenged simplistic notions of the relationship between mobility and environmental degradation, scholars rarely incorporate theories of space/place with natural resource outcomes. In this paper I will use interviews from preliminary dissertation research in the Lake Victoria context to challenge common-property assumptions about natural resource governance and create a dialogue among mobility, livelihoods, natural resource governance, gender, and conceptions of place.

Session: Appalachian Contours: Exploring Nature-Society Relations Across the Region 2: Whose Nature?

Student Center 230

Organizers: Christine Biermann (Geography, Ohio State University) & Sarah Watson (Geography, University of Kentucky)

Chair: Tammy Clemons (Anthropology, University of Kentucky)

Moving to the Mountains: A Q Method Study of Amenity Migration and Land-use Planning in Western North Carolina

Jessica Breen, University of Maryland Baltimore County

Amenity migration generates a unique set of environmental management conflicts. These conflicts have been well studied in the Western United States, but there has been little research directed towards the Eastern United States and in particular southern Appalachia. This gap in the literature is addressed by presenting a case study from the mountains of Western North Carolina. Using Q methodology, this project asks how the opinions of amenity migrants concerning two controversial land use ordinances differ from those of other rural land users (i.e. long-term rural residents, local government officials, and real estate agents/developers) and examines how the convergence and divergence in opinions may shape future local environmental management. At issue are differing ideas of "nature" and "rural" as the county transforms from an economy based in natural resource extraction to one focused on real estate development. This project hopes to contribute to the study of amenity migration and environmental management by applying a political ecology analysis to a previously understudied region.

The multiple meanings of nature among contemporary homesteaders in Appalachia

Jason Strange, Berea College

Throughout Appalachia – as in many parts of the rural US – people continue to embrace intensive subsistence production, forming an unusual kind of social movement that I refer to as "contemporary homesteading." Homesteading counts as a social movement because participants pursue it intentionally as a strategy of social and environmental activism. As a form of activism, homesteading has a number of notable characteristics: for example, unlike many mainstream activist efforts, in which dissidents target policy, homesteading is a "prefigurative" strategy in which participants try to directly embody and enact the kind of change they seek. Another notable feature – which will be the focus of this paper – is the crucial role that ideas about nature play in this particular social movement. Ethnographic research, conducted in a four-county area of eastern Kentucky, reveals that homesteaders think about nature in a number of different ways. This remarkable semantic fecundity is one of the main reasons why homesteaders see rural subsistence production as not only an effective form of activism, but as one which can address a vast range of social ills, both real and imagined – from environmental degradation to labor exploitation, from the spiritual and moral decay of the city to the collapse of civilization. Homesteading emerges from a profound unease with modernity, a sense of sweeping societal failure and malaise that is seen to express itself in nearly every aspect of contemporary, mainstream life – and for nearly every one of these problems, an answer is thought to lie within the natural world.

A Brief History of Climbing in Southern Appalachia

Joshua Roe (Appalachian Studies, Appalachian State University)

People have been scaling the faces of cliffs for many decades now around the world. There are many publications about the many wonderful climbing destinations around the world. Currently though, there are few if any publications that deal directly with the rich history of climbing mountains or cliffs in southern Appalachia in a single work. In this region one can find Corbin sandstone in eastern Kentucky, granite batholiths in North Carolina, deep gorges and steep crumbling spires in West Virginia, miles of vertical terrain along the banks of the Tennessee River, and slabs of high angle rock used by the Army Rangers in northern Georgia. Though these five states' geological features vary, they all share the commonality of being geographically positioned in Appalachia. They also have a similar thread of rurality and "down south" culture. Influenced by mountaineering culture from Europe and elsewhere in America, southern Appalachia was "discovered" in an era of political and cultural paradigm shift in the climbing world. Land access in this region deals with issues that inspired the likes of Muir Valley and the Pendergrass-Murray Recreational Preserve; both combined make up one of the largest privately held climbing destinations in the US. This research explores the rich climbing history of the southern Appalachian region and unique political activism that has helped maintain access to natural areas for a recreational pursuit. The produced landscape of bolted "sport" routes and urbanite climbers seeking a rural escape are common themes found in the history of southern Appalachian climbing.

Youth connections between business, social justice, and environmental communities in West Virginia

Rachel Terman (Rural Sociology and Women's Studies, Penn State University)

Two of the most exigent issues for communities in the Appalachian region are environmental degradation and the out-migration of youth. At the same time, young people in the region often express high regard for the environmental aspects of place. However, this regard is always embedded in other political, economic, and social contexts. These contexts create divisions among youth in Appalachia that otherwise have similar interests in sustainable communities. The existing paradigm concerning the connection between people and the environment in Appalachia places local residents on one side and "outsider" environmentalists on the other even though, in reality, attitudes are much less dichotomous. In this paper, I explore environmental connections among youth active in various Appalachian development organizations. These empirical results from my dissertation research with college-educated youth in West Virginia reveal a way to move beyond the binary model of insiders and outsiders. In particular, I find that concern for the environment is relevant for youth involved in activist organizations as well as more traditional development organizations. In addition, both "insiders" and "outsiders" from diverse backgrounds share common social, economic, and environmental values across disparate groups. Divisions based in stereotypes and reality remain, but acknowledging commonalities among groups in Appalachia is an important step in fostering collaboration and progress, particularly among youth working to decrease out-migration in the region.

Session: Molecular Futures: From Epigenetics to Synthetic Biology and all Monsters in Between

Student Center 231

Organizer and Chair: Jairus Rossi (Geography, University of Kentucky)

Discussant: Jairus Rossi

Systems and Synthetic Biology in the 'Biobased' Economy and the Human-Earth Metabolism: The Case of Second Generation Biofuels' Production

Wendy Ake (Environmental & Natural Resources, Ohio State University)

Systems and synthetic biology (SSB) are complimentary fields of research currently applied to the task of enabling the industrial production of products based upon synthesis from plant biomass. This includes the synthesis of second generation biofuels. This technology is thought to achieve multiple goals, particularly in the case of biofuels, which overcomes problems associated with previous sources for biofuels such as food and/or oil seed crops. Plant sources, necessary in ever-increasing mass in a "biobased" economy, become a means of terrestrial carbon sequestration, calculated to offset carbon emissions across a biofuels' life cycle in production and eventual tailpipe emission. The technological innovation of SSB is offered as a technological "fix" to the failures of first-generation biofuels. In this paper, SSB technologies are read as an example of Heidegger's "enframent"; the instrumental purpose of the natural world revealed through SSB technology being a manifold solution space to advance surplus-value. It is argued that enframent's conception of technology, coupled by Marx's value form, enable the topology of the human-Earth metabolism, thereby enabling metabolic rifts. Therefore, despite any purported ecological use value these technologies possess, the use values become undermined through the reinscription of the ontological categories that perpetuate metabolic rifts. This argument is made through an investigation of the way in which current SSB biofuels research applications aspires to enter the production process through a consideration of project documents, academic journal articles on SSB research in second generation biofuels production, government legislation and reports.

Abnormality, Race, and the New Epigenetic Biopolitics of Environmental Health

Becky Mansfield (Geography, Ohio State University)

Xenobiotic chemicals (for example, PCBs, BPA, and methylmercury) play a central role in the new field of "environmental epigenetics," which identifies factors that regulate the expression of genes, thereby suggesting the fundamental plasticity of biology. Evidence over the past two decades suggests these chemicals not only kill us outright (through acute toxicity and cancer), but change how we function hormonally, reproductively and neurologically; this is

especially true of exposures *in utero*, which have long-lasting developmental effects. This talk examines the role of race in the emerging “epigenetic biopolitics” of environmental chemicals. Analysis of the paradigmatic case of methylmercury contamination in fish reveals a new racial formation in which race is important precisely because biology is plastic: race is something that can be made and unmade. In this regard, particularly troubling in the new epigenetic politics of environmental health are embedded notions of *abnormality* and *responsibility*. I will argue that these reproduce and even intensify raced and gendered notions of what it means to be human, and who is responsible for protecting the future. Women are made responsible for guarding and directing epigenetic processes through which bodies are made, and can be blamed for the racialized “abnormalities” that are the outcome of these chemicals.

Genetic phylogenies, conservation biopolitics, and the re-animation of an 'extinct' species of Galápagos giant tortoise Elizabeth Hennessy (Geography, University of North Carolina at Chapel Hill)

In 2008, a team of Yale conservation biologists conducting genetic analyses of populations of giant tortoises in the Galápagos Islands hit upon a remarkable discovery: out of a set of more than 1,600 individuals' blood samples, 11 of the sampled tortoises were direct first-generation (F1) descendants of a species of giant tortoise from Floreana Island that was thought to have gone extinct more than 150 years ago (Poulakakis et al. 2008). This, the team noted, is thought to be the first “rediscovery of a species by way of tracking the genetic footprints left in the genomes of its hybrid offspring” (Garrick et al 2012). In the context of broader ecological restoration projects in the Galápagos, these hybrid tortoises are now at the center of plans to “re-tortoise” Floreana through captive breeding and recolonization. This paper explores the re-animation of this presumably extinct species through the construction of genetic phylogenies. In addition to examining the science and speculation involved in figuring out how the parents of these F1 tortoises escaped extinction (and whether they are still alive), I analyze how the nonhuman biopolitics of rewilding (Lorimer and Driessen 2011) are shaped by genetic reconstructions of evolutionary history. I argue that genetic redefinitions of giant tortoise phylogeny shift the biopolitical infrastructure of biodiversity preservation to a molecular scale and in doing so simultaneously produce both new understandings of nonhuman species purity and monstrosity as conservationists are faced with a new population of “impure” genetic hybrids and the potential to back-breed genetically pure Floreana tortoises.

Human postgenomics, the production of microbes, and ascendancy of a biospatial fix Tony Stallins (Geography, University of Kentucky)

Human DNA sequence was initially conceived as an investment. However, the financial rewards of the Human Genome Project fell short of anticipated. For one, epigenetics was found to mediate the expression of gene sequence. With this came the recognition that the human genome is accompanied if not overwhelmed by microbial DNA. Bacteria, viruses, and other organisms that live within humans can alter gene expression and influence the products of gene sequence. I describe how this scalar intercession has been incorporated into new human-mediated productions of nature. There is now a Human Epigenome Project and a Human Microbiome Project. New medical procedures like bacterial transfers and parasite therapy herald how epigenetics and microbiomics are being incorporated into circuits of capital accumulation. I conceptualize how this turn toward the microbial reflects yet another spatial fix, a relocation of production to seemingly invisible worlds. Drawing on the work of new materialist geographies and Nigel Thrift's concept of a terraforming economy, I relate how the production of this spatial fix seeks to become even more processural and autonomous, whereby innovation and its ontologies arise from the vast combinatorics of space, place, and DNA. For much of Earth's history unicellular life forms have acted as a kind of biological roulette and novelty generator to shape earth production. If, according to Neil Smith, nature is being selectively replicated as its own marketplace, what does the ascendancy of this human capacity imply for the type of life forms and market mechanisms we wish to live with and value?

LUNCH: 11:40 am – 1:00 pm

CONCURRENT SESSION VI: 1:00pm – 2:40pm

Session: Undergrad Symposium 3

Student Center 206

Organizer: UK PEWG Undergraduate Committee

Chair: Chris Oliver (Sociology, University of Kentucky)

Institutionalized Environmentalism and the Phenomenon of Slum Removals in Chennai, India: An analysis of state and media discourses

Kumar Kartik Amarnath (Biology, DePauw University)

This paper examines how political and urban elite discourses of environmentalism have materialized in ways that reproduce or exacerbate negative environmental health outcomes for squatter populations in Chennai, India. Cities across India – like many in the Global South – are under severe stress from explosive levels of urbanization. With the populations of some cities almost doubling in recent decades, insufficient housing infrastructure and urban sprawl have resulted in the growth of informal settlements, namely slums. In recent decades, state conceptualizations of urban environmentalism have been justifying agents for slum evictions and relocations. Tamil Nadu, a state in southern India, is no exception to this rule. Embarking on aggressive slum eviction and relocation initiatives, the Tamil Nadu government has moved over 200,000 slum dwellers from the state capital of Chennai to public housing projects in the urban periphery. This study begins with an analysis of the political discourse regarding slum proliferation, urban health,

and environmentalism, typifying the actors that have been given center stage in constructing and normalizing particular understandings of urban sustainability and health that mandate the removal of informal settlements in Chennai. This study speaks to how contemporary discourses framed around hegemonic value claims and epistemic logics regarding environmental stewardship produce landscapes that in fact exacerbate risks resulting from the cross section between environmental hazards and social inequities among the most vulnerable of populations.

Beneath the Melting Ice: The Race for Governance and Natural Resources in a Transforming Arctic Garrett Powers (English and Environmental Studies, Centre College)

Spurred by rising global temperatures associated with climate change, more Arctic sea ice melted in the summer of 2012—an amount equal to the surface area of the United States—than any other summer since records began. As oil companies, in cooperation with Arctic nations, move to extract the newly accessible mineral resources beneath the Arctic Ocean, they reinforce a positive feedback loop by engaging in practices that caused ice melt in the first place. To avoid pushing global temperatures to the 2°C threshold, incentives must be created to keep intact the massive carbon sink beneath the Arctic sea floor. Individual nations must be encouraged to act in the public good despite potential domestic economic disadvantage. This paper explores one potential creative and flexible governance mechanism to incentivize non-development of these resources: Payments for Ecosystem Services (PES). It is clear that climate change is testing the strength current local, regional, and international regulatory structures in the Arctic, especially the Arctic Council. In this chaotic political and geophysical climate, current institutions have the opportunity and the obligation to help mitigate climate change by keeping carbon stores under the ground. The Arctic Ocean must be understood as a global commons whose characteristics are spatially and politically diffuse. In the interest of the global community, then, it is imperative that governance mechanisms be strengthened to avoid slipping into undesired or dangerous regimes.

Local Livelihoods and Marine Protected Areas: Long-term Secondary Social Impacts Suzanne Pierre (Environmental Studies, New York University)

The creation of protected areas marine coastal zones is on a the rise, yet evidence that they are as beneficial as conservationists suggest is lacking. The literature on marine protected areas (MPAs) shows that there are both positive and negative outcomes for MPAs in the short term (5>y), however the links between MPAs and long-term livelihood strategies, food security and population demographics has not been forged. This research will draw this connection in the case of the Velondriake Locally Managed Marine Area in southwestern Madagascar through surveys, interviews, secondary data review and participant observation. Through these methods, I will collect and analyze data that will help to establish the nature of the connections among MPA presence and the aforementioned secondary social impacts. This research will provide baseline information for further studies into the poorly understood connection between the success of protected areas and human migration.

Developing a participatory GIS methodology for mapping non-native invasive species in urban forests Jonathan Finnie (Geography, University of Kentucky)

In this paper I present a participatory GIS methodology for mapping elements of urban greenspace using smartphone applications for citizen scientist data collection and analysis in Atlanta, Georgia (USA). The methodology demonstrates an opportunity for academic researchers and community-based groups to collaborate for a variety of objectives, including: mapping the extent and distribution of non-native invasive plant species in Hampton-Beecher Nature Preserve; assisting a community-based organization in the first steps of invasive species eradication and preparation for replanting and restoration of native species; mapping park infrastructure and other features for use by community stakeholders; demonstrating the functionality of a replicable methodology for mapping elements of urban greenspace; and developing a geospatial database to address the diverse needs of community-based organizations. As a contribution to the Public Participation GIS literature, the methodology presented has practical and methodological implications for GIS and urban researchers and practitioners interested in utilizing participatory methodologies for urban forest and greenspace management, restoration efforts, and non-native invasive species monitoring.

Indigenous peoples and the Politics of the Tar Sands of Alberta, Canada: An Indigenous Territory Assessment Report of the Mikisew Cree First Nation Jasper Gunn (Critical Technology Studies, University of Richmond)

Land titling and property rights are often seen as an important step for asserting indigenous sovereignty. Even once a group achieves title to some or all of their ancestral homelands, the struggle for sovereignty is still ongoing. This paper explores some of the political dimensions of the landscape of Alberta, Canada, home to many different indigenous peoples and site of the huge industrial operation of extraction and production of tar sands oil. The tar sands industry holds a near-monopoly on employment opportunities in the area and offers compelling educational opportunities for First Nations people. Yet, tar sands industrial activities are polluting waterways, skyrocketing cancer rates, destroying habitats, driving climate change, and otherwise disrespecting the sovereignty of indigenous and First Nations peoples to their titled lands and their ancestral homeland. These violations are driving many indigenous people and their allies to resistance. This paper is focused within the realm of political ecology, with an understanding of cultures as ever-changing. In some places it focuses specifically upon the Mikisew Cree First Nation, due mostly to access to academic literature on that First Nation. The author sincerely hopes that this paper might further the fights for sovereignty and environmental justice for other indigenous peoples as well, whether in Alberta or elsewhere. Methods include literature review and participant observation (including the arrest of the author).

Panel: Approaches to Political Ecology: From Barcelona to Lexington

Student Center 203

Giorgos Kallis (Coordinator, European Network for Political Ecology (ENTITLE), Autonomous University of Barcelona)

Patrick Bigger and Jairus Rossi (Geography, University of Kentucky Political Ecology Working Group)

Moderator: Garrett Grady (School of International Service, American University)

In this panel session, Dr. Giorgos Kallis, coordinator of the European Network for Political Ecology (ENTITLE, a research and training program financed by the European Union) and members of the University of Kentucky Political Ecology Working Group will present their approaches to political ecology. Each institutional will have around 30 minutes to introduce their theoretical, practical, and organizational orientations, allowing ample time for questions, discussion, and perhaps debate.

Dr. Kallis will present the approach to political ecology developed in Barcelona, following the research line of Joan Martinez-Alier. These include concepts such as global metabolism, commodity frontiers, ecological distribution conflicts, languages of valuation, and environmentalism of the poor; show how these concepts evolved out of particular concerns from ecological economics; and show some examples from empirical work including a large international research project EJOLT (Environmental Justice Organizations, Liabilities, and Trade). The Barcelona approach will be compared to political ecology in geography/anthropology, and show how bringing insights from neo-Marxist and Foucauldian theoretical perspectives has advanced the above concepts. This will lead to a presentation of ENTITLE, an on-going initiative that brings together a diverse group of political ecologists active in Europe in an incipient training and networking effort.

The panel assembled from two of UKPEWG's members will take a slightly less structured approach, reflecting the polyvocality of conceptualizations of political ecology at UK. They will identify points of convergence that allow political ecology to remain the unifying theme while exploring theoretical, topical, and methodological frontiers. The members will identify the opportunities and limitations of doing political ecology within an organizational setting defined by disciplinary boundaries. They will discuss how experiences of working through and beyond disciplinarity and constant exposure to their peers' work have shaped individual and collective understandings of political ecology's possibilities.

Session: Politics of Ecosystem Services 3

Student Center 249

Organizer: Eric Nost (Geography, University of Kentucky)

Chair: Lily Brislen (Sociology, University of Kentucky)

Code/nature: measuring and marketing ecosystem services spatially in Oregon

Eric Nost (Geography, University of Kentucky)

New markets in ecosystem services like wetland water storage and delay, stream water temperature, or salmon habitat, revolve around ecological restoration to offset impacts occurring elsewhere. Ecologists who consult entrepreneurial restorationists in these markets employ spreadsheet-based site assessments of varying complexity, detail, and on-the-ground involvement in order to make measurements of degradation and restoration. A key question for the markets hinges on where in the watershed or landscape it is most valuable to do restoration work. Many conservationists and environmental regulators lament that markets might allow for impacts in sensitive areas while not directing restoration efforts to priority areas. In this paper I explore the use of digital tools like Excel, GIS, and geoweb mapping to evaluate restoration site selection in ecosystem services markets in Oregon, US. I argue that digital tools do not somehow render nature or the question of where to do restoration more transparent. Instead, their design and use are expressions of particular social interests. The state and conservationists employ them to advance their own interests in the question of where to do restoration and their interests are often more about ecological goals than market objectives per se. Digital tools and assessments for the market not only allow Oregon conservationists to support non-commodity exchanges of ecosystem services, they give environmental agencies a means to influence siting decisions. Focusing on how the state, entrepreneurs, and conservationists utilize digital tools to render nature spatially useful represents a ripe area of research for political ecologists and suggests potential interventions into market design.

Conservation offsets, social sustainability and First Nations in Alberta, Canada

Ryan Hackett (Geography, York University)

A diverse range of actors in Alberta, Canada have recognized terrestrial conservation offsets as a way to compensate for the ecological consequences of the province's oil sands boom. These programs are representative of a global trend toward the rescaling of environmental governance, and greater use of market-oriented tools for conservation practice. This global shift in conservation techniques has spawned a somewhat divisive academic literature that views market-oriented approaches as either utopian win-win scenarios that successfully reconcile tensions between the environment and economic growth, or as part of a larger class-based project that threatens democracy and serves to channel benefits to powerful societal actors. Much less attention has been placed on how seemingly neoliberal practices might be appropriated for a diverse range of political ends, resulting in more heterogeneous political and material outcomes. Drawing on recent scholarship that frames neoliberalism as a set of governance techniques, rather than a unified political project, the paper explores the ways in which market-based conservation tools, such as conservation offsets, might be put to some seemingly progressive political ends in a manner unanticipated by the often bifurcated literature on the topic. Specifically, the paper explores recent attempts by some First Nations in Alberta to develop and implement terrestrial conservation offset programs as a means of achieving social and cultural sustainability for their people. First Nation attempts at offset programming may present a more nuanced understanding of the political purposes that these new forms of governance might serve, and works to expand our understanding of neoliberal conservation practice by focusing on how the context of particular places may complicate both the underlying logics and material outcomes of market-oriented conservation mechanisms.

'Nature', carbon and the struggle over value in Ecuador
Nicolle Etchart (Geography, The Ohio State University)

Climate change and climate change policies are transforming agrarian landscapes in developing countries. These policies center on market-based strategies that price and trade nature's services as the solution to global warming, environmental degradation and conservation. Research across the social sciences has brought attention to the political and economic hurdles to the success of these strategies, focusing on the need to strengthen land and resource rights to avoid negative consequences for forest conditions as well as local livelihoods. However, linking land tenure and regulation to effective climate change mitigation relies on the neoliberal premise that the poor in the global South can and should be tasked with the responsibility of effectively managing and allegedly benefiting from a regulated use of a forests commons. Ecuador recently became the 13th country to receive funding from the United Nations to transform parts of the nation's territory into sites of commodified carbon storage through the implementation of a pilot, nation-wide REDD+ initiative. Accordingly, the Ecuadorian landscape, and the carbon sequestering potential of peasant and indigenous land, are in the process of being rendered legible for the capitalist production of a carbon sequestration commodity through a contested effort to shape 'carbon sequestration' into a form that can bear value, be sold and be governed. REDD+ faces considerable resistance on behalf of Ecuador's indigenous movement, who view it as a challenge to their autonomy. Who gets to determine what the value of carbon sequestration is? What is at stake in this value relation? This paper uses the Ecuadorian case as a springboard to argue that the valorization of carbon sequestration is struggled over in ways that exceed its market logics and place the politics of difference squarely on the table. The stakes in defining the value of this ecosystem service involve the ways in which rural indigenous and peasant politics are negotiated and developed.

Market-Oriented Governance and Institutional Emergence: The Rise of Conservation Banking in the United States
Chris Rea (Sociology, UCLA)

The last 20 years has seen a remarkable increase in the use of market institutions in order to regulate social relationships. Most scholarship in this vein has focused on private forms of self-regulation by firms and industry, but little attention has been given to state-led forms of public market-oriented governance, where governments fabricate and use market institutions in order to regulate industry and govern common resources. The present study fills this gap by explaining the emergence of conservation banking in the United States. A general theoretical framework for understanding public and private forms of market-oriented governance is outlined and then illustrated with the case of conservation banking. Narrow economic, cultural, and social-movement theories of market and institutional emergence are built upon, but individually dispensed with. Regulator-entrepreneur alliances, power wielded by government regulators, legal contention, and market incentives drive the formation of public market-oriented governance institutions.

The production of carbon offsets as virtual commodities in western Kenya
Yiting Wang (Political Ecology, Yale School of Forestry and Environmental Studies)

The Kyoto Protocol under the United Nations Convention on Climate Change first legitimized carbon markets with the goal of reducing carbon emissions, and voluntary carbon markets have emerged since, claiming to pioneer innovative pro-poor and pro-development carbon emissions reduction and offset projects. We use the case of a voluntary carbon-offset financed improved cook stoves project in rural Western Kenya to illuminate the process through which a carbon offset is produced. We trace its creation via techniques of measuring and verifying carbon reductions through a laborious series of preliminary studies, project evaluations and voluntary carbon standard registration to its establishment as a tradable virtual commodity via the signature of a contract that transfers the ownership of the credit from a villager to an international non-profit carbon credit developer. The production of a carbon credit, we argue, depends on the cooperation of rural women to shift their labor patterns and maintaining asymmetric knowledge about carbon markets along the commodity chain. In showing these spatial-temporal aspects of measuring, commodifying and representing carbon emissions reductions, as well as the social relations among villagers, non-governmental organizations, and speculators entailed in transforming a village woman's labor patterns into an internationally traded virtual object, we reveal the specific practices through which grabbing "green" occurs.

Session: What is Alternative Agriculture? Disentangling the relationships between autonomy, social justice and environmental stewardship in food and farming

Student Center 205

Organizers and Chairs: Andrew Ofstehage & Justine Williams (Anthropology, University of North Carolina at Chapel Hill)

Café que bebe. The gendered dimensions of labor and livelihood strategies among fair trade and organic certified coffee farmers in Minas Gerais, Brazil
Rebecca Meuninck (Anthropology, Michigan State University)

Drawing from original ethnographic fieldwork, this paper uses a feminist political ecology approach to explore the gendered social, economic and environmental impacts of fair trade at COOPFAM, a fair trade and organic certified coffee cooperative in Minas Gerais, Brazil. Third-party certification systems like fair trade, have grown over the past two decades due to the liberalization of commodity markets. Fair trade attempts to address social and economic inequalities facing small-scale coffee farmers through floor prices and social development premiums. In return, it requires equitable labor practices, freedom of association and democratic decision-making within cooperatives, and adherence to environmental standards. My research suggests that the gendered division of labor on family farms at COOPFAM has changed as a result of quality and environmental standards required by fair trade and organic certification. Men and women both use more labor to produce coffee to meet the quality demands of consumers and the environmental standards imposed by these certifications. Farmers at COOPFAM earn above market prices for their coffee as a result of its quality, moreover they produce larger quantities of coffee per hectare of land than their counterparts in other areas of Latin America. In many parts of Latin America hunger

and food insecurity continue to be serious problems in the coffee lands. For many farmers fair trade is not enough. Despite large quantities of high quality coffee that earns an above market price, COOPFAM families must employ many different livelihood strategies to remain food secure and sustain themselves socially and economically.

Defending the Base of the Midwest Family Farm or Acting out the Corporate Food Regime? Career histories of North American Farmers in Bahia, Brazil

Andrew Ofstehage (Anthropology, UNC Chapel Hill)

The “soy boom” has had devastating impacts on local livelihoods, human rights, and regional ecosystems. Soybean cultivation has extended into the shrub forests of Northeastern Argentina, the pasturelands and forests of Paraguay, native forests in the Bolivian lowlands, and the Brazilian Amazon. The economic, social, and environmental costs include the disappearance of medium and small-scale farmers and rural workers, loss of food sovereignty, environmental destruction, and loss of biodiversity. However, for a group of young North American family farmers in western Bahia, Brazil, the soy boom may appear to offer an opportunity to reproduce the vibrant social life and legacy of the Midwest family farm. This paper, based on preliminary ethnographic research in the United States Midwest and Bahia Brazil, challenges the prevailing representation of large-scale farmers in Brazil as responding only to the push and pull of political economy. The paper asks if this transnationally movement functions as a space for farmers’ semi-autonomy from the increasing hopelessness of sustaining a family farm in the Midwest and serves to sustain the base (the knowledge, tradition, and social relations bounded up in the farm) and legacy of the U.S. family farm. It examines the career history of several North American farmers in Brazil and farmers’ discourse on environmentalism, worker rights, and their role in Brazilian development to demonstrate the ways in which farmers legitimize and defend their work. Future research with North American Mennonites in Goiás, Brazil will also be outlined.

Food Sovereignty or State Mandate?: Searching for autonomy in Cuban Agroecology

Justine Williams (Anthropology, UNC Chapel Hill)

In various contexts, aspects of Cuba’s contemporary agricultural system have been referred to as “revolutionary,” “resistant,” “a model for green agriculture,” and “an example of food sovereignty.” Before the 1990s, Cuba’s agricultural policies promoted absolute central control over land and large-scale industrial production. However, after the Soviet Union collapsed and the island’s trade connections were severed, the government made room for small-scale production and organic agriculture or “agroecology.” As many observers have pointed out, Cuba’s conversion from industrial to primarily organic agriculture has been the largest in history. As a result, both Cuban and foreign sustainable agriculture and peasant advocates have held up Cuba’s experience as a model to study and replicate. For instance, The Working Group of La Via Campesina, an international peasant coalition, identified the campesino-to-campesino movement developed in Cuba as a means of farmer exchange as an exemplar of both sustainable agriculture and food sovereignty. Based on analysis of official papers, manuals and documents produced by the organizations spearheading the agroecological movement in Cuba, this paper will present the Cuban agroecology paradigm as one that attempts to merge environmental stewardship with social justice. Then, turning toward preliminary ethnographic findings, it will use theories of autonomy to explore whether growers in Havana and Sancti Spiritus have found opportunities for self-determination and community collaboration through the practice of agroecology. I will suggest that while spaces for autonomous production have been carved out by some growers working on land they own or use in usufruct, that those employed on state-owned agroecological city and suburban farms are constrained in their ability to forge autonomy by state policies.

Alternative seed systems in the face of a global push to commodification and standardization: A political economy analysis of the natural and social processes of seed production and distribution

Kristal Jones (Rural Sociology, Penn State University)

International Food Reserves: A window into global food politics

Zoe Vangelder (Forestry & Environmental Studies, Yale)

Unprecedented volatility in agricultural commodity markets has forced international governing bodies to reconsider the role of food reserves as national, regional, and international mechanisms for food security. Under the French Presidency, the G-20 spearheaded a discussion about strategies for mitigating price volatility in agricultural commodity markets and the role emergency food reserves could play. Moreover, numerous think-tanks and NGOs that span the ideological food politics spectrum agree upon the need to consider international food reserves as a tool for reducing global food insecurity. Still, little headway has been made on forging a strategy for international coordination and implementation of reserves. This research explores the implications of a renewed international interest in food reserves for global food politics. Using participant observation and interviews with policy advisers, researchers, and Latin American peasant movement leaders, it explores tensions and confluences between discourses of food security and food sovereignty. Moreover, it assesses whether renewed interest in reserves is indicative of a paradigm shift, the coming of a new “food regime”. Attempts to re-brand reserves as a “technical” solution for erratic international agriculture markets reveal that the undergirding ideology of institutions charged with governing the global food system has not changed. Without a coherent international recognition and response to deficiencies in a liberalized agricultural market model, reserves will likely remain primarily local mechanism food sovereignty.

Session: Conservation and Coloniality: Postcolonial Environments and Decolonial Developments 2

Student Center 211

Organizers: Anne-Marie Hanson (Geography and Development, University of Arizona) & Sarah Moore (Geography, University of Wisconsin)

Discussant: Sarah Moore

Rooted in dust and asphalt: urban development and indigenous rituality

Lucero Radonic (Anthropology, University of Arizona)

Where there was once a rapidly growing city with a river and a ritual terrain on its flood plain. Today, there is a concrete-lined canal, a shopping mall, and plans on paper for real estate development. The indigenous ritual ceremony is still celebrated but it now takes place in a private lot where an office complex will soon be built as part of a citywide modernization project. In this paper, I draw on this common ethnographic case from Northwestern Mexico to explore how the study of urban indigeneity could help provincialize (Chakrabarty 2000) urban political ecology.

The Yaqui Indians settled in the outskirts of Hermosillo in the early 1900s but were soon engulfed by the city. Over the last two decades, they have continuously struggled to maintain undeveloped urban terrains for their ritual practices and to find the natural resources necessary for their celebrations. My research shows that there is a strong connection between indigenous rituality, urban citizenship, and urban development. However, city planners, engineers, and local historians often ignore such connection. Since indigenous people are largely associated with rural territories, urban indigenous people's knowledge and role in place making has been disqualified as inadequate or even non-existent. Thus, indigenous place making is largely absent from urban historiographies and future management plans. I will argue that Yaqui use of urban spaces for ritual purposes is an affirmation of their longstanding urban presence and their right to the city. Furthermore, their struggle over ritual space presents a testimony about the environmental transformation of the city.

The production of garbage, nature, and spaces of development in coastal Yucatán

Anne-Marie Hanson (Geography, University of Arizona)

In the small cities of coastal Yucatán, although they are by definition urban areas, due to their proximity to natural protected areas, development programs are primarily focused on rural conservation-oriented activities and eco-tourism near state nature parks and within federal biosphere reserves. Despite global recognition for environmental protection measures, the same cities have some of the least organized waste collection programs in México, and the majority of municipal solid waste is deposited in uncontrolled sites. In this paper, I draw from Latin American modernity coloniality perspectives on development and Lefebvrian concepts of the production of space to address the shifting conceptual and territorial divisions (i.e. urban/rural; clean/dirty; modern/traditional; natural/ordered; men's/women's responsibility) that categorize yet complicate environmental spaces and development subjectivities in Yucatán. In particular, this paper addresses the patterns of migration, consumption, and tourism that produce new forms of spatial reorganization (i.e. urban or conservation space), and the historical, political, ecological, and gendered narratives that influence daily and regional practices of garbage governance. As garbage in México is legally an urban issue, garbage governance in coastal Yucatán is thus linked to questions of environmental responsibility, urban citizenship, and uneven spaces of 'appropriate' social behavior in modern urban and conservation settings. I argue that garbage disrupts not only idealized representations of modern urban order and the aesthetics of protected natures, but also the status of residents whose livelihood options are increasingly linked to participation in nature conservation and restoration activities.

Managua's Big Cover-Up: Modern Recycling in Nicaragua and the Subjugation of Recycling Knowledges Otherwise

Joshua Fisher (Anthropology, High Point University)

La Chureca—Managua, Nicaragua's municipal dump for the last 40 years—is a historical testament to the country's disposable culture, but it is also home to approximately two thousand churequeros, informal recyclers who sort through the discarded objects and separate out that which might be edible, wearable, repairable, or sellable. They suffer medical maladies due to exposure to heavy metals, organic pollutants, and other toxins. They are social stigmatized as zopilotes (vultures) and characterized as "problems" by government authorities (the site was, in fact, labeled by a Spanish magazine as one of the "Twenty Horrors of the Modern World"). They have clashed with municipal waste workers over rights to the most valuable items, such as in the 2008 churecazo when these recyclers caused a pile-up in the streets of the city by blocking entry of garbage trucks. They are also spectacles for troupes of international visitors, like church groups hosted by international development NGOs who seek photographic testimonials of injustice. And yet, they are globalizers, wearing the badge of "recyclers" and contributing more than half of the country's 40 million dollars recycling economy through complex patron-client relationships to a global market for cheap, raw materials. This paper explores the early implications of a recent effort by the Spanish government to cover up the open air dump, to modernize the city's trash system, to resignify waste as resource, and to further marginalize informal recyclers and the economies in which they work. I combine feminist post-structural analyses of the economy with the decoloniality paradigm to conceptualize the material and discursive work of the development project as a "covering up of the other" (encubrimiento del otro) and the according economic knowledges and practices.

Session: Urban design, climate resignation, and the politics of sustainability: Accommodating climate change in cities 1

Student Center 228

Organizer and Chair: Nate Millington (Geography, University of Kentucky)

Discussant: Jenn L. Rice (Geography, University of Georgia)

Violence and the Pacification of Urban Space in the in Favelas of Rio de Janeiro

Eric Spears (Geography, Mercer University)

The rise of Brazil as a BRIC economy has been met with an increase in violence in the favelas (slums) of Rio de Janeiro. New economic spaces have enabled globalization to unfold in dramatic ways, such as the upcoming World Cup and Olympic Games. Paradoxically, violence has dominated the Rio's poorest urban spaces and fostered a dichotomous urban ecology between the 'haves and the 'have-nots' in the city's Zona Sul (Southern Zone), just as the country enters the global stage of 'order and progress.' Over the past four years, the Rio state government has implemented the UPP (Urban Pacification Project) to 'pacify' favelas in order to stabilize public safety for the upcoming World Cup (2014) and Olympic Games (2106). Yet to what degree has the UPP been successful? Has the UPP transformed the favela into a safer urban space? Has it enabled residents to live within a cleaner and more sustainable urban ecology? This research seeks to find answers through both critical theory and an empirical investigation of two favelas: Ladeira dos Tabajaras and Santa Marta.

Stadia within a landscape: Examination of stadia as viable sustainable urban catalyst through design

Chris Muryn (R4 Architecture)

The densification of the urban environment has created design opportunities to restore urban ecologies. Through the design of urban infrastructure, sustainable strategies have been put into practice to reclaim many large sites including stadia. Stadia sites, such as those for sporting events, offer large amenities, but often in exchange cities receive neglected natural infrastructure and site sustainability. On a site like Commonwealth Stadium, 67,000+ people typically gather only ten times a year. This leaves a large site within the city of Lexington utilized to its full design intent, only on game days. There is an opportunity through design to foster a sustainable infrastructure on a site where a compromised ecology is the only thing present everyday. Design can help bridge the gap between site sustainability with the program of stadia. What once was a site sustainability problem, can be readdressed through design to mediate issues as the built environment coincides with nature. Some of the issues created by these massive projects pertain to energy consumption, water retention/runoff, site safety, waste water management, etc.

Two examples of site sustainability in the United States, can be found at two Major League Baseball stadiums (Washington DC and Minneapolis). Using the direction of LEED, these buildings were designed to help the overall ecology of the site. There are also several strategies used abroad, were sustainable strategies are designed into the program of the stadia. These urban stadia are starting to have a focus in site sustainability as it pertains to day to day use versus being the focus ten days out of a year.

As urban landscapes grow, sensible restoration of ecologies at an urban scale should direct design and the development of large scale projects such as stadia. These projects can and should be seen as large scale sustainable infrastructure.

The Production of Nature, Gentrification and Displacement on the Gowanus Canal of Brooklyn, New York

Jessica Miller (Geography, CUNY Graduate Center)

The contentious waterfront redevelopment process in New York City highlights the needs of diverse groups of activists, residents and government agencies. Since the 1600's, the Gowanus Canal in Brooklyn has been a reflection of citywide settlement and development, abandonment and redevelopment. Redevelopment along waterfronts in New York has included development that often boosts property value for already wealthy residents, gentrification and displacement coupled with environmental clean-up. If current plans for the Canal materialize, the area will be no different, despite the area's sordid environmental history.

Using urban political ecology and Neil Smith's (1990) production of nature frameworks, this research attempts to trace the history of Gowanus to illuminate the relationship between green gentrification, displacement and the Canal clean-up process. I also seek to qualitatively outline the factors that contribute to displacement and determine the extent that it is currently taking place while gentrification is increasing along this produced waterway. I am doing this by talking to residents and business owners who are under pressure to move away and activists, who want a myriad of outcomes.

Waterscapes of Injustice, Resistance and Memory

James Fraser (Geography/Institute for energy and the Environment, Vanderbilt)

In 1999 Hurricane Floyd pummeled the eastern portion of North Carolina, and in its wake many localities participated in Federal Emergency Management Agency-sponsored buyout programs to clear floodplains of human inhabitants. I report on one such program that was conducted in Kingston, North Carolina, where an entire part of the town, inhabited by African-American residents and named Lincoln City, was eliminated. Moreover, the acquired homes, flooded with raw sewage from a compromised wastewater treatment plant upstream, were then relocated to an adjacent area populated by middle-class, African-American families. Both the displacement of residents from Lincoln City and the relocation of flooded homes sparked a movement by area residents that is ongoing thirteen years after the flood. Drawing on political ecology and memory studies this paper deploys the concept of waterscape – the convergence of social power, capital, and water – to analysis the events that took place after the hurricane. The flood of water into Lincoln City brought prior environmental injustices to the fore as the combination of housing segregation and the placement of a landfill and sewage treatment plant directly upstream produced a hazardscape for neighborhood residents. Similarly, it was the floodwater that enabled the city to partner with the state and federal government to displace residents after the flood and relocate them in such a manner that maintained racial segregation. The siting of sewage-damaged homes in an African-American neighborhood was one such attempt at relocation. Yet, neighborhood

residents successfully resisted this practice. And, while Lincoln City no longer houses the community that lived there prior to the flood, in 2012 over 3000 people came back to claim a right to their former neighborhood.

Session: Appalachian Contours: Exploring Nature-Society Relations Across the Region 3

Student Center 230

Organizers and Chairs: Christine Biermann (Geography, Ohio State University) & Sarah Watson (Geography, University of Kentucky)

Truthland or Gasland?: Utopias, Dystopias, and Gender in struggles over energy extraction in the Marcellus Shale Arielle Hesse (Geography and Women's Studies, Penn State University)

Natural gas extraction in the northeastern United States gained national attention following the release of Josh Fox's 2009 film *Gasland*. The film has helped mobilize an anti-fracking movement against natural gas extraction, energized by the stories of contaminated air and water from natural gas drilling Fox collects while pioneering across the United States. *Gasland's* use of landscapes, words, and sounds, creates an emotional aesthetic that underscores not only care for the environment, but care for a distinct rural way of life. Fox demands natural gas drilling stop, lest our homes, our water, and our people be destroyed. However, he chronicles this environmental degradation through gendered stories that reiterate a masculine role to protect women's bodies and a feminine earth. In 2012, the energy industry responded to the success of *Gasland*, with *Truthland*. The film unapologetically redeploys many of Fox's aesthetic devices with its own folksy feel. In *Truthland*, Fox's role is replaced by Shelley Depue, who, in playing the role of the good, honest mother, attempts to feminize Fox by suggesting his sympathetic anecdotes of sickened people and places mask his dishonesty and lies about the industry. Depue argues drilling provides a much needed regional boost, favoring its continued expansion. This paper will show how Fox and Depue, rooted from their respective homes in rural Pennsylvania, use gendered narratives that justify their role as regional guardians. *Gasland* and *Truthland* require gendered performances to elaborate either utopic or dystopic futures for rural landscapes in the Marcellus Shale.

A Political Ecology of Biosolids: Challenging Land Application of Biosolids/Sewage Sludge Shaunna Barnhart (Environmental Science, Allegheny College)

The solid waste produced from the treatment of commercial, industrial, and municipal wastewater is governed by a network of regulations that allows for its land application as a fertilizer. Supporters argue that land application of "biosolids" is a sound recycling practice that is beneficial both environmentally and financially. Opponents to the practice argue that "sewage sludge" is detrimental to human health, quality of life, and water quality. This paper examines organized local opposition from roughly 2002 to 2005 to biosolids land application practices in south-central Pennsylvania. Local residents and township governments responded to and attempted to shape local and state level policy on biosolids application as a farmland fertilizer in response to corporate controlled land application. This study explores the contentious use of biosolids/sewage sludge fertilizer by emphasizing knowledge production, discourse, and politics of scale.

How Men and Women Talk about Men, Women, and the Environment: Impaired Water Quality through the Lens of Gender in Two Rural Appalachian Communities

Anjel Stough-Hunter (Sociology, Ohio Dominican University)

The increasing realization that gender relations within rural resource dependent communities represent complex interactions situated within local realities and the recent emergence of a new extraction industry throughout portions of the Appalachian region, namely Marcellus Shale, necessitates a renewed focus on the relationship between gender roles and perceptions of the natural environment. This research examined how the negotiated and changing gender roles within two rural Appalachian watersheds intersected with men and women's understanding of the natural environment, specifically conceptualization of and concern for water quality. A mixed method approach, which employed both collection of survey data and in-depth interviews with men and women, was used to explore the relationship between gender and water quality at the local level. While survey data suggested that there were not significant differences in concern for impaired water quality by gender, in-depth interviews revealed a persistence of gender roles that influenced respondents' conceptualization of both water quality in particular and the natural environment in general. Accordingly, gender relations within these watersheds appear to play a more subtle role in setting expectations regarding who should be concerned about the environment, as well as reflect the gendered nature of environmental discourse.

Session: Technology as an Interface of Human-Environment Interaction 1

Student Center 231

Organizers and Chairs: Kate Bishop (Geography and Anthropology, Indiana University) & Stephanie Kane (Criminal Justice, Indiana University)

Discussant: Sara Walsh (Criminology and Criminal Justice, Indiana University Southeast)

Technology Diffusion in Liberia: Introducing the Caltech Expeller

Kate Bishop (Geography and Anthropology, Indiana University)

Material traces of development projects provide a grounded starting point from which to explore the cultural and environmental impacts of technology diffusion and appropriation. This study highlights the “social life” of a particular technology – a small-scale palm oil expeller – introduced to West Africa through a series of three related development projects intended to promote palm oil technology diffusion in Cameroon, Benin, and Liberia over a period of nearly three decades, from 1984 to 2012. From its design as a form of “appropriate technology” in Cameroon in the 1980s to its current deployment as a tool for post-conflict plantation revitalization in Liberia, the technology has circulated through space and time, acquiring new meanings and new characteristics while influencing human behaviors. The expeller is a type of non-human actant operating within an actor-network implicating people, institutions, trees, tools, and machines in processes of development. Drawing on recent research in Liberia, this study examines how palm oil technology circulating at a regional scale contributes to localized forms of cultural, agricultural, and environmental change over time.

Infrastructural Drift and the Undiscussed: From Green Machines to Disaster Alert Systems

Stephanie Kane (Criminal Justice, Indiana University) & Avi Brisman (Justice Studies, Eastern Kentucky University)

Unintended consequences of the very technologies we use to avert disaster and environmental harm can in practice intensify disaster and environmental harm. For instance, various environmentally friendly products (such as fluorescent light bulbs) and “green machines” (such as hybrid cars and wind turbines) can have negative environmental and human health impacts that we do not necessarily factor into our (collective) calculus. More specifically, the phosphors used to produce fluorescent and compact fluorescent light bulbs, the batteries in hybrid cars, and the magnets in wind turbines contain “rare earth metals” (REMs). While REMs are key to global efforts to switch to cleaner energy, the extraction and processing of the metals causes environmental damage. Based on research in and examples from Chile, China, and the United States, this paper highlights ignored but problematic aspects of new technologies at the interface with ecological systems. To frame our analysis, we introduce the concept of *infrastructural drift*, which we employ to refer to the way technology users move from the old technologies to the new in their everyday and professional lives without necessarily knowing or considering all the specific vulnerabilities or toxicities of the new technologies or the critical and resilient functions of those left behind (see, e.g., Kane, Medina, Michler in prep). In attending to the ways technology may change everything, be deployed everywhere, yet at the same time, may be restricted in use and have invisible effects (cf. Andrew Barry), this paper explores the implications of technological imperatives and shortcomings for political ecology and green criminology.

Greywater, Green Technology, and the Criminalization of Residential Water Reuse and Storage

Bill McClanahan (Justice Studies, Eastern Kentucky University)

Since its initial proposal in the 1990s, ‘green criminology’ has focused on environmental crimes and harms affecting non-human and human life, ecosystems, and the planet as a whole. While much of the research and literature has focused on the failure of legal systems to protect the environment, little work has focused on the criminalization of environmentally beneficial activities and technological innovations that attempt to mitigate environmental harms or prevent environmental crimes. Noting the trend toward criminalization of several water conservation activities, tactics, and technologies, this paper focuses on the intersections of resistance to regulation and “do-it-yourself”(DIY) conservation and reuse technologies. This paper examines individuals and groups overtly resisting the criminalization of household water reuse and storage through the development and implementation of DIY technologies and the ways in which hands-on technological development aimed at conservation change the ways in which DIY innovators relate to the natural environment and regulatory bodies.

Bioenergy Futures: Framing Sociotechnical Imaginaries in Local Places

Weston Eaton (Sociology, Michigan State University -presenter) & Stephen Gasteyer (Michigan State University)

Sociotechnical imaginaries are collectively imagined forms of social life reflected in the design and fulfillment of technological projects. As sociotechnical imaginaries are developed, it is implied that there may be contention around the imaginaries, but the literature has been scant on how that contention is manifested. This paper will employ the framing literature and related literature on frame keys to better explain how the imaginaries and contention around them are articulated, specifically in the development of renewable energy. Woody biomass bioenergy development in northern Michigan, USA, is used as a case study. We use a frame analytic approach to demonstrate the potency of at least four collective action frames for making sense of the national imaginaries underpinning siting proposals: biomass as “wood for energy”; biomass as facilitating a bio-economy; biomass as “clean” energy; and biomass as a test of trust in authority. A framing analysis illustrates the ways national imaginaries are re-imagined and contested as well as reproduced in different ways by different actors. This work gives specific attention to questions of the sustainability of biofuels by addressing the frames used to justify the expansion and production of biomass bioenergy in the USA. This has implications for regulatory regimes as biomass remains nested in an existing regime set up not for a range of imaginaries but for adjusting specific projects to fit existing regulatory frameworks. As such, biomass was proposed within the context of an increasingly delegitimized environmental state, sharpening the frames of those who claim disenfranchisement. Moreover, these keys can be understood as collective action -- in the one case by those whose imaginaries are rooted in a well established interpretation of the direction in which society is and should be going, and in the other case by those who wish to challenge that interpretation. Therefore, these keyed

frames and alternative imaginaries are entangled with a social movement politics capable of changing the trajectory of not only specific projects, but the wider imaginary of using forests for energy.

FILM AND DISCUSSION: 2:00pm – 4:30pm

Las Venas de Huarhuainga (The Veins of the Huarhuainga) Center Theatre

Discussion with Maggie Messerschmidt, co-director (Public and Environmental Affairs, Indiana University)

Las Venas de Huarhuainga (The Veins of the Huarhuainga) is the story of the water resources of the Zárate forest, told by, and in a large part, for, the stakeholders of the community-owned forest in the western slope of the Andes mountains just 40 miles east of Lima. Filmed during the course of a project aimed to articulate the Zárate forest in the Río Rímac watershed, Lima's principle source of water, the film is part of a collaborative attempt to create a participative platform for the management of the forest by community members and their allies. Some of the voices in the film speak for the first time about what montane forests such as Zárate might mean for water supply in both agriculture and the city; others are scholars on the subject who have dedicated their lives to incorporating the Andean Vision of water into resource governance, but all are experts on their own daily experiences with water scarcity in Peru. The film establishes a fresh perspective for protected areas management: that water resource management is key for the community to autonomously direct conservation efforts and to guarantee equitable benefits from the forest. Furthermore, it highlights the possibilities for the restoration and implementation of traditional water catchment techniques in and around Zárate that may provide stakeholders with an opportunity to integrate conservation with their livelihoods and cosmivision. Filmmaker Giancarlo Huapaya is a Limeñan artist who utilizes creation, especially film and poetry, as a medium for human development and social transformation. Maggie Messerschmidt, co-director, coordinated the project, *Sowing Water, Harvesting Community*, as a Peace Corps Response Volunteer. She is now a Masters candidate at the School of Public and Environmental Affairs in Bloomington, Indiana.

CONCURRENT SESSIONS 7: 3:00pm – 4:40pm

Session: Politics of Ecosystem Services Workshop

Student Center 249

Organizer: Eric Nost (Geography, University of Kentucky)

All are invited to workshop and further discussion about ecosystem research projects and the state of the literature, as we do not have time during the previous three sessions for discussants.

Session: Food Policy and Political Economy

Student Center 205

Chair: Alicia Fisher (Sociology, University of Kentucky)

Local Food as a Complex Adaptive System: Connectivity & Cultural Equity in The New Haven Food Policy Council Jonah Meadows Adels (Forestry & Environmental Studies, Yale)

As postindustrial cities struggle to define sustainability in the midst of economic recession, local food has become a buzzword in conversations on sustainability and equity. The social landscape in which this local is constituted is densely layered, from community gardens to soup kitchens to high tech rooftop greenhouses to the classed local gourmet of Wholefoods. Practitioners however, resist relativity by asserting the material basis of their projects: compost, vitamins, supply chains. How are local food systems defined by their practitioners? How do these definitions alter flows of nutrients and the organization of people? How do the spatially constituted ecological dynamics of the city limit or foster the actions of participants? My work uses the New Haven Food Policy Council as a case study to trace the networks of engagement in the local food movement as they span nutrient flows and community meetings, food stamps and farm bills, microbrews and microcredit. Complex Adaptive Systems Theory draws from 40 years of research on the processes of change that affect socio-ecological systems across scales. It offers insight into how efforts towards relocalization within food systems can be catalyzed and how they can be made more inclusive and longlasting. At the same time, Integral Ecology offers a framework through which we can understand the Food Policy Council as a way of increasing the density and quality of communication between actors and providing points of contact for widely differing problem and solution spaces. As local food systems themselves begin to embed questions of resilience, equity, materiality, and sustainability into their infrastructure, discourse evolves. As connectivity increases, this discourse has profound effects on material flows and resources within urban food

systems. How can complex systems theory help us understand these feedbacks and foster the creation of more just and sustainable food systems? Employing action research methods to map some of the complex interplay between grassroots social movements, policy, business, and ecological dynamics, my work demonstrates the relevance of complex systems theory to understanding local food movements, and explores the role of the food policy council in catalyzing these movements by dynamically increasing system connectivity across scales and worldviews.

Loan Tactics among Ohio Valley Organic Farmers: an Ethnographic Study of Assuring Success Jacob A. Martino (Anthropology, University of Cincinnati)

Organic farming makes up the largest growth segment in farming (Organic Trade Association) and is considered vital to fighting hunger and climate change (Maddey and Johns 2007). The arrival organic farming into mainstream usage is both great timing and likely: agribusiness is under scrutiny and organic produce is desired as an alternative to corporate food which consumers associate with food-borne illness and business malpractice (Eades and Brown 2006). Like other small farms, organic farmers depend on urban settings to maintain success (Eades and Brown 2006; USDA-ERS 1999), also known as the urban factor. Defining success is problematic due to the term's subjective existence, with a different meaning to each context and to each person. Beus and Dunlap (1991) identify separate paradigms for what they term conventional agriculture and alternative agriculture. In their 1994 study, Beus and Dunlap extend these paradigms and identify that alternative or sustainable agriculture's focus is to challenge the mass-production focus of conventional farming. USDA's ERS notes that a farmer must possess gross sales increases, land expansion, an ability to survive adverse market conditions and poor harvests, and an operation that provides adequate income without requiring work off the farm. In order to meet the USDA's definition of success, I hypothesize that organic farmers will utilize lines of credit such as loans, to expand land and sales, and secondly that organic farmers form tactics and strategies to obtain loans. I am employing face-to-face interviews and surveys to collect data on organic farmers in the Greater Cincinnati region, a Mid-Western hub of small farmers. Interview analysis will consist of text analysis to determine themes from collective answers. Analysis of the surveys will correlate variables via bivariate analysis. Results revealed from the surveys will be compared to the results of interview analysis.

The Transformational Potential of Food Systems Organizing Adan Martinez (Forestry & Environmental Studies, Yale)

It is commonly agreed that the gains of industrial agriculture are not as straightforward as the modernist discourse surrounding it would suggest. The industrial/chemical agriculture system is toxic to environments, farm workers, and eaters alike (Campbell 2004). This system is energy intensive (Mariola 2004), inhumane (Horriagan 2002), and extractive of profits from physical locations of production to the bank accounts of trans-geographic entities (McMichael 2009, Holt-Giménez 2011). An alternative system of food production and consumption has grown in response to the vagaries of the industrial food system (Pollan 2006). This alternative, which is dominated by, but not limited to the organic label, successfully mitigates some damages of the industrial agriculture systems (Lin & Chappell 2012), but still largely perpetuates the underlying conditions that are at the source of the problems (Guthman 2011). It has been suggested that success of an alternative food movement will depend on its ability to challenge the trends of commoditization of food and the neo-liberalization of the food system (Holt-Giménez 2011, Guthman 2011). With this in mind, this research looks at three food systems organizing efforts (The New Haven Food Policy Council, the Connecticut Food Systems Alliance, and the Northeast Sustainable Agriculture Working Group) to assess their transformational potential. Through participant-observation, semi-structured interviews, and the administration of a collaboratively developed survey, this research answers the questions: How does participation in what is broadly called the 'alternative food' movement blur, complicate, or otherwise impact participants' identifications as 'consumers'? How does participation in the 'alternative food' movement impact participants' feelings of individual agency?

Conservation Policy contra Permaculture: Spatial Conflict Between Producer-driven and Policy-Defined Agricultural Multifunctionality - Rafter Sass Ferguson (Agroecology, University of Illinois)

This project will investigate the spatial dimensions of multifunctional agriculture by analyzing how permaculture producers in the US generate a configuration of land uses and produce multifunctional agroecosystems, and how these agroecosystems are supported or excluded by official policy. Multifunctionality - the simultaneous performance of production, ecological, and cultural functions - is increasingly regarded as a norm to be measured and supported through agricultural policy such as the US Conservation Reserve and Conservation Stewardship Programs. Permaculture is a model of agriculture (and social movement) that emphasizes multifunctionality and its sensitivity to spatial configuration, and conflicts with definitions and measures of multifunctionality embedded in official policies. In preliminary surveys permaculture producers report that they are effectively excluded from CRP/CSP support, by factors that include strong spatial components: farm size, mixing of production and conservation at finer scales, and the strategic use of landuse configuration. As a result, the contributions of this alternate, bottom-up model of multifunctionality are illegible to official measures, and excluded from institutional support. This presentation reports on ongoing research investigating these relationships through spatial-functional analysis of permaculture agroecosystems; interrogation of producer land use planning processes; and examination of the effect of regional- and national-scale policy on producer goals and practices.

Session: Conservation and Coloniality: Postcolonial Environments and Decolonial Developments 3

Student Center 211

Organizers and Chairs: Anne-Marie Hanson (Geography and Development, University of Arizona) & Sarah Moore (Geography, University of Wisconsin)

The Coloniality of Property: Transnational Mining and Mineral Tenure Law in the Americas

Dawn Hoogeveen (Geography, University of British Columbia)

This paper is about mining and the coloniality of property in the Americas. I argue mineral regulatory regimes are built upon racialized imaginaries and that mineral tenure law is an ongoing mechanism of dispossession that builds on these racial imaginaries. Mineral tenure law is based on notions of modernity, colonial expansion, and development. The political economic motives mobilized in securing property rights for resource extraction practices are founded on power structures, through what I refer to as the coloniality of property. A critical aspect of this argument questions how the indigenous politics of property transcends north/south, first/third, developed/underdeveloped binaries. In the first instance the moment that overcomes these divides may seem obvious, given the similar international struggles indigenous peoples continue to face against settler colonial powers in order to secure land title in their traditional territories. However this paper demonstrates the significance of how first/third world narratives operate in resource geography that tends towards regional frames of inquiry. This is especially relevant in North America, where mining law is assumed neutral and colonial theory is lacking compared to the theoretical advancements made by the Latin American modernity coloniality research program. This paper addresses this gap through a transnational examination of the coloniality of property and mining in the Americas.

Global Fordism as Failed Ecological Regime: The Crisis of the Latin American Fordist ‘Miracles’ in Socio-Ecological Perspective

Roberto J Ortiz (Sociology, Binghamton University)

In the 1970s the French Regulation School introduced its critique of Fordism as a regime of capital accumulation. Regulationists viewed U.S. Fordism's crisis as one of ‘economic’ contradictions: the capital-labor struggle and the value composition of capital squeezed the available profits. For them the globalization of Fordism into the Third-World as a way out of the crisis was a question of ‘a model of development which, having [...] succeeded elsewhere, has entered into crisis while leaving the ecological bill to be paid’ (Alain Lipietz). Global Fordism, then, was an economic regime that moved from core to periphery and passed ecological costs to the latter. Today this is the mainstream account when explaining Fordist history. In contrast, I argue that Fordism was an ecological regime, as in geographer Jason Moore's definition of ‘capitalism as world-ecology,’ joining the accumulation of capital and the production of nature in dialectical unity. Here, capitalism is a configuration of socio-ecological relations driven by capital's search for cheap raw materials and cheap labor, both elements of nature and conditions for successful accumulation. From this perspective the collapse of Fordism did not signify an unpaid ecological bill. Rather, its rise in the U.S. required peripheral raw materials, as Henry Ford's experiments with Brazilian rubber demonstrates. And its First-World stagnation provoked searches for Third-World ‘cheap’ labor, another ‘natural’ input to revive accumulation; as in the Mexican and Brazilian Fordist ‘miracles’ of the 1970s. The main point is that degradation of colonized natures was the condition of the rise and development of global Fordism, not just its consequence. Fordist history shows that the collapse of the Latin American ‘miracles’ was that of world-ecological regime, in the sense that capitalist crises are crises of ways of organizing nature: crises of socio-ecological systems rather than ‘economic’ crises that have environmental consequences.

Resettlement and Coloniality in the Mahaweli Ganga Watershed

Emily Kay Burchfield (Human and Organizational Development, Vanderbilt University)

Rainfall patterns divide Sri Lanka into two primary climatic zones: the wet zone and the dry zone. Under British governance, aggressive land legislation was used to expand British access to the fertile wet zone where they created plantations to grow cash crops such as rubber, tea, and coffee for export. As labor demand grew, the British initiated an “assisted migration” of more than 500,000 Indian Tamils to work on the British-owned plantations (Muggah, 2008). The influx of cheap labor pushed the historical occupants of the wet zone, predominantly Sinhalese farmers, to the periphery of the region. In response to growing population pressures in the wet zone, the British began restoring dilapidated irrigation systems in the dry zone in an effort to subsidize the migration of displaced Sinhalese farmers. This government-subsidized resettlement of Sinhalese farmers into the dry zone continued in the aftermath Sri Lankan independence from the British. The Sri Lankan government initiated the Mahaweli Development Programme (MDP) in the 1970s as a means of incentivizing the resettlement of individuals from the wet zone to the dry zone by providing 1.5 hectares of irrigable land to interested families and by developing an elaborate irrigation system (ARD, Inc., 2005). This paper will explore the possible roles that colonial land legislation played in influencing the design and execution of the MDP. Particular attention will be given to the role ethnic migration has played in the conception and implementation of the MDP and the environmental and economic implications of resettlement.

Colonial Presences in Contemporary Watersheds of the Altamaha River System: Decolonizing Confluences of Race and Nature in Southeastern US Watershed Politics

Richard Milligan (Geography, University of Georgia)

This paper presents preliminary findings of research into contemporary watershed-based political movement in the Altamaha River Basin of the southeastern United States. Empirically, I draw together qualitative methods of participation, observation, and interviews with literary analysis of the 18th-century travel writing of natural historian William Bartram and contemporary environmentalist nonfiction. The analysis demonstrates how the cultivation of affective relations—both between environmentalists and with watersheds they desire to protect—has the unintended consequence of

reproducing landscapes of racial exclusion, specifically by way of a trope which identifies “doing right by the land” with making amends for social wrongs. Tracing the continued presence of colonial regimes of vision from Bartram’s work through a growing body of literary environmentalist texts focused on the Altamaha River System, I bring theoretical resources from postcolonialism to bear on contemporary moments of political organizing throughout this basin to ask how the colonial present continues to underwrite the political ecology of the Altamaha, from urban headwaters to its swampy bottomlands. The research suggests the need to further unearth buried colonial epistemologies (Braun 1997) in analyzing the performance of whiteness in the formation of environmentalist subjectivities and political alliances in the US South. It also suggests possibilities for enriching geographies of environmental racism by demonstrating the imbrications of neoliberal governmentality and colonial natures in the monitoring and remediation of toxic flows through highly segregated African-American suburbs of Atlanta. Building on historical geographies of social natures, this paper demonstrates the need for decolonizing spaces of political ecology—even in metropolitan Atlanta where colonial struggles might seem so distant—if we are to understand how race and nature contour terrains of power in movements of purity and pollution through watersheds of the Altamaha basin.

Session: Urban design, climate resignation, and the politics of sustainability: Accommodating climate change in cities 2

Student Center 228

Organizer: Nate Millington (Geography, University of Kentucky)

Chair: Megan White (Geography, University of Kentucky)

Discussant: Jenn L. Rice (Geography, University of Georgia)

Desalination: A Solution to the Climate, Water and Development Dilemma? Insights from Case Studies Along the Gulf of California

Jamie McEvoy (Geography, University of Arizona)

The Arizona-Sonora border region has been called “ground zero” for climate change. Here, increasing temperatures and decreasing precipitation will make sustainable water management an ever greater challenge. Continued border industrialization and urbanization compound this challenge. In response, water managers and urban planners on both sides of the border are looking towards desalination – the conversion of seawater or brackish groundwater to freshwater – as an adaptive water management strategy. As a potentially “limitless” water source that is “independent” of climate, proponents argue that this technology can be used to meet growing water demands, and also buffer against the negative impacts of climate change. Drawing on concepts from political ecology and science and technology studies, this paper examines the social, political and environmental implications of existing and proposed desalination projects along the Gulf of California. Using household survey data collected in a working-class neighborhood in Cabo San Lucas, Baja California Sur, which is served by Mexico’s largest municipal-scale desalination plant, this paper argues that the degree to which desalination reduces water insecurity and vulnerability depends on the scale of analysis. At the household level, in certain neighborhoods, desalination has reduced water insecurity. However, when analyzed at the scale of the city and state, there is less vulnerability reduction, and indeed, new vulnerabilities are introduced. Absent conservation measures, desalination leads to a ‘business as usual’ water culture, doing little to address underlying problems in water management and urban development. Furthermore, the focus on a technological fix to the water and climate crisis does little to foster adaptive capacity within water management and urban planning institutions.

Assembling the City: Flooding, Infrastructure, and Urban Political Ecology in São Paulo, Brazil

Nate Millington (Geography, University of Kentucky)

This paper considers the relationship between megacities, the natural environment, and disaster, by focusing on flooding and flood prevention strategies in the metropolitan region of São Paulo, Brazil. Flooding is treated as a socio-natural process of assembly that involves human social organization alongside hydrological and climatic processes. A recent paradigm shift in São Paulo’s flood prevention policy has moved from strategies to contain stormwater overflows in retention ponds and channelized rivers towards nominally resilient or sustainable water management design. These new strategies attempt to integrate flood events into the city through an understanding of disturbance as a constitutive component of urban systems, but these new policies entail the eviction of marginal communities in flood plains. This paper subsequently focuses on the political dimensions of urban environmental design and policy, with specific attention paid to the relationship between climate change adaptation and broader structures of class and residential inequality.

Reverse greenwashing: Discrepancies between motivation and rhetoric within public transportation advocacy coalitions

Ingrid Behrsin (Geography, University of California, Davis)

Increasingly, governments, NGOs, planners, and climate scientists are calling for the reduction of private automobiles coupled with improvements in public transportation as a promising approach in the fight against climate change. Often, however, decision-makers in charge of approving and implementing such proposals are less motivated by longer-term environmental goals than by shorter-term economic concerns. Drawing from open-ended interviews, participant observation, surveys, and documentary research conducted between July 2011 and July 2012 in Barcelona, Spain and Oakland, California, this research compares the arguments that two public transportation advocacy groups employed to encourage urban decision-makers to support public transit initiatives. The first case chronicles a Barcelona-based coalition’s work to urge the city’s residents to support, via direct vote, a new light rail project on a notoriously congested and polluted corridor. The second case highlights an Oakland-based coalition’s efforts to lobby City Council representatives to support the city’s first dedicated-lane Bus Rapid Transit initiative. While the decision-makers and outcomes in these two cases differ significantly, this comparative study nevertheless reveals a common disconnect between many transit advocacy organizations’ environmental interests and the way in which these interests were often framed in economic terms in attempts to gain traction. Furthermore, this research addresses

what many have identified as a conspicuous gap in urban political ecology research - transportation. Specifically, it applies political ecology's approach of critically examining the power dynamics within and among human/nonhuman relationships to urban transportation systems - "one of the most important interfaces between nature and society" (Monstadt 2009, 1962).

Beyond Eco-Efficiency: Stockholm and the Rising Sea Cindy Isenhour (Environmental Studies, Centre College)

Concerned about the impacts of climate change, the City of Stockholm is taking steps to prepare for climate impacts by creating flood maps and redesigning infrastructure to address rising sea levels and the potential for salt water incursion. The city has also taken aggressive action to reduce its climate impact by improving transportation infrastructure and energy efficiencies. These measures and others were recognized in 2010 when the city was declared the EU's first "green capital". Many Stockholmers claim that the efficiencies resulting from these programs have improved urban economies of scale, making life in the city much more sustainable than rural or suburban living. However, a series of more recent reports, some produced by the city itself, have shaken this claim, revealing that high levels of consumption among city residents are essentially cannibalizing efficiency gains. Drawing on extended fieldwork in Stockholm, this paper traces the development of several studies on the climate impact of Swedish consumption and subsequent city-planned efforts to encourage more "climate friendly" consumption. The analysis of city-sponsored publications and interactive public displays illustrates the fine line the city must walk between the interests of the environment and the market. It also points to the significant disjuncture between the city's status as the first EU Green Capital and the growing recognition that the city's hunger for carbon-intensive imports has essentially cannibalized local efforts to reduce emissions and resulted in global environmental injustices.

Scholar-Activist Panel: Bridging the Divide between Academy and Activism Student Center 230

Moderator: Dr. Ann Kingsolver (Appalachian Center, University of Kentucky)

Dr. Donald Stull (University of Kansas, Department of Anthropology)

Aloma Dew (Program Director, Kentucky Water Sentinels)

Dr. Shannon Bell (University of Kentucky, Department of Sociology)

Lauren McGrath (Associate Regional Representative, National Beyond Coal Campaign, Sierra Club)

See page 11 for details

Session: Technology as an Interface of Human-Environment Interaction 2 Student Center 231

Organizers and Chairs: Kate Bishop (Geography and Anthropology, Indiana University) Stephanie Kane (Criminal Justice, Indiana University)

Discussant: Damian White (Sociology, Rhode Island School of Design)

Waste by Design: Electronics Recycling, Planned Obsolescence, and the Possibilities of Open-Source Graham Pickren (Geography, University of Georgia)

The analysis of waste – especially e-waste – has tended to focus upon the physical transformation of commodities at the end of their lives as they are broken up into their constituent parts for incorporation into new commodities. This analysis has led to the development of a discourse in economic geography of ongoingness, one in which the use and re-use of such parts is often seen to be almost endless. Although helpful as a way to move thinking beyond the production and consumption focus of Global Production Networks (GPNs) research, the call to jettison beginnings and endings in favor of ongoingness tends to fetishize changes in physical form, leading to overly performative accounts of waste geographies. The focus on form fails to adequately account for the movement and realization of value and fails to recognize the centrality of the labour process in shaping how such components are collected and prepared for inclusion in new commodities. As a way to correct such failings, in this paper we present the concept of Global Destruction Networks (GDNs). We then engage with the work of Ray Hudson, who has argued for a cultural political economy approach to understanding GPNs, though we extend his work to also include GDNs. Through so doing we make two key arguments: i) that there are indeed limits to commodities' ongoingness when viewed from the perspective of the production, transfer and realization of value; and ii) that workers as active agents play key roles in shaping how GDNs are structured organizationally and that our theorizing must recognize this fact.

Local irrigation management and the modern developmental state: Decentralization and development in Himachal Pradesh, India

Harry Fischer (Geography, University of Illinois)

In the Kangra district of Himachal Pradesh, India, complex networks of irrigation canals have been managed by villages for generations. Over the past thirty years, management has been increasingly shaped by the governance logic of the modern state. In this paper, we examine one particular system that has undergone significant changes. In order to claim development funding and access to legal protection, the system has been incrementally reformulated according to prevailing governance norms; traditional authorities have been supplanted by a formal committee built upon democratic ideals with bureaucratic characteristics. More recently, national legislation has granted locally elected governments greater authority over development decisions, and officials have used their new powers to 'modernize' traditional mud canals with concrete. The concretization of canals – a result of the state's emphasis on tangible assets as well as citizens' own notions development and progress – isolates irrigation from groundwater flows, altering hydrogeological processes.

Irrigation has thus become subject to new forms of governance. It has been captured by bureaucratic formalities, embroiled in local democratic politics, and transformed by notions of modernity and development. These changes have altered collective action, irrigation infrastructure, and human-environmental dynamics. These outcomes are emblematic of the opportunities and contradictions of the drive toward decentralization prominent in the developing world. While these changes have broadened the domain of public participation in decision-making, democratic politics are not easily calibrated to the complexity of human-ecological systems. The state's very act of recognizing and empowering local institutions cannot help but transform them.

From the Field, to the Factory, to the Laboratory: Formulating the Human-Animal Relationship in Agriculture as Technological

Wyatt Galusky (Science, Technology, and Society Program, Morrisville State College)

As humans express more and more concern regarding animals in agriculture (the lives of the animals themselves, the human health effects of consuming animals, the ecological impacts of large-scale animal farming, &c.) and propose a variety of approaches to help remedy those problems (in vitro meat technologies, genetically modified animals, grass-farming, veganism, &c.), the problem of human-animal relationships comes into sharp focus. How might we best navigate the complexities attached to caring for, and depending on, animals whose bodies have been modified toward human ends in an agricultural setting? The solutions that we consider tend to go one of two routes – toward greater modification or the promotion of a more “natural” setting. Rather than analyze which of these routes holds greater promise, I look to explore the fundamental question of how we might understand human-animal relationships that helps place these options in this more basic context. I argue that one can meaningfully engage the human-animal relationship (especially in, but not limited to, the agricultural context) as a technological one. That is, rather than propose that animals are technologies, I use work from science & technology studies (e.g., Latour), agricultural history (e.g., Horowitz), & philosophy of technology (e.g., Verbeek) to set forth a framework for understanding this relationship as technological, in terms of how this technological orientation to the world (e.g., the animal body) mediates human interaction with the environment.

KEYNOTE ADDRESS – DR. ARUN AGRAWAL: 5:15 pm – 7:00 pm

Memorial Hall

- Conference Closing Remarks: Tad Murtersbaugh (University of Kentucky Department of Geography)
- Announcement of Paper Competition Winners: Brian Grabbatin (University of Kentucky, Department of Geography)
- Speaker Introduction: Allison Harnish (University of Kentucky, Department of Anthropology)
- Keynote Address: *Limits to Governance* (See page 6 for abstract)

Light refreshments will be provided in Memorial Hall at 5:00

CONFERENCE AFTERPARTY: 7:00-10:00 PM*

LOCATION: McCARTHY'S IRISH BAR, 117 South Upper Street, Lexington, KY 40507

McCarthy's is located downtown near many food options. Limited food is available on site, but given the size of the crowd, we suggest that you also consider nearby restaurants as well. Outside food can be brought into McCarthy's.

GUIDE TO AREA RESTAURANTS

Unique, Local Establishment * Vegetarian Menu Items V Gluten-FreeGF

<p>Alfalfa's * V GF Local, vegetarian options 141 East Main Street \$\$</p>	<p>Ellos on Broadway <i>Tacos</i> 406 South Broadway \$</p>	<p>Lynagh's Irish Pub * V <i>Burgers, Pub Food</i> 384 Woodland Ave \$</p>	<p>Rincon Mexicano * V <i>Mexican Cuisine</i> 818 E Euclid Ave \$\$</p>
<p>Al's Bar * V <i>Dive bar, bourbon, good food</i> 601 N. Limestone \$</p>	<p>Fazoli's 130 Winslow St \$\$</p>	<p>Mad Mushroom Pizza 341 S Limestone \$\$</p>	<p>Sam's Hotdog 'Stand' N Limestone St \$</p>
<p>Bangkok House * V GF <i>Thai Cuisine</i> 275 Avenue of Champions \$</p>	<p>Firehouse Subs 535 S Upper St \$\$</p>	<p>Mellow Mushroom V GF <i>Pizza Pub</i> 503 S Upper St \$\$</p>	<p>Sarah Mediterranean Grill 319 S. Limestone St. \$</p>
<p>Bourbon n' Toulouse * V GF <i>Cajun, Creole</i> 829 E Euclid Ave \$</p>	<p>Great Bagel * V <i>Breakfast, Brunch</i> 396 Woodland Ave \$</p>	<p>North Lime Coffee & Donuts* 575 N. Limestone St. \$</p>	<p>Sav's Grill * V GF <i>West African Cuisine</i> 304 S Limestone \$</p>
<p>Campus Cafe <i>Burgers/Falafel</i> 391 Rose St \$</p>	<p>Han Woo Ri * V <i>Korean Cuisine</i> 371 S Limestone \$</p>	<p>Natasha's Bistro* V <i>Borscht, Pasta, Curry</i> 112 Esplanade \$\$</p>	<p>Side Bar Grill* <i>Pub 'n' grub</i> 147 N Limestone St \$\$</p>
<p>Charlie Brown's * <i>Pub, Liter Mixed Drinks</i> 816 E Euclid Ave \$\$</p>	<p>Hugh Jass Burgers 395 S Limestone \$\$</p>	<p>Oasis * V GF <i>Mediterranean/Lebanese</i> 837 Chevy Chase Pl (859) 269-6440 http://oasisrestaurant.net \$</p>	<p>Smashburger 535 S Upper St \$\$</p>
<p>Chipotle V 345 S Limestone (859) 389-6643 \$</p>	<p>Jimmy John's 385 S Limestone \$</p>	<p>Pazzo's Pizza Pub * V 385 S Limestone \$\$</p>	<p>Stella's Kentucky Deli* V <i>Local ingredients; Comfort Food</i> 143 Jefferson St SS</p>
<p>Coffea Island * <i>Coffee, Tea, Sammies</i> 385 Rose St. \$\$</p>	<p>Joe Balogna's * <i>Pizza, Italian</i> 120 W Maxwell St \$\$</p>	<p>Puccini's * V <i>Pizza, Pasta, Veg</i> 833 Chevy Chase Pl \$\$</p>	<p>Subway 386 Woodland Ave \$\$</p>
<p>Common Grounds <i>Coffee and Food</i> 343 E High St \$\$</p>	<p>Josie's Grab & Go * <i>Deli, American</i> 821 Chevy Chase Pl \$</p>	<p>Qdoba Mexican Grill V 265 Avenue of Champions \$</p>	<p>Third Street Stuff Coffee* V <i>Coffee and Sammies</i> 257 N Limestone St \$\$</p>
<p>deSha's <i>American cuisine, bourbon bar</i> 101 North Broadway \$\$</p>	<p>King Tut's * V <i>Mediterranean Cuisine</i> 341 S Limestone St \$</p>	<p>Raising Cane's <i>Chicken Fingers</i> 544 S Upper St \$</p>	<p>The Tin Roof 303 S Limestone St \$</p>
	<p>The Local Taco * V 315 S Limestone \$\$</p>	<p>Ramsey's * <i>American Comfort Food</i> 500 E High St \$\$</p>	<p>Tolly Ho <i>24 hour diner</i> 606 South Broadway</p>

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Show your DoPE badge at **Natasha's Bistro** and get free fountain drinks at lunch and 10% off dinner

Natasha's Event Schedule:

Thursday Feb 28, 8pm: Oldsmobile, Classic Rock, \$5

Friday March 1, 9pm: Alma Gitana [Gypsy Soul], \$10

Saturday March 2, 9pm: Lexington Area Music Alliance festival

www.beetnik.com

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Student Sustainability Council Statement of Support

The University of Kentucky Student Sustainability Council is a student-run group that administers the university's environmental stewardship fee. The SSC funds and develops projects that promote sustainable practices while enhancing the student experience. From dormitory resource conservation, to a campus bicycle shop, to fashion shows featuring reclaimed materials from local businesses, to world-class academic research and discourse, the SSC advances the theory, practice, and reality of sustainability at the University of Kentucky. Naturally, the SSC is pleased to support the work of UK's Political Ecology Working Group and the 2013 Dimensions of Political Ecology conference.