GRADUATE PRE-PROJECT SYMPOSIUM

FRIDAY, APRIL 15, 2022
Department of Environment and Society

2022 GRADUATE PRE-PROJECT SYMPOSIUM

April 15th, 2022 - Hunstman Hall 226
ABOUT THE SYMPOSIUM

One of the most difficult challenges for a new researcher is to learn how to convey complex, often unfamiliar ideas to a diverse audience of scholars in the space of a few minutes. Today’s event offers Environment and Society graduate students a chance to practice making a presentation for a scientific meeting. Rather than waiting for the thesis or dissertation defense, this symposium is an opportunity for graduate students to present their ideas to an audience of peers and professors, at a time when they’re just beginning to focus on a researchable problem.

THE PRESENTERS

We will hear from 3 Ph.D. students in the Environment and Society program and 6 M.S. students representing Environment and Society, Ecology, and Geography. Each will describe how they propose to undertake the research that will form the basis for their thesis or dissertation. Some students are just beginning to determine how best to tackle their topic of interest. Others may have already started their research process, but still can benefit by further developing their ideas as influenced by the insights of their colleagues in the department, college, and university.

FORMAT OF PRESENTATIONS

Each student has prepared a 15-minute presentation, which will be followed with 10 minutes of questions and answers. Please use this opportunity to improve the work of your colleagues.
**SCHEDULE**

**8:30 a.m.**  Opening Social and Light Breakfast  
**9:00 a.m.**  Claudia Radel - Opening Remarks  
**9:10 a.m.**  Patrick Kelly, Ph.D. Environment and Society  
**9:35 a.m.**  Sarah Wilson, M.S. Environment and Society  
**10:00 a.m.**  Evan Holt, Ph.D. Environment and Society  
**10:25 a.m.**  Jake Van Deursen, M.S. Ecology  
**10:50 a.m.**  Jace Colby, M.S. Geography  
**11:15 a.m.**  **Lunch Break** with Boxed Lunch Provided  
**12:30 p.m.**  Georgie Corkery, M.S. Environment and Society  
**12:55 p.m.**  Alicia Potter, M.S. Environment and Society  
**1:20 p.m.**  Bayli Hanson, M.S. Environment and Society  
**1:45 p.m.**  Leanna DeJong, Ph.D. Environment and Society  
**2:05 p.m.**  Closing
Understanding and Diversifying Bison Restoration Practices Through Sociocultural Values

Bison (*Bison bison*) powerfully influenced the ecosystems and cultures of North America for tens of thousands of years. In the 19th century, US government policies supporting westward colonization nearly exterminated a population that numbered 60 million before 1800. By 1900 fewer than 1,000 remained. This bison genocide is directly linked to the genocide of indigenous peoples whose material and spiritual well-being depended on this cultural keystone species. In 1905, the American Bison Society began the settler effort to preserve bison in the US. Today, the US bison population is ~449,000, of which 4% are considered wild, 6% are held in conservation herds, and 90% are managed as livestock. Given this history, I will investigate why people preserve bison so asymmetrically today, and how bison restoration practices can be diversified moving forward. My research will frame and analyze these sociocultural questions by weaving Relational Values, Cultural Keystone Species, and Settler Colonial Theory. Relational Values are preferences, principles, and virtues about human-nature relationships (Chan et al., 2018). Cultural Keystone Species are species that are central to a peoples’ cultural traditions and practices (Garibaldi & Turner, 2004). Settler Colonial Theory is a critical lens that views the invasion of indigenous lands as a present structure, not a past event (Wolfe, 2006). Utilizing these theories, I will conduct and analyze semi-structured interviews with tribes who manage bison and current settler managers on research questions. Findings will be operationalized to create recommendations for how to improve bison management by embedding sociocultural values in restoration.
The Utah Wellbeing Project runs community surveys with the goal of tracking wellbeing and resident attitudes to help inform local policy and planning decisions. Two components of the surveys are particularly relevant to socioenvironmental inquiries about community life: connection with nature and community connection. The goal of this proposed research is to study how these two forms of connectedness impact individual subjective wellbeing in Utah and how they are related to each other. According the Baumeister and Leary’s (1995) need-to-belong theory, social relationships are fundamental human needs. This theory has been extended to include a sense of belonging to the natural world (Mayer & Frantz, 2004), which provides a useful framework for conceptualizing both forms of connectedness as important for subjective wellbeing. Additionally, considering how Utah is currently the second fastest growing state in the United States (US Census Bureau, 2021), it is also appropriate and timely to investigate how community population and economic growth might impact both community and nature-based connections. A considerable amount of scholarly work has identified various wellbeing outcomes associated with connectedness to nature and community, and this work will extend these findings in the context of Utah’s rapid growth.
Archaeology is an established field gaining traction within both fields of Archaeology and Ecology, and, like paleoecology, uses ancient data to understand ecological questions. This mutually beneficial interdisciplinary approach provides researchers more tools to tackle modern questions regarding humans’ roles within ecosystems and the historical precedence of these roles. Quantitative socio-ecological network approaches are at the forefront of modern archaeoecological studies. Human-inclusive ancient food web studies are one way that archaeology can be used as a tool for resolving modern ecological questions about resilience and sustainability. Food webs are ecological networks linking consumers and resources within an ecosystem, i.e., who eats whom. When modern food webs are combined with archaeological data, the role of humans within their local environments can be extrapolated back in time to gain deeper understandings of humans’ roles and impacts on their environments. This research seeks to accomplish three goals: presenting archaeoecology as a field; the establishment of a food web in Northern Mongolia; and a comparative cross-cultural analysis of food webs from Mongolia and Alaska. Establishing a food web for the Khuvsghul Lake region of Northern Mongolia is a main goal. Understanding the roles humans have in this region will benefit our understanding of long-term sustainability and resilience in this semi-nomadic herding society. Once established, the next goal is a cross-cultural network comparison between the Mongolian food web and a previously established food web for Sanak Island, Alaska. This comparison will serve to better our understanding of cultural impacts on and roles within local environments, shedding light on resilience and sustainability of different cultures in different environments.
Recreation specialization, the selective channeling of interests and abilities into a specific recreational activity (Little, 1976), has been examined across a spectrum of activity types including birdwatchers (Scott et al. 2005), white water canoeists (Wellman et al. 1982), vehicle-based campers (McFarlane, 2004), backcountry hikers (Virden and Schreyer, 1988), rock climbers (Hollenhorst, 1987), and most frequently anglers (Bryan, 1977). Specialization has contributed to a more comprehensive understanding of recreation behavior (Bryan, 2000), site preference (Virden and Schreyer, 1988), conservation support (Oh and Ditton, 2006) and environmental attitudes (Dyck et al. 2003). Although research on consumptive forms of recreation suggests a positive relationship between specialization and conservation concern (Oh and Ditton, 2006), this knowledge may not be representative of minimum-impact behaviors of specialized recreationists on the landscape. Beyond the psychological and cognitive assessments of specialization, substantial differences have been observed between self-reported and actual movements of recreationists such as hunters (Manning, 2011, Stedman et al. 2004). This knowledge gap pertaining to the temporal and spatial movement patterns of specialized individuals, becomes increasingly important when considering specialization’s theoretical foundation, “a continuum of behavior from the general to the particular” (Bryan, 1977). Acknowledging the recent boom in outdoor recreation (Beery et al. 2021), and the potential for recreationists to become more specialized in an activity over time (Ditton et al. 1992), specialization theory may be especially useful for understanding emerging trends in recreation use, and will be imperative if specialists tend to disperse beyond confined recreation settings or to locations with little previous use. My research will examine the contemporary manifestation of specialization across current and emerging activity types (hikers, skiers, anglers, mountain bikers and e-bikers) and investigate the influence of specialization on spatial behavior and resultant potential ecological disturbance.
Solar energy has been responsible for the largest portion of new generating capacity in the United States since 2019 with a 19 percent increase in solar capacity alone in 2021 and in the traditionally conservative state of Texas, where previous research suggests solar would not be installed, the capacity of solar that was added in 2021 was greater than California (Solar Market Insight Report 2021 Year in Review, 2022).

The prior investigation surrounding solar panels and the people likely to adopt them has shown that while some traits, such as income and political ideology, can act as predictors of installation, there are weak conclusions offered to support these hypotheses of causality (Baranzini et al., 2017; Best et al., 2019; Bollinger & Gillingham, 2012; Schelly & Letzelter, 2020). This research takes a novel approach to understanding the social implications and neighborhood effect of residential solar: rather than studying who installs solar panels on their home, I examine how the presence of solar panels (on one’s home or in one’s neighborhood) can predict an individual’s civic engagement and other characteristics - such as opinions about climate change and energy policies. I will analyze multiple waves of large nationally representative georeferenced survey data from the Climate Change in the American Mind (CCAM) project, in combination with remote sensing imagery of the neighborhoods of survey respondents using GIS software, to determine the influence of residential solar on an individual’s actions and opinions.
Globally, there have been calls to increase Diversity, Equity, and Inclusion (DEI) efforts in ecology, conservation, and outdoor recreation. These calls are in part due to the changing demographics of the birding community, as people who identify as queer and people of color increasingly participate in birding. However, little research has documented what DEI efforts look like on paper or in practice, or how they impact minority communities, with insufficient research on queer communities. Without data on how DEI efforts are being implemented and received, organizations cannot be held accountable to the goal of increasing DEI, which could result in diversity washing. This is part of an ongoing study of DEI efforts and the experience of queer birders in the Great Salt Lake watershed. It presents a qualitative analysis of six DEI documents published by birding and bird conservation organizations, of which five are from prominent national organizations (e.g., the National Audubon Society) and one is local to Utah, the Tracy Aviary. These documents range from short statements on organizational websites to 45-page how-to guides for staff and volunteers. Documents were coded for themes to understand DEI best practices. Overall themes highlighted the benefits of DEI, methods to improve DEI, and comparisons of diversity to biodiversity. The positive links highlighted between DEI, recreation, and conservation indicate that formal birding organizations are attempting to evolve their messaging to recognize the valorization of DEI efforts. However, questions remain about the feasibility of implementing formalized DEI guidelines and how best practices proposed by organizations match the on-the-ground needs and experiences of marginalized birders. This research explores the strengths and weaknesses of existing DEI guidelines and how these guidelines may promote mutual growth and visibility of the birding and queer communities.
Worldwide, Payments for Ecosystem Services (PES) are used to incentivize various behaviors which aim to lead to the provision of ecosystem services. These incentive programs are directed at landowners and are often created with the additional goal of alleviating poverty or fostering development. Conservation programs such as PES also interact with gender dynamics at the household and community levels. For other types of cash transfer programs, recent literature has noted that the presence of conditionality may create or reinforce gender inequalities. These inequalities often manifest in the household’s division of labor and decision-making power, where women may be obligated to complete more unpaid work or experience less control over household resources. There has been little research done about PES and gender; however, the gender dynamics of PES has important implications for government and NGO management of these conservation incentive programs. Using survey and interview data, I will conduct exploratory analyses to understand the effect of a PES program in Bolivia and its impact on gender dynamics. This PES program, administered by Fundación Natura Bolivia, incentivizes farmers to conserve forests in order to increase water quantity and quality. In the larger research project, a random controlled trial assigned some households to conditional PES contracts and received in-kind incentives conditional on monitored conservation behaviors, while the other households received the incentive unconditionally. My analysis will examine the relationship between household gender dynamics and PES, with additional consideration of the role played by conditionality in these dynamics. I plan to answer the following research questions: (1) Are unconditional (vs. conditional) contracts associated with different gender dynamics? (2) Are contracts signed by men versus by women associated with different gender dynamics or with different incentive outcomes?
Underrepresented communities, including indigenous groups, experience climate change at a more extreme rate due to where they live; despite their knowledge and connection to the land. Due to this interconnection, there have been negative impacts on cultural identities in correlation with environmental degradation. For example, Indigenous communities that continue to hunt and forage on traditional lands are now being met with difficulty and limited resources; including the land itself (Kreyes, et al., 2021). We still do not have a standard set of indicators for responsible inclusion of Indigenous knowledge and people in environmental sciences (David-Chavez & Gavin, 2018). This study aims to provide these underrepresented communities, specifically the Navajo Nation in Southeast Utah, with STEM and climate proficiency that will help them articulate their arguments and communication featuring climate change topics. We plan to do this using a co-creation method in order to provide local solutions. These skills accrued by Stewards and their communities will better prepare them to prioritize their involvement in climate change decisions and mitigation efforts that will negatively impact them in the future (Kreyes, et al., 2021). Volunteers will act as a bridge between university-based scientific research and community needs research-based information by utilizing Rogers’ (2010) “Diffusion of Innovation” theory as a foundation to inform members of a social system to which they belong. Indigenous groups have been advocates for the sustainable management of natural resources for generations. Utilizing the Navajo Nations’ traditional knowledge and experience could be one of the best ways to more efficiently implement climate change adaptation strategies among this indigenous community (Makando & Thomas, 2018).
Human-caused habitat loss and alterations are the leading drivers of global biodiversity declines. To address biodiversity loss and restore its associated benefits, substantial habitat restoration is necessary. Because more than 80% of the contiguous United States is privately-owned, successful biodiversity conservation might hinge on habitat restoration on private properties. Faith-owned land (worship centers, schools, retreat centers, summer camps, cemeteries, etc.) is ubiquitous across the American landscape. All major religions recognize a responsibility for land stewardship, and spirituality and religion are major drivers of environmental values. Properties owned by faith communities and their adherents offer tremendous opportunity for ecological greenspace management that promotes biodiversity conservation. Even small changes in greenspace management, like mowing less frequently or planting native trees, can spur increases in biodiversity. Thus, faith communities hold an underappreciated potential to promote biodiversity. However, the drivers of and barriers to biodiversity-promoting behaviors among people of faith specifically in terms of greenspace management is largely unknown. Likewise, the potential for and extent to which ecological greenspace management is occurring in faith communities has not been studied. My research will determine how faith-owned land contributes to the habit-matrix, and identify the drivers and/or diffusion of, barriers preventing, and other key influences on faith-based ecological greenspace management. This research could open the door for successful collaborations between environmental and faith communities that further conservation outcomes.
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