

Abstracts / Les Résumés

Rain and Copper: The Evolution of a Fish Marketing Channel in a Rapidly Changing Region of Southern Africa.

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This case study examines how economic and environmental changes have affected the marketing channels associated with a fishery in southern Africa. The volume and origin of fish entering the market was monitored between 2007 and 2012, and followed up with semi-structured interviews with participants. Prior to 2010, there was a simple commodity chain involving local producers and consumers. Since then, a nearby lake refilled, providing a new source of fish. The market has expanded and diversified, with large volumes of fish being sent to meet growing demand from urban centres in Zambia, as well as re-emerging mining operations in the Democratic Republic of the Congo. The sustainability of the fishery is assessed in the face of this expansion and re-alignment of the marketing channel.

Session: WED-10.30-1

Namibia's expanding scales of ocean governance

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Prior to independence, Namibia's fisheries were a de facto open access resource. This was not a failure in governance as much as an unintended consequence of international opposition to Namibia's occupation by the apartheid regime of South Africa. However, upon independence in 1990, policymakers quickly acted to affirm and consolidate control of Namibia's Exclusive Economic Zone and set up a quota allocation that mixed elements of free market and state welfare goals. More recently, Namibia's scope of management has expanded to include regional agreements of straddling and highly-migratory fish stocks. In this paper, I show how Namibia's post-independence experience with fisheries governance is closely linked to underlying political factors acting at the national, regional and international scale. I will highlight several important factors, including the close relationship between the United Nations and the government-in-exile, the national priority placed on the economic empowerment of previously-disadvantaged Namibians, and the post-Cold War collaboration among nations along the southwest coast of Africa.

Session: WED-10.30-1

Climate Risk Governance in Cascadia's Watersheds

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Transboundary water governance is a significant policy and political challenge across the borders of Cascadia; the name sometimes used to describe the shared ecosystems of Western Canada and the United States. Likewise, global climate change and its risks pose significant governance dilemmas for transboundary resource systems like watersheds. This research examines the development of climate change mitigation and adaptation governance for the transboundary Columbia and Skagit watersheds of Cascadia. This case study combines comparative and institutional policy analysis, content analysis of historical policy documents, and semi-structured stakeholder interviews and questionnaires to examine the governance arrangements and public policies that inhibit or foster cross-border cooperation and contribute to a productive dialogue on climate risk governance approaches among policy leaders, practitioners and students in the environmental field. The results present a picture of uneven climate governance, little to no development of polycentric arrangements, and major institutional barriers for polycentric climate risk governance in Canada.

Session: WED-3.30-2

The Changing Landscape of Knowledge in Tourism

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Physical production factors are identified as drivers for the location of economic activity. Within research on economic geography on firm level, this has been complemented by an acknowledgement of access to competent workforce as a key factor for successful production. Spatial proximity of related activities and access to academic knowledge have been highlighted as well.

In the context of tourism, physical accessibility and factors relating to resources such as specific landscapes and heritage sites remain relevant for explaining destination development processes. Access to competent workforce has not played a major role in analyzes of destination development. Instead a prevalent perception of the sector's capacity to create employment in areas lacking human capital has dominated the discussion on tourism's role in regional development.

The work presented here regards knowledge within the labour force of tourism a prevailing element of production as well as an initial resource. A study based on geo-referenced socio-economic data on individual level of the work force in Sweden is used to map the temporal and geographical development of access to academic knowledge in Sweden during the period 2000-2010. The results contribute to the discussion on resource extraction through destination development focusing on northern, peripheral areas.

Session: TUE-10.30-4

The "COM-FUSE" City. The steel hand of the market and the production of urban structure in Latin American metropolis

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With the crisis of regulatory urban fordism, the real estate market has reemerged as a determining force in the social coordination process of land use and in the production of intra-urban structure. The steel hand of the market returned. This paper presents an analytical and empirical analysis of the relation between the production of urban structure and the functioning modes of formal and informal land markets in Latin America. It proposes the hypothesis that, compared to the two traditional models: (compact mediterranean cities and the anglo saxon diffused cities, Latin American cities exhibit a particular urban structure. In these cities, the functioning of land markets produces simultaneously a compact and a diffused urban structure. This urban structure, characteristic of large Latin American cities, we designate as the "Com-Fuse" City.

Session: TUE-10.30-7

"We are all craving for muskrat": Integrating valuation of cultural ecosystem services and indigenous well-being to understand the effects of long-term hydro-ecological change in the Saskatchewan River Delta"

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There are both material and non-material dimensions of ecosystem services. Much of the ecosystem services research, however, has focused on the material dimensions of ecosystem services, highlighting their economic values through quantitative, monetary valuations. The non-material dimensions, referred to as cultural ecosystem services, are just beginning to emerge. Articulation of these dimensions are specific to people who derive livelihood and cultural meanings from the landscape, yet there has been relatively little attention to how indigenous peoples describe and experience cultural ecosystem services. Hence, there is an opportunity to advance our understanding of cultural ecosystem services by bringing together cultural valuations and indigenous concepts of well-being. This paper draws on Naomi Adelson's work on Cree conceptualizations of health and well-being – translated as "being alive well". We present a framework that uses this concept of "being alive well" to help understand the cultural valuations of the Saskatchewan River Delta (SRD) provided by the indigenous peoples of Cumberland House. Our interpretation focuses on how long-term ecological changes in the delta, resulting from the operation of E. B. Campbell hydro-electric dam since 1963, has affected the interpretation of ecosystem services and well-being by the people of Cumberland House. Our application of the framework draws on personal interviews, narratives, and field observations to elicit perceptions and meanings. Our efforts are directed towards creating an interpretation that contributes to theories of ecosystem services that are sensitive to local understanding of change.

Session: THU-8.30-4

Finding Ergene River as Bare Life

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The Ergene River, a tributary part of the Maritza (Meriç) River, which crosses the border between Bulgaria, Greece, and Turkey, is considered a “dead river,” with level four pollution. It is found in Thrace, at the crossroads of the Middle East and Europe that has witnessed rapid industrialization and its environmental consequences.

Heavy pollution in the Ergene River is not a mere accident but it is rather a facet of (neo)liberal environmental governance. This presentation is concerned with the politics of environmental non-governance and theorized it as a state of exception. The politics of non-governance that I refer to is inspired by Prudham (2004) 's work about “organized irresponsibility” across different regulations, institutions, and various other stakeholders within the privatized water sector, as an organizing principle of neoliberalism. Here, I slightly modify the concept as an integral part of what I term as politics of non-governance, especially when the Ergene River pollution, having a well acknowledged history by the Turkish state for more than 30 years is concerned. With this frame in mind, I explore environmental policies and expert cultures of the last 30 years that led to politics of non-governance in Thrace region of Turkey.

Session: WED-10.30-7

Water, arroyos and blackouts: exploring political ecologies of water in Barranquilla (Colombia)

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With more than two million people, Barranquilla is Colombia's fourth-largest city. Residents of Barranquilla's southern neighbourhoods frequently complain about their lack of access to water supply, drainage and electricity. Many of them suffer the consequences of arroyos - the torrential streams of urban runoff that flood certain city streets lacking storm sewers. Combining qualitative and quantitative data, this research has three specific purposes. The first one is to analyse how mechanisms of access to (and exclusion from) water supply and drainage, are evidence of state power and of power relationships among various groups of citizens. I concentrate on the role of water policies in the perpetuation and reworking of these power relationships. The second is to understand the ways in which residents make different kinds of pressure to make water flow –through mass demonstrations or by negotiating with local politicians. The third one is to document how water's specific properties influence socio-spatial developments and are a source of unpredictability. I will focus on the implications of arroyos in southern neighbourhoods. That is, on the ways in which water's biophysical properties affect electricity's infrastructure, and electricity affects pumping stations producing water cuts. This project speaks to several current debates in geography. Specifically, this research expands ideas on the role of water

policies in reworking power geometries, often reproducing existing forms of exclusion. Second, it will contribute to debates about residents' everyday negotiation practices to access water. Finally, the study will contribute to theory on how water's materiality is critical to urban political processes, especially in a context of rapid unplanned growth.

Session: FRI-10.30-1

Spatially constrained clustering of ecological units to facilitate the design of integrated water monitoring networks in the St. Lawrence basin.

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Water monitoring networks are generally classified into surface water, precipitation, groundwater, or water quality monitoring networks. The design of these networks is typically conducted in isolation of each other. We present a regionalization approach to identify homogenous sub-regions of large basins that are suitable as areas for the optimization of an integrated water monitoring network. The study area, which comprises a portion of the St. Lawrence Basin was spatially divided using ecological units. For each ecological unit, 21 attributes were derived including both environmental and hydrological indicators. A spatially constrained regionalization technique was applied to define the final regions. The number of regions to retain was determined with a scree plot. The groupings of the ecodistricts within spatially homogenous sub-regions were evaluated to ensure their similarity in non-spatial space with principal components analysis. The sensitivity of the technique to the correlation in the attribute data was evaluated by specifying multiple subsets of data with differing levels of maximum bivariate correlation. A six region configuration was identified as suitable and this was appropriate for all the subsets of data tested in the clustering technique. The ecological units that made up the spatially constrained regions were also near in non-spatial PCA space. Our results were insensitive to the correlation in the attribute data. We find that by combining both spatial analysis and non-spatial analysis, it will allow for the identification of data sets where this technique is not suitable. For the St. Lawrence Basin, this approach is effective for defining homogenous regions that can be used in further research on the optimization of integrated water monitoring networks.

Session: THU-8.30-3

Tracing green neighbourhood developments in Germany, Canada, Luxembourg and Australia

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Over the last decades green development seems to have become an economic, political and rhetorical necessity. Cities in particular have become showcases of green development. Around the world they have adopted ambitious agendas to reduce their carbon emissions while increasing quality of life. One particular element of urban sustainability agendas has been the development of green neighbourhoods.

Drawing on a co-evolutionary, multi-actor understanding of change as advocated in the sustainability transitions literature, we seek to reconstruct and compare trajectories of green neighbourhood developments for a number of selected case studies including Freiburg's Vauban and Rieselfeld, Vancouver's Olympic Village, Luxembourg's Hollerich Village, and Brisbane's Green Square. In our analysis we place emphasis on regional specific contexts but also on spatial flows and connections to explain drivers behind green neighbourhood developments. Drawing on preliminary findings from the Luxembourgish-German GreenRegio research project (greenregio.uni.lu), we argue that local differences in motivations, strategic interests and objectives involved lead to the construction of distinct pathways of sustainable neighbourhoods. We distinguish between 'extroverted' developments that look beyond the cities, for example, for inspiration or to inspire others, and intrinsic developments that are more dependent on local relationships as exemplified by Freiburg's green neighbourhood developments.

Session: TUE-10.30-5

Historical gateways in transition: The redevelopment of former woodworking waterfronts

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Waterfronts are being redeveloped worldwide, and much of the current research on waterfronts has focused primarily on big seaports in coastal cities. In contrast, this study pays specific attention to the built form of suburban waterfronts. Focusing on two case studies, one in Finland and one in Canada, this research examines areas that historically provided waterfront access for the woodworking industry. As these industries have declined and reorganized, the waterfronts they once occupied have been redeveloped primarily into residential districts.

Built environments are comprised of multiple architectural features that have been introduced over time. As such, they reflect the historical processes, changing aesthetics, technologies and activities of particular eras. However, waterfront redevelopments in disparate suburban locations are fast becoming primarily residential and aesthetically ubiquitous, often rendering their industrial pasts invisible. Planning processes that ironically aim to promote the “uniqueness” and “distinctiveness” of historical waterfronts are instead ignoring, and at times actually erasing truly unique urban histories in favour of developing homogenous city districts. This study demonstrates that this process can potentially limit or destroy the use value of these areas while ignoring cultural histories and local identities, thereby constraining options for creating diverse cities.

Session: WED-1.30-3

Mount Pleasant: A Perfect Storm

Don Alexander, Geography Department, Vancouver Island University

Urban change for Vancouver means population growth from a variety of sources. Combined with its limited land base and renowned amenities, this translates into escalating housing prices – amongst the highest in the world. To avoid urban sprawl in the wider region into farmland and habitat, each community in Metro – including Vancouver itself – must densify. The question is how and with what community process.

My paper will focus on the bitter controversy over The Independent development at the corner of Broadway and Main in the heart of Mount Pleasant. Key players include: the developer (the Rize Alliance), Vancouver City Council/ Planning Department, and the neighbourhood group fighting the development (Residents Association Mount Pleasant). Key questions include: is the development a ‘good fit’ with the neighbourhood? Are there significant new amenities to be provided to offset any potential decrease in neighbourhood quality of life? Has the City done a proper consultation process with the neighbourhood? Is the opposition primarily fueled by NIMBYism – an opposition to change in any form – or is it about justice, democracy, and a different vision of sustainability. The presentation will focus on these questions and on whether it is possible to reconcile greater density and stronger neighbourhood self-governance.

Session: WED-8.30-6

Community Gardens: Contested Ground

Don Alexander, Geography Department, Vancouver Island University

Community gardens make a small, but not insignificant, contribution to local food security. In addition to providing fresh food for gardeners, they provide healthful exercise and a release from the stresses of daily life. They also provide habitat for wildlife and a splash of colour in what otherwise might be a monochromatic urban landscape. Finally, such gardens provide a focal point for civic interaction and community-building.

At the same time, given that land values are high in an urban context, they can become contested terrain. By the 1990s, CP Rail had for all intents abandoned its Arbutus Corridor, allowing it to become derelict and unkempt. Community gardeners quickly moved in and transformed much of this linear space into an urban oasis. At some point CP asserted its desire to develop its land for residential and commercial purposes. The City responded by zoning the land as a greenway and future transit corridor, effectively sterilizing the space. CP litigated and lost. More recently, it indicated it wanted to re-initiate freight service on the line and won a court settlement in January reaffirming its property rights, but this was seen by many as a case of oneupsmanship with the City. It then began to demolish the gardens and evict the gardeners, destroying over twenty years' worth of work and causing much heartache and frustration in the process.

I would like to address the question of: when does the public interest trump the rights of a corporation that has already extracted considerable benefits from the public purse over the last century and a half? In a system that valorizes property rights, what options remain for people to re-establish the commons?

Session: TUE-3.30-1

Constructing the rural: political ambitions and public spending on rural development in Sweden

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Set in the context of rural change and restructuring, this presentation discusses the concept of 'post-productivism', arguing that it should be regarded as an idea within political discourse, representing a political ambition and normative goal rather than describing profound change of rural economic activity on the ground. To illustrate the political ambition, the study analyses rural policy documents concerned with the development of rural areas in Sweden. It focuses specifically on tourism which has come to be seen as a universal tool for rural development. The study investigates the distribution of public spending on tourism in rural areas of Sweden between 2000 and 2013, focusing on the main programmes targeting development in rural areas. These include primarily the Swedish rural development

programme but also regional structural funds programmes, all of them part of the European Union policy framework. The main methods used are descriptive statistics and text analysis. Results show that, despite being declared an explicit priority in rural policy documents, a relatively small amount of total public spending actually goes into tourism, indicating that tourism is still not a prioritised area in practice.

Session: TUE-8.30-4

Variability and trends of spatially-weighted area-averaged seasonal and annual precipitation over the Arabian Peninsula

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Temporal variability and trends of spatially-weighted area-averaged (SWAA) seasonal and annual precipitation during the period 1981-2010 over the Arabian Peninsula were analyzed. The analyses were based on the precipitation dataset of the Global Precipitation Climatology Centre (GPCC) Full Data Reanalysis Version 6.0. This spatially-distributed precipitation dataset is derived from quality-controlled station data by spatial interpolation and has temporal and spatial resolutions of 1 month and 0.5° x 0.5° latitude by longitude, respectively. Significance of trends in precipitation were evaluated using the non-parametric Mann-Kendall test and trend magnitudes were estimated using the non-parametric Sen's estimator. The results show that SWAA of annual precipitation over the Arabian Peninsula ranges from 60.4 mm to 162.4 mm with mean and standard deviation of 92.8 mm and 10.8 mm, respectively, which indicate high inter-annual variability. Averages of SWAA for winter, spring, summer and fall precipitation are 28.8 mm, 37.2 mm, 12.5 mm and 14.4 mm, respectively. The SWAA-based trend analyses of seasonal and annual precipitation in this study do not indicate any statistically significant trends in precipitation over the Arabian Peninsula during the period 1981-2010. This finding supports the findings of previous analyses of regional-averaged precipitation over the Arabian Peninsula and its sub-regions that did not account explicitly for the spatial representation of individual stations in this station-sparse arid region.

Session: THU-8.30-4

Housing First, Affordable Housing and Ending Homelessness in Alberta

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Over the last two decades, homelessness in Alberta's cities has increased dramatically. Contributing factors include rising rents, low vacancy rates, and a lack of affordable housing. In response, Alberta's seven largest cities and the Provincial government have adopted policies that prioritize a Housing First (HF) approach. This presentation reports on research undertaken to better understand how shortages of affordable housing across Alberta influence the HF approach in practice. Semi-structured interviews were conducted with workers and clients from housing and homelessness agencies in Edmonton,

Calgary and Medicine Hat. Interviews were analyzed to identify major themes in individuals' perspectives on how affordable housing challenges influence the operation and outcomes of HF programs.

Key findings of this research include: (1) Client choice in housing may be severely restricted in the current housing market; (2) As HF grows, securing housing for new clients becomes increasingly challenging; (3) Many HF clients with fixed incomes rely on time-limited rental supplements, which raises questions about the sustainability of their housing; (4) The shortage of affordable housing is contributing to new cases of homelessness, thwarting efforts to reduce homelessness in Alberta.

Session: WED-8.30-6

Modeling non-linear spatio-temporal dynamics of insect infestation: A case study of emerald ash borer

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Like most ecological systems, insect infestation dynamics are complex, characterized by uncertainty and non-linearity. These systems challenge traditional statistical approaches of modeling insect infestation. A more recent approach using complex systems theory provides a set of bottom-up, spatio-temporal modeling methods capable of addressing these challenges. Agent-based modeling (ABM) is one of these approaches, capable of capturing local dynamics between interacting entities or "agents" and over time generating complex emergent behaviour across large spatial extents. The emerald ash borer (*Agrilus planipennis*; EAB), an invasive species native to Asia, has infested and killed millions of ash trees (*Fraxinus* sp.) across North America. Efforts to understand and model EAB behaviour are ongoing, however current models use approaches which cannot fully capture the complex dynamics governing insect propagation. The main objective of this study is to develop an ABM of EAB behavior to forecast complex emergent patterns of trees infestation over space and time. This study integrates real world geospatial data sets for Oakville, Ontario, Canada, autonomous EAB agents programmed in Repast Symphony, and the GIS environment. The developed approach offers a modeling tool that is capable to represent EAB infestation propagation that can be used to assist forest management in insect eradication strategies.

Session: FRI-8.30-6

Intra-week spatial-temporal patterns of crime

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Since its original publication, routine activity theory has proven most instructive for understanding temporal patterns in crime. The most prominent of the temporal crime patterns investigated is seasonality: crime (most often assault) increases during the summer months and decreases once routine activities are less often outside. Despite the rather widespread literature on the seasonality of crime, there is very little research investigating temporal patterns of crime at shorter time intervals such as within the week or even within the day. This paper contributes to this literature through a spatial-temporal analysis of crime patterns for different days of the week. It is found that temporal patterns are present for different days of the week (more crime on weekends, as would be expected) and there is a spatial component to that temporal change.

Session: FRI-10.30-3

Restoring Access, Standing, and Influence in Water Management: A Case Study of Perspectives in the Saskatchewan River Delta

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Globally, water managers are challenged with addressing Indigenous perspectives in key decisions in light of an increasing formal recognition of Indigenous rights. We investigate policy options for recognizing Indigenous perspectives in decision-making through a case study of perspectives in the Saskatchewan River Delta. In the Saskatchewan River Delta – a complex aquatic ecosystem of high cultural and subsistence significance – communities downstream from the E.B. Campbell Dam (EBCD) have identified a water crisis owing to changes in river flow and land-use, and EBCD relicensing has been set for 2015. Using Senecah's theoretical framework to understand participation in decision-making, this paper provides insights into the opportunities and barriers to more inclusive environmental decision-making processes that involve Indigenous perspectives. This research design included 32 interviews with stakeholders and rights holders, and document analysis. Key themes from the analysis identified as barriers to a common interest solution included closed decision-making processes, compensatory satisfaction myths, and inter-stakeholder misconceptions. Insights reveal the necessity of moving beyond the mere integration of diverse perspectives in decision-making. Making room for, respecting, and changing decisions based on traditional Indigenous natural resource approaches can attenuate water crises more effectively by honoring legacy claims for self-governance through sound, attentive, and pragmatic decision-making processes.

Session: WED-3.30-2

A framework of indicators as a boundary object

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A boundary object is a material or semantic object that exists in between conversations and facilitates them. Indicators, and the frameworks that get built up around them, tend to spring from one kind of conversation, a positivist tradition in Western thinking, concerned with rationality, analysis, predictable outcomes. In this paper we look at an indicator framework that was developed by the Canadian Fisheries Research Network to assist in evaluating the sustainability of fisheries in Canada. We examine two aspects of the framework, its structure and the process of developing it, to see how it serves both constructive and critical approaches to thinking about sustainability. We then identify innovations in the framework that act as bridges between constructive and critical ways of thinking. In closing we examine how the framework itself might be seen as a boundary object, facilitating conversations between multiple dualisms, the constructive and critical approaches already discussed, Isaiah Berlin's fox and hedgehog, natural and social scientists, top down vs. bottom up methods, and humans vs. nature. **Eco-**

Session: WED-8.30-1

Districts and Territorialisation of Energy Systems

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Eco-districts provide emerging examples of best practices of climate action at the local level. While these types of developments typically address a broad range of sustainability actions such as environmental preservation, transportation and culture, the focus here is to assess how well eco-districts territorialise energy systems since developments where energy is locally produced, managed and distributed, provide powerful examples as to how communities can both reduce CO₂ emissions and build resilience to climate change at a community level. This research responds to the claim that before the human-environment relationship can be made more sustainable, and cities reconfigured to successfully combat climate change, energy systems need to be territorialised so that greater districts. Cohousing is a form of grassroots ecourbanism that clusters private dwelling units around collectively owned and governed common spaces. Through a combination of intentional social practices and mindful design, cohousing encourages a sense of community amongst neighbors, offering a utopian alternative (Sargisson 2012) to atomistic neighborhood models that have dominated North American regions since World War II (Checkoway 1980; Hayden 2002). This paper claims that cohousing projects (or "cohos") inhabit a liminal space, reconciling radical ideals eco-communitarianism (i.e. the ecovillage movement) and socio-technical regimes that guide housing production in urban regions (i.e. the regulatory, financial, and moral structures that guide mainstream urban development). Drawing from interviews with coho founders in North America and elaborating upon ethnographic research in the ecovillage movement (Boyer 2014), this paper hypothesizes that cohos blend the expertise of both "regime" knowledge communities (e.g. architects, real estate experts, and developers) and "niche" knowledge communities (e.g. consensus trainers, permaculture experts) to realize their vision, and that the cohousing "model" is highly dynamic and context-specific. As such, cohousing represents as an

‘intermediately’ situated practice—a porthole of sorts— through which novel, perhaps more sustainable forms of urbanism can translate to the mainstream.

Session: TUE-1.30-3

Pedestrian Safety under Weather Conditions

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Pedestrians represent the world's most vulnerable road users due to their lack of structural protection against motor-vehicle collisions. This vulnerability is greatly enhanced during severe weather events where motor-vehicle encounter challenges such as less friction, less visibility and difficult steering/handling becoming a hazard for nearby pedestrians. Several studies explored the risk of collisions during inclement weather for motor-vehicle collisions, however, pedestrians-vehicle collisions specifically during challenging weather has been overlooked in the literature. This research presentation explores the literature of pedestrian safety, methodological issues, and risk of collisions for both motor-vehicles and pedestrians. An analysis will illustrate the risk estimates of pedestrian-vehicle collisions during inclement weather. The study explores this risk in several Canadian cities using National Collision Data and Environment Canada Weather Data for the analysis. Finally, future work to enhance this study will be discussed.

Session: WED-10.30-6

Assemblage thinking as methodology: Commitments and practices for critical policy research

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The concept of assemblage has captured the attention of critical scholars, particularly those interested in the study of policy. In its macro-theoretical guise, assemblage thinking has become a flashpoint for differing truth claims concerning structure, agency and contingency. Despite these ontological skirmishes, both sceptics and adherents identify the value of assemblage thinking as a methodological framework. There are now many accounts utilizing assemblage methodologies of various sorts as analytical tools for revealing, interpreting and representing the worlds of policy and policymaking. This paper reflects on existing accounts to suggest a suite of methodological commitments associated with assemblage thinking, including an emphasis on multiplicity, process, labour and uncertainty. With these abstract notions in mind, the paper then considers a question largely overlooked to date: how might such abstract commitments be translated into grounded research practices? To propose and illustrate these practices, the paper uses examples drawn from a study investigating the international mobilization of housing-led models of homeless service provision and their implementation in Australian cities.

Session: FRI-10.30-1

Enhancing the teaching and learning of quantitative geography research techniques in undergraduate courses using designed Infographics

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In a predominantly data-driven society, quantitative analysis and reasoning skills are increasingly becoming a crucial component of the undergraduate geography student experience. In this regard, there are two primary challenges that have emerged. First, there is a need to develop intrinsic motivation in students so that they become self-directed learners. The main reason is that statistical research techniques form the core of quantitative geography and usually evokes perceptions of fear, anxiety, and boredom in students. Second, there is a need to fully engage the more quantitatively inclined students without disengaging those who are less quantitatively inclined. The main reason is that students with a wider range of academic backgrounds are now choosing to pursue quantitative geography courses. These two challenges are inter-related and were addressed in a real application context using structural changes (scaffolding) and pedagogical changes (infographics). This work reports on the information design and implementation of two infographics for use in an introductory quantitative geography course, and the questionnaire feedback results that were elicited to determine effectiveness.

Session: FRI-1.30-6

Urban Clashes: Performance and Resistance in Barangay San Roque, Quezon City, Philippines

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This paper works alongside current investments in performance, affect and urban theory in its consideration of the various aesthetic encounters which coalesce to produce the image of new urbanized Manila. Drawing from Filipino scholar Neferti Tadiar's ideas on the Philippine State's 'fantasy production', this paper suggests that current urban projects specifically in Quezon City reconfigure the spatial configurations of the city and marginalise the already excluded and disenfranchised. I will discuss the work that went into putting up an exhibit entitled, Lugar: CounterMapping Mega Manila that featured performances and installations created by theater and urban planning students of the University of the Philippines. I argue that by developing work drawn from interviews of residents of Barangay San Roque, Manila, the exhibit-event demonstrates the potential of performance to lay bare the key issues that affect the communities like San Roque. To end, I will also reflect on the work that could be done by artists and academics in Quezon City to help create similar kinds of performances that disrupt state fantasies in order to open them up for discussion and debate as a form of resistance to the state's systematic covering up and then violent wiping away of their homes.

Session: FRI-1.30-3

Who meets the mobility imperative? Uneven engagements with Employment-Related Geographical Mobility in Newfoundland and Labrador's industrial construction workforce

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This paper provides an overview of preliminary findings from research on the mobilities of construction-phase workforces in Newfoundland and Labrador's resource development sector. Responding to recent calls for labour geography to pay more attention to the lived experiences of workers employed in increasingly precarious arrangements, the paper highlights the geographically and socially uneven impacts of and engagements with the imperative of mobility for work in construction. A number of large-scale extractive industries projects in the province since the early 1990s have demanded large numbers of workers in different capacities. The focus here is construction trades workers. Various factors – collective agreement provisions, compensation, household composition, age, and gender – influence the mobility patterns of this workforce. Initial findings from key informant interviews suggest that some are much better equipped than others to succeed under conditions requiring a great amount of flexibility in their movements. The paper discusses three factors that contribute to uneven opportunities to engage in the flexible mobilities required in this line of work: location of residence in relation to work sites, household characteristics, and gender. An understanding of these factors has important implications for labour force development, rural-urban differences, and inter-provincial mobility.

Session: FRI-10.30-2

Attitudes towards waste to energy in Ontario

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Despite progress in residential waste diversion in Ontario, over 2.5 million tonnes of residual waste must be disposed by municipalities each year. Meanwhile, no new landfill has been approved since 1999 and only one major new waste-to-energy (WTE) incinerator has been built. Both incineration and landfill have been stigmatized in the popular consciousness, primarily for potential air and water borne health risks respectively. Meanwhile, zero waste and environmental groups worry that such facilities will discourage diversion. We conducted a mail-out mail-back survey of 217 residents in the municipalities of Toronto (no local landfill or incinerator), Durham (new WTE incinerator) and Peel (historic WTE incinerator) to understand levels of support for two types of WTE facility: incineration and landfill gas to energy; as well as concern about health impacts, and attitudes towards diversion when WTE facilities are used. Support for landfill waste disposal is only 23% (7% strongly); considerably lower than for incineration at 44% (17% strongly). In terms of health impacts, 65% of residents agree (17% strongly) that landfills threaten health compared to 54% (21% strongly) who agree incinerators threaten health. Only 18% (7% strongly) agreed that they would be less inclined to divert recyclable/compostable materials if they knew disposal was in a WTE landfill, while 14% (6% strongly) agreed they would divert less if disposal was in a WTE incinerator. Those who live within 10km of an incinerator were not

significantly less inclined to divert waste materials in any scenario; while the community with new WTE incinerator (Durham) was least supportive of incineration – but not significantly so. The implications for theory and policy will be discussed.

Session: TUE-1.30-7

Investigating BMI through Gender, Socio-economic Status and Perceived Mental Health Lenses: Comparison of Rural and Urban Adults in British Columbia

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The rate of Obesity has tripled over the past three decades in Canada. Obesity is one of the most complex diseases which has an annual economic burden of over \$7 billion in Canada. A better understanding of risk factors associated with obesity is necessary to develop policy to reduce the burden of this illness. The aim of this study is to determine the association between gender, socio-economic status, and perceived mental health on Body Mass Index (BMI) in rural compared with urban areas in British Columbia (BC), Canada. The data for 2103 urban and 953 rural adults were obtained from the 2012 Canadian Community Health Survey-Mental Health. As expected, self-reported BMI of rural residents are significantly higher than their urban counterparts. The results also indicated that gender, marital status and literacy were associated with self-reported BMI among rural individuals, whilst gender, marital status, age and income factors were associated with self-reported BMI of urban residents. In addition, we concluded that perceived mental health of both rural and urban adults had weak positive association with self-reported BMI even after controlling for income factor. Our findings revealed that household income neither had any association with self-reported BMI, nor impact on the association of self-reported BMI with mental health among rural adults. More research is needed to determine the major risk factors of obesity in rural areas especially in remote communities of BC.

Session: TUE-1.30-2

When might marine protected areas be considered ‘ocean grabbing’?

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Marine protected areas (MPAs) are marine and coastal spaces that are set aside from development for the conservation of natural values. MPAs can also benefit human communities through improving fisheries catches, providing tourism benefits, supporting education and research, and safeguarding coastal communities and infrastructure. However, the social consequences of MPAs have also been critiqued extensively. These critiques have led to the recent labeling of MPAs as a form of ‘ocean grabbing’ that deprives small-scale fishers and coastal communities of traditional livelihoods, marine resources and access to the sea. MPAs exist in a multitude of contexts, are driven by diverse interests and organizations, and can range in size from several hectares to almost 500,000 km². Yet, clearly not all of these contextually disparate MPAs can be labeled ocean grabs – for example, this is not the case when MPAs are created by or desired by local communities. What factors, then, might lead an MPA to

constitute ocean grabbing? It is on this question that this presentation will reflect through drawing on diverse marine conservation initiatives and exploring issues related to governance, rights and livelihoods.

Session: WED-10.30-1

Assessing the smart-shrinkage approach in canadian cities : lessons from Saint-John, New-Brunswick

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Once a thriving port city, Saint-John has experienced a steady population decline since the 1970s. As the city's declining population pairs with demographic stagnation at the regional level, the challenges of maintaining municipal services and an infrastructure network planned for a city expected to grow are rising. The year of 2012 marked a turning point, as the city adopted a new municipal plan that puts forward a smart-shrinkage planning approach. In this paper, we push further our understanding of the way planning practices can be adapted to the challenges of structural population decline. What form does the paradigm shift advocated by shrinking cities scholars take and how can the smart-shrinkage approach be implemented? Based on sixteen interviews with municipal officials, urban planners and actors involved in economic development at the local and regional level, this paper argues that the smart-shrinkage approach must be refined in order to better reflect the reality of small shrinking cities. As the case of Saint-John shows, the economic context can play a critical role in allowing the adoption of such an approach as well as in defining what can challenge its implementation.

Session: TUE-10.30-7

Informing sustainable growth in Canada's Thirstiest City: Modeling the effects of policy and social complexity on urban water use

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Kelowna, BC has the lowest freshwater availability in Canada. Coupled with one of the nation's highest usage rates and the fourth fastest growing metropolitan area in the country, it is clear that water sustainability is fast becoming a crucial topic here. Antiquated policy further exacerbates the issue by not reflecting the true value of water in this socio-ecological system. A new perception of water, governed by science based policy must be adopted to ensure the economic, social, and ecological sustainability in this land that is home to some of the rarest ecosystems in Canada.

We have created an Individual-Based Model of residents' water use in Kelowna to assess how new policy tactics could affect the future of water availability. GIS data is used to accurately reproduce the

landscape of the city. Populating this virtual city with citizens that have data driven personality types allows the residents in the model to make realistic decisions and respond to social processes. This in turn allows for the exploration of a range of policies and growth scenarios. By comparing business as usual scenarios with more aggressive conservation measures we can assess the relative water savings and the resultant higher carry capacity of the city.

Session: FRI-3.30-2

Neoliberal Academia and the Anxiety Production Machine

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This paper presents the preliminary results of a research project that is investigating the neoliberalisation of academic knowledge production in five jurisdictions: Denmark, Iceland, The Netherlands, Sweden and the UK. The research documents some of the implications of systems of academic audit and other systems of neoliberal governance in the academy. By instantiating competition and producing academic 'markets', these audit systems produce an ongoing sense of precarity among academic workers, and many of these workers experience this precarity as anxiety. We argue that neoliberalism in the academy is part of a wider system of anxiety production arising as part of the government of life itself in contemporary late liberalism.

Session: FRI-10.30-6

Uranium Mining, Internal Colonialism, and Ideology in Nunavut

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This paper explores the narratives used to rationalize opening the Territory of Nunavut to uranium mining, during the period spanning 2000 to 2015. I treat uranium mining as a component of the broader process of the internal colonization of Inuit society and territory by the Canadian State and extractive capital. I argue that this colonial process of energy extraction is being rationalized by a series of populist framings. Reference to climate change and its promise of catastrophe for global "humanity" were used to justify the adoption of pro-uranium mining policies by Nunavut's governance institutions. This appeal to the interests of global humanity is populist, as it ignores and disavows the antagonistic social relations that lie at the heart of energy extraction in indigenous territory. In particular the relations of internal colonial and of growing class divisions internal to Inuit society are obscured and disavowed. Further, a proposed uranium mine in Nunavut was rationalized by the mining company through the incorporation of Inuit cultural activities and narratives into its public relations campaign. This is populist, as it symbolically disavows the relation of dispossession between extractive capital and Inuit hunters. I conclude that older ideological narratives used to rationalize internal colonialism – generally involving the erasure of indigenous interests and/or the categorization of indigenous peoples as "primitive" in a

Eurocentric narrative of “development” – are giving way to populist framings that are equally ideological.

Session: WED-10.30-7

Historic districts and 'absentee landlords' : the case of the Old City of Quebec

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Historic Districts face many challenges under the pressure of tourism. 'Absentee landlords' (occasional residents owning one property or more) are among them. Yet researchers have not investigated this phenomenon thoroughly in spite of its impact on urban planning and neighbourhood life. This poster-presentation proposes a reflection on 'absentee landlords' in historic districts. To this day, the concept of 'absentee landlords', first used by Verben (1826), has mostly been applied to rural case studies. Based on federal statistics and municipal evaluation data, the presentation proposes a methodology to approach 'absentee landlords' as dynamic actors in historic districts : their main places of residence and socioeconomic status, their networks, their mobilities and their 'expectations' and 'strategies' in regards to the real estate market. The presentation refers to the case of the Old City of Quebec. A historic designated district since 1963, the Old City of Quebec comprises 3.5 square km stretching on the upper and lower parts of the town. According to the 2011 census, its population was 4,780 inhabitants. The district consists of more than 2,500 properties of which nearly 40% belong to 'absentee landlords'.

Session: THU-8.30-8

The Displacement Of Law: 'Spatial Tactics' And Urban Marginality

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Scholars and activists have increasingly noted the manner in which the legal regulation of marginalized populations in Western cities has entailed the strategic use of space, whether in the form of restrictions, zoning or design tools. While offering many useful insights, the tendency in much of this literature, ironically, is to 'displace' law itself through a treatment that focuses only on relatively visible legislative acts. As a result, the ways in which courts and legal actors working within the criminal justice system contribute to the monitoring or governance of contested public spaces and to those who occupy them have been almost completely un-documented.

Taking inspiration from recent calls to recognize the important work of legal knowledges and practices on their own right, we offer some findings from a Canadian project focusing on bail and sentencing conditions imposed in the context of criminal proceedings involving marginalized people in four Canadian cities. Many entail 'area restrictions' (e.g. prohibiting people from being within the limits of a

determined perimeter). These area restrictions are not exceptional, or the result of particular legislative interventions, but are rooted in the technicalities of criminal procedure, reliant on the general provisions of the Criminal Code and on common law principles. In terms of their reach, scope, and effect, area restrictions are pervasive and powerful forms of spatial governance, yet they have not received the attention that they deserve. It is thus ethically and analytically imperative that we dive into the legal technicalities at work.

Session: TUE-8.30-1

"But what do you measure?" Prospects for a constructive physical geography

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Physical geography plays an important role in shaping the world around us, enabling certain forms of interaction with the landscape while limiting others. Despite this, physical geographers have gained a reputation for focussing on the practical implications of their work rather than the implications of its practice, neglecting the language, framing and ethics of their work. Where such critiques have been made, they have generally come from outside the discipline. Recent calls for a critical physical geography present opportunities for physical geographers to engage constructively with questions that go unasked, and unanswered, in the earth sciences. One place to begin is by examining the recursive relationships between what we measure and what we know.

Fluvial classification is a key tool through which geomorphic knowledge is made 'useful' as the basis for river management and rehabilitation. Here I discuss some of the challenges of classifying for river diversity in a world without closure, reflecting on the tangled relationships between what we measure, what we know and the environmental outcomes we produce. Classification embeds values in the landscape, raising questions of who gets to decide what counts. I challenge perceptions that once a landscape is measured it is 'known', and argue for different ways of understanding the landscape towards a more just, and more scientific, physical geography.

Session: TUE-3.30-5

Mining For Sustainability: Examining the relationships among sustainability assessments, mine legacy issues, and learning

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Are we learning and improving based on our past experiences with mining? This question is the focus of my recent study examining how mine legacy issues have been considered in Canada. Canada has a long history of mining activities, there have been many lessons on how to best assess and manage mining projects to ensure maximum positive legacy effects. This research explored the long-term positive and negative effects of mining development, and evaluated how well current environmental assessments

deal with the identified legacy effects. Individual transformative learning concerning legacy and sustainability outcomes was also examined. The research took a case study approach and included in-depth research in the mining community of Snow Lake, MB. Analysis utilized document review and included semi-structured interviews with Snow Lake community members as well as mining and assessment experts from across Canada. Preliminary findings confirm a suite of important environmental, economic, and social legacy issues and suggest that current environmental assessments are ill suited to consider these mining legacy issues. The data also suggest that individual learning for sustainability such as recognizing the importance of advocating for healthy environments and working together is most likely to occur when participants critically reflect and dialogue with others.

Session: FRI-10.30-5

Examining adaptations to decreased fish populations of Tonle Sap Lake in Cambodia: A case study of Pursat Province, Cambodia

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Cambodia is a poor country whose rural residents rely heavily on natural resources from Southeast Asia's largest fresh water lake, the Tonle Sap. Due to decades of turmoil and recent fishery reforms, little is known about livelihood strategies of fishing households. Furthermore, it is unclear how fishers will adapt to changes in the lake from climate change and human interaction such as overfishing, dam development, and deforestation. As such, it is important to explore this topic in order to better understand livelihood strategies around the Tonle Sap Lake and perceptions of changes to fish populations. We conducted a household survey (N=181) in Pursat province, bordering the southwest shore of the lake, to understand (1) current livelihood strategies; (2) household demographics; (3) how fishers perceive changes to fish populations. Additionally, fishers were asked where they fished, what they caught and what kind of gear they used. Preliminary results suggest (1) there is a broad perception that fish catches are declining and that there are fewer types of fish being caught; (2) there is clustering of fishing activities based on gear type and household demographics; (3) most fishing households are resistant to, and lack the resources to, change their livelihood strategies.

Session: THU-10.30-6

Relating animal movement to the environment - A review of methods, challenges, and opportunities

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Recent advances in global positioning systems and remote sensing technologies with high spatial and/or temporal resolution have spurred considerable advances in methods available to quantify animal movement in relation to the environment. We used a systematic approach to review a decade of movement ecology research in order to understand contemporary trends in methodological development and how remote sensing products are incorporated in animal movement models. Methods to quantify animal movement have focused on broad-scale characterization of movement and path description while more recent approaches, including Brownian bridges, state-space models, and indicators of dynamic interaction, characterize movement and behaviour at increasingly fine scales. Widely used remote sensing platforms include Landsat, MODIS, and AVHRR. However, differences in the spatial-temporal resolution of animal movement data and remotely sensed data often leads models to characterize movement as a dynamic process while the environment remains static or exhibits change at a much broader resolution. Furthermore, movement behaviour changes in relation to scale and may require integration of corresponding environmental data. Considerable opportunity exists to improve our understanding of animal movement by incorporating environmental data characterized at multiple spatial-temporal scales, using data-fusion products, and by characterizing landscape structure at a higher resolution.

Session: TUE-3.30-6

Resolving the fire regime of Labrador: A comparison of historic and recent forest fires

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In the northern boreal forest ecosystems of Canada, climate change is resulting in higher temperatures leading to longer, warmer, and in some cases drier summers. These factors may lead to an increase in fire activity, with more frequent and larger fires. Changes from the historic fire regime could lead to decreased forest productivity or altered forest composition if the tree species present are not adapted to new regime. Changing fire regimes have already been detected in the western boreal forest; however, scant research has been conducted on the effects of climate change on the fire regime of Labrador, and the subsequent effects on forest regeneration. Our research aims to detect changes in the fire return interval in the recent past, and assess the impact of these changes on future forest composition. A combination of dendrochronological analysis and field surveys will be used in recently burned black spruce stands to determine the historic fire regime and pre-fire stand characteristics. We will compare pre-fire density and composition to recent post-fire regeneration to assess whether recent recruitment will match pre-fire stand characteristics. The results of this research will provide an assessment of whether the fire regime of Labrador is changing with climate.

Session: WED-8.30-9

Tourism, real estate development and 'absentee landlords': The case study of Petite-Rivière-Saint-François in the Charlevoix region (Quebec)

Alex Brassard, Université Laval

Located in the Charlevoix region, 100 Km North East of Quebec City, Petite-Rivière Saint-François (PRSF) has been at the heart of an important real estate development for the last 15 years. This development is due in part to the massive investments made in the area by Le Groupe le Massif INC. The group aims to create a must-visit ski destination in the Massif Mountain. This poster will present an overview assessment of the recreational and touristic services as well as real-estate activities developed since the year 2000 in PRSF. Our presentation will particularly examine an important aspect of the real estate development in PRSF: 'absentee landlords' (occasional residents owning one property or more). Most new owners in PRSF are 'absentee landlords' and little known in the community: who are they? Where are they from? What are their goals and wishes regarding the Charlevoix region? In order to answer these questions, we will use a quantitative analysis based on statistical and valuation data. A discursive analysis of data provided by realtors and developers will also be presented. This will lead us to propose some reflections on the concept of 'absentee landlords', first put forth by Verben (1826), as it exists today. Our presentation should also increase our knowledge and understanding of social and economic reclassification of regions and municipalities that chose to base their economy on tourism and recreation.

Session: THU-8.30-8

Resource industry firm participation in collaborative approaches to water governance: examining the consequences for processes and outcomes

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Collaborative, deliberative approaches are increasingly being used to address issues of water governance. These processes have the potential to integrate different forms of knowledge, build relationships, and increase the acceptability of proposed solutions to water challenges. In Canada, collaborative approaches are being implemented through provincial mandates, and in localized, ad hoc contexts.

Usually predicated upon principles of inclusive, equitable engagement, collaborative approaches are challenged by the presence of significant power imbalances. Such imbalances are often present when major natural resource firms participate as collaborative actors. This submission examines the consequences of resource industry firm involvement in collaborative approaches to water governance through a lens grounded in power theory. It makes use of an empirical cross case analysis of provincially mandated collaborative approaches in the Athabasca River Watershed, Alberta, and the Thames-Sydenham and Region Source Protection Region, Ontario. Analysis of interviews, documents and observations revealed that both the state, functioning under a range of cultural and socioeconomic influences, and industry, strongly affect the ability of collaborative processes to achieve benefits related

to knowledge sharing, empowerment, and positive environmental outcomes. This occurs through influence both internal and external to collaborative processes, including at the agenda setting, policy development and policy selection stages.

Session: WED-3.30-2

Predicting indoor radon vulnerability classes and assessing differences in lung cancer mortality in British Columbia

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Radon is a carcinogenic radioactive gas produced by the decay of uranium. Accumulation of radon in residential structures contributes to lung cancer mortality. The goal of this research is to first, predict residential radon vulnerability classes for the province of British Columbia (BC) at aggregated spatial units, and second, assess the differences in lung cancer mortality trends between classes. In order to predict radon vulnerability, spatially referenced indoor radon concentration data were partitioned into low, medium and high classes. Classes were linked to environmental and housing data derived from existing geospatial datasets. A Balanced Random Forests algorithm modelled environmental predictors of indoor radon vulnerability and predicted radon classes for un-sampled locations. The models classification accuracy was evaluated using accuracy, precision, and kappa statistics. The annual ratio of lung cancer mortality to all natural mortality was then plotted for each predicted class from 1998-2013. The model performed 34% better than a random classifier, while a distinct difference in lung cancer mortality trends were observed within areas of low radon vulnerability and areas of moderate or high radon vulnerability. Here we present a novel method for predictive radon mapping that is broadly applicable to regions throughout the world.

Session: FRI-3.30-4

New Approaches to Environmental Assessment: An Evaluation of Multiple Accounts Methodology

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In Canada, there are six major oil pipeline projects either proposed or approved with an in-service date before 2020. The federal government has a regulatory process to evaluate the environmental, economic, and social impacts of proposed pipeline projects. Decision-makers reviewing proposed pipeline projects must determine whether projects satisfy legislative criteria under the National Energy Board Act and the Canadian Environmental Assessment Act in order to approve the application. A

multiple account benefit-cost analysis of the Northern Gateway Project is undertaken to evaluate the capability of the method to provide decision-makers with requisite information to address legislative criteria. The evaluation of the multiple account benefit-cost methodology with project approval criteria suggests that it is a suitable method for evaluating major pipeline projects.

Session: WED-10.30-5

Risk Assessment in Environmental Assessment: A Case Study of the Northern Gateway Project

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The Canadian Environmental Assessment Act (CEAA 2012) requires the evaluation of whether a project is likely to cause significant adverse environmental effects. An evaluation is undertaken to examine whether methods for estimating tanker, terminal, and pipeline spill risk in the regulatory application for the Northern Gateway Project adequately assess the likelihood of significant adverse environmental effects from the project. To complete the evaluation, best practice criteria are developed from a review of risk assessment literature and used to identify any weaknesses that may reduce the quality of information provided to decision-makers applying the CEAA 2012 legislative criterion. Weaknesses identified in the evaluation suggest that the regulatory application for the Northern Gateway Project does not provide decision-makers with the best available information to assess whether the project meets the CEAA 2012 criterion for likelihood of significant adverse environmental effects.

WED-10.30-5

The end of tourism as we knew it? A Gibson-Graham lens for resilient tourism economies

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Tourism continues to grow with international arrivals now over the one billion mark each year. Cities, towns, rural and peripheral communities around the world have some form of tourism economy, to a greater or lesser extent. However, tourism development remains a contested activity. The various community stakeholders – tourism and non-tourism – often hold differing ideas on how to develop tourism, and what it can or should contribute to. Government advocates tend to view tourism as an economic sector and conceptualize its potential with the same broad strokes attributed to other growth oriented economic development initiatives, e.g., as a source of jobs and tax revenue. At the same time, their tendency is to dismiss the tourism economy in favour of more attractive – and less ambiguous – economic opportunities when they are on offer, e.g., resource extraction activities, manufacturing.

In this paper, we draw on feminist economic geography and evolutionary economic geography in order to open up discursive space that supports a rethinking of what tourism development is and can be. We employ Gibson-Graham's 'diverse economies' (2006) and place-based development (Markey, Halseth, & Manson, 2008) as analytical frameworks, and build on the work of Mosedale (2011) to offer a lens through which tourism development can be seen outside of the prevailing 'boosterist' discourse. Methodologically, we focus on a variety of rural and remote case studies with the aim of assessing if and how tourism performs other kinds of economies, and how this challenges dominant economic growth discourse. We propose that our approach will uncover different perspectives on tourism and its relationship to economic and community development.

Session: TUE-1.30-4

Parenting, Positionality, and a Partially-Chewed Voice Recorder: The complexities of accompanied fieldwork

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Fieldwork is not separate from a researcher's everyday life. When we travel to engage in the production of geographic data – whether through interviews, participant observation, or other ethnographic methods – our (nonacademic) "real life" marches along with us simultaneously. For some researchers, this means that fieldwork happens with loved ones, including children, in tow. While the practice of fieldwork is a massive and widely-discussed topic in Geography, the complexities and consequences of what it means to conduct "accompanied fieldwork" receives very little attention. I would like to add to small but important discussions of accompanied fieldwork by sharing experiences and insights from my recently-completed doctoral fieldwork on international adoption in Guatemala. I argue that having my spouse and two small children with me while conducting my research was a dynamic and complex shaper of both the kinds of questions I could ask and of the empirical realities that I could see. I choose to critically reflect on my experience because I came to believe that my family's presence with me in Guatemala had a significant impact on my research findings. I argue that my work was greatly enriched, in highly unexpected ways, by being a parent and partner in the field.

Session: FRI-3.30.5

The National policy framework for gateways and corridors: its impact on the Quebec government and the city of Montreal.

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With their pivotal position between the Atlantic ocean and the American hearland, the province of Quebec and the city of Montreal are strategically located to take full advantage of the federal government's National Policy of 2007 (revised in 2009). In the wake of the adoption of the policy in

question, the federal government has signed a number of Protocols with the provinces while they, in turn, have sought to involve their major cities. Unfortunately, both the Quebec government and the city of Montreal - with its greater metropolitan area - have been slow in rising up to the challenges presented in the policy on gateways and trade corridors. The paper will explore the reasons why this is so, and offer a series of interpretations taking into consideration external and internal factors operating at different levels, local, provincial, regional, national, as well as global. Among these factors, at the internal level, two will be explored: first, the limits within the existing governance schemes and their lack of multiscalar extension, and second, their reliance on hard-gateway approaches to the detriment of the so-called "soft-gateway" initiatives. Moving on to the external levels, two sets of explanations will be offered : one pertaining to the reticence on the part of the federal government to fully engage with the Quebec government and Quebec stakeholders at large, the other, involving ongoing transformations at the global level (notably in global value chains and global supply chains) and their impact on the knowledge economy paradigm favoured by Montreal's major actors and its business community at the present.

Session: WED-1.30-3

Exploring Pedestrian Choice: A Hierarchical Study of Motivators, Mt. Pleasant, Vancouver BC

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Studies suggest that walking choice is best understood as motivated by the combination of factors arranged as a hierarchical set of needs, informed by the cultural, social, and physical milieu of a place, and registered at a specific scale. Given the fact that numerous studies have reported a wide variety of variables that motivate pedestrian choice when making urban trips, this study tested the above model by investigating latent structure based on 15 commonly reported motivators through the use of exploratory factor analysis based on responses to a short questionnaire by walkers in an inner city Vancouver BC neighborhood. The results demonstrated evidence for a hierarchy of groups of motivators that range from primary foundational factors to higher order secondary needs similar to those identified in the work of Mehta (2008) and Alfonzo (2005). It further confirms the variation between lower order foundational needs and higher order personal, communal, and physical geographic needs and suggests that after the 4 E's of pedestrian planning have been met that these higher order needs should be focused on to gain the benefits of increased pedestrian activity.

Session: WED-10.30-6

Selective logging and trade networks: Indigenous Peoples and Local Communities and the extinction of forest species in Guyana

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Guyana's 'Low Carbon Development Strategy' (LCDS), launched in 2008, was billed as a national Reducing Emissions from Deforestation and forest Degradation (REDD) scheme. In 2009 the Government of Norway committed US \$250 millions over five years (2010-2015) to Guyana's LCDS. Yet Guyana made no apparent policy changes to reduce carbon emissions during the period of its agreement with Norway. Declared gold production increased from 305,000 in 2009 to 458,000 troy ounces in 2013; and log production from 449,000 to 489 cubic metres in the same period. I consider the networks that link both the lands and the labour of Indigenous Peoples and Local Communities (IPLCs) with the selective logging for tropical forest timbers suitable for the preferred dark-coloured furniture and impact-resistant flooring. I explain and discuss the consequences of this selective logging by non-Indigenous Small Loggers' Associations for Association members, their forests and communities. I also discuss the implications of forest degradation on Indigenous titled and customary lands and on Indigenous governance structures. I consider the implicit and explicit endorsement by international donors to Guyana's so-called 'REDD' scheme which further sanctions the ongoing forest degradation.

Session: WED-8.30-2

Is gender being meaningfully engaged in adaptation, resilience and vulnerability research?

Anna Bunce, McGill University

James Ford, McGill University

The last decade has experienced a rapid growth in climate change adaptation, resilience and vulnerability (ARV) research. Concurrently, there is growing recognition that climate change impacts and experiences are gendered, and must be accounted for in research. Yet some have argued that engagement with 'gender' has been tokenistic, simply stating that climate change will have differential impacts. It is therefore necessary, given the rapid expansion of literature in this field, to critically analyze the framing of concepts of gender within the literature. In order to determine how meaningfully gender is being addressed in ARV research, we created a conceptual model capturing key components of 'meaningfulness.' Meaningfulness is ascribed as being a function of gender mainstreaming, the experience of gender, and the degree of action being taken. Using a systematic literature review methodology, 123 peer reviewed ARV articles with a gender focus were analyzed. While 41% of analyzed articles were found to have high levels of meaningfulness, significant variations across regions and disciplines emerged. This conceptual model provides a baseline understanding of how ARV research is integrating concepts of gender into their work which researchers can use to ensure more meaningful engagement with gender in future research.

Session: FRI-3.30-5

“You Definitely Don’t Do It For the Money!”: The Social Economy of WWOOF in the Okanagan Valley

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This paper is based on our thesis work, which is a critical ethnographic examination of the World Wide Opportunities on Organic Farms (WWOOF) network in the Okanagan Valley. Our research questions explore the motivations for farmer hosts and volunteer tourists to participate in WWOOF, and the outcomes of their participation. Based on interviews with hosts and volunteers, as well as our own observations while visiting farms, we found that both hosts and volunteers placed greater emphasis on other benefits derived from participating in the network, such as the opportunity for cultural exchange or to experience a different way of life, while characterizing the labour/learning exchange aspects as less important. Building on these findings, with a focus on both the ideological and practical elements of WWOOF, what emerges are social economies that operate at the level of the farm, the host farm’s community, and at the broader level of the WWOOF network transnationally. Considering the existing frameworks and infrastructure in support of organic products, including the WWOOF network, we conclude with a proposal: that WWOOF, and the organic movement, have the potential to be utilized to advance issues of social justice as they relate to food.

Session: TUE-8.30-7

Exploring institutions for the regional integration of protected areas: A study of national parks in Québec

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The development and growth of the provincial Protected Areas (PAs) system in Québec has undergone tremendous changes in the last 15 years. The percentage of PA land increased from less than 2% in 2002 to 8.14% in 2009, with a plan to increase this percentage to 12% by the end of 2015. Management of Québec National Parks has changed from a system co-managed between the state and non-profit organizations to a crown corporation model, while the unique management and ownership arrangement for the National Parks of Canada faces many challenges. This growth in PA development and changes in management approaches have both real and perceived impacts on natural resource industries, NGOs, First Nations and citizens. Although there is an important body of literature focused on linking PAs and their region, often grounded within landscape planning and conservation biology literatures, less attention has been given to understanding the social institutional dimensions of such activities. This study focuses on understanding the institutions, both formal and informal, and governance approaches between PA managers and regional actors within the Gaspésie region of Québec. Results demonstrate that regional integration is an extremely complex case-specific process influenced by contextual factors and highly dependent on informal institutions.

Session: WED-3.30-8

Using Automatic Identification System (AIS) as an indicator to monitor vessel-based threats to a Marine Protected Area

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Marine vessel traffic is increasing globally and with it comes an increasing threat to marine ecosystems from noise, oil, discharges etc. A good understanding of spatial and temporal patterns of marine vessel traffic is important to understand the magnitude and extent of such threats, particularly in marine protected areas. Satellite Automatic Identification System (S-AIS) is increasingly used as a source of synoptic marine vessel information. S-AIS was used to map marine vessel traffic data for Sgaan Kinghlas – Bowie Seamount Marine Protected Area (MPA). Results show that there is more extensive marine vessel traffic transiting through the MPA than was expected. The data show particular characteristics of fishing activity. Finally, gaps in marine vessel activity that contradict local knowledge by fishers and MPA planners

Session: TUE-10.30-6

Landfill Futures. Planning well-being in metropolitan waste spaces

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The world, and particularly the urban world, produces more than 1,3 billion tons of waste a year (World Bank, 2012). In spite of many existing options (recycling, Waste to Energy, compost, etc) one third of the world-wide disposed waste are directed to sanitary landfills, the cheapest, simplest and supposedly safest socio-technological existing infrastructure. In order to give a response to the increasing production of waste, those landmarks are larger and larger, and bigger and bigger. They challenge the implementation of sustainable development in the metropolitan areas as far as they progressively get incorporated as functional spaces in the cities, even if they are still burdened with a potential risk for public health security. The recent closure of big American cities sanitary landfills (Rio de Janeiro, Buenos Aires, Mexico, New York) and the projection of new uses on the “free” spaces left over are an opportunity to question both the scenarios as well as the effective processes of transformation. The paper will particularly focus on the articulation of global and local scale in the metropolitan shaping of landfill futures. It will discuss the ethical issues of those projects in terms of well being in metropolitan areas.

Session: TUE-1.30-7

Urban toxicity and environmental justice: towards an ethics of toxic distribution

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This paper examines the environmental justice issue of urban toxicity, focusing on the social impact of waste and toxic dumping.

Environmental justice has been the subject of significant empirical and analytic work, typically understood as an urban planning and geography problem, defined by correlating environmental burdens with gendered, racialized or socio-economic marginalizations. In response, environmental justice movements draw attention to the underlying injustice hoping that this will mobilize civil society, social actors, and policy makers. Analysis of these correlations reveals the extent and complexity of the underlying injustice, which may be comprised of inequitable distributions, oppression, marginalization, and domination. The contested nature of the concept 'justice' in political theory suggests that the solution to environmental injustice and urban toxicity are at best unclear. Solutions may involve some combination of spatial redistribution and recognition, but will also have to address normative and ethical assumptions underlying public action.

This paper highlights the contested nature of the concept of "justice" and analyses a case study of former toxic and waste dumps in Montréal (Quebec, Canada). We show the importance of taking into account particularities of individuals and specificity of situations in a territorial response to urban toxicity.

Session: TUE-3.30-7

Local and Traditional Knowledge in Defining Habitat Patterns and General Biology of Woodland Caribou in North-Central Saskatchewan

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This study highlights the local and traditional knowledge of Cree and Dene communities regarding the biology and distribution of woodland caribou (*Rangifer tarandus caribou*) in Northern Saskatchewan, Canada. Food availability, calving, overwinter-summering grounds of woodland caribou are identified with the help of traditional knowledge systems. Gathering local oral histories of lands as stories, identifying the most recent changes on the lands (e.g. mining) using semi-structured interview questions have been the key sources of data to accomplish this research. For primary data collection 44 families were interviewed during February 2006 through August 2006. Local and traditional knowledge

integrated with GIS data are used to predict the changes in the landscape and therefore habitat selection processes of woodland caribou. In this regard, interferences are made if human (roads, mines) or natural disturbances (fires and predations) have caused habitat shifts of woodland caribou. It was found that both fires and clear-cut from forestry operations have caused significance changes in the habitats used by woodland caribou. The woodland caribou population is pushed towards northern zones of Boreal Forest for habitat related disturbances impacting their feeding and breeding grounds. As woodland caribou has a role in the ecosystems (an indicator species) and also have cultural significance (foods for aboriginal community), this finding on the biology of woodland caribou may support range planning process for recovery of woodland caribou. Other implications presented through this approach, showcase how science-based information can be used with traditional knowledge to empower community and engage them in species at risk research.

Session: TUE-3.30-4

New Mobilities - New Economies? Mobile populations and local innovation systems in sparsely populated areas.

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Many communities in sparsely populated areas have been challenged in recent years to diversify their declining resource-based economies and transition towards new (e.g. service or knowledge-based) economic path creation. Taking advantage of new forms of mobilities appears to be critical to the success of such new economies in sparsely populated areas. New mobilities have the potential to bring new people, ideas, skills, technologies and network connections to remote communities, and thus may contribute to the process of 'unlocking' entrenched development paths. This research uses a local systems-of-innovation approach to examine the relationships between new mobilities and innovation capacity in communities of sparsely populated areas. The presentation summarises insights from several community case studies in northern Sweden and rural South Australia, with specific forms of mobilities ranging from lifestyle migration and second home mobilities to international refugee migrants and remote-area Indigenous travellers. The results suggest that new mobilities present considerable (albeit latent) potential for new socio-economic development paths. Mobile populations are, however, often disengaged from local networks of knowledge-sharing and decision-making due to the perceived transience of newcomers, the volatility and 'temporariness' of socio-economic benefits, conflicting local interests and priorities, as well as issues of social and cultural distance between mobile and non-mobile populations. The presentation finally illustrates how a local systems approach can contribute to a better place-specific understanding of the diverse, dynamic and delicate relationships between mobilities and innovation capacity in sparsely populated areas.

Session: TUE-10.30-4

The Supply Chain of Everyday Life in North America: Land, PostIndustrial Labour, and the Production of Consumer Electronics

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This paper investigates structural relationships between consumer electronics production and forms of 'postindustrial labour' (Lazzarato, 1996) dependent on such technology. Drawing on Henri Lefebvre's 'critique of everyday life' and the work of geographer Deborah Cowen, this paper will attempt to sketch out sites for further critical research into the contested global spatializations of technologically mediated entrepreneurial innovation in 'postindustrial' North America. (Lefebvre, 2008; Cowen, 2014)

The paper combines poststructural and Marxian critique with conventional commoditytrace analysis. The first section draws together a number of concepts related to postindustrial labour and the everyday in North America. The second section draws from my research into the supply chain of Indium, a key material in many contemporary consumer electronics. Postindustrial labour is analytically grounded in industrial spaces of extraction, production, and distribution. Particular attention is paid to an expanding North American Pacific corridor of extractive and logistics industries producing consumer electronics. (Cowen, 2014; Sparke, 2000)

This research foregrounds the politically potent ambiguity of consumer electronics as both signs of contemporary spatializations of empire, and conduits for collective struggle thereagainst. It is hoped that this paper can provide helpful conceptual frameworks for further research that links postindustrial creative labour with industrial process of commodity extraction, production, and distribution.

Session: TUE-1.30-5

Disastrous intimations: performing the diaspora in the wake of Haiyan

John Paul Catungal, Institute for Gender, Race, Sexuality and Social Justice and Department of Geography, University of British Columbia

This paper examines how diaspora, nation and transnational relations are called up and reconstituted in the context of humanitarian responses to (un)natural disasters. Drawing on insights from feminist geopolitics and queer of colour theorizing, this paper examines humanitarian responses to Haiyan within Canada – by the Canadian state, mass media and Filipino-Canadian communities – and how they make use of notions of family in their attempts to link the global and the intimate. In this paper, I develop the notion of 'intimation' to signal both the affect of intimacy that 'family' seeks to invoke and the relationalities assembled through acts of humanitarianism. Through discourse analysis of publicly circulating texts (e.g., fundraising posters, videos, news articles) related to the development of post-Haiyan aid networks, this paper makes the argument that existing and robust theorizations of the 'global' developed especially by feminist and queer scholars of migration, development and geopolitics offer important resources for theorizing the translocal production and circulation of 'intimacies' through humanitarian projects. It further argues that the intimacies called up in humanitarian responses to Haiyan in Canada provided an avenue for the Canadian state, the mass media and Filipino-Canadian communities to enrol people into political and moral economies of care and responsibility, but in a way that reproduces racialized, heteronormative and nationalistic binaries of supplicant/savior,

developed/underdeveloped. The effect is an intimate geopolitics of humanitarianism that demands our attention to the affects and intimacies of human responses to (un)natural disasters.

Session: FRI-1.30-3

What Do Ecosystem Services Have To Do with Sustainability? (A lot, if you look at them sideways)

Kai M. A. Chan, University of British Columbia

The concept of ecosystem services is ascending to the forefront of sustainability efforts including marine ecosystem-based management, and yet it accompanies management approaches that give little deference to critical natural capital or biophysical limits. What, then, is the connection between ecosystem services and sustainability? One view, perhaps the prevailing one, is that sustainability is the management of social-ecological systems to ensure the continued provision of benefits to people from either ecosystems (via services) or human-made infrastructure. In this talk, siding momentarily with the critics, I argue that such a view faces potentially insurmountable obstacles. Instead, I propose a constructive solution: perhaps ecosystem services have major implications for sustainability, via a newly appreciated central role for cultural ecosystem services (the benefits of nature for people, via non-material processes). This central role, the ‘culturality’ of ecosystem services, considers cultural values as the layers of meaning through which most or all ecosystem services derive meaning. I argue further that cultural ecosystem services, a square peg in the round ‘ecosystem services’ hole, can also be considered a kind of depreciating human-natural capital that is the very key to sustainability and successful long-term ocean governance.

Session: WED-8.30-1

Trans-Local Connections of Eco-Urbanism Models

I-Chung Catherine Chang, University of Minnesota

Hundreds of cities around the world have adopted eco-city initiatives to combat hyper-urbanization and urban environmental problems. While many studies have examined the planning and implementation of these urban projects, research on the trans-local relations that shape the new eco-urbanism remains limited. Through a relational study on two flagship eco-city projects in China— the Sino-British Shanghai-Dongtan eco-city and the Sino-Singaporean Tianjin-Binhai — this paper interrogates the trans-local connections between four international cities. The eco-urbanism models of these two projects develop as their stakeholders navigate the contestation between international “best practices” and place-specific territorialities. These models travel, diverge, and re-integrate as planners, think tanks and policy makers present them in professional meetings, discuss them within organizations, and exchange them in

individual encounterings. The ideas, technology, and experiences University of Luxembourg Over the last decades green development seems to have become an economic, political and rhetorical necessity. Cities in particular have become showcases of green development. Around the world they have adopted ambitious agendas to reduce their carbon emissions while increasing quality of life. One particular element of urban sustainability agendas has been the development of green neighbourhoods. Drawing on a co-evolutionary, multi-actor understanding of change as advocated in the sustainability transitions literature, we seek to reconstruct and compare trajectories of green neighbourhood developments for a number of selected case studies including Freiburg's Vauban and Rieselfeld, Vancouver's Olympic Village, Luxembourg's Hollerich Village, and Brisbane's Green Square.

In our analysis we place emphasis on regional specific contexts but also on spatial flows and connections to explain drivers behind green neighbourhood developments. Drawing on preliminary findings from the Luxembourgish-German GreenRegio research project (greenregio.uni.lu), we argue that local differences in motivations, strategic interests and objectives involved lead to the construction of distinct pathways of sustainable neighbourhoods. We distinguish between 'extroverted' developments that look beyond the cities, for example, for inspiration or to inspire others, and intrinsic developments that are more dependent on local relationships as exemplified by Freiburg's green neighbourhood developments.

Session: TUE-10.30-5

High Steaks: What urban dwellers can (and can't) learn from tracking ecological hoof-prints to explore sustainability beyond city limits

Mollie Chapman, Institute for Resources, Environment and Sustainability, University of British Columbia, Alicia LaValle, Faculty of Forestry, University of British Columbia, Kai Chan, Institute for Resources, Environment and Sustainability, University of British Columbia

The growing populations and resources of cities, coupled with growing concern about where and how food is produced, means urban policies and planning could play an important role in addressing the environmental impacts of the food sector. As cities address sustainability generally, and food in particular, they face a key challenge accounting for ecological impacts that reach beyond jurisdictions. Metrics such as the Ecological Footprint are one option, popular because they help standardize impacts using a common denominator.

Using a case study of beef consumption and production, identified as an area of research interest by the City of Vancouver's Greenest City Action Plan, we explore challenges with the choice of EF as a metric and tool for goal setting. As we investigate policy options, we seek to re-conceptualize how we think about one of the most controversial foods in the debates around sustainability. Analyzing "local beef" as a mechanism to reduce Vancouver's EF, exposes the complexities of personal choice, global commodities and regional impacts. We also demonstrate how understanding food and land systems heterogeneity required trans-disciplinary and inter-jurisdictional collaboration. We concluded that the choice of the Ecological Footprint metric led to what we call a 'metric trap', which had the unintentional effect of shifting the city's attention and policy inwards. By comparing policy options from an Ecological Footprint and an Ecosystem Services perspective for beef, we make recommendations for avoiding the 'metric trap,' as more cities develop plans to become key players in global sustainability movements.

Session: TUE-3.30-1

Dendrogeomorphological investigations at Hellraving rock glacier, southeastern British Columbia Coast Mountains

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An aerial inventory of rock glaciers in the southeastern Coast Mountains revealed the presence of almost 200 features, the majority of which are intact, glacier-derived forms. These ice-debris mixtures move gradually downslope through the creep of internal ice and are often found descending from glacial moraines or directly from the debris-covered snouts of retreating glaciers. Steep, angular fronts and fresh-appearing debris indicate that these permafrost features contain frozen internal ice. To illustrate their present-day geomorphic activity, dendrogeomorphological methods were employed to describe the rate of frontal advance at Hellraving rock glacier (51°42'10" N, 125° 5'23" W) in the Perkins Peak area. Partially-buried rooted stumps and trunks were excavated from the frontal debris and cross-dated to living master chronologies to obtain kill dates. The horizontal depth of burial was then divided by the length of time since death to estimate the rate of rock glacier advance. The results indicate that Hellraving rock glacier has been steadily advancing down valley since the late 1600s at an average rate of 1.27 cm/year. Consistent advance rates from the late Little Ice Age to present-day suggests that the rock glacier is not in equilibrium with the rising air temperatures recorded for this region.

Session: THU-8.30-2

Geographic Exposure and Risk Assessment for Food Contaminants

Roz Cheasley, University of Victoria

This presentation introduces a geographical investigation to advance our understanding of the risk of health impacts due to the long term intake of low levels of known carcinogens in foods and beverages. The focus is on cancer in relation to arsenic, benzene, lead, tetrachlorethylene and PCBs. The goal is to produce regional probabilistic assessments of dietary intake and the associated lifetime excess cancer risk for adult males and females of various income groups.

Supported by CAREX Canada, a dataset has been constructed combining various data from the 2004 Canada Community Health Survey, Statistics Canada, the Canadian Food Inspection Agency, and the US Food and Drug Administration Total Diet studies. The resultant data combine original data of food consumed for 35,000 random survey participants of both genders, representing the ten Canadian provinces, with information about food lists in excess of 8,700 items representing over 200 food groups, and with demographic data. Containing in excess of 1.5 million records, the dataset then had to be simplified to allow for meaningful exploratory research and to test hypotheses. The presentation will

introduce the dataset, some of the hypotheses we are exploring, and report some preliminary findings after applying Monte Carlo simulation.

Session: TUE-1.30-2

Commemorating the Tangshan Earthquake 1976 in China: Neglected Death at a Dark Heritage Site

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Death has – beyond the natural, biological finality of human life – social, cultural, political, psychological and religious significance. The meaning of death is largely a social construction which differs from society to society. Dark heritage sites which are closely related to a landscape of death are the result of political and cultural processes. While previous studies have emphasized the social construction in the commemoration of man-made disasters it is argued here that this framework applies to natural disasters as well. The present study focuses on the Tangshan Anti-earthquake Monument Square and the Tangshan Earthquake Ruins Memorial Park in Tangshan which commemorate the most destructive earthquake in modern Chinese history. The research findings shows that mass death in natural disasters have profound political, social and cultural implications as evident in the context of the political transition China underwent in 1976. This paper examines the dynamic processes in the reconstruction of death, with the government, society and market forces all playing a role here. While their participation in the processes and the respective interpretations of the mass fatalities changed over the years, “death” itself continues to be neglected. In the final part of the paper the challenges of death to cultural practices in Chinese society are discussed.

Session: TUE-1.30-1

Evaluating patterns of sustainability across the contiguous United States: Application of the United Nation’s Indicators of Sustainable Development Report

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Sustainable development has become an increasingly important topic over the last 30 years, as accelerated rates of resource consumption and climate change have altered the environment we live in. It incorporates aspects of socioeconomics, environmental science, and governance to manage issues that negatively impact human-environmental systems across spatial and temporal scales. Therefore, it is critical to quantify development at local and regional scales to encourage progress towards sustainability. Measuring sustainable development is complex as there are many different indicators created to evaluate sustainability. There remains no consensus towards a subset of metrics or assessment methodologies. To help operationalize sustainable development, an applied study was

conducted at the county scale for the continuous United States. Social, economic, and environmental variables were selected based on their applicability to the United Nation's (2007) report Indicators of Sustainable Development: Guidelines and Methodologies. First, a multivariate factor analysis was used to reduce the dataset into significant underlying dimensions of development. Second, a cluster analysis was employed to organize the counties into bundles of similarity. Lastly, a hot spot analysis was conducted to quantify and visualize the varying levels of sustainable development found. This approach shows promise for systematically assessing sustainable development at the county scale in the United States.

Session: FRI-10.30-4

Rationalization of the Ocean Space and the Rise of Marine Economy in China

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This paper analyzes the changing governance of the ocean space in China in relation to the emergence of marine economy. China's sea management regime has evolved under the principle of 'harmonization' to accommodate both economic development and environmental protection. In this new regime, what becomes of primary concern is 'the division between what is rational and what is irrational' (Foucault, 2010). Rationalization of the ocean space is legitimized by diagnosing the existing practices as irrational. It is a proxy term that leads to multiple meanings and actions. This paper attends to its effect reinforcing the notion of marine economy. Marine economy, whether colored with green or blue, reflects the desire of capitalist economy to generate profit from exploiting the ocean. In China, it is actively produced by state and non-state actors, transforming the ways in which the ocean and its people are governed. This paper traces how marine economy becomes a tangible goal through the production of new knowledge associated with the effort of rationalization. I attend to zoning and user fee system, which define and formalize the ownership of the ocean space and resources, and the production of new statistical data, which renders the ocean legible and economically calculable.

Session: WED-8.30-1

Effects of Burn Severity and Environmental Conditions on Post-Fire Regeneration Variability of Siberian Boreal Forest

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Vegetation regeneration in post-fire environments varies across the landscape of a burned area. Variations are strongly influenced by both abiotic and biotic factors of pre- and post-fire environments, including fire regimes, species characteristics, landforms, hydrology, regional climate and soil properties. Assessing these driving factors is critical for understanding long-term effects of fire disturbance on forest

succession. In this study, we aim to evaluate several factors influencing the variability of post-fire forest patterns in Siberian boreal larch forest (*Larix sibirica*). For this reason, a time-series of remote sensing data was analyzed to estimate the post-fire recovery rate as a response variable across the burned area in 1996. The analysis results suggested that burn severity and water content were the primary controls of both larch forest recruitment and green vegetation cover as defined by forest recovery index (FRI) and fractional vegetation cover (FVC) respectively. The high rate of larch forest recruitment was found in the site of moderate burn severity, while severer burn was preferable condition for burned land surface occupied quickly by vegetation that might include seral community of shrubs, grasses, conifer and broadleaf trees of early successional stage. The sites closed to water body and received higher total amount of solar energy during summer months showed higher rate of both recovery types, which depend on burn severity. In addition to these factors, topographic variables and pre-fire condition were also important predictors of post-fire forest patterns. These results will contribute direct implications for post-fire forest management in Siberian boreal larch region.

Session: THU-10.30-7

Opportunities for Community-focused Transformation and Ecosystem-based Adaptation in Guyana

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In the face of coupled climate and socioeconomic vulnerabilities experienced by Caribbean nations and the region's Indigenous peoples, transformational adaptation holds both exciting possibilities and daunting challenges for national policy and local strategies targeted at climate change and sustainable development. There is, however, limited research on how dominant societal and policy structures contribute to climate change, and create the need for transformational shifts within vulnerable communities. This paper suggests a transformational and ecosystem-based adaptation approach as the most promising option available for Indigenous actors whose capacities and resilience are limited by intensifying climate variability, economic globalization, environmental degradation and social inequality. Drawing on community-based and ecosystem-based adaptation literatures, this paper explores climate challenges as windows of opportunity for Indigenous stakeholders in Guyana. These windows provide possibilities for actors to: envision more progressive adaptation pathways that coincide with their priorities for land tenure, climate justice and sustainability; initiate processes of radical change in the entrenched systems that shape those challenges. Rather than offer solutions within business-as-usual pathways that exacerbate current patterns of vulnerability, I argue that adaptation approaches would benefit from local perspectives and alternative social learning processes that can enhance Indigenous peoples' capacities and reinforce their resilience.

Session: WED-1.30-2

Making peace in the woods: protected areas, ecosystem-based management and the remapping of the Great Bear Rainforest

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'Wars in the woods' have been pervasive features of contemporary globalization, reflecting clashes among entrenched forest stakeholders representing conflicting industrial, political, environmental and cultural interests. Making peace in the woods has required complex compromises that balance conflicting stakeholder interests, implemented through the remapping of resource tenures, values and rights. A key outcome of remapping agreements is the creation of institutions that embody and implement the compromises among stakeholders. These institutions vary in their functions, mandates, degrees of formality and permanence, and the scales at which they operate. This paper elaborates the framework of remapping to explain the creation of new conservation territories, with particular reference to the iconic Great Bear Rainforest of British Columbia. Protected areas, including provincial parks, conservancies and tourism zones, now encompass one third of the region, while ecosystem-based management governs the planning and use of the remaining two thirds, allowing for different gradations of logging intensity and landscape transformation according to the scarcity and vulnerability of the affected ecosystems.

Session: WED-3.30-8

The AMETHYST Program: The NSERC Create Experience.

Craig Coburn, Department of Geography, University of Lethbridge (craig.coburn@uleth.ca)

This paper reports on the experience of the AMETHYST program at the University of Lethbridge. The Advanced Methods, Education and Training in Hyperspectral Science and Technology program was awarded an NSERC CREATE in 2010 as one of the first of these grants awarded to Canadian universities to focus on the training of students in science. The purpose of the NSERC CREATE program was to support training students (at various levels from undergraduate to post-doctoral) to expand opportunities by funding non-traditional training programs. The goals were to develop programs that enhance collaborative and integrated approaches to science education. Part of all CREATE programs is the development of professional skills that will complement their technical skills.

The AMETHYST program has trained over 30 students and created a program that provides an enriched experience in hyperspectral imaging science and remote sensing. The program included both student professional development and collaborative experiences beyond what is normally experienced in cooperative education models. This model was developed with the view to program continuation past the grant's end point. The development of tools and programs that benefit the development of students in these areas is important to our student's success.

Session: FRI-1.30-6

Racism, Humanism, Hybridity: An account of assisted reproductive technologies

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Since the first publication in 1985 of Haraway's *Cyborg Manifesto*, hybridity has emerged as a foundational term in critical human geography. Metaphors have proliferated in the decades since, posthumanists using a language of monsters, networks, and assemblages to challenge the premise that humanity alone is not a web of interspecies dependencies. Though committed to making better and more ethical worlds, much of this work has remained in the abstract, obscuring the experiences of those living hybridity in the contact zone. My aim in this paper is to work through hybridity's real consequences, interventions, and responsibilities by following a series of biotechnological interventions that has, arguably more than any other, illuminated the human as an ongoing and unstable process of socio-scientific co-evolution: assisted human reproduction. I ask: Whose bodies bear the burden of hybridity? How is hybridity distributed and who sustains it? I focus in particular on the often-violent interventions and hybridizations, discursive and material, upon which the development of assisted reproductive technologies has relied. Racism and humanism, I argue, flourish in the particular hybridities engendered by assisted conception; they are written into its histories and reverberate in contemporary experiences.

Session: WED-10.30-7

Managing endangered life: conservation, culls and the violence of care

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Conservation has long governed animal life through control, surveillance, death and enclosure, using invasive techniques ranging from predator culls, radio tracking, and captivity. Arguably, such techniques are ascendant today, as species losses spiral. Wildlife management regimes become especially intensified when a species is declared endangered. Efforts to protect such species include killing their predators, and enrolling endangered animals in captive breeding programs. Violence and enclosure escalate here, even though care is the motivation. To understand this coupling of care of violence, I turn to Foucault's conception of pastoral power, or the power of care. Focused on the recent BC case of a mass wolf cull to ostensibly protect endangered mountain caribou, this paper examines the entwining of violence and care that characterize many conservation efforts. My objective is to contribute a critical theory perspective to the growing chorus of voices in conservation arguing for greater consideration of animal welfare in wildlife conservation (i.e. Paquet and Darimont 2010; Brook et al. 2015) and calling for what Ramp and Bekoff (2015) call "compassionate conservation." Bringing this work into conversation with a recent profusion of scholarship critiquing wildlife management from a Foucauldian perspective, I argue that conservation must confront its deep-seated power dynamics.

Session: TUE-3.30-4

The Public Health Potential of Transit Ridership in a Midsized Canadian City: A Longitudinal Analysis of Commute Pattern Changes among Employees at Queen's University

Patricia Collins, Queen's University

Ajay Agarwal, Queen's University

Public transit ridership offers valuable opportunities for daily physical activity among working-age adults, and transit is a more feasible option for the majority of Canadian commuters who live too far from work to walk or cycle. Yet transit systems in many midsized Canadian cities struggle with low ridership. The objective of this study was to examine change in transit ridership patterns, and the health implications therein, among residents of Kingston, Ontario. Two online surveys were administered to Queen's University employees; the first in October 2013 to capture baseline data, and the second in November 2014 to examine changes in commute patterns over time. A total of 1263 completed the first survey, generating a 43% response rate. Data from the second survey are forthcoming. From the first survey, only 5% of employees commute by transit. Compared to non-users and irregular users, everyday transit users were more likely to live more than 5kms from campus and within close proximity to multiple bus stops. By walking to and from transit stops, everyday transit riders accrue approximately 150 minutes of physical activity each week. Data from the second survey are forthcoming, and will be compared against findings from the first survey.

Session: TUE-10.30-2

Implementation Strategies for Integrated Community Sustainability Plans: An Analysis of Two Mid-Sized Municipalities in Ontario, Canada

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Municipal-led sustainability initiatives have become widespread around the world as attention is increasingly paid to local-level operationalization of sustainability principles. In Canada, municipalities have been adopting integrated community sustainability plans (ICSPs), which offer a long-term policy vision for more integrated and inclusive approaches to sustainable planning and management. ICSPs are relatively new to the Canadian municipal planning landscape, and as such, we know very little about their effects on planning practices at the municipal level.

Through a comprehensive literature review, we identified six strategies for successful ICS planning, and examined the extent to which these strategies are being employed by two mid-sized municipalities in Ontario that have adopted ICSPs within the last 5 years. In addition to key informant interviews with City staff, we conducted historical content analyses (January 2010 to December 2013) of meeting minutes from five committees within each municipality that were matched by topic (planning, infrastructure, environment, accessibility, heritage) and composition (council versus public). Our study revealed that ICSP ownership structure (i.e., city versus community-based) has a significant influence on the types of strategies employed in general, as well as on the popularity of particular strategies at the committee level.

Session: TUE-8.30-8

Appropriating the counter-map: balancing the opportunities and challenges presented through the geoweb.

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Christine Schreyer, University of British Columbia Okanagan

Nicole Gordon, Taku River Tlingit

Within Canada and around the world, indigenous communities face the parallel loss of both language and stewardship over ancestral lands. This presentation describes a community-based research project that is built on a long-term relationship between university researchers from the University of British Columbia Okanagan campus and the Taku River Tlingit First Nation. The research aims to determine if language revitalization activities that focus on land use knowledge, specifically place names, can contribute to increased community agency regarding stewardship over ancestral lands as well as language learning. Since 2012, researchers from both the community and the university have directly engaged a number of the very few remaining fluent Tlingit speakers, as well as resource managers and youth in the local school. Specifically this presentation will address how web-based mapping technologies might further expand the community's ability to re-engage with their Tlingit language through place-based language learning. It will further comment on matters that we have faced related to the potential appropriation of indigenous information shared through the geoweb and discuss the tensions of balancing the sharing of information to influence positive change with the potential loss of control over this information.

Session: TUE-3.30-2

Popularity and clean city politics: exploring the urban political ecology of solid waste management in small cities in West Bengal.

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In urban India solid waste management is often highlighted as one of the significant environmental governance challenges facing the local state. The immediacy and visibility of garbage as waste and its presence, or not, in particular places makes it both a locus around which protest can form and a powerful symbol of politicised judgements about the use-value of both communities of people and physical places. Utilising a lens of urban political ecology and drawing from empirical research in 2 small cities in West Bengal this paper explores the politics of how and where solid waste flows through and out-of small cities in India. It demonstrates how particular situated configurations of power shape how waste is handled both at the level of household collection and in terms of the highly political and at times contested choices made on where and how to store and manage collected waste.

Session: TUE-1.30-7

Are low flows in Vancouver Island streams really “record-breaking”? A 477-year record of Tsable River streamflow, derived from tree rings.

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Despite being ‘water-rich’, British Columbia has experienced record-breaking summer water shortages in recent decades as a result of a changing climate. Runoff declines have seriously impacted hydroelectric power generation, human water use, and the survival of Pacific salmon survival, prompting widespread reassessments of current water management strategies. Low flows have particularly affected the heavily populated lower mainland and Vancouver Island regions.

To understand the severity of recent water scarcity in a long-term context, we developed a 477-year proxy record of low-flow events in the Tsable River, Vancouver Island, using tree-ring data. The record provides an historical perspective on worst-case flow scenarios and return intervals in the face of future climatic uncertainty. Our model is unusual in that it targets low-flow season flows in a small, hybrid streamflow regime, traditionally not amenable to dendrohydrological reconstruction. To our knowledge this represents the longest and best verified of the few paleo-streamflow records that have been developed for the province, explaining 63% of the instrumental flow variability accounting for lost of degrees of freedom.

Session: THU-8.30-2

Sleep Dealer Futures: Science Fiction Prototyping and the Virtual Imaginary Made Real

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Alex Rivera’s film *Sleep Dealer* (2008) operates across material and virtual binaries through its use of science fiction prototyping, the visual presentation of imaginary technologies “in the near future” that are made to seem so materially real and necessary within a film’s diegesis that they must—or soon will—exist. Years before the film’s release, Rivera posed as “Roger Buck”, CEO of “Cybracero”, and spoofed *La Opinion*, Los Angeles’s largest Spanish-language newspaper, into publishing a glowing interview about the company that describes the central idea of *Sleep Dealer*: labouring bodies in Mexican factories beam their work “through the net” to control machines across the border in the U.S. and thereby solve the problem of illegal cross-border migration. The film, we argue, brings to life

cultural prototypes as well as technological ones, and we access the politics of its operation across material and virtual binaries in light of Rivera's critique of U.S. militarism, neocolonialism, and neoliberal capitalism. On one hand, the film's dystopic landscape critiques the present and near future of drones; exploitative, prosthetic labour; rampant militarization; and the seemingly unstoppable juggernaut of neoliberal capitalism in the face of catastrophic resource depletion and climate change. On the other, its reliance on the visual spectacle of science fiction prototyping helps actualize this reality and future into being.

Session: TUE-3.30-3

How context affects uncertainty disclosure and communication in environmental impact assessment: a study of energy development in Northern Alberta

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This study investigates practices of uncertainty consideration, avoidance, and disclosure in Canadian environmental impact assessment (EIA) within the context of social, political, economic, and environmental project conditions, using the case of the Joslyn North Oil Sands Mine development project in Northeastern Alberta. Stakeholder views on uncertainty were investigated using semi-structured interviews. Nineteen interviews were performed with key project informants including practitioners, reviewers, panel members, interveners, and consultants. The core uncertainties internal to the process include varying lenses of understanding, language and dissemination of the assessment, use of professional judgment in lieu of sufficient data, the lack of proper baseline data, and project terms of reference. The core uncertainties external to the process include concerns with the level of confidence in the Alberta approval system, deficiency of integrated assessments, policy limitations, absence of measureable thresholds and criteria, and concerns with the relationship dynamics between the federal and provincial regulating bodies and industry. Uncertainties about the cumulative effects assessment, species at risk, critical habitat, wildlife setbacks and corridors around the Elks River Valley, and the dynamics of the stakeholder relationships (i.e., change in project operators) also contributed significantly to uncertainty disclosure, consideration, and avoidance practices in the Joslyn Mine case. Recommendations to improve uncertainty disclosure and communication are provided to improve decision-making in EIA.

Session: WED-8.30-9

Contextualizing divergence: Traditional Ecological Knowledge, species at risk, and First Nations/non-Aboriginal relationships in environmental management

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This research explores perspectives on traditional ecological knowledge (TEK) as expressed by First Nations environmental professionals and community members, and non-Aboriginal environmental scientists and practitioners. The context is the species at risk (SAR) protection and recovery scenario in southern Ontario. Framing this topic is a heightened interest in TEK for conservation, the mandated use of Aboriginal traditional knowledge in SAR work, and a resulting increase in inter-cultural and inter-epistemological interactions. The collection and utilization of TEK in SAR conservation work is not unproblematic: Contentious issues illuminated via the research centre on divergences in First Nations/non-Aboriginal perspectives on the nature, existence, validity and relevance of TEK in SAR conservation. Findings indicate that TEK, and the role of traditional knowledge holders, are frequently understood and characterized in distinctly different ways by the various actors involved. How and why should TEK be incorporated into SAR conservation work? Who should be involved in this incorporation, and to what extent? The research reveals that these fundamental questions can elicit vastly different responses from First Nations vs. non-Aboriginal actors involved in SAR work. Making divergences in perspectives more transparent is a necessary precursor to overcoming frequently tense, strained and sometimes truncated First Nations/non-Aboriginal relations in this arena.

Session: TUE-3.30-4

Broken Windows on 'Skid Road': Contractual Injunctions and Proactive Policing in Vancouver's Downtown Eastside.

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Since the beginning of the 21st Century Canada's criminal justice system has undergone a 'preventative turn' characterized by a large scale and significant changes to the administration of justice including increased reliance on pre-trial detention, multi-part bail orders, and pro-active police enforcement of contractual injunctions. This article explores how crime prevention initiatives dove-tail with so-called 'proactive policing' initiatives in Vancouver's 'skid road' neighborhood, the Downtown Eastside. This paper presents the findings of a two-year mixed-methods study on the enforcement and effect of bail conditions and discusses what these findings tell us about the legal, methodological, and ethical concerns that emerge from these changes. This paper's conclusion focuses on the ways in which pro-active police enforcement of bail conditions penalize residents of the Downtown Eastside in a way that is mostly opaque to outside scrutiny, legal contestation, and traditional forms of socio-legal scrutiny.

Session: TUE-10.30-1

Securitizing Spectacle: Real Estate Investment Trusts, Property, and The Financialization of Urban Retail Spaces in Singapore

Joseph Daniels, University of British Columbia

This paper, taking the recently formed Singapore real estate investment trust (REIT) market as its case, contributes to efforts to build out our understanding of the consequences of urban financialization: among them, argued here, being the production of ‘spectacle urbanism’ as an everyday experience in retail spaces. Entangled within state initiatives to develop Singapore as a leading financial center, the REIT market was initiated in 2002 as part of a wider effort to deepen financial markets in the city-state. Its existence has become a current (spatio-)political issue in parliament, manifestly centered upon the politics over claims to property and its seeming capture by financial actors as a “purely financial asset” to the exclusion of other framings. First, the paper identifies how the coupling of real estate (property) and financial markets—the making of S-REIT as an asset class—involves a series of territorializing practices which, when identified, enable us to unpack the Marxian concept of “property as a financial asset to highlight the sociotechnical features of this process. These features reconfigure the notion of property, not only as a relation to capital, but also the role of property as a site for the regulation of space. Second, the paper presents evidence that through their relation to financialized property (in an S-REIT), retail spaces are being transformed to mirror financial logics. Subsequently, efforts to abide by these logics have resulted in the production of spaces which provide constant, daily stimulation: the spectacle.

Session: WED-8.30-3

Relocating urban asylum: forced migration and revanchist urban social policy

Jonathan Darling, University of Manchester

In 2010, the UK Home Office announced that it would be passing contracts to provide accommodation and reception services for asylum seekers to a series of private providers. This meant the end of asylum housing through urban authorities in many of the UK’s largest cities. This paper seeks to explore the impact of this policy shift and consider what this means for the relation between cities and asylum seekers in contemporary Britain. The paper draws on fieldwork in four cities, including interviews with local authorities, politicians, asylum and refugee support services and asylum seekers themselves. In considering this evidence base, the paper argues that as the realities of ‘austerity urbanism’ have interacted with the privatisation of support, so we are witnessing the emergence of new assemblages of authority, policy and governance at the urban level. A limited concern with the social needs of asylum seekers, has been replaced with an increasingly revanchist and experimental policy agenda that seeks to maximise the economic gains to be made from accommodation. In the growing ‘asylum market’, the realities of asylum urbanism are far removed from imaginaries of the city as a site of refuge and pose critical questions for understandings of urban democracy.

Session: FRI-8.30-1

Mental Health and Urban Space-Use: A Mixed Methods Spatial Analysis of Community Integration for Persons Living with Complex Mental Illness in Toronto

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This study uses a mixed-methods approach to unpack the meanings and dimensions of 'community integration' for people who have been diagnosed with psychosis in Toronto, Ontario. Research participants completed an interview, survey, guided tour of their community and participatory mapping exercises over a 10-month period. The results of the mapping component provided activity points, which were used to construct and calculate activity spaces using a mean circle approach in a Geographic Information System (GIS). Qualitative data from in-depth interviews shaped an understanding of the variation in activity space sizes and factors influencing outlier locations. Our results indicate that poverty, neighbourhood safety, gender and cultural backgrounds are all factors beyond mental health status that influence participants' space-use and levels of community integration in Toronto. Conceptually, we argue that these results speak to the socio-relational nature of place and indicate that a mixed methods approach is necessary to capture the dimensions of community within a spatial context.

Session: TUE-1.30-2

The past, present, and future of undergraduate physical geography

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Investigations of teaching methods in undergraduate physical geography are well established in the SoTL literature, but there have been few studies of what is or should be taught. Physical geography does not have a coherent professional organizational structure, so the scope of the discipline is reflected in its textbooks, not in legislation or policy documents. In this context textbooks are not just pedagogic tools: Textbooks set standards, define the discipline, and represent it to the academy and the outside world. They also provide context to specialists within the discipline. Arguably, the 1975 edition of Strahler's textbook, its successors and improvers have defined the scope of physical geography for the past four decades. Textbooks have doubled in size during that time, which is unsustainable. Moreover priorities are changing within the discipline, with breakdown of the four spheres approach and renewed focus on the role of humans in landscape evolution. This is not reflected in current undergraduate textbooks. There is an urgent need to rethink the scope and purpose of what is taught. This paper outlines suggestions for a reconfiguration of undergraduate physical geography based on contemporary practice, and positioning of the discipline with respect to environmental science and Earth system science.

Session: TUE-3.30-5

Paleoprecipitation estimates from the magnetic susceptibility of soils

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There is a well-documented, weak but significant, positive relationship between the magnetic susceptibility of world soils and mean annual rainfall. A better understanding of the relationship between precipitation and soil magnetic susceptibility is important because it could possibly be employed to estimate paleoprecipitation from paleosols. However, the accuracy of any paleoprecipitation estimate by this method is constrained by the weakness of global precipitation/susceptibility relationships. In order to increase the strength of the relationship we are investigating the impacts of soil horizon and grain size on the magnetic susceptibility of the A, E, B, and C-horizons of soils in the Okanagan valley. Precipitation measurements for the 1981-2010 climate normal period were taken from the Climate BC website, and susceptibility was measured in the Okanagan College Magnetic Research Laboratory. Once a stronger relationship between magnetic susceptibility and precipitation is established, the results can be compared with a Marine Isotope Stage 3 paleosol from a section exposed at Okanagan Centre in Lake Country, BC. The paleosol consists of oxidized silt and gravel, and appears to be the B-horizon of a soil similar to those that we investigated in the modern soils.

Session: TUE-8.30-6

Geography, Medicine, and the Humanities: A Critical Overview of Common and Uncommon Method/ologies

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While both medicine and geography have long histories of engaging the humanities, if not at various times being positioned as humanities-disciplines themselves, the last decade has seen for both disciplines a significant growth in theoretical frameworks, pedagogic strategies, and research method/ologies that draw upon visual and literary arts, critical self-reflection, creative tools and expressions, and even direct engagement or partnership with artists, curators, authors, theater-practitioners or other professionals in the arts and humanities. Both Geographers and medical professionals, then, are increasingly (re)making various worlds through the humanities. In this paper, I explore the histories of humanities in both geography and medicine, arguing that the two disciplines have much to learn from each other's engagement with the humanities. I also propose that deployment

of humanities-based frameworks and impulses must, in both geography and medicine, be carefully and analytically grappled with, not just uncritically taken up in a rush to embrace 'the new'. Finally, I ground my more theoretical explorations with some empirics from recent community-based work about the risks and benefits of storytelling and visual arts when looking at the health geographies of Indigenous Peoples in Northern British Columbia.

Session: TUE-8.30-2

Reduction of wildland-urban interface fire risk in Kelowna, BC: Is it working?

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Communities in British Columbia have provided an organized and effective response to wildland-urban interface (WUI) fire emergencies over the past 20 years. However, progress has been slow in designing fire resistant communities to prevent such emergencies in the first place. This study investigates WUI fire risk in the city of Kelowna and human use modifications which have been adopted to reduce the risk following the disastrous 2003 Okanagan Mountain Park fire. A multi-method approach is employed including interviews with fire and planning officials, evaluation of the implementation of key recommendations of the Filmon Commission which examined the response to the 2003 disaster, and investigation of modifications to reduce WUI fire vulnerability in two neighbourhoods. Results thus far show that WUI fire risk in Kelowna has not decreased and may actually be increasing, largely because of rapid expansion of suburban development into WUI areas. Current efforts to decrease risk are focused on fuel management in the WUI and the creation of defensible spaces around individual homes. A strong emphasis on measures by the development industry and homeowners, rather than government led measures such as building regulation and development design, is unlikely to provide a significant reduction in future WUI fire risk.

Session: THU-10.30-7

Evaluating how information and communication technologies affect the well-being of indigenous communities in the North Rupununi, Guyana

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Despite the growing international consensus around indigenous peoples' right to freely determine their political status and to freely pursue their economic, social and cultural development, there is often an implementation gap between the official discourse and the reality faced by indigenous peoples on the ground. Following the relative failure of policy makers and governments to realise this right, indigenous people are increasingly seeking autonomous solutions through newly available information and communication technologies (ICT) in first defining, and then promoting, their perceptions of well-being.

This exploratory research used a case study approach in the North Rupununi, Guyana, and combined ethnographic methods with a systemic intervention inspired by Participatory Action Research methods. The framework of analysis applied principles from 'Buen Vivir', Amartya Sen's Capabilities Approach, Social Capital Theory and Critical Systems Thinking to propose a critical understanding of the role of technology and in defining collective well-being of the people of the North Rupununi region. The results show that if ICTs generate new opportunities, e.g. for education, business and the realisation of basic political freedom, they also present several challenges, e.g. to Amerindian culture. It concludes with recommendations for designing better ICT-based interventions to improve the well-being of indigenous communities as determined by the communities themselves.

Session: WED-1.30-2

Changing lifestyles, economies and impacts; the Moken and Karen in the Myeik Archipelago, Myanmar

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The Moken of the Andaman coast of Malaysia, Thailand and Myanmar are a mobile people whose traditional lifestyle is based on seafood gathering in the Andaman Sea. Over recent times their livelihoods have become more difficult in Thailand as the abundance of seafood has declined and areas where they have historically collected have been made into national parks where collection is forbidden. Their traditional lifestyle of their boats being their main abode and houses being only constructed on land during the monsoon is a thing of the past. However, recent anthropological writings suggest that this lifestyle may still exist in the Myeik archipelago, an area only recently opening up to more outside influence. This paper reports on a 2015 expedition into the Myeik to assess the state of the marine environment and the pressures upon that environment, including the lifestyle of the Moken. We found excellent coral reefs, low diversity and size class of fish, frequent dynamite fishing, and the integration of the Moken into other groups. One such group is the Karen people, historically highland people, who have now established fishing communities specialising in highly effective spear fishing that is leading to rapid depletion of reef fish.

Session: FRI-1.30-8

'Accommodating' stress and disability: how geography ought to behave.

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Legislation under the Ontario Human Rights Code (1990), states that students with disabilities must (by law) have the same opportunity to learn as their non-disabled peers. Accredited practitioners make verifications of disabilities to which trained consultants recommend accommodations that do not compromise key structural or philosophical components of a course. Accommodations are implemented to address the disability, not student preparedness. They are implemented to remove

barriers to participation and promote success in academic experiences for every student. Yet, students with disabilities are often stigmatized by their peers and faculty as not adhering to the same academic standards as other students, as having less accountability, and as placing additional workloads on faculty. Each year, accessible learning centers have seen an increase in accommodations, which have placed stress on students, faculty and staff. Such centers are an integral part of an increasing number of campus resources, such as wellness and sexual assault support centers, and threat assessment and behavioural intervention teams, which assist in identifying and responding to students in stress and/or with special needs. Clearly, strategies are needed system-wide to discuss this reality. The ethical question for geographers is then: what ought (duty, obligation) we to be doing to help fulfill this mandate?

Session: FRI-10.30-6

The Face of K-12 Geography Education across Canada: A National Survey into the preparedness, efficacy, and required supports of teachers of geography

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Challenges in K-12 geographic education in Canada include disparities in the state of curricula between provinces, the capacity of pre-service programs to support geography-themed instruction and the changing nature of the discipline itself. It has been ten years since the last national survey about geography education in Canada was conducted, and a review of this survey report, other literature, and anecdotal evidence suggests many of the past challenges and circumstances still remain today. Teacher knowledge and efficacy are increasingly recognized as critical to student success, and yet geography offerings in pre-service teaching programs are inconsistent across Canada. This tension provided a foundational question of “who is the face of geography education in Canadian classrooms?” With a goal to collect empirical data from the front lines of education, a survey was conducted with participants across the country in both French and English to capture a current national picture of the capacity of K-12 educators to teach geography and geography-related content in our schools. Preliminary results on the survey results, including teachers’ backgrounds, preparedness, practices and required supports, as well as their insights into geography learning in classroom, are viewed with a spatial lens to the situation from regional and national perspectives.

Session: TUE-1.30-8

Sustainability and Culture: Reflections on the initial findings of studying Sikh participation in and perceptions of recycling in Abbotsford, BC

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Zoë A. Meletis

In Canada, little is known about Sikh traditions, attitudes and behaviours related to recycling. This paper discusses initial results of an interview-based study of Sikh families in Abbotsford, British Columbia. It explores perceptions and behaviours of first, second, and third generation Sikhs, as they relate to recycling and the household divisions of labour. As a member of this community, myself, I used a combination of ethnography from within, observation, and semi-structured interviews to examine elements of Canadian Sikh life that may influence Sikh recycling, and the related division of household labour. Initial findings suggest that recycling and other environmental work may add to a gendered division of household labour. Furthermore, the observed gendered household divisions of labour reported by the 9 families in this project intersect with Sikh cultural beliefs in Canada and India. The analysis revealed several salient factors that are essential in understanding the recycling profile of multi-generational Sikh families, including individual and household motivations for recycling, perceptions toward the standardized curbside program, and overall environmental attitudes. Additional findings suggest difficulties of the current curbside program and ways to implement better policy initiatives to stimulate individual and household recycling. Research such as this stands to contribute to improving both academic and applied knowledge about Sikh families and their lives in Canada.

Session: TUE-3.30-7

Assessing health vulnerability in the face of global environmental change: a case study on dengue in northeastern Brazil

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Tackling the health challenges linked to unprecedented social and environmental change requires integrative approaches to address the complexity, dynamic nature, and scale of these changes. A vulnerability framework was developed to integrate social and ecological processes that mediate health, and applied to a case study on dengue at a regional level in Northeastern Brazil. Dengue is a mosquito-borne disease that constitutes a major public health threat in tropical and sub-tropical regions, and whose range continues to expand due to unsustainable control efforts. An index approach was used to apply the vulnerability framework to dengue by creating indicators of exposure, susceptibility, and resilience that included components such as climate conditions, water and healthcare access. By combining these indicators into an index visualized in map form, key changes in vulnerability to dengue between 2000 and 2010 were illustrated. The results revealed spatially heterogeneous patterns of vulnerability to dengue, while seasonal dynamics, inter-annual droughts, and economic development over the ten year period highlighted fast and slow processes that impact dengue transmission. These findings provide insight relevant to long-term planning and resource allocation, such as targeting vector control to critical seasons and locations. The vulnerability framework can be extended

to other contexts to highlight entry points and pathways for targeting interventions to promote health in the face of global environmental change.

Session: TUE-1.30-2

Epidemiology of malaria in illegal gold mines in French Guiana

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Malaria is endemic in the Guiana Shield. In French Guiana, a French overseas territory, although the number of cases has decreased since 2005, foci of infection still remain, particularly within illegal gold mines. There malaria patients often self-medicate, resulting in a risk of resistance to anti-malarial treatments, notably to artemisinin. The mobility of gold miners across the Guiana Shield increases the risk of spreading both malaria and the resistance to antimalarials in the region, and puts the population at risk of new outbreaks of this disease despite the great efforts put into anti-malarial policy in this region.

Fighting malaria in French Guiana needs to take into account a particular context: illegal status of gold miners, difficult geographical access, Harpie military operations, illegality of carrying out malarial diagnosis tests and treating cases without the presence of a health professional – which prevents us from using the same tools as in neighbouring Suriname, where the “Looking for Gold, Finding Malaria” programme was a success.

A study in gold mining population in French Guiana is being conducted to better understand the malarial epidemiology in the aim to propose innovative and better adapted measures to fight malaria.

Session: WED-10.30-2

Communicative networks and counter-narratives of Calgary oil space

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The identity of cities and regions is often entwined with the dominant economic activity in such spaces. In the Canadian resource economy, Calgary functions as the corporate heart of oil and is deeply embedded in a narrative of economic growth, ‘tarsands’, ecological harm and ‘dirty oil’. However, the pull of oil has brought, over time, diverse social actors and professionals into Calgary who contribute value to their communities. This is particularly relevant in the context of professional and skilled women who have been privileged to step outside the mainstream entrepreneurial culture of Calgary, but have coalesced within communicative networks based in common goals of shared value and community good. We conducted semi-structured interviews with one such network to determine the entrepreneurial regeneration its members established together, and the specific outcomes of ‘doing good’ and making shared value in the community. This suggests oil space is co-constituted by differently

placed and skilled actors who bridge entrepreneurial and social divides, and thereby demonstrate other values made possible through oil. We call these entities 'EnSoGood' networks, and suggest that their emergence produces counter-narratives that illuminate varied and complex place identities that present transformative potential in Canadian oil space and contested resource landscapes.

Session: FRI-10.30-5

Assessing the degree of past anthropogenic influence on the present rich tree, liana, and plant community diversity of the Guiana Shield (with case studies from the Upper Maroni Basin - French Guiana and Suriname)

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Once perceived as a natural wilderness, today most Amazonian landscapes are considered cultural forests, albeit the degree of anthropogenic influence on the rich tree, liana, and plant community diversity of the region remains undetermined, especially of the Guiana Shield region (northern Amazonia). My ongoing research in the framework of Guiana Historical Ecology serves as an object of reflection as how to incorporate traditional (ecological) knowledge into scientific studies, and vice-versa, with the intention of developing more inclusive practices of archaeology, ethnography, (ethno)botany, and (re)writing of history and historicities, through the cooperation between local communities (mainly indigenous peoples), anthropologists, historians, archaeologists, botanists and ecologists. Understanding the antiquity and development of traditional indigenous practices and techniques of forest management, agriculture, and landscaping of past tropical forest communities in Guiana will provide important new data on the co-evolution of long-term human-environment coupled systems in Guiana. Fundamental herein is the study of the nature and degree of forest regeneration on sites of former human settlement, and the rethinking of biodiversity on historical and archaeological sites in Guiana.

Session: WED-1.30-2

Exploring Sentiment in Social Media as an Enhancement for Standardized Survey Techniques

Samantha Dunlop, Wilfrid Laurier University

Colin Robertson, Wilfrid Laurier University

The analysis of geo-social data and volunteered geographic information (VGI) has recently garnered interest by researchers for its utility in characterizing how people and places interact. These new forms of user-generated content may provide context and nuance in terms of how individuals and communities perceive and are influenced by their environments, concepts which are traditionally measured through traditional social science survey methods. However, the comparison of geo-social and standardized surveying data collection methods has yet to be explored. Standardized surveys are designed to be a representative sample of a given target population, while geo-social data are produced through more passive, ephemeral interactions with technology and the social web – it is unclear the

degree to which these sources of information about a given community are comparable. It is possible that supplementing data obtained through standardized data collection methods with information extracted from geo-social data may provide contextual clues and information not otherwise available. This study investigated these issues through a case study focused on the Region of Peel. Data were obtained from the Region of Peel quality of life survey from 2013 and a set of geo-located tweets collected from July 2014 until January 2015. Measures of sentiment extracted from the geo-social data were mapped onto the quality of life survey in order to create a unified class across datasets. Classification accuracy analysis was conducted to assess how similar patterns in survey data were to the sentiment categories extracted from geo-social data. Finally, we examined how the spatial patterns of sentiment classified from geo-social data compared to data from the quality of life survey.

Session: FRI-10.30-7

Effects of the Regent Park public housing redevelopment on common mental disorders: a prospective study.

Jim Dunn, McMaster University & C. Muntaner, R. Moineddin, K. Smith, F. Matheson, P.J. O'Campo, S.W. Hwang, M. Janus.

Much has been claimed about the benefits of socially-mixed communities, but there is relatively little evidence from interventions that assesses the impacts on mental health. Regent Park, in Toronto Canada, is one of Canada's oldest and largest public housing developments and it is in the process of complete demolition and rebuilding into a mixed-income community. The original development was built using Garden City design principles, and consisted of 100% public housing before the redevelopment. In addition to one-to-one replacement of public housing units, and the construction of new condominium units, the project also includes re-introduction of through streets, mixed land uses (commercial, retail) and the addition of significant new amenities (aquatic center, cultural center). Residents living in Regent Park at the start of redevelopment were entitled to return to the new community, creating an opportunity for a quasi-experimental study. This paper presents the findings of a study of 153 residents examining the impact of the redevelopment on adult mental health (sub-clinical anxiety and depression) and a number of other determinants of health. Questionnaire-based methods and a longitudinal cohort design (with a comparison group) were used. The results show a number of positive impacts on mental health, housing and neighborhood outcomes.

Session: TUE-10.30-2

Geographical Naming and Necessity

Gwilym Lucas Eades

This paper presents a new geographical theory of reference, one that grapples extensively with the philosophical, geographical, and indigenous literatures on place-naming practices. Post-representational turns have not diminished the need for robust toponymic theorising in geography. This need has been underserved by both anti-foundational theories of location found in current modelling approaches such as that taken by Batty (2013) and in critical/essentialist approaches seen for example in Berg and Vuolteenaho (2009) or Monmonier (2006). We return, therefore, to the drawing board to explore what two key texts, Kripke's Naming and Necessity and Wittgenstein's Philosophical Investigations, can offer for geographic imaginations interested in names. These two thinkers offer profound opportunities for re-thinking place-naming practices in light of intergenerational senses of place in indigenous communities in Canada and around the world.

Session: WED-10.30-7

Cultural Sustainability of Tourism in Rural Communities near Puerto Vallarta, Mexico

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This paper investigates an alternative approach to sustainable tourism. The literature on the impacts of tourism traditionally divides these into three categories: environmental, economic, and socio-cultural. Current approaches to sustainable tourism have focussed first and most heavily on environmental sustainability, and secondly on economic sustainability. On the other hand, minimal work has taken a sustainability approach to socio-cultural impacts of tourism. This research addresses that gap by investigating community perceptions of change, impacts, and vulnerability of community culture and heritage in several communities that are impacted by tourism development near Puerto Vallarta, Mexico. The results highlight the tension.

Session: FRI-8.30-5

How messaging shapes attitudes towards sea otters as a species at risk

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Sea otters are listed as Threatened under the Species at Risk Act, and as species of Special Concern by the Committee on the Status of Endangered Wildlife in Canada. We tested how messaging shapes the

perception of sea otters in 623 residents of British Columbia. Participants were presented with a message about sea otters that was either positive (as a keystone species), negative (resource conflict with First Nations' fishermen in the West Coast of Vancouver Island), or neutral (biological facts). We measured the impact of message on people's attitudes towards sea otters using Kellert's typology of basic attitudes towards wildlife. We found that only negative message promoted the primary interest in the practical value of the sea otters (utilitarian-consumption attitudes), although negative message was perceived as less convincing and believable than positive or neutral messages. The negative message influenced moralistic, aesthetic, ecologicistic, and utilitarian-consumption attitudes in Chinese participants, but not in the Caucasian participants. Experience in fishing and hunting predicted utilitarian-consumption, dominionistic, negativistic and scientistic attitudes. Having pets or knowledge of sea otters predicted moralistic, ecologicistic, aesthetic, and naturalistic attitudes. Our findings suggest that conservation efforts should consider message framing and ethnic diversity of the audiences when designing conservation campaigns.

Session: TUE-3.30-4

A Comparison of Canadian and Australian National Branding Strategy in Japan

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In a globalized and increasingly homogeneous world, many nations have engaged in developing sophisticated national branding strategies as a means to 'stand out from the crowd' and enhance their international competitiveness. National branding can be described as the creation, monitoring and evaluating recognizable and distinctive national images in the minds of target audiences to increase national competitiveness in the world marketplace. This study will move the subject of national branding forward by examining how two comparable countries, Canada and Australia, implement their brand strategies in Japan. Japan is a distinctive market in Asia due to its size and the necessity to forge long-term relationships between clients and suppliers. The focus will be on three sectors: (a) agriculture products; (b) tourism; and (c) international education. The conclusions suggest that both countries invest in promoting and protecting their various 'brands' in Japan, and these efforts are supplementary to an array of other marketing techniques carried out by governments, various industry groups and private companies.

Session: WED-8.30-4

Perspectives on Coastal and Marine Management in Dominican Republic

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Conservation initiatives such as establishing and strengthening marine protected area (MPA) networks are increasing in prevalence as a diverse array of benefits are continually being demonstrated. This paper presents findings from research in Dominican Republic (DR) where numerous components of coastal and marine social-ecological systems were addressed, including: large scale connectivity initiatives, governance arrangements, inclusion of local resource users and alternative livelihood opportunities. Additionally, current limitations and future opportunities for natural resource management within these social ecological systems are identified. Data was acquired via key informant interviews determined via snowball sampling with multi-scalar and cross sectoral coastal and marine stakeholders ranging from community members to high levels of government. Through the diverse interviews, key themes emerged. Despite the impressive environmental laws and extensive network of protected areas in the DR, political motivation and a unified vision is lacking to ensure effective efforts are being carried through on the ground. Furthermore, this study indicates that there is a gap in long term collaborative working partnerships suggesting an opportunity for noncentralized institutions to play a more meaningful role in the future. These findings contribute to further understanding complex coastal ecosystems, while considering management implications on local communities and ecosystems.

Session: TUE-10.30-6

The contributions of social learning to collaborative forest management: Lessons from Canada and Uganda

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Collaborative forest management is viewed as promising for sustainable forestry because it allows forest-based communities to participate directly in management and benefit from resource use or protection. Because collaborative forest management brings together participants with various needs, values, resources, and expectations, it has to be learned. Collaborative forest management is strengthened through social learning during management activities. Despite significant research on social learning in natural resource management, within the forestry sector, it is not clear how social learning evolves, who influences social learning, and whether learning influences management effectiveness. The purpose of this research was to explore the contributions of social learning to collaborative forest management through investigating Harrop-Procter Community Forest in Canada and Kapeeka Integrated Conservation Development Agency in Uganda. Data were collected through semi-structured interviews, key informant interviews, focus groups meetings, and participant observation. Results show that participants in both Canada and Uganda started engaging in forestry with limited knowledge and learned as they participated in various activities. Government, through forest policy, set the context for social learning in both countries; but learning was moderated through organizational choices and external actors. This findings have implications for collaborative forest management researchers and practitioners.

Session: THU-8.30-3

In our own backyard: Care and support for victims of human trafficking in northern British Columbia

Carolyn Emon, University of Northern British Columbia

Neil Hanlon, University of Northern British Columbia

Human trafficking is an international crime of exploitation that affects men, women and children from all walks of life. While research on global human trafficking is growing, there are few studies that look at community-level care and support of victims. Even fewer studies look at conditions in smaller urban centres where human trafficking occurs but is less prominent. We intend to address both these gaps by examining service provision for trafficking victims in Prince George, British Columbia. Using a case study approach, we conducted key-informant interviews (n=18) with service providers in Prince George and Vancouver. We examine the nature of service coordination and provision in Prince George and how this differs from service provision in gateway centres such as Vancouver. Our findings indicate that there are wide variations in understandings of human trafficking amongst service providers, and key differences in resource and institutional conditions that create barriers to victim identification, service provision, and coordination across organizational and jurisdictional lines.

Session: TUE-1.30-2

Urban Redevelopment and its Effect on Crime

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HOPE VI, a redevelopment program administered by the US Department of Housing and Urban Development, was designed to assist cities with neighbourhood revitalization, to include out-dated public housing developments. Many of these properties were associated with high concentrations of poverty and crime. This longitudinal study explored one city which received HOPE VI funding to determine if the implementation of the redevelopment program had lasting benefits with regard to reducing and/or eliminating high-concentrations of crime in the respective locations. Using a mixed-methods approach, a cluster analysis was performed to identify high-densities of violent crime. Those densities were then matched against the locations of public housing dwellings targeted for redevelopment. A weighted displacement quotient was used to measure the diffusion of benefits. Of the sites selected for further study, the results showed that each experienced vastly different outcomes from redevelopment in the years following the completion of construction.

Session: FRI-1.30-2

Metromobility and Spatial Justice

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Urbanism in the 21st century is increasingly defined in terms of networks, flows, connectivity and infrastructure, qualities that are epitomized in systems of mass urban transit. Thus, a focus on transit, and the regimes of metromobility through which it is governed, clarifies questions of how urban space is produced and to what effect. The social dynamics of metromobility include traditional concerns of transportation planning such as accessibility and mobility, but they also involve broader relations of urban democracy and spatial justice. In this light, a right to urban transit would include not merely the ability for individuals to freely move, but more importantly, the collective capacity of inhabitants to direct and transform relations of movement and rest. This paper develops a framework for theorizing these social politics of urban transit using two cases from across North America: campaigns for free public transit and the transit-based activism of certain #blacklivesmatter protests. These empirical engagements demonstrate metromobility as an essential terrain where the logics and contradictions of urban neoliberalism are being played out. Following from this, the paper suggests that transit is an important target and stake for labour, environmental, anti-racist and anti-poverty organizing and collaboration.

Session: FRI-10.30-1

“We are all treaty people”: Environmentalism, postcolonialism and the Canadian anthropocene.

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In the wake of the success and impact of the Idle No More movement there has been an assertion in some segments of Canadian society of a “turning point” in Canadian colonial relations. Indigenous rights are making headway not just as a singular issue but, as the slogan “We are all treaty people” suggests, they frame a much larger re--imagining of the Canadian relationship to land and history.

Environmental groups are taking note of this change, especially since indigenous groups have recently won significant gains in the Supreme Court. As such, we find ourselves in a rare moment of potential – the rise of indigenous legal and political power that is envied by non--indigenous groups. Yet this is also a moment of danger, as the structure of colonialism has often been of desiring that which indigenous groups have (including land, authenticity and bodies). In this paper, I argue that approaching this moment of potential requires a close reading of postcolonial theory to understand the impacts and legacies of colonial desire. Specifically, paying attention to the colonial practices of representation, inequality and how these manifest spatially can help clarify that which might rightfully constitute a decolonized entry into the Canadian anthropocene.

Session: THU-8.30-5

Characterizing natural landscapes for wetland reclamation in Alberta

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The restoration of wetland ecosystems is an issue in the formerly-undisturbed Boreal Forest eco-region of Alberta where current large-scale mining and resource exploitation is taking place. When wetlands in Alberta are destroyed or degraded as a result of the resource exploitation, companies are required to restore the disturbed landscapes to an “equivalent land-capability,” although a quantifiable definition has yet to be clearly articulated. To define benchmarks for wetland reclamation standards, a reference condition approach was taken where landscape metrics were used to quantify the spatial structure and patterns of wetlands in undisturbed landscapes. The landscape metrics were calculated from a remotely-sensed wetland inventory in Grassland and Parkland eco-regions of Alberta. Principle component analysis was then used to determine the minimum set of dimensions that best characterizes the structure and distribution of wetlands at the sub-watershed scale. Components were then correlated against landscape anthropogenic disturbance which was quantified as the percentage of agricultural and developed areas within the landscape. Weak correlations and difficulty in the interpretation of components’ meanings created ambiguity in the results. Segregating the variable reduction by metric category (shape, aggregation, diversity) will likely improve the results.

Session: WED-8.30-8

Urban homelessness, the At Home/Chez Soi experiment, and the laboratization of Winnipeg, Manitoba

Joshua Evans

Dominic Alaazi

Jeffrey Masuda

This paper examines the linkages between urban experimentalization, policy mobility, and urban politics through an examination of the Mental Health Commission of Canada’s At Home/Chez Soi study. This \$110 million dollar, 5-city study consisted of a randomized controlled field trial of the ‘housing first’ model, an approach originated in New York City in the late 1990s to rehouse chronically homeless individuals with severe mental health problems. Transforming each locale into an ‘urban laboratory,’ the At Home/Chez Soi study and its experimental design structured the translation of the housing first model in each study site. We explore how this translation process unfolded in one city (Winnipeg, Manitoba) paying particular attention to how the city itself was conceived as a ‘truth-spot’ (Gieryn 2006) by local actors involved in the implementation of the study. This process of turning a city into an authoritative space is of relevance for how we understand and situate cities amidst expanding circuits and flows of urban policy knowledge and the emerging forms of urban (experimental) governance that they reflect.

Session: FRI-8.30-1

On the Bleeding Edge of Farming the City: an ethnographic study of small-scale urban farming in Vancouver

Terri Evans, Sharla Stolhandske, Department of Geography, Simon Fraser University.

In this study we explore the emergence of small-scale urban farming in or near the urban core of the city of Vancouver. Urban farming is an entrepreneurial activity combining the practices of growing *and* direct marketing fresh food products in urban spaces for urban consumers. Considered as part of the agricultural renaissance occurring in cities, urban farming transforms land traditionally zoned for residential, commercial, or industrial use, into intensive food producing spaces where food that is grown in the city is primarily offered for sale.

Session: FRI-1.30-7

Aménagement des parcs urbains le long d'un littoral et attractivité touristique / Urban Riverfront Parks and Destination Attractiveness

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L'attractivité d'une destination touristique est tributaire des caractéristiques naturelles et anthropiques du territoire. Si la destination touristique apparaît comme une création humaine, l'intérêt des touristes envers le territoire ne se limite pas aux caractéristiques anthropiques que l'on retrouve sur ce territoire, mais également aux caractéristiques naturelles qui façonnent l'espace. C'est notamment grâce à l'aménagement touristique que les villes peuvent créer des produits touristiques permettant de mettre en valeur les caractéristiques naturelles du territoire. Les produits touristiques visent donc à attirer les touristes vers la destination et permettent aux touristes de considérer les caractéristiques naturelles du territoire. C'est ce que l'on observe dans plusieurs destinations touristiques en milieu urbain qui sont situés le long d'un littoral.

Dans plusieurs endroits du monde, le tourisme est d'ailleurs devenu le premier secteur économique des littoraux. Il n'est donc pas étonnant que les aménagements littoraux se soient multipliés en milieu urbain. Afin de mieux comprendre l'importance des caractéristiques naturelles et anthropiques du territoire, cette recherche présente l'analyse empirique de 42 parcs urbains aménagés le long d'un littoral à travers le monde. La démarche de recherche empirique permet d'identifier les éléments naturels et anthropiques qui sont utilisés afin d'accroître l'attractivité des parcs urbains aux yeux des touristes.

Session: WED-8.30-5

Rethinking Struggles for Citizenship: Filipino-Canadian sexual subjectivities in transnationalism and settler colonialism

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With more debate around racialized people's position in white settler colonial relations, the opportunity to think about responsibility to these relations has made way for critical questions around the politics of nation, diaspora and empire.

This paper looks at one such question. In particular, I consider the scholarly and popular framing of the Philippine diasporic subject as suspended in time while they labour in different places outside of the Philippines. In this framing, aspirations for alternative nationalisms tie the political subject back to the Philippines. Through analysis of interviews conducted with queer Filipino activists alongside interviews conducted with Filipino basketball players and beauty pageant participants on unceded Coast Salish territories (Vancouver), I attempt to trace how sexuality and sexual politics might allow us to complicate this particular framing. By following their narratives, I examine how they negotiate their racialized and gendered sexualities in relation to the colonialisms that continue to haunt the Philippines and the context of Canada's settler colonial conditions. I put forward that the rendering of diasporic Filipino subjects might be complicated with consideration of what such a political subjectivity might mean when it touches down in settler colonial countries like Canada where citizenship is offered as an opportunity of permanent settlement.

Session: FRI-1.30-3

Putting Place Back into Food: Durham's Local Food VGI System

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Regional food systems cover large geographic areas, and the decision-makers within have greater economic, policy, and program development capacities than those operating in local food systems. However, it is within local food systems, operating at a municipal scale or smaller, where we see the diverse and hyperlocal places of food thrive. At present, there are few mechanisms to obtain and share information about these innovative food places. In Durham Region, which counts 650,000 residents in eight municipalities just east of Toronto, the innovative food places that make up the local food system were not captured in a recent regional food scan.

The goal of this research is to examine what volunteered geographic information (VGI) can add to local food mapping. As such, this work responds to the knowledge and capacity needs of the Durham Food Policy Council (DFPC) by developing a VGI system to facilitate participatory food system mapping in Durham Region. By capturing the distributed intelligence of those who are active in Durham's food system, including government, NGOs, and community stakeholders, the places of food are now being reported and mapped. These crowdsourced data, which include foodscapes, harvest trading tables, and neighbourhood gardens, will be used to support food planning, policy, and community development within the mandate of the DFPC.

Session: FRI-10.30-7

Controlling Public Space in Montreal... One Ticket at a Time

Véronique Fortin, University of California, Irvine

Homeless people and protesters in Montreal have at least one thing in common: both groups —and they are by no means mutually exclusive— are routinely controlled through an everyday legal tool: the statement of offense, also called ticket, issued for alleged violations of municipal by-laws pertaining to the uses of public space (e.g. drinking alcohol in a park, loitering, sleeping in the Metro, unlawful assemblies, participating in a demonstration for which the itinerary was not disclosed to the police, etc.).

Considering that those so-called disturbances of the peace are not criminalized but controlled through local legal processes, and considering the low conviction rate associated with the tickets, this paper questions the final goal of the ticketing practices. It seems like they have more to do with the “cleaning” of a space, without delay, than with the punishment of an individual harmful behavior. On the one hand, police engages in spatio-legal tactics to take care, swiftly, of “disturbances of the peace”, and on the other hand, the judicial system, overburdened, dismisses the cases in one way or another. “Justice” is done quickly, public space is “clear”... but marginalized people such as homeless people and protesters, in the process, see many of their rights baffled.

Session: TUE-8.30-1

Azusa Yamashita, Gay Japan News, Iwate Rainbow Network, Japan

Natasha Fox, University of British Columbia

This paper blends the findings of a 2013 study on the experiences of Tokyo lesbian, bisexual, and transgender women, with recent data on the realities of LGBT residents of Tohoku, Japan in the context of the March 11, 2011 disasters and their aftermath. Problematizing Japan’s deeply rooted popular discourse of homogeneity, a national mythology which is implicated in the formation of culture, identity, and citizenship, we contend that such discourses continue to inform DRR policies in Japan. We highlight the value of incorporating a diversity of voices in DRR policymaking as a means of destabilizing the conditions that place diverse women and other marginalized people in positions of social vulnerability. This will have the effect of averting such unfavourable outcomes as those witnessed in Tohoku shelters where the dignity of women, the elderly, and LGBT people was sometimes neglected. Furthermore, we show that a multivocal approach to DRR policymaking at the national, prefectural, and municipal levels can benefit broader society and the democratic process as a whole. We also identify some of the current challenges involved in Tohoku’s reconstruction, and explore the degree to which Japan and Canada are integrating the needs of diverse citizens in DRR planning.

Session: THU-10.30-3

Mapping the Location of Child Exploitation Websites

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The increasing use of the Internet has unfortunately increased the scope and sophistication of the sexual exploitation of children online. Child sexual offenders have created virtual communities, facilitating the exchange and commercialization of child exploitation material (CEM). The globally recognized harm of CEM has prompted international and supranational efforts to combat CEM. Despite increased awareness of the harm posed by CEM, current efforts to curb such material from appearing online have been largely ineffective due to the multiple jurisdictions involved in each instance of CEM. Our research proposes a novel approach to help address these issues by mapping CEM online via a custom-written web-crawler. Our custom crawler will scrape the public internet seeking CEM. Once found, it geolocates the website and retrieves its WhoIS information. This information allows us to create maps detailing the location of these websites, and the offenders associated to the website's domain. Our results indicate that websites, and offenders, are within jurisdictions with strong child-exploitation laws. This work would provide interested end-users with location information of the major hosting servers in online CEM, and allow local law-enforcement to prioritize those websites, and offenders, which are within their own jurisdiction.

Session: FRI-10.30-3

Unmanned Aerial Systems (UAS), Overlap, and Elevation: Testing the accuracy of UAS created DEMs and Orthorectified Mosaics

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Unmanned aerial systems (UAS) offer an unparalleled opportunity for researchers in a diverse range of fields to create affordable and high quality digital elevation models (DEMs) and image mosaics. To fully harness these new opportunities, one must understand how the accuracy and precision of these products are affected by flying height, which directly impacts pixel size and photo to photo overlap. In this study I used a UAS to conduct fifteen flights with photo overlap of between 60% and 80%, and a target flying elevation of between 50 and 100 metres. The ortho-rectified mosaics and DEMs were created with Agisoft Photoscan. For accuracy estimates I used RMSE (Root Mean Square Error) of the ground control points. These RMSE measurements ranged from 6.5cm to 2.8m. When I used overlap as a predictor of RMSE I found a weak negative correlation. I found a stronger correlation between elevation and accuracy when calculated RMSE at each overlap. At 60% overlap, RMSE increases as elevation increases, whereas at 80% overlap, RMSE decreases as elevation increases. In my study, as flight elevation increased, high overlap became important in avoiding loss of accuracy in the data.

Therefore at lower elevations it is possible to fly at lower overlap, which helps cover larger areas while maintaining high accuracy and resolution data.

Session: FRI-10.30-8

The Delta Dialogue Network: Knowledge Sharing & Mobilization to Address Local and Cross-Scale Experiences of Environmental Change in Northern Delta Communities

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Northern peripheral communities are increasingly addressing, moderating and engaging with resource-based development. With increased participation in resource decision-making arenas comes a need for community-driven mechanisms that draw on multiple knowledges (including traditional and local knowledge and western science) to support informed decision-making at multiple levels. Consequently, there are an increasing number of research and monitoring programs in the North that gather and produce knowledge to support decision-making. However, there is need to better understand how knowledge can be shared in ways that are meaningful, accessible, and locally-appropriate, as well as processes by which such knowledge is (or is not) taken up in decision-making. This presentation highlights the 'Delta Dialogue Network' (DDN), a new interdisciplinary network focused on processes and mechanisms of knowledge co-production and mobilization within and across the Saskatchewan River, Peace-Athabasca, and Slave River deltas. DDN emphasis is on local experiences of change, yet many development challenges faced by these delta communities are powerfully similar. Potential exists to connect communities across deltas to share and develop best practices in knowledge co-production and mobilization. Cross-scale networks can foster space(s) to identify and build upon mechanisms to ensure information is salient and legitimate for those engaging in decision-making for resource-based development.

Session: TUE-10.30-4

Putting the Physical back into Geography: the role of pedagogy, practitioners and pragmatism

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New Zealand Geography has become increasingly synonymous with Human Geography. Physical geographers apparently find greater satisfaction in specialist societies. Yet Geography can only continue as a coherent discipline where its two poles contribute. Pedagogy, practitioners and pragmatism each have a role to play in this reunification to put the Physical back into Geography.

Pedagogy can provide common ground between the end members of our discipline. We share practice in our sub-disciplines that is relevant to the whole. A shared focus on pedagogy shifts the emphasis from differences in our subject to subject delivery to our students, many of whom take papers across the divide. By connecting physical geographers with practitioners we provide an increasingly applied component to our process-based courses. The value of practicing our subject in an applied context ensures our technically-sophisticated, science-driven subject connects with end-users, which has traditionally been where Geography is placed: providing physical underpinnings for the human realm. We need to be pragmatic to avoid splintering into sub-disciplines and losing the disciplinary strength of a unified Geography. The time has come for the Physical to be put back into Geography, for the good of the subject as a whole, as well as its constituent parts.

Session: TUE-1.30-6

Zapatismo as Insurrection (of the Neoliberal Classroom): Practice, Reflection, Theory ...and back again

Levi Gahman, Institute of Gender and Development Studies, University of the West Indies

Drawing upon time spent as a student in the Zapatista Rebel Autonomous School System, I will share a learning activity called 'Windows, Bridges, and Mirrors.' The aim of the technique is to disrupt the individualizing tendencies of the neoliberal academy through caring-centered, praxis-oriented notions of teaching and learning. The exercise seeks to diminish anxiety-provoking and isolating classroom experiences by utilizing feminist, decolonial, queer, and anarchist discourses and dispositions. The activity does this by decentering authority and engaging in cooperative discussion, collective dialogue, and self-reflexivity. More specifically, 'Windows, Bridges, and Mirrors' enables learners to encounter 'difference' as well as reflect upon their perspectives and emotions in regard to the experiences and viewpoints of others. It also sets out to explore how contrasting social groups are positioned by societal structures and systemic flows of power. The exercise provides for this by allowing learners to collectively reflect upon their understandings and thoughts on a wide of array of social theories, political ideologies, and processes of socio-spatial subjectification. Similarly, the activity attempts to highlight how intersecting social axes of identification (race, class, gender, sexuality, ability, citizenship, nationality, belief, age) are socially constructed yet produce material, internalized, lived, and 'felt' consequences in the everyday.

Session: WED-3.30-3

The Line of Crime: Dismantling Fears and Concerns of Crime along Vancouver SkyTrain's Canada Line

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Mass forms of public transportation systems can contribute to the growth of a city. Such systems have the ability to reduce energy consumption, decrease traffic congestion, and mobilize different populations across a region. However, mass forms of public transportation are often stigmatized for generating and attracting crime. The transit environment can create opportunities for crime to occur due to its static spatial dimensions and predictable temporal patterns of travel. Past attempts to study crime and mass forms of public transportation systems have demonstrated the risks and vulnerability of crime occurring within a station; little attention has been made to understand the role of transit systems in displacing crime to nearby residential homes and commercial businesses. Anti-transit critics fear that the implementation and expansion of mass transit can assist in exporting local and non-local offenders to new geographical zones to commit crime. The following research seeks to apply a spatial-temporal approach to identify crime patterns along the SkyTrain in the Lower Mainland of British Columbia. The study will utilize the Canada Line as a case study to determine if more crime is reported within a 250 meter buffer zone of each transit station in the City of Richmond. Time series and regression techniques are utilized to analyze crime data from the Richmond Royal Canadian Mounted Police (RCMP) from January 2006 to August 2011. The results of the study suggest the importance of applying a spatial perspective to the relationship of crime and public transit.

Session: FRI-8.30-3

Simulating future spatial distributions of black-backed woodpecker populations in the Boreal Forest of Quebec in relation to Climate Change: an Agent-Based approach

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Wildfires are the main cause of forest disturbance in the boreal forest of Canada. Climate studies forecast important changes in fire cycles, such as increases in fire intensity, severity and occurrence if anthropic activities continue to increase. These changes in fire activity will likely modify the spatial distribution of fires. Together with changes in forestry, variations in wildfire patterns will likely affect multiple species distribution. We chose to model the black-backed woodpecker, which has been proved to be closely related to recent burns. The purpose of this research is to provide insights on the future spatial distribution of black-backed woodpeckers (BBWO) under climate changing conditions, by using complex systems modelling approaches. This research uses a combination of agent-based modelling and cellular automata, to reproduce wildfire propagation patterns and to simulate future spatial distributions of BBWO. A fire model, BorealFireSim, was first created to determine future fire patterns and a second model, SimBBWO, is coupled to BorealFireSim's outputs as background data for intelligent multi-criteria evaluation based on numerous variables, identifying high quality habitats for black-backed woodpeckers, in a context of Climate Change. The research concludes by assessing the ability of SimBBWO to identify high quality habitats for black-backed woodpeckers under all kinds of climate change scenario, taking into account the importance of wildfire patterns.

Session: TUE-3.30-6

The positioning of the Tareno Indigenous communities in the management plan of the Sipaliwini Nature Reserve of Suriname

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Suriname forms part of the Guyana shield, which contains one of the world's biggest tropical rainforests. About 13% of the flora in the country is being protected. In this regard the government has established protected areas, proximate to the customary lands of the Tareno (Trio) Indigenous communities and mostly without their Free, Prior and Informed Consent (FPIC).

The Sipaliwini Nature Reserve (SNR) is the country's second largest reserve and is located in the far south of Suriname. It was established in January 1972, based on scientific research, preliminary results of geological, botanical and zoological collections and observations. To conserve the SNR, a management plan was drafted by governmental and mainstream nature conservation organizations. I will discuss to what extent the political and ideological views and interventions on nature, conservation and development that are reflected in the management plan are contestable. I will contrast those views and interventions with the traditions of the Tareno (Trio) Indigenous People and suggest some possible

steps that can be initiated by the Government of Suriname in the follow up of the SNR management planning process.

Session: WED-8.30-2

Home as a Paradoxical Space: Experiences of Professional South Asian Mothers in Toronto

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In recent years, several Feminist scholars have contributed toward the exploration of 'house as home', both theoretically and empirically. There is, however, a need to further nuance the findings within specific geographical contexts and scales. Within the boarder context of immigrant settlement experiences in Canadian cities, we specifically explore how domestic spaces are differentially conceptualized and experienced by professionally qualified working mothers from South Asia in Toronto, Canada. Based on our in-depth conversational interviews, we argue that the transnational habitus not only provides a duality of perspective, but also influences how home is understood and made both contextually and relationally, at various geographical scales. The city itself provides these women with a unique context, where they simultaneously occupy positions of being powerful and powerless, and an insider and an outsider. Similarly within the domestic space (the dwelling and the neighbourhood) they experience liberation and domination at the same time. In that sense, 'home' becomes a paradoxical space.

Session: FRI-1.30-5

An Emerging New North Compromised by Old Lines? Cross-Border Regional Development in the Labrador Straits-Québec Lower North Shore Region

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Boundaries, whether intra-national or international, have traditionally been viewed as a hindrance to relationships, cooperation, and collaboration. These boundaries often facilitate the duplication of institutions, structures, and organizations on each side of the line. At the same time, the concept of regions has become increasingly salient for spatial planning, economic development, and sustainability initiatives. Throughout Canada, multi-community strategies are being employed to issues far ranging, such as to address economic development opportunities to the formation of hockey teams. What happens when a provincial boundary cuts across the natural region in the north? What are the implications of this 'line' on regional collaboration for economic development, social initiatives, and place-based identities?

This paper examines an emerging new geography in the north. Recent research assesses the experiences of the northern peripheral cross-border region of the Labrador Straits - Québec Lower North Shore. This region consists of 22 communities separated by a provincial boundary. The political boundary runs

counter intuitive to historical, cultural, social, economic, and transportation dynamics. Community leaders, nonprofit organizations, regional organizations, and business leaders have recognized the limitations of the political boundary to the region's development. The provincial boundary, and its influences on the region, compromises future developments and serves to isolate an already peripheral region in the Canadian north. This research highlights the policy, research, and regional development implications of this emerging new geography of the north.

Session: TUE-8.30-4

Assessing the contribution of stakeholder-networks to social-ecological systems' resilience

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In a context of increasing human pressures on natural environments, many ecosystems around the world are degraded to the point of becoming unable to provide services needed for the livelihood and well-being of local human communities. To avoid reaching these critical ecological thresholds, local stakeholders may organize, either formally or informally, to produce knowledge about the problems they are facing, find suitable solutions, and ultimately build more resilient social-ecological systems (SES). These repeated collaborations between stakeholders eventually shape networks, and it has been suggested that the structure of these networks can positively or negatively affect outcomes in terms of SES resilience. In this research we explore how the structural features of these stakeholder-networks compare to the structure of ideal, archetypal networks. For this, we craft, with the help of an optimization algorithm, a class of networks displaying structural features known to improve SES resilience (including high modularity, short average path length and high robustness to targeted and random node removal). We then quantitatively rank networks, empirical or otherwise, according to how well their structures match our ideal networks. These quantitative rankings can help formally compare networks between each other, and understand how to improve the structure of collaborations between stakeholders working towards more resilient SES.

Session: TUE-8.30-5

Informing Watershed Management and Governance Processes in the Nechako Watershed

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The Fraser Basin Council is undertaking two major projects in the Nechako Watershed that illustrate the changing context of watershed management and governance in BC. The first project is the implementation of an indicators framework to assess watershed health. The framework and associated indicators were developed in collaboration with key informants from government agencies, First Nations and academia from the Nechako region. Key lessons learned from this project highlight the challenges

related to data analysis and acquisition as well as techniques to better enable the inclusion of traditional ecological knowledge.

The second, interrelated project is the establishment of a collaborative watershed governance organization in the Nechako watershed. Since 2013, a collaborative group of representatives from government, First Nations, academia and civil society has convened to discuss watershed health and decision making processes. With guidance from FBC, this group is now formalizing their governance structure as the Nechako Watershed Roundtable. The Roundtable represents the diverse interests in the watershed and will undertake a collaborative approach to decision-making. Lessons and insights from this project illustrate the transition towards alternative approaches to governance in BC and relate to the Water Sustainability Act's proposal to devolve watershed management responsibilities to local entities.

Session: WED-1.30-4

Agricultural Land Preservation and Urban Development in the "New Fringe": A Case Study of Small Lot Farming in Kelowna, BC

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The BC Agricultural Land Commission Act, which established the Agricultural Land Reserve in 1973, has been recognized throughout the world as one of the most successful methods of preserving agricultural land. Unfortunately, the evolving pattern of land use and spatial forms in the rural-urban fringe has raised concerns about leapfrog development, disorder, and urban sprawl. Most recently, the rapidly rising demand for local food is putting further pressure on protecting agricultural land, especially in close proximity to urban areas. How we perceive these rural-urban fringe areas may provide greater insight to the avoidance of sprawl and the preservation of agricultural land. My research explores the use of small lot farming in conjunction with urban development in what I call the "New Fringe". The New Fringe is an area where disorder is turned into a dynamic coexistence of strategically chosen sites for small lot farms with a carefully selected mix of residential and commercial sites. This concept avoids the constant challenge of inflated prime farmland values driven by the potential urbanization and speculation. The research focuses on the benefits of preserving agricultural land and the strategic release of lands for urban use in the "New Fringe". Empirical evidence such as potential gain in residential density, assessment, inner city land uses and transportation implications is tested against the effects of urban sprawl. Urban planners, landowners, and developers are surveyed to compare empirical findings with their perspectives on planning policies, small lot farming and market realities. Kelowna and the Central Okanagan Region are used as a case study site. The presentation will focus on the issues and concepts that frame this study of the New Fringe.

Session: TUE-8.30-7

The Trails and Tales of a Tuama: from Tipuru to Takutunen and the issue of Kutaye'ka Mountain

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At least twice a year, before major communal celebrations, and whenever the tuama decides to go, a big group of Indigenous Makushi villagers from the South Pakaraima Mountain region of Guyana go on a fishing expedition to Takutunen, considered as one of the only places in the whole region where to catch big fish. The Tuama, a term unmentioned in any of the existing Makushi dictionaries and ethnographic studies, is a temporary leadership role, specifically responsible for preparing and sharing the food and, in the past, connected to Tukui dances. Inherent to the trajectory, are the local perceptions and conceptualizations of place and time, the practice of fishing entangled with historical memory, recalling landmark features on the journey through various layers of significant landscapes and interacting spaces. Quite paradoxical to its cultural value and use, Takutunen is not within any of the Amerindian titled land boundaries of the Pakaraima communities (in fact, it has been taken out) and is part of an area that has recently been allocated as a forest concession to an Asian transnational logging company. Based on ethnographic fieldwork, this paper focuses on examining Makushi narratives and oral mappings of this territory in the light of the current threat of imminent natural resources exploitation.

Session: WED-10.30-2

Sensitivity Analysis of Unmanned Aerial Vehicle (UAV) Image Acquisition and Morphological Assessment of Forest Fragmentation Related to Barred Owl (*Strix varia*) Habitat

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This study has two phases: (1) we will test various aspects of data collection using a UAV (unmanned aerial vehicle) in order to assess the sensitivity of the parameters involved in controlling image acquisition. The relationship between image interpretation accuracy and several factors (i.e., altitude, spatial resolution, and observational angle) will be assessed along with target distance and the effect of wind on maintaining planned flight lines. Validation of land cover with ground measurements will be investigated along with a comparison of dimensional measurements to surveyed data. (2) the identified optimal image acquisition parameters will be implemented to further acquire images that will be subject to a morphological pattern analysis with the intent of identifying fragmentation of suitable Barred Owl (*Strix varia*) habitat in Gatineau Park, Quebec. The Barred Owl is an indicator species for old growth forest and has habitat requirements impacted by fragmentation, which is difficult to measure from satellite images at an appropriate scale. Using a Tetracam ADC snap camera mounted to a UAV, we will collect multispectral data (G, R, NIR spectral regions) of the study area and classify the land cover into binary forest classes. The morphological analysis of connectivity among these classes will be used to assess fragmentation and respectively suitable barred owl habitat. Assessment accuracy will be validated by field surveys. Results will provide operational parameters for UAV data collection and provide our industry partner, JD Barnes, with quantitative parameters related to product accuracy. In addition, the study will produce habitat fragmentation maps and help identify expectations of barred owl presence and absence.

Session: FRI-10.30-8

Evaluating the Project Approval Process for the Enbridge Northern Gateway Pipeline

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On June 17 2014 the federal government approved the Enbridge Northern Gateway pipeline (NGP) based on recommendations from the NGP Joint Review Panel (JRP), which in turn were based on a two year hearing process involving over 1200 participants and over 30,000 pages of evidence. This paper evaluates the decision of the government to approve the pipeline by assessing the degree to which the decision is consistent with the approval criteria contained in the Canadian Environmental Assessment Act and the National Energy Board Act. The conclusion is that none of the conditions for approval were met and that based on the evidence the JRP should have recommended rejection of the NGP. The implications of the findings are discussed and recommendations are made for improving the project approval process.

Session: WED-10.30-5

Critical Perspective on 'Planetary Urbanisation': New Cities in Israel and Palestine

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Planetary Urbanisation is a framework for understanding new global spatialities in a world-wide urban condition (Brenner and Schmidt 2014). This paper suggests a research agenda for questioning these spatialities as both global and new, by drawing ideological and spatial connections between three cities that are currently being planned/built in Israel and Palestine. By placing these cities on a continuum of separation, segregation, and dispossession, we can explore not only how local politics of development underlie Planetary Urbanisation, but also how they may be concealed by it.

Nu'eima in the West-Bank is planned by the Israeli Civil Administration for Bedouin populations, and Tantour in Israel targets the specifically-Arab middle class. Both cities follow a Zionist logic of Judaization of space, stabilizing control over occupied land or spatially separating ethno-classes respectively. In Palestine, the city of Rawabi is managed by private developers for the Palestinian elite.

Ostensibly produced by global neoliberal suburbanisation, Rawabi symbolises a free Palestinian nation. However, it deliberately imitates Israeli urban forms that originate in 'ethnocratic' ideology (Yiftachel 2006). Therefore, it must be understood simultaneously as part of the worldwide urban condition – new scales of development and re-articulation of urban territories – and as reproducing ongoing local strategies of colonization.

Session: THU-8.30-1

A gateway to good jobs?

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Proponents of gateways as an economic development strategy rest heavily on the claim that trade gateways deliver good jobs. Although proponents point to some construction- and production-related job-creation, their claims about the benefits of trade gateways rest heavily upon assertions about jobs in goods movement. This includes both the export of raw materials, and the handling of intermediary and final consumer goods in increasingly complex supply chains. This paper examines these claims in the light of evidence from British Columbia. The paper presents empirical data on the number and nature of the jobs created in the gateway industries (trucking, longshoring, warehousing, and freight logistics) to recognize where jobs are currently being created. Quantitatively, the jobs claims are over-inflated, although they are significant in some places. Qualitatively, the jobs claims resonate positively with the lived experience of workers in key sectors represented by organized labour; at the same time, a race to the bottom is visible in other parts of the transportation chain. The second part of the paper presents a framework for understanding the differentiated nature of the jobs created along the supply chain to understand the organizing, regulatory and other challenges to securing improvement in actually existing gateways

Session: WED-1.30-3

Gardening in the Wild: Food, Hospitality & the (Re)Settlement of Indigenous Space

Lauren Harding, Anthropology, University of British Columbia

This paper engages with geographies of colonialism and environmentalism in British Columbia through an examination of the strategies of an indigenous family in using hospitality as a means of reclaiming place. In 1992, some members of the Knighton family made the decision to leave the main reserve at Nitinaht, where the Ditidaht people were consolidated by the state in the 1960s, and return to Qua-ba-diwa, their ancestral village. However, Qua-ba-diwa lies within the boundaries of Pacific Rim National Park Reserve and directly on the West Coast Trail. Since their move to Qua-ba-diwa the Knighton family have built cabins, sold food, and provided shelter to thousands of hikers, often to the consternation of Parks Canada officials. In a twist on tropes of settlement, the Knightons have resisted state conceptions of wilderness through growing and sharing food from their abundant garden that lies atop their ancestral village site. In 2014 I joined a few of the dozens of Willing Workers On Organic Farms volunteers they host each summer and conducted participant observation research at Qua-ba-diwa. I found that the Knightons resettlement of their home transgresses colonial visions of both 'park' and 'reserve', re-imagining Qua-ba-diwa as a place of indigenous hospitality.

Session: TUE-8.30-7

Preserving a Dark Industrial Heritage at the Sites of former Nazi Subsidiary Camps: Processes and Problems

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This paper focuses on the commemoration of dark industrial heritage from Nazi Germany's efforts in improving its arms production base and technology during the late WW II years. The examples chosen are two subsidiary camps/camp groups: the Monowitz Camp (Auschwitz III) in Poland where forced labor was used to build a factory for the production of a new type of synthetic fuel (BUNA), and the ten Kaufering forced labor camps near Landsberg, Germany, part of the Dachau Concentration Camp System, where underground factories for the production of a new type of jet plane (ME 265) were planned to be built 1944/45. There are three parallels between the Monowitz and Kaufering subsidiary camps: first, in each case close to 15 thousand prisoners, mostly Jews from Hungary, died because of the horrible work conditions; secondly, the industrial plants were never completed in neither case; and thirdly, the forced labor camps saw major industrial companies from Germany involved (IG Farben in the case of Monowitz; the Moll construction company in the case of the Kaufering camps as well as indirectly the Messerschmitt aviation company).

What separates the two camp and industrial histories is how the tragic events have been commemorated. The paper discusses the processes and problems in saving and/or reviving the memory of the events as well as of restoring and preserving the remaining artifacts from the camps now. In the concluding part of the paper the commemoration practices as to Monowitz and Kaufering will be placed in the wider framework of a four quadrant model "Sites Associated with the Victims and Perpetrators in Nazi Germany 1933 – 1945". Monowitz and Kaufering rank among the neglected and long forgotten places.

Session: TUE-1.30-1

Towards improved methods for modeling marine mammal distributions and densities to support coastal conservation

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Conflict between marine mammals and human activities is increasing in frequency and intensity. As anthropogenic threats rise, it is imperative that coastal conservation decisions are made using spatially explicit information on marine populations. The goal of this research is to support conservation planning in British Columbia by employing spatial statistical methodologies to quantify marine mammal

distribution and density patterns and identify important species-habitat associations. We will integrate systematically surveyed species data with remote sensing variables through ensemble Density Surface Modeling (DSM) to predict spatially continuous distributions of marine mammal presence and density on the coast of British Columbia. Remote sensing layers for models include static, dynamic and climatological predictors of biophysical oceanographic properties and processes. Models include generalized linear models, generalized additive models, boosted regression trees, and random forest techniques. We anticipate that species density will be heterogeneous across space and clustered in areas with concentrated food resources, whereas important species-habitat associations will be unique for each marine mammal species. Although ensemble DSMs have been used to model distribution of seabirds, this method has yet to be widely applied for marine mammals. Therefore, contributions from this research provide new insights from spatial information and improved methods for informing coastal conservation decisions.

Session: TUE-10.30-6

Households on the Hook: Leveraging livelihoods in Vancouver

Emily Hawes, University of British Columbia

Canada has been celebrated as exceptional in its supposed weathering of the effects of the 2008 Global Financial Crisis. References to the absence of a government 'bailout' of banks and continued growth in the housing market after an initial drop in 2008 painted Canada as a paragon of financial responsibility. However, amidst fears of an over heated housing market, Canadian household debt levels have grown at an increasingly rapid rate, hitting records levels at 162.6% of disposable income in Q3 of 2014. And while mortgages still constitute a large portion of household debt, in 2010 a majority of Canadians reported day-to-day expenses as being the primary motivator for increased credit use.

Valuable geographic studies have examined the spatial patterns associated with indebtedness, however little work has been conducted on the associated social and behavioral impacts of such indebtedness. Based on qualitative interviews with credit counseling specialists and residents of highly indebted neighbourhoods in Vancouver Canada's most indebted city - this presentation unpacks the local and everyday household level effects that increasing debt-loads have on residents in high-debt neighbourhoods. It considers the societal and survival pressures to engage in ever higher levels of borrowing experienced by financialized citizen subjects to fund consumption in a time of high and increasing income and wealth inequality at the local, national, and international scales. The paper engages with the concepts of 'asset-based welfare' and intergenerational inequalities to understand the challenges faced by indebted residents and neighbourhoods, the strategies that they adopt to face these challenges, and the services and supports that they need to do so.

Session: WED-10.30-3

(Un)health spaces? (Re)evaluating the Potential Health Impact of Cyberspaces on Gay Youth

Blake Hawkins, University of British Columbia

Cyberspaces for gay youth have mainly been described as non-physical spaces where one can act non-heteronormatively and build likeminded networks. These spaces make it possible to explore and represent one self in ways which otherwise might not be accepted. My paper critiques the (un)healthy traits of some cyberspaces for gay youth. Earlier work (Downing 2013; Holloway & Valentine 2001; Valentine & Holloway 2001; 2002; Valentine et al. 2002) does not take into account recent development of smartphone and tablet applications (Grindr). Additionally, there has been little acknowledgement by geographers about spaces normalizing unhealthy sexual behaviors (Barebacking). Spaces for these sub-groups are readily available, which sometimes support drug usage and anonymous sexual behaviors, which increases' risks for STIs. Some groups normalize and/or fetishize HIV as a battle scar of being gay (Dean 2008). Other spaces, however, provide the opportunity to become aware of support networks and other health information. Fortunately, there are well-known campaigns like the Trevor Project, online Pride Clubs, YouTube videos, and apps to produce awareness about gay lifestyle information. This paper calls for more health geographers and researchers to (re)evaluate our understanding of the (un)healthy realities of virtual spaces for gay youth.

Session: TUE-8.30-2

Should I Be Talking About This? Discussing My Use of Autoethnography About Masculinity and Changing Rural Landscapes in Northern BC

Blake Hawkins, University of British Columbia

Autoethnography has provided the opportunity for me to research issues in Northern BC on the micro-scale. This has recently included a discourse regarding the production of masculinity and the changing landscapes related to the current development. Doing this intimate work has been rewarding when presented to other researchers, however, more often than not it has been a struggle to balance my personal ethics and completing the best possible research. For my role as a panelist, I hope to discuss research anxiety and the challenges of using personal narratives in the research process. Personal narratives can provide the opportunity to better understand research issues on a micro-scale. As I have learned, however, it also involves more responsibility since one is sharing their and unconsciously others' lived-experiences. Through this session, I hope to extinguish any remaining anxieties regarding this intimate research.

Session: FRI-10.30-6

Placing It Gets Better in a Gay Youth and Northern British Columbia Context

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The It Gets Better Project is meant to support LGBT youth who are coming out, facing marginalization in their hometown, and/or need other types of support. When one views the videos, they present narratives from LGBT youth and adults, along with straight allies supporting LGBT youth facing oppression and/or other lived-challenges. This social media campaign, however, provides a case study for placing these digital narratives in a physical location. The predominant concern involves the lack of information regarding additional services and other websites to find resources for emotional and sexual health. We wonder with technologies like geo-tagging data, if there is a possibility to produce virtual awareness about health services we framed our critique through the usage of geographical, information seeking behavior, and critical health promotion literature. Since this source is available on a global scale, we intend to critique the information from a gay Northern British Columbia geographical perspective. This is due to the emerging literature about gay lived experiences in rural landscapes face unique health challenges which have been acknowledged by geographical and public health scholars. This work elucidates that more scholarship needs to be completed on rural gay health geography, critical health promotion, and information seeking behaviors. This would possibly allow the It Gets Better Project, and other campaigns, be beneficial to more gay youth.

Session: FRI-3.30-5

An ideological critique of dolphin captivity at the Vancouver Aquarium

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Zoos and aquaria have been important sites in animal geographies for the past two decades. Researchers have theoretically and empirically explored these spaces in terms of people's emotional attachments toward animals, the legal status as animals as "property", and the public perceptions of park animals. Few studies, however, consider the ways in which captive animals are central to the politics of public education. Drawing on the empirical example of the Vancouver Aquarium in British Columbia, which is currently home to three species of highly social and cognitive cetaceans, the paper focuses on the public controversy surrounding the captivity of beluga whales, with large segments of the population, the park board, and the city of Vancouver all pushing for their release. To make sense of this controversy, the paper draws on a Marxist understanding of the "commodity-form" to consider the differences between the educational materials found at both beluga display and the other cetacean displays. I focus on how these materials portray the discrepancies between whales and dolphins, which are rescued and deemed non-releasable due to injury, and the beluga whales, which are wild-caught and thus regarded as imprisoned against their will. I argue that such differences directly inform aquarium visitors' understandings and public debates about animal captivity.

Session: WED-10.30-7

Making the leap: personal reflections on adopting problem-based learning strategies in the classroom

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Problem-based learning (PBL) is a form of active learning built within a constructivist framework (Day, 2012; Savin-Baden, 2001). Here, students encounter problems rather than knowledge and then use a variety of activities to learn the content and skills required to find solutions to the problem. It is a model built on student-driven learning. Studies suggest that this approach produces greater engagement with course material and significant experience of transferrable skills (Day, 2012) but students may learn less actual content than in a traditionally delivered program (Pawson et al., 2006). Geography, as a discipline, is a natural fit for PBL due to its field-based and multi-disciplinary focus (Day, 2012). Personal reflection on my teaching effectiveness led me to adopt a modified PBL delivery model in a 200-level geomorphology class. Each topic was centered on a leading question with content delivered through activities that promoted creativity and collaboration and supported individual learning. Evaluation has shown an increase in student engagement, improved student retention but no obvious improvement in student grades. Unexpectedly, instructor satisfaction has also increased. This paper will reflect on my reasons for adopting PBL and provide examples of classroom activities. It will discuss the challenges that were faced in adopting this approach and how these will influence future teaching innovations in my classroom.

Session: TUE-1.30-8

Defying and (re)defining) “progress” in the Philippines: The case of MASIPAG

Amber Heckelman, Integrated Studies in Land & Food Systems, University of British Columbia

As a result of the many masks of “progress” worn by different actors and agencies of the west, Philippine peasant farmers have contended with dispossession, displacement, disaster, and diaspora (4D’s) for centuries. This paper and presentation uses a political ecology lens to explore MASIPAG, a grassroots network of Philippine peasant farmers, and their “performance” in dealing with: the legacies of colonialism and ongoing implications of imperialism and neoliberal globalization; the loss of genetic diversity, biodiversity, as well as ongoing ecological degradation; and the threat of climate change and escalating vulnerabilities nationwide. MASIPAG agricultural practices and initiatives are complex, dynamic, and radical in that they simultaneously and very intentionally confront the inequities that pervade the political, social, economic, and academic dimensions of agriculture. For MASIPAG, these inequities perpetuate the landlessness, hunger, and poverty that afflict many Philippine farmers, and are therefore at the root of the 4D’s that continue to plague the Philippines.

Session: FRI-3.30-3

Resources, indigenous peoples, and development inconsistencies in Guyana

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This paper provides a sweeping overview of selected development policies in Guyana's Amerindian communities since the early 1990s. A broad lens of intervention is employed to illustrate differentiated opportunities for Guyana's Amerindian communities. It examines the role of international aid agencies, State actors, the private sector, and civil society as disparate forces enacting contradictory agendas of resource extraction and conservation. Development has generated mixed results with pathways at opposite ends of the spectrum. Some regions include trained Amerindian communities collecting data for biodiversity and/or biomass monitoring and cultural preservation while others situate Amerindian communities as active participants in an anonymous economy of extractive destruction, and still others are largely ignored and left to fend for themselves. Such extremes bring development in the Guiana Shield region into sharp relief as a heterogeneous force of change.

Session: WED-8.30-2

Natural Gas Use in British Columbia's Transport Industry

Jessica Kiyomi Henry, Department of Geography, University of British Columbia

Natural gas (NG) is an abundant resource in British Columbia. Currently, the transport sector contributes over 30% to B.C.'s total CO₂ emissions, but uses significantly less NG than other major economic sectors of Canada. Being recognized as cleaner than petroleum-based fossil fuels, wider deployment of NG as a transport fuel could make for a greener B.C. Its lower emissions footprint makes NG an attractive short-term alternative fuel, capable of bridging the period during which clean and renewable energy fuel technologies continue to be explored and developed for longer-term reliance. In this research, I will be assessing the feasibility of using NG as a widely deployed transportation fuel in B.C. The investigation will include a consultation of literature on the NG market, economic analysis of NG transportation fuel applications, and an assessment of available technologies. Additionally, expert interviews will be conducted to acquire the most recent, relevant information. I predict that the investigation will find that it is technologically and economically feasible to use NG as a transition fuel in the transport sector, but that barriers will need to be overcome if there is to be a successful transition from gasoline and diesel fuels to NG.

Session: FRI-10.30-5

Fifteen Years of Ecological Construction at Caohai Nature Reserve

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At Caohai Nature Reserve in Guizhou the character of projects under the umbrella of the “Go West” campaign has decisively shifted during the past fifteen years. Initially, economic development and ecological construction projects consisted of separate initiatives, with very little coordination between various vertical and horizontal levels of government. With little planning, oversight, or accountability, these projects had mixed results with regard environmental goals and economic development. For a time, Caohai farmers took advantage of Go West infrastructure projects to promote their own rural development by establishing small-scale ecotourist projects that required modest investments from farmers. However, by 2013, the local government had extracted enough funding for Go West projects to forge an all-encompassing vision for economic development and ecological construction: Caohai as Eco-Destination. This Go West project has been carefully planned, with intra-agency cooperation. The county government is now expanding the urban footprint, razing villages deemed unsightly, forcibly urbanizing farmers in the name of environmental sustainability; rewriting a history of conflict between farmers and nature reserve managers by creating whitewashed villages of “happy” peasants who are described as living in harmony with nature; and building lavish tourist facilities, while ignoring the environmental impacts, to attract China’s ecotourists to Caohai.

Session: WED-3.30-7

Born Free and Equal: Ansel Adams at Manzanar

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On February 19, 1942, President Franklin Roosevelt signed Executive Order 9066 authorizing the War Department to designate areas of the United States to exclude any component or group of the population based on “military necessity,” forcing thousands of residents of Japanese descent on the West Coast to move into designated government relocation centers. *Born Free and Equal: Photographs of the Loyal Japanese-Americans at Manzanar Relocation Center, Inyo County, California*, is a pictorial essay by photographer Ansel Adams that challenges the derogatory portrayals of people of Japanese ancestry in U.S. war propaganda. Moved by the human story unfolding on the land encircled by his beloved Sierra Nevada, Adams accepted an invitation to record positive images of loyal Japanese-Americans and their efforts to build a culture inside this relocation community. Adams held that the sense of place found in the Inyo landscape helped sustained the people of Manzanar in the midst of difficult circumstances, contending the surrounding western landscape was one of the few American cultural symbols the internees could still lay claim. The Manzanar photographs are significant contributing to the building of the historical record of the Second World War, questioning how American culture defines its citizenry, furthering the search for American identity of self and society as a whole.

Session: THU-10.30-3

Application of GIS and Classification Techniques in Digital Soil Mapping of Soil Classes for the Lower Fraser Valley, British Columbia

Canadian Association of Geographers Annual Meeting

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Classification algorithms uncover patterns between large datasets using computer-based statistical models, where the fitted models are used for predictive purposes with new data. In soil science, GIS has increasingly been utilized for the development of digital soil maps as a result of increased availability of spatial data and advances in computer technology. Despite the growing number of classifiers developed, few studies have provided a comprehensive comparison of these different algorithms. This study evaluates 10 classifiers for the prediction of soil classes in the Lower Fraser Valley.

A variety of classifiers were used to extract the relationships between soil classes from a conventional soil survey and a set of 20 environmental data layers that represent topographic, climatic, and vegetative characteristics of the study area. The fitted models, representing soil-environmental relationships, were used to predict soil classes for the entire study area at a 100 m spatial resolution and validated. Results indicated that a Random Forest classifier was most effective in predicting the spatial distribution of soil classes. This study provides one of the first comprehensive comparisons of classifiers used in soil science and may assist in model selection for digital soil mapping and geomorphic modeling studies in the future.

Session: TUE-8.30-6

Regional Heat Vulnerability Change – A Case Study in the United States and Canada

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A climate-driven increase in the severity and frequency of heat waves is likely to influence heat-related mortality in the near future. Previous studies have investigated spatio-temporal patterns of extreme hot weather events, and the relationship of these patterns to the social and demographic factors, in order to locate areas and people with high heat-related health risks during hot summer days. However, only a few research have investigated regional patterns of heat vulnerability and their change. This study aimed to investigate the regional change of heat vulnerability from 2001 to 2011. Adapting the heat vulnerability index of Reid (2009), 8 vulnerable populations (infant, seniors, low-income, low-education, people in bad living environments, population in old houses, singles, and unemployment) were used to estimate the heat vulnerability in the United States and Canada from 2001 to 2011. Census data from Canada and the United States from 2001, 2006, and 2011 were used to show a dissemination-area-level change of heat vulnerability across the contiguous United States and the Canada.

Session: WED-1.30-6

Describing the late Holocene fire activity on Hecate Island, Coastal British Columbia

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Wildfire plays an important role in coastal temperate rainforests of the Pacific Northwest, but how climate, vegetation and humans contribute to fire activity on British Columbia's Central Coast remains unclear. Multi-scale analyses of tree rings, fire scars and soil charcoal from a variety of forest types were analyzed to reconstruct the late Holocene fire activity on Hecate Island (N 51° 38 W -128° 05). Thirty 400 m² plots were systematically established in the 287-hectare study area burned in 1893. Fire scars from multiple species provide highly resolved temporal and spatial records of fire activity in the study area. These data are further supported with AMS radiocarbon dates of soil charcoal and post fire cohort establishment. Results demonstrate that increased fire activity in the late Holocene is inconsistent with long-term trends of cooler and wetter conditions. Cultural (Indigenous) fires may have played an integral role in shortening the fire return interval in forested areas near formerly occupied sites. Our research uses an interdisciplinary approach to examine ecological legacies associated with the possible use of fire as a vegetation management tool. Cultural fires may have a broader impact on Central Coast forest dynamics than previously known.

Session: THU-8.30-2

When, where, why, and how should Canadian stakeholders care about the health equity impacts of medical tourism in destination countries?

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Medical tourism describes the movement of patients from one country to another with the intention of pursuing private medical care. A growing phenomenon, medical tourism is thought to be a positive response to addressing health system access 'bottlenecks' in Canada, as well as a helping-hand for lesser developed countries as they seek to attain modern, Western medical standards in their healthcare systems and access foreign revenue. However, there is concern that the growth of medical tourism in lesser developed countries may serve to exacerbate health inequities for local patients, as well as medical practices and health systems. This presentation provides new insight into initial analysis of the final phase of a large-scale study examining the health equity impacts of medical tourism in Mexico, Guatemala and Barbados. Bringing the focus of investigation home to Canada, here we report on interviews conducted with Canadian professionals with a stake in medical tourism (n=20), seeking to learn what they know about health inequity in destination countries and asking what can be done to help mitigate these potential and realized negative outcomes of medical tourism development.

Session: FRI-3.30-4

Mine Ready, Capital Ready: The Structures of Neoliberalism in Nunavut Mine Readiness Initiatives

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The Canadian Northern Development Agency (CanNor) was founded under the Harper government and in 2013 launched the “Community Readiness Initiative” (CRI). The CRI was formed to assess the socio-economic status and development needs of northern communities prior to the anticipated growth of the mining industry. Presented as a means to “help empower communities to begin to take a more active management role in managing the impacts from resource development” the CRI begins with the signing of a Memorandum of Understanding between CanNor and an Aboriginal organization or territorial government. This paper will focus on the Memorandum of Understanding signed between CanNor and the Kitikmeot Inuit Association that precipitated Kugluktuk, NU’s CRI. The Kugluktuk Memorandum of Understanding will be examined to explore how such agreements serve to structure and restructure the relationships between federal, territorial, and Inuit governance structures. Further, it explores the ways in which these agreements contribute to the entrenching of neoliberal Inuit subjectivities.

Session: TUE-8.30-4

Designing Paradise: the Influence of Jewish Architects on the Urban Landscape of Miami Beach

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Miami Beach has historically had one of the largest Jewish populations in the United States. This community was significant in several ways, but for my research I wish to explore the role that Jewish architects had in developing several regional styles of architecture in Miami Beach in the twentieth century. In an era of discrimination, how did it come to be that Jews were overrepresented among the ranks of influential architects in this region?

The large Jewish community of Miami Beach fostered a professional network of Jewish land developers, hoteliers, and architects who were extensively involved in the boom years of the tourism industry. I am studying a group of these architects including Henry Hohaus, architect of the iconic Colony Hotel, and Morris Lapidus, creator of the infamous Fontainebleau. These architects were prodigious, often responsible for hundreds or even thousands of designs. More importantly they were at the forefront of modern design—from tropical art deco through Miami Modernism (MiMo), they heavily influenced the look of the region. In what ways did Jewish identity and experience in twentieth-century America shape the work of this group of architects – and by extension, shape the built landscape of Miami Beach?

Session: WED-8.30-5

How geographers can engage in the Scholarship of Teaching and Learning (SoTL)

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If the Scholarship of Teaching and Learning (SoTL) “is based on the straight-forward premise that academics should apply the same standards of scholarship to their teaching as they do to their research,” then how do geographers apply those standards (Foote 2011, 3)? This workshop will guide participants through an investigation structure that systematically researches teaching and learning in Geography that is based on the Teaching and Learning Development Grants program at Simon Fraser University (sfu.ca/tlgrants). A unique feature of the Grants program is that faculty members throughout the university come together to have teaching and learning conversations. Because Geography departments, like all disciplines, are diverse within themselves, SoTL work can bring together geographers around a common interest: student learning and teacher practice. We are directly tied to the Grants program as facilitators (Veronica and Cindy) and as a previous grantee (Eugene) and will therefore discuss how our experiences in geography and education support our work in higher education development.

Session: THU-10.30-5

Policing Sustainability: Struggling with Post-Politics in Calgary

Tom Howard, Department of Geography, University of British Columbia

Although spectres of elite control have long lurked in the margins of studies of city politics, a recent “post-political turn” in urban geography has foregrounded several new concerns regarding the role and status of democratic processes qua the maintenance of local power inequalities. In contrast to bygone theories of clandestine, back-corridor political skulduggery, this growing body of scholarship contends that elite control is secured through the proliferation (rather than retrenchment) of ostensibly “democratic” forms of stakeholder-based public engagement aimed at creating mollifying forms of consensus on development issues.

While this emergent literature promises numerous insights into the limitations of democratic planning procedures, I contend that it departs from a particular understanding of “the political” which occludes the real contingencies of local political arrangements. Using a case study of a collaborative sustainability planning exercise in Calgary, this paper explores the real contradictions and crisis-tendencies involved in attempts to foreclose political dissent through consensual governance practice.

Session: THU-10.30-1

Navigating employment prospects for new graduates in the geospatial sciences

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The ubiquity of geospatial science instruction has meant that basic geospatial knowledge is widespread. However, this is now no longer enough, relative to a decade or more ago, for students to attain related employment upon graduation. Even the best students are currently struggling to find appropriate work, and many are either deferring entering the job market by extending their education through to graduate degrees, or attending technical finishing programs at colleges that provide a deeper experience with advanced technical software use. Independent of the specific student strategy adopted, soft skills, networking, and school-based work experiences are complementary and equally important aspects of the process of transitioning from post-secondary education into a career. This presentation examines current education needs to best position students for the transition to work. The presenters begin by providing an overview of the multi-billion dollar global geospatial industry and the employment prospects for Canadian graduates. This is followed by a discussion of the hard and soft skills that are necessary to thrive within the current geospatial workforce. Exercise examples to support student reflection of their soft skills are presented.

Session: FRI-1.30-6

Income Polarization in Large Anglophone Canadian Cities

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This study examines spatial change in large Anglophone Canadian cities through an analysis of income polarization. Data is used from censuses between 1971 and 2006. Previous such research has indicated that income polarization may develop in a different manner in certain large cities in Ontario. Hence this study looks at the process in places such as Hamilton, Winnipeg, Calgary, Edmonton, and Ottawa. In this study I map out income distribution for individual years, and compare change over time. Part of the data used is published, while the other, particularly the older data, is derived using quantitative methods. The presentation will show that in many cases areas in cities are undergoing decline, and perhaps forming into what is increasing being called the in-between city.

Session: WED-1.30-7

Money matters? A qualitative study of funding organizations as a part of innovation systems and knowledge intensive clusters

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This paper explores knowledge intensive clusters in urban context from the perspective of funding organizations. We consider them as significant and integral organizations within innovation systems. Definitions of knowledge intensive clusters emphasize local connectivity, spatial networks and the co-location of companies. Clusters are important for generating economic profit and they have an important role in innovation. The importance of physical proximity and local networks has changed due to rapid technological changes. Cities also boost businesses and promote innovation indirectly through public procurements. The data is based on interviewed 11 funding organizations providing grants and other direct funding instruments for entrepreneurship and research. Based on the interviews: 1) the context of knowledge intensive cluster was not a significant factor when making decisions of funding support but the importance of local, national and international networks and co-operation was underlined; 2) the “knowledge society” has an important task in providing facilities, possibilities and creative environments. There are underused resources in the usage of open data which could help innovation and research to evolve; and 3) cities have a salient role in providing functioning environments for researchers and entrepreneurs.

Session: THU-8.30-7

A comparative mapping study of wetlands in Nova Scotia using polarimetric RADARSAT-2 combined with two different scales of optical imagery and elevation derivatives

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Nova Scotia introduced a new wetland policy in 2011 which included a goal to have no net loss of wetlands. In order to meet this goal, the Nova Scotia government has committed to updating the provincial wetland inventory. However, based on anecdotal evidence and communications with provincial staff there are likely a number of actual wetlands that are omitted from the inventory due to errors in airphoto interpretation. The objective of this study will be to assess the accuracy of wetland identification using advanced remote sensing technology and processes based on RADARSAT-2 polarimetric SAR images, optical imagery and elevation data.

Polarimetric radar images were acquired between 2010 and 2013 over an area southwest of Halifax. Two sources of optical imagery (Quickbird and SPOT 5) and two sources of terrain information (lidar and provincial government contours) were available and combined in various arrangements with the radar. A non-parametric supervised Random Forest classifier was applied to the different date combinations. Accuracy of classified images was assessed against field-based wetland identification.

Our results showed that using Radarsat-2 combined with either source of optical imagery and either

source of elevation data improved the accuracy of wetland identification over the existing air photo interpreted inventory.

Session: WED-1.30-9

Assessment of STRAVA.com data as a tool for mapping ridership

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Data on the number of cyclists are the foundation for understanding ridership trends and serve as the denominator for cycling planning and safety improvements. Currently, lack of ridership volume data is limiting research on cycling safety and trends. The goal of this research is to examine how crowdsourced cycling data can be used to inform cycling planning and safety research. STRAVA is a mobile phone application where citizens can track their cycling routes that are uploaded to the STRAVA website. The Capital Regional District (CRD) bike count program consists of select locations where cyclists are counted for one day during peak hours at different times of the year to provide a sample of ridership volumes. With CRD data accounting for all cyclists riding at each count station, this research compares what proportion consist of STRAVA riders and how this varies in space and time. The spatial distribution of correlations between the two datasets was mapped and multivariate statistics used to predict conditions that lead to high and low correlations. Preliminary results indicate high correlations exist along major trail networks that have higher volumes of cyclists and within urban areas with higher density. With continuous spatial coverage, crowdsourced data from applications such as STRAVA can provide meaningful data that can inform research into cycling trends, safety, and planning.

Session: WED-10.30-6

Securing equitable land tenure through REDD+ in Vietnam: An exploration of critical lessons

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Securing tenure is central to effective management of forests, especially under the global program on Reducing Emissions from Deforestation and forest Degradation (REDD+) for climate change mitigation. In Vietnam, forestland has been allocated to village communities in a bid to end shifting cultivation on forest margins and to promote forest regeneration. As per Decision 99, forest communities can even receive payments for providing valuable environmental services. These policy initiatives indicate a strong potential for sustainable forest management. We discuss critical lessons from this formalization of forestland tenure and identify challenges in effective implementation of REDD+. Based on author's field research, stakeholder workshops, and other field studies, we answer three key questions: (1) What is the experience with the existing tenure process in Vietnam? (2) How would this reform impact REDD+

regime? (3) What additional incentives would be necessary for effective forest governance? We discuss how the new policies can generate momentum for land reform, but would need to address challenges regarding monitoring of fragmented carbon stocks. In addition, tenure alone may be insufficient to cover the opportunity cost of converting land uses such as upland maize to carbon rich landscapes. Instead, community preference for immediate benefits would need to be balanced with the inclination of international regulators for performance based payments.

Session: WED-10.30-4

Negotiating Authenticity, Intimacy and Conflict that Accompanies 'Backstage' Access WWOOFing in New Zealand

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This presentation aims to contribute to new ways of understanding and theorizing the role of 'backstage access' in touristic experiences and how they shape participants' experiences of agricultural tourism. Academic discourses of tourism and authenticity (McCannell, 1970), and the 'backstage access' associated with authentic (agricultural) tourism experiences (Phillip, Hunter & Blackstock, 2010) frame these experiences within the context of providing positive access to a privileged backstage area or else bracket the necessity for an inaccessible 'backstage' within the Hosts' desire to retain private family space and time (Daugstad & Kirchengast, 2013). Drawing on ethnographic research conducted among WWOOFers and WWOOF hosts on the South Island of New Zealand, and on insights from the fields of tourism, and anthropology, I argue that not all backstage access is positive or privileged, and that both hosts and guests must strike a balance between intimacy and conflict as they negotiate their occupation of a shared 'backstage'.

Session: TUE-8.30-7

Chuuk Lagoon: Management Challenges Communicating Conflicting Narratives at Marine Battlefields to Dive Tourists

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Battlefield tourism research has largely focused on terrestrial battlefield sites like Somme and Ypres (Dunkley, Morgan & Westwood, 2011), Gallipoli (Hyde & Harman, 2011; Winter, 2009) and recently Vimy Ridge (Lemelin & Johansen, 2014). However, a number of marine battlefields including Pearl Harbor, Peleliu Lagoon, Saipan Lagoon and Chuuk Lagoon (formerly Truk) are popular destinations for dive tourists interested in researching, learning about and seeing historically significant shipwrecks (Edney, 2012). The interest in these marine battlefield sites has been instrumental in their development as tourism destinations (Cooper, 2006). However, with the exception of Edney (2012), who focused on the unique motivations that drive these specialized battlefield visitors, few have documented the

management opportunities and challenges that are created from such visitation (Cooper, 2006; McKinnon, 2011; Jeffrey, 2004; 2006). Using discourse analysis, combined with participant observation and key informant interviews, this paper sheds light on the traditional, contemporary and emerging interpretation techniques used at marine battlefield tourism sites, while illuminating the unique challenges and issues associated with marine battlefield tourism visitation and interpretation in Chuuk Lagoon, Federated States of Micronesia. Recommendations for Chuuk Lagoon are provided to improve the effectiveness, and increase the multi-vocality, of the interpretation used to present the Second World War artifacts, deposited during Operation Hailstone and subsequent Allied and Japanese naval maneuvers, to dive tourists.

Session: TUE-1.30-1

Performing the nation at the frontier: Filipino settlement in the Yukon Territory

Kelsey Johnson, Department of Geography, University of British Columbia

Over the past decade, Whitehorse, Yukon has emerged as a prominent site of settlement for Filipino newcomers to Canada, a trend that issues from regional mining-related economic growth in conjunction with the development of new territorial immigration policy. On the surface, immigration to Yukon - ostensibly 'employer driven,' with Filipino newcomers primarily finding employment in the service sector - bears resemblances to trends observed elsewhere in Canada. Yet the service sector Filipino workers who increasingly feature in the Yukon's economy do so as permanent, not temporary, immigrants with the right to settle in Canada. As I hope to show here, this alerts us to important state strategies in the discursive rendering of immigration geographies more broadly. In particular, I demonstrate how the emergence of new narratives of northern settlement are enrolled in nation building discourses that circulate in and about the Yukon—what I refer to as a 'catch up' version of Canadian multiculturalism. I stress how policy discourses support essentializing categories and state sponsored racial orderings that position new immigrants and local Indigenous peoples in opposition to one another. In effect, Yukon's immigration policy demonstrates how the governing of difference also involves processes of governing by difference – infusing performances of national belonging with powerful state imperatives.

Session: FRI-1.30-3

Examining 'Success' in Public Consultation: Analyzing Stakeholder Contributions to British Columbia's Water Sustainability Act

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The Water Act has defined water resource policy in British Columbia since 1909, governing water allocation, uses and quality. Between 2009-2014, British Columbia undertook a modernization process culminating in the Water Sustainability Act, which introduces new policy priorities for the management of water resources in BC. Community consultation of a diverse range of stakeholders played an important role in the development of the Act. Consultation occurred in three stages, involving public submissions in response to policy documents, as well as community meetings. Here, we examine the public submission process via a comparative analysis of the content of the submissions and policy documents. We identify predominate themes that emerged from the submissions of stakeholder groups, and examine whether their stated concerns mirrored or opposed those of other groups. These themes were analyzed in relation to policy priorities contained within the final Act. Our analysis reveals

the challenges that consultation processes pose for participatory policy development. Challenges included the reconciliation of conflicting stakeholder positions; the potential for disproportionate stakeholder influence; balancing expert and stakeholder input; and contestation of the legitimacy of consultation for First Nations engagement. We draw on this analysis to question how 'success' is conceptualized and evaluated in consultation processes.

Session: WED-3.30-2

Mapping the Stress Landscape in the City of Toronto

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Urban environments often function as centres of culture, social life, and commerce. With the majority of the world's population living in urban centres it is vital to understand how people interact with these spaces, and how these spaces shape their well-being. One large hindrance in the study of environment-stress relationships is access to large scale, granular information about individuals' daily patterns and encounters. In urban settings this problem is exacerbated, as individuals are highly mobile, which can provide a challenge. Geosocial media, such as Twitter can provide information about in-situ encounters with stress and first reactions to situations individuals may face in daily life. This research focused on the spatial distributions of emotions in the city of Toronto as measured by geosocial data. Tweets from Toronto were harvested from September 2013 to October 2014. The Tweets were classified by emotional content, and a linked micromap application was used to display the statistical differences in emotional polarity of tweets as well as amount of emotional content within each neighbourhood. The results show there is variability in the location and intensity of emotions across the urban landscape as individuals' interactions with local resources change.

Session: FRI-10.30-7

Contingent High-Density Redevelopment in Metro Vancouver's Low-Income SkyTrain Corridor

Craig E. Jones, Department of Geography, University of British Columbia

According to Canadian Census and Taxfilers data, a contiguous zone of low income census tracts has emerged along the SkyTrain Expo Line in the Metro Vancouver. Within this low-income corridor there are strikingly similar processes of neighbourhood change near SkyTrain stations. As the population of Metro Vancouver is expected to grow in the next 20 years, accommodating growth through high-density redevelopment has become a widely accepted policy mandate, as long as high-densities are well served by public transit. This process is made contingent by a variety of factors; the presence of rapid transit is important, but so are municipal policy, private investment, and community response to high-density rezoning.

Expectations that land values near transit will increase because of these policies has created issues in

many neighbourhoods as landowners fail to properly maintain their properties. Another consequence of high-density redevelopment is the loss of affordable rental housing near SkyTrain stations. The management of the tension between affordable housing and access to public transit falls into something of a regulatory vacuum, with no authority responsible for ensuring that transit is available to those with the greatest need, but the fewest housing options.

Session: THU-10.30-1

Dental Service Disparities in Canada: Saskatoon, SK Case Study

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Oral health is an intrinsic component of systemic health and well-being. However, in Canada dental care (other than emergency, hospital based services) is not covered by the Canada Health Act and is delivered primarily on a fee for service basis. This study explored the urban arrangement of dental services in Saskatoon, Saskatchewan. We were particularly interested in three topics: 1. Establishing a baseline representation of the arrangement of dental care and access to dental services, 2. Comparing this arrangement with that of Primary Health Care (PHC) services, and 3. Visually exploring the relationship between access to dental services and both socio-economic variables and indicators of dental health outcomes. With cartographic and statistical methods it was found that access to dental care is more clustered than access to PHC, and that potential access, income, and family structure are significant factors that predict variability in oral health outcomes. The results of this study can be used to better understand the issues, both spatial and non-spatial, that individuals face in accessing timely oral health care.

Session: WED-1.30-6

Good Practices for Environmental Assessment

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Environmental assessment (EA) has emerged in the last five decades as one of the primary management tools for protecting the environment. However, despite substantial theoretical development and practical experience, there are concerns that EA is not meeting its objectives. This paper develops a set of good practices to improve EA by integrating a list of proposed good practices based on a literature review of impact assessment research and related fields of study. The practices are then evaluated by surveying experts and practitioners involved in EA of tar sands (also known as oil sands) development in

Canada. In all, 75 practices grouped under 22 themes are recommended to achieve effective EA. Key unresolved issues in EA requiring future research are identified.

Session: WED-10.30-5

Turning research into practice: mainstreaming climate change adaptation into local policies and institutions through IDRC-funded development projects

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Mainstreaming climate change adaptation into development efforts is recommended to overcome the perceived competition between development and climate change adaptation needs (Ayers et al., 2014; Sharma & Tomar, 2010). In the past decade, international development funding agencies have begun to identify vulnerability to climate change and opportunities for adaptation in development projects (Klein et al., 2007). The International Development Research Council's (IDRC) Climate Change and Water Programme funds climate-related development research, and such research can play an important role in training local decision-makers, increasing local knowledge of climate change, and implementing adaptation. There is little understanding, however, of how such efforts can support mainstreaming and the integration of adaptation priorities into local institutions and policies. Few studies have examined how mainstreaming happens (Nunan et al., 2012; Rauken et al., 2014) and what tools and processes local actors can engage with in their efforts to integrate climate change adaptation and development research into institutional priorities.

Using case studies from IDRC-funded climate change adaptation projects, this paper explores the different ways local researchers are facilitating the integration of climate change adaptation into government institutions. In contrast to traditional conceptions of mainstreaming as vertical, top-down processes (Klein et al., 2007), we explore how IDRC-funded projects at the community-level are working to scale up climate change adaptation and integrate adaptation at multiple institutional levels. Using detailed project documentation, we identify the actions taken by researchers and their motivation to provide insights into how we can better link research to action on climate change adaptation.

Session: WED-3.30-5

Informality as De Facto Right to the City: Urban Change and New-Old Forms of Urban Social Movement

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This paper argues that “informal” practices in marginalized communities represent a “de facto” right to the city and constitute a contemporary form of social movement. In large metropolises of the U.S. Sunbelt, the dominant urban form is inherited from the postwar period and continues to be reproduced according to the Fordist logic of standardized mass-production development. This pattern of development not only outlived the society for which it was produced, but also undermined the livability of older neighborhoods, especially in inner-ring suburbs that provide the few affordable housing options available to low-income immigrant families. The enforcement of outdated and obsolete controls over the use of space creates a climate of physical and mental incarceration in these neighborhoods. The paper focuses on resistance practices embedded in everyday life and that counter oppressive patterns of urbanization. The paper situates the widespread and networked production of these practices in the context of contemporary forms of social movements and urban resistance. Insights gained from the analysis of spaces and tactics of resistance broaden our understanding of political action in cities and especially among low-income and immigrant communities.

Session: THU-8.30-1

Performing collective responses to precarity: Filipina Caregivers and the artistic production of solidarity

Philip Kelly, York University
Conely de Leon, York University

For 30 years, Canada has had temporary worker and immigration programs to bring in caregivers who will look after children, elderly persons, or those with a disability. This is a form of work that is gendered (female) and racialized (overwhelmingly Filipino), as well as precarious, low-status and low paid. This study examines the ways in which performance and visual arts have been used to mobilize and generate solidarity among caregivers in Toronto. We highlight the work of visual artists, songwriters, dramatists, graphic novelists and storytellers - all of them either caregivers themselves or working in close collaboration with caregivers. We examine the ways in which their creative output fosters solidarity and agency among caregivers, promotes advocacy for reforms to the caregiver program, and seeks to promulgate a discourse of respect and dignity for caregiving work.

Session: FRI-3.30-3

Reforming First Nations Engagement: Experiences of the Taku River Tlingit First Nation with the Tulsequah Chief Mine

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The Tulsequah Chief Mine, located on Taku River Tlingit First Nation territory, first received an Environmental Assessment (EA) Certificate in 1998. Since that time, the Taku River Tlingit First Nation (TRTFN) has contested the EA process and 1998 decision both in and out of court. Based on interviews with key actors from the TRTFN and review of relevant documents, this paper investigates interactions among EA processes, litigation, treaty negotiations, and government-to-government agreements as they have been used by the TRTFN to exercise their rights and interests. Our analysis shows that the EA process is particularly weak after a project decision has been made, as there are insufficient channels for follow-up, monitoring, or reconsideration of a decision. Reconsideration in this case is of particular concern as the now-defunct Project Committee structure is procedurally unfair to the First Nation representative. Most importantly, this research shows the necessity for a process that encourages strong relationship building between First Nations, project proponents, and British Columbia. Reforming EA to encompass post-decision needs, increase First Nation inclusion, and prioritize good relationships has the potential to ensure that EA is adaptive to changing realities and thereby maintaining some legitimacy.

Session: WED-10.30-5

Embodiment and Environmental Gentrification: Urban Change Through the Socio-Natural Body

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For over ten years I made my home in a formerly industrial Toronto neighbourhood considered to be “too shitty to even wreck.” During that time, the Junction pursued a brand as an eco-health neighbourhood hub. Was this a case of environmental gentrification? Or was the toxic past remediated through place marketing strategies that promised a clean, green, sustainable future? There are elements of both in the Junction’s story of transformation, but here I suggest that environmental gentrification also works through the conflation of both pollution and ‘health’ with different kinds of urban bodies and embodied (body-centred) practices. This perspective advances an intra-active theory of urban change, exploring the materialization of landscapes of gentrification through the radical co-constitution of representations and materiality, bodies and cities, nature and social relations. Bringing bodies to the foreground offers a fresh perspective on material processes of urban change and urban inequalities, working off of but also outside of the dominant political-economy framework for understanding gentrification.

Session: THU-8.30-1

The colonial origins of Guyana's underdevelopment

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Colonial settlement pattern from the seventeenth century locked Guyana into polder agriculture and a small population dispersed over a long narrow geographic area. The result is high marginal and average cost of production in the agricultural sector on the coastal plain. Developing inland agriculture will require significant upfront costs that will also likely result in high average and marginal cost of production. This paper traces the historical origins of the settlement pattern and examines the role played by geography in shaping the historical population and production settlements. History suggests that the adverse geography not only shaped the form of settlements, but also required some form of profit targeting by planters in the face of stiff global competition in the world sugar market in most of the nineteenth century, motivating the suppression of wages and the playing off of one dominant ethnic group against the other main group in the labor market. Hence the historical origins of today's divided politics that continues to be a serious drag on economic development. A theoretical analysis is presented showing how a vicious cycle of underdevelopment is perpetuated by the exogenous forces of geography and foreign price competition.

Session: WED-1.30-2

Sherlock Holmes le symptôme: The Literary Enjoy-meant of the Stormy Petrels

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Geographers have engaged literature in terms of its geographical tropes and devices, as well as the places, landscapes, and regions from which it was produced. There are, however, very few geographical studies on the lived spaces of literary clubs and societies that gather in the name of a specific genre and/or author. To remedy this lacuna, my paper explores the literary lives of "The Stormy Petrels of British Columbia" (hereafter Petrels): Vancouver's official Sherlock Holmes Society. Drawing on semi-structured interviews with Petrels members and participant observations of their activities, I explore how social life coheres around literature. My theoretical framework uses Jacques Lacan's concept of the *sinthome*, which refers to the insertion of oneself into social space via the poetics of writing and speaking, to argue two points: first, that the social bonds of the Petrels meetings are sustained by its members' enjoy-meant (*jouis-sens*), that is, the enjoyment generated from repeatedly talking about all things Holmesian. Second, that the Petrels' hoarding of Sherlockiana memorabilia such as books, posters, and clothes are synthetic creations (*sinthomes*) that knot together life and literature.

Session: TUE-3.30-3

Options and opportunities to collaborate for sustainability of the Redberry Lake Biosphere Reserve

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UNESCO Biosphere Reserves (BRs) are aimed at conservation, sustainability, and science/education. A BR designation, however, does not guarantee that these functions will work automatically. It is a challenge for local rural communities that support BRs to identify and implement options for sustainability. This research studies Redberry Lake Biosphere Reserve (RLBR), which was designated in 2000 largely by a bottom-up initiative of local residents. The BR is located in a region challenged by the industrialization of agriculture and the resulting rural out-migration. Without strong support from government, RLBR has been faced with many challenges such as the need to strengthen its function for social and economic sustainability, and to become more financially self-sufficient. In order to address these challenges, RLBR is reforming its governing structure, under which a wide range of themes including invasive species, environmentally sound agriculture, social enterprise, education and research are pursued by working groups with dedicated leaders. Preliminary outcomes show emerging opportunities for collaboration between diverse stakeholders, as well as increased options for action. RLBR showcases experiences of trials and challenges of seeking conservation and sustainable development in rural settings, with lessons valuable to other BRs and rural communities striving for social, economic and environmental sustainability.

Session: WED-3.30-8

A review of R packages for the analysis of wildlife movement

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Supported by advances in geographic information science (GIS), computing power, and statistical software, researchers are developing new methods that provide wildlife biologists with powerful analytical tools to answer nuanced questions regarding animal movement. Open source statistical software R is especially suited for ecological analysis, as it supports a wide range of statistical methods and is used by researchers from diverse fields. The goal of this paper is to review R packages for conducting movement analysis with the specific aim of identifying opportunities and challenges in assessing the interaction between wildlife movement and the physical environment. We identified three research questions that are commonly asked in movement studies (quantifying pattern, linking movement to process and behaviour, trajectory interpolation or simulation) and evaluated existing R packages intended to answer these questions based on four criteria: data preprocessing, analysis

options, outputs, and availability of user resources. Methods are demonstrated on telemetry data from grizzly bears and caribou in west-central Alberta. Linking telemetry data to environmental characteristics provides an opportunity to develop theoretical data-driven approaches for quantifying the interaction between wildlife movement and the environment.

Session: TUE-3.30-6

Public Kitchens as spaces of encounter

Melora Koepke, Department of Geography, Simon Fraser University

Although food banks have long been the norm in North American societies, long-term dependence on such triage food-provisioning strategies has been shown to reinforce patterns of social marginalization among frequent users. In contrast, there is a growing movement toward public food practices (e.g. shared community kitchens and "food centres") in low-barrier, horizontally-organized spaces such as collective and community "public kitchens" that offer fellowship and connection, as well as calories, for users and practitioners from a variety of socioeconomic backgrounds. In these "spaces of encounter", shared consumption of healthy food, sometimes prepared collectively, becomes a relational medium connecting populations usually separated by material, economic, and geographical conditions. Taking into account preliminary observation in several public food sites such as the annual Public Kitchen put on by Boston's Design Studio for Social Intervention, and the ongoing programs at The Stop's Community Food Centre in Toronto, one of Canada's Community Food Centre locations, I suggest that these places cultivate an affective sense of spatial "belonging", as well as measurable socio-spatial and nutritional outcomes. My conceptualization of food-sharing as a "moment" (informed by the Lefebvrian concept), and of "event" (in the Deleuzian sense) brings the inseparability of time and space into everyday practices. As participants embody different roles in 'doing', they generate new relationships with each other and with food itself. In this paper, I develop and further explore an understanding of the microgeographical socio-spatial qualities and possibilities that might be found in meals cooked and/or eaten together. These meals offer an expansive potential for "being" in reimagined space where which new political processes may begin.

Session: TUE-3.30-1

Teaching intersectionality dynamically

Sara Koopman, York University

This will not be a presentation but rather a series of short facilitated exercises that you can adapt and use all or part of in your classroom for teaching the concept of intersectionality. These will include self-reflection, group diagramming, and moving bodies around the room. This process starts from and builds on participants' personal experiences. It aims to engage auditory, visual, as well as kinesthetic learners.

Session: WED-3.30-3

Experimenting with techniques for spurring discussion of current events in the classroom

Sara Koopman, York University

I will discuss the pros and cons of the various ways I have tried for requiring students to bring in and engage with news stories related to the class topic. In different classes I have had students present and discuss these live and in class, via an email listserve, and using a google plus group. I have also experimented with different marking schemes, timeliness requirements, and quantity and commenting requirements.

Session: THU-10.30-5

Security through solidarity: using privilege for peace

Sara Koopman, York University

Geographers, notably Cowen and Smith, have argued that the geopolitical era has shifted to the geoeconomic. Sparke has recently argued that it is more useful to see how the two have been and continue to be entangled, and used to mask each other. Global racial imaginaries are also caught up in this knot, and I propose that these could be usefully understood as geosocial dynamics. I explore this idea through the case of Colombia and international protective companions there who, I argue, leverage intertwined geopolitical, geoeconomic, and geosocial privileges to create alternative securities through solidarity. They do so to support Colombians who are under threat because of their work to change the very systems that offer the internationals those privileges. I have argued that these groups are doing altergeopolitics. I am now exploring how that work is also based on building alternative geoeconomic and geosocial relationships, and how the three are entangled.

Session: FRI-8.30-4

The Exotic Remote, the Urban Periphery and the Boring Bits in Between: (re)Conceptualizing the nature of regional tourism development in rural spaces.

Rhonda Koster, School of Outdoor Recreation, Parks and Tourism, Lakehead University

Rural tourism has been extensively researched, with much written on the opportunities and challenges for economic development associated with rural spaces. Specific examination has been given to the more remote regions of the north and arctic (e.g. Muller, Lundmark, & Lemelin, 2013), while others have

studied rural tourism in urban fringe areas (e.g. Koster, Agnew & Lemelin, 2010). Additionally, regional tourism development, innovation, governance, resource/economic development implications within rural spaces have also captured the attention of researchers (e.g. Carson and Carson, 2011). Less common to find is research that questions the role of tourism in rural communities, and even fewer, that consider the implications of geographic location. Though often used interchangeably, and less often defined, rural, peripheral, and remote are terms used throughout our research, but are not conceptualized in terms that critically assess the role and potential of tourism in different geographically distinct regions. This presentation explores the concept of regional tourism development through an appraisal of its role in various contexts, arguing that remote and fringe spaces have opportunities not present in the areas between; it is in these understudied 'boring bits' that we have to critically assess the role of tourism in regional and community economic development.

Session: TUE-1.30-4

Integrative indicators: Redefining tourism and sustainability in the northern periphery

Kristín Rut Kristjánsdóttir, Faculty of Life and Environmental Sciences, University of Iceland

Rannveig Ólafsdóttir, Faculty of Life and Environmental Sciences, University of Iceland

Kristín Vala Ragnarsdóttir, Faculty of Earth Sciences, University of Iceland

Northern periphery regions are likely to experience increased environmental, social and economic impact of tourism in the nearest future. These changes contribute to an already complex and dynamic system where communities are marginalized in policies and decision-making processes. Therefore it is of vital importance that a holistic and integrative assessment of sustainability performance is an active part of decision making processes in these regions. The general aim of this study is to review methodological development of integrative sustainability indicators in the context of tourism and to discuss the practical implementation of these in northern periphery regions. A systematic literature review of published papers in academic journals was conducted in order to derive the most integrative and holistic approach to measuring tourism sustainability. The review resulted in two methods where indicators are organized spatially on one hand and with a systemic indicator systems (SIS) method on the other hand. These two approaches problematize the concepts of sustainability and sustainable tourism by suggesting a continuous redefinition of sustainability challenges according to system changes and stakeholder views. The methods will be used to develop a framework of sustainability indicators in a case study of the tourism system in Vatnajökull National Park in Iceland.

Session: TUE-1.30-4

Value and care in the sharing economy: examining the mompreneur as techno-utopic ideal

Meredith Krueger, Department of Geography, University of Washington (mkrueger@uw.edu)

This presentation will examine the mompreneur as a normative ideal who structures emergent social and political-economic relations. My research finds that she functions within neoliberal discourses as a model solution to a particular problematic, constructed as a dilemma for individual mothers regarding how to negotiate the aspirational desire for a high-status career with that of a lifestyle centered on caring for their children. This problematic is constituted in a set of complementary discourses which have governed the structural privatization of care in relation to capital accumulation processes: neoliberalism, colorblindness, heteronormativity, techno-utopianism and intensive mothering. I take a feminist political economy of care approach to situate the mompreneur and her accompanying problematics within the historical development of capitalist social relations. I then theorize systems of value in the contemporary “sharing economy” in order to investigate how the mompreneur-as-ideal relates to the co-constitution of race, gender and class in an age of neoliberal techno-optimism. To this end, I examine how the discourse of the mompreneur has been mobilized toward the establishment of new technologically-enabled economic relations, and how these practices fit within historical geographies of marketization. This work exposes the systematic invisibilities in contemporary practices of production and exchange, demonstrating the political potential of theorizing techno-economic relations through a care-centered lens.

Session: WED-1.30-7

Identifying Values, Indicators, and Benchmarks for a Regional Cumulative Effects Assessment System Grounded in Traditional Knowledge and Values

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Regional cumulative effects management systems assess and monitor the condition of biophysical, social, economic and cultural values over time. Values are at the core of any cumulative effects management system, but a methodological challenge of cumulative effects management is identifying well-defined values that are both responsive and measurable at a regional scale. In particular, current practices for identifying biophysical values are not broadly applicable to different ecosystems at a regional scale and often do not explicitly incorporate traditional knowledge and Aboriginal values. This presentation will discuss a case study of a regional cumulative effects management system that is being developed for the traditional territory of the Metlakatla First Nation on the North Coast of British Columbia. The process and methodological approach for identifying biophysical values, indicators and benchmarks for a regional cumulative effects management system is described. Several marine-based biophysical values were identified as potential candidate values. A stakeholder-driven workshop identified two biophysical priority values that could be implemented in a pilot project for the Metlakatla regional cumulative effects management system.

Session: WED-1.30-5

Visualising Land Ownership and Occupation Among Chinese and Japanese Market Gardeners in the Central and North Okanagan Valley, 1880s to 1950s

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In times past, “White Canada Forever” was the cry throughout British Columbia. Chinese and Japanese were both considered unassimilable, but while both were subject to discriminatory government policies and a strong anti-Oriental movement supported by trade and veterans’ associations, only the Chinese were required to pay a head tax. Focused on the Central and North Okanagan Valley, this research reconstructs the heritage landscapes of Chinese and Japanese market gardeners using an historical geographic information system informed by assessment rolls, irrigation records, fire insurance plans, first person interviews, and a variety of textual sources. In market gardening, reliable access to land can be a “make or break” factor. Land ownership opportunities among both groups were limited, however, GIS analysis and visualization reveals a dynamic, complex and varied history of land access among the market gardeners. Maps generated showing land ownership versus leasing and renting reveal trends that differ across the study area and throughout the period. The use of an HGIS for visualising the pattern of land ownership and land use reveals certain spatial implications of race-based discriminatory policies that would not be so evident using traditional historiography or aspatial methods.

Session: THU-10.30-3

Back to the (Clam) Future: A case for local aboriginal management of clam fisheries in BC

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When national fisheries policies fail to meet social, economic, and environmental concerns, trust between government and fishing communities can be eroded and coastal livelihoods jeopardized. This paper focuses on one such example in British Columbia, Canada, where the federal government implemented regulatory changes in the 1980s and 1990s in efforts to increase the earning power of individual fishers, and address concerns about management and conservation. I draw from the clam fisheries in Broughton Archipelago, highlighting three management issues identified by local aboriginal fishing communities: (1) few opportunities exist for community input; (2) managing hundreds of beaches as a single area overlooks declines on individual beaches; and (3) traditional aboriginal management rules and practices developed over millennia to sustainably manage beaches have been ignored by decision-makers. Field data gathered in coastal aboriginal communities is presented to examine how these communities are adapting their traditional governance system to influence the future management of clam fisheries.

Session: WED-3.30-1

Negotiating Human Rights and Responsibilities: everyday politics in northern Uganda

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Drawing from a year of ethnographic research in northern Uganda with a ADO, a grassroots human rights organization, this paper explores the theoretical and material implications of the relationships between rights and responsibilities. Following decades of war and forced displacement in the region, human rights provided a language through which ADO members could articulate complex networks of responsibility for the many social ills they dealt with on a regular basis. It was a language that tied them to international agendas and advocacy networks; it was also a language flexible enough to address the context-specific aspects of their lives. While ADO members dealt with some human rights violations individually, attending to the immediate needs of those in vulnerable or dangerous situations, their larger goal was to build social systems in which people's well-being was enhanced. To achieve this goal, they relied on the concept of responsibility to establish social norms through which rights could be realized. While in no way unproblematic due to its reinforcement of particular gender, age, and class norms, their focus on norms of responsibility was productive in that it created spaces for debating the social relations desired by those struggling to define peace in the post-war landscape.

Session: FRI-1.30-8

Teaching Hope

Nicole Laliberte, University of Toronto Mississauga

Drawing on bell hooks' writings, I will explore the possibilities and challenges of incorporating hope into teachings on social justice which tend to focus on oppression, violence and inequality. I will briefly discuss some of the successes and failures in my attempts to incorporate hope into my teachings before opening the conversation to others to share their challenges and successes of teaching with hope.

Session: WED-3.30-3

Locating Queer Communities in Canada; a resources-based cluster analysis approach

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Defining Queer space in the realm of critical geography takes a highly theoretical approach. As researchers in the field of Queer Geography continue to develop these arguments along gradients of dominant sexual archetypes, there is still an opportunity to define the boundaries of this "space". The

progressive development of queer communities across Canada in the past 50 years provides an excellent model for delving into an empirical definition of queer spaces. Traditional perspectives of queer communities have been understood as areas populated primarily by LGBT individuals. The question remains as to why certain geographic areas (villages, neighborhoods, towns) have developed a strong sexual identity associated with the LGBT community. This paper builds upon a previous analysis of defining queer communities by quantifying the availability of LGBT-specific social services in major cities. It attempts to examine this spatial relationship of resources at a cross-provincial level in Canada using SatScan software and Ripley's K analysis to conduct a cluster analysis of LGBT social resources. The findings of this study will be of interest to institution that are providing resources geared to the LGBT community in Canada, and to ethnographic researchers interested in understanding spatial distributions of these communities.

Session: FRI-8.30-4

A Tale of Two Oceans: Alaska Native coastal communities and fisheries policies in the Gulf of Alaska and Bering Sea

Steve J. Langdon, Anthropology, University of Alaska Anchorage

Neoliberal reforms under both federal and state auspices have been ongoing in Alaskan fisheries since 1975. However, two significantly different systems and outcomes for communities and residents of small coastal Alaska Native communities have developed since that time, one in the Gulf of Alaska and another in the Bering Sea. This paper will discuss the divergent policy orientations, institutions and property relations that have been developed in the Gulf of Alaska and the Bering Sea. Both state and federal regimes in the Gulf of Alaska are based primarily on individual ownership of marketable rights to fish while in the Bering Sea regime, the federal Community Development Quota (CDQ) program is based on collective ownership of nonmarketable permanent quotas by community-based nonprofits who utilize their resources to generate fisheries earnings opportunities for community residents through allocation and royalties and provide a wide range of benefits to the communities through their revenues. The paper will explore the contexts and contingent processes through which this parsing of domains between large corporate interests in Seattle and the residents and communities of the small coastal villages of western Alaska developed. Seen in geographic and political economic terms, the Gulf of Alaska fisheries have largely been "ceded" to Seattle-based colonial fisheries interests while in the Bering Sea the institutional formula has made possible efforts to "decolonize" major aspects of the fisheries and geographically re-position benefits. Ongoing efforts of the CDQ organizations to continue "decolonizing" the rural coastal economy of the Bering Sea as well as leverage their positions to benefit the larger Alaskan coastal economy will be highlighted.

Session: WED-1.30-1

Transnational Practices of Montreal's Haitian Community

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Montreal's Haitian community is the third ethnic group in terms of importance and offers an interesting example of diaspora. Studying their mobility practices and how these practices impact concepts such as identity and place allow us to understand their articulations on a local and transnational scale, in a context of globalisation and contraction of the world due to new technologies. Specifically, this study aims to understand how transnational practices and networks impact territorial constructions and anchorage of Haitians in Montreal. For this purpose, twenty interviews and two round-table discussions were organized. A careful analysis of these illustrates the trajectories, places and types of anchorage and the role of new technologies in the translocal connections of this community. The results highlight the crucial role of the home for this community and the ways it is inhabited, the differences in the use of public space as well as the importance of the political dimension -- which is always essential to the understanding of the processes studied even if they are not explicitly mentioned in the interviews.

Session: FRI-1.30-5

An Evolving Relationship: Parks Canada's work with Aboriginal Peoples

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For many Inuit, Métis and First Nations peoples in Canada, protected areas are seen as living entities; keepers of their histories and cultures that not only link to their past but also represent their hope for the continuation of traditional and cultural activities with their youth and communities. This view is often at odds with those of the western culture who sees the management of protected areas as excluding human activities that have taken place on the land for thousands of years. These conflicting views create challenges between Aboriginal peoples and organisations whose mandate is to manage and protect these heritage areas and also ensure that the voices of Aboriginal peoples are taken into account in decision-making processes.

This presentation will look at how Parks Canada works with Aboriginal peoples in managing protected areas and ensure that the voices of past ancestors and future generations are taken into account. Finally, the presentation will give examples of how Aboriginal peoples, researchers and organisations such as Parks Canada can work together to ensure the continued existence of these sites in the face of climate change and globalisation both of which threaten their very survival.

Session: WED-3.30-8

Measuring Local Government Participation in Environmental Assessment across Canada

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Ongoing movements to 'streamline' Environmental Assessment (EA) legislation and processes in Canada have eroded the rights and opportunities for local governments to participate in EA. The 2002 amendment to the BC Environmental Assessment Act removed the requirement for consultation with municipalities and regional districts, while the Ontario Green Energy Act (2009) removed municipal decision-making authority over renewable energy projects within municipal boundaries. Catalyzed by proposals for a series of major energy projects, local governments across BC have demonstrated mounting dissatisfaction with their role in the EA process and have turned to independent means to influence and oppose the projects, including political campaigns and coalitions. However, at the same time, municipalities in Ontario have received renewed authority through recent changes to Ontario's Green Energy Act (2009) and have been recognized as valuable partners for coordinated project planning. Despite this diversity and political tension across Canada, little academic research focuses on the role that local governments play within EA processes. Through interviews with representatives from over 25 local governments involved in 12 project case studies in Ontario and BC, our research outlines the shape of local government participation and opportunities for improvement to harness the value they offer to EA processes.

Session: WED-1.30-5

Brazil's Indigenous Lands as "commons" and Raposa Serra do Sol: A proposal of study framework and learning case in the Guyana Shield context

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Externally acknowledged by science, yet still internally unexplored, the conservation and environmental relevance of Indigenous Lands (ILs) in Brazil is a key challenge for the National Policy for Indigenous Lands' Environmental Management (PNGATI). Elinor Ostrom's commons' theory provides an Institutional Analysis & Development (IAD) framework that can be applied to understand indigenous territories' socio-ecological data, trends and ground dynamics, pointing out to the relevance of juridical pluralism for sustainability (Lauriola, 2013). (How) Can this framework be usefully applied in the Guyana Shield? What are the main policy challenges in this context?

Indigenous Land Raposa Serra do Sol, at the core of the Guyana Shield, is a landmark in the recent history of indigenous land rights in Brazil. However, its significance is ambiguous: while ruling in favour of 3 decades' long indigenous rights pleads, the Supreme Court established 19 "conditioning clauses" undermining indigenous land rights' very nature. After 2009, unprecedented political and economic pressures have invested indigenous land rights: Constitution Amendment Proposal (PEC) 215, aims to transfer indigenous lands' demarcation from the executive to congress. (How) Could Raposa Serra do Sol serve as a comparative study and learning case in the Guyana Shield context?

Session: WED-10.30-2

Attempts to assemble Blue Economy imaginaries in New Zealand in 2014 - a conference-centred interrogation

Richard Le Heron, School of Environment, University of Auckland

Erena Le Heron, School of Environment, University of Auckland

Internationally the Blue Economy metaphor has been mobilised since the mid-2000s in a variety of contexts, by many interests, towards diverse socio-ecological ends. We understand the Blue Economy as two divergent interpretations (that may be co-constitutive imaginable futures). First, the ocean is regarded as the next resource frontier full of potential. Second, blue economy is an idea growing out of green economy thinking that tries to reframe in revolutionary terms how things might be done differently for water. This paper offers situated and grounded engagements with three different conferences held in New Zealand in 2014 that addressed ocean, water and industry matters. In New Zealand the annual Environmental Defence Society conference forms a widely attended non-sectarian framework for intensive discussion of pressing issues of environmental concern to the New Zealand economy. In contrast the fisheries and aquaculture annual meetings offer the industries the opportunity to speak with industry members on political, practical and social issues that are relevant to business. The seafood conference in 2014 badged itself as Blue Economy, while the advertising of the other two suggested programmes covering Blue Economy. Ethnographic participation in the conferences and discursive analysis of publicity material, speeches, papers delivered, panel discussions, question and answer sessions and informal discussions during breaks was motivated by a sequenced opportunity to see what Blue Economy the kinds of assembling work being attempted by various parties, for whom, and for what ends and means, in the name of Blue Economy, or any other compelling metaphor. The investigation concludes that currently in New Zealand, intellectual and practical knowledge of what the metaphor could mean is limited, and that during the conferences significant cognitive gaps and barriers relating to oceans and water were found, and that cognitive questions pose challenges for knowledge capability building.

Session: WED-1.30-1

Over the Edge: Making Métis Places Beyond Homeland Boundaries

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While concepts of homeland and residency may have been once necessary to “spark and/or foster the emergence of the Metis as a people” (Macdougall 2010: 95), such ideas are increasingly problematic for contemporary Métis populations. The Metis National Council has been outspoken about supporting exclusive definitions of the term ‘Métis’ that are based on having connections to the historical Metis Nation Homeland, which is centralized in Canada’s prairie provinces. This has been a means of

legitimizing the Métis national identity through the use of a western nation-based model that considers ties to bounded historic territories as repositories of collective resources and memories (Smith 1991). While some Métis politicians and scholars have argued that until there is a consensus on the definition of 'Métis' and requirements for citizenship and homeland boundaries are agreed upon, the Métis will not be able to capitalize on self-government opportunities (Belcourt 2013; Chartrand 2001), self-identifying Métis people are not in agreement as so many occupy the geographical and sociological margins of the Metis Homeland. Despite judicial, scholarly and political determinations of legitimate Métis places, Métis communities act in resistance against colonial restraints by transposing cultural practices and making places of their own, on their own terms.

Session: TUE-3.30-2

Co-creating an alternative: the moral economy of consumer and producer motivations for participating in farmers' markets

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Growing dissatisfaction with the globalized food system, articulated on the behalf of both producers and consumers, has become increasingly visible in society over the last two decades. During this same time, farmers' markets (FMs) and other forms of direct marketing have experienced a noteworthy increase in participants, indicating an emerging demand for an alternative to conventional food networks. This study examines who is participating in these alternative forms of food production, sale and consumption, and their motivations for doing so. The study is framed within the context of first world political ecology and moral economy. While previous research has examined the motivations of consumers and producers separately, little research has explored motivations of both actors in a comparative perspective. This mixed methods study consists of 377 consumer surveys and 17 producer surveys and semi-structured interviews from five FMs chosen to reflect the rural-urban gradient of the state of Delaware. The results suggest that producer and consumer motivations to participate in FMs, particularly a shared emphasis on social value, are indicative of a sense of moral economy. However, this moral economy is complicated by tension toward consumers and the alternative food movement more generally expressed on behalf of producers.

Session: FRI-1.30-7

Practitioner Survey of Uncertainty Consideration and Disclosure in Environmental Assessment in Canada

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Uncertainty is unavoidable in EA. Agencies and scholars have demanded that proponents be more explicit about uncertainties, but questions arise on whether decision makers are willing to accept and consider uncertainty when making project decisions; and whether proponents are willing to take the risk of acknowledging the uncertainties about the impacts of their project. This paper presents the results of an online survey of Canadian EA practitioners, regulators and interest groups. The survey explored uncertainty in the EA process, uncertainty consideration in the practice of EA, and incentives for uncertainty disclosure. Results revealed insights into the dynamics of uncertainty in the process and practice of EA and in decision-making and communicating about project impacts. Most participants categorized EA as a tool for information provision, with most uncertainty in predicting impacts and identifying and assessing potential cumulative environmental effects. Such uncertainty was attributed largely to imperfect knowledge and inherent variability. Significant differences were found among participants with regard to their views on uncertainty in EA, whether and how uncertainty is considered in practice, and the uncertainty disclosure attitudes and behaviours of those involved.

Session: FRI-10.30-4

Standing up for Homeowners: The Fight to Keep Homeowners Inside their Homes

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Since 2007, housing counselling services in both Chicago and Jacksonville have been very instrumental in keeping distressed homeowners inside their homes. Empirical evidence from my interviews suggests that homeowners are still experiencing difficulties in knowing where to turn for help. This study uncovers some key findings that indicate how organizations working in different geographical regions navigate through the foreclosure crisis in order to keep at risk homeowners inside their homes. The National Foreclosure Mitigation Counselling Program (NFMCP) was created to expand the availability of no-fee counselling services to assist delinquent borrowers who are at risk of foreclosure. Interviews with both housing counsellors and homeowners reveal a disjointed relationship between the policies of this program and its impacts. An ongoing problem is that many distressed homeowners are unaware of the role and duties of a housing counsellor. As a result, distressed homeowners are relying on the paid services of attorney's in order to avoid foreclosures. Furthermore, my study highlights the importance of housing counseling services and their influence in shaping the foreclosure experience for distressed homeowners.

Session: WED-8.30-6

Governing blue economy futures: Potentialities of geographic rent platforms in marine environments

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Blue Economy imaginaries are emerging amidst increasing concerns about humanity's impacts on planetary processes and possible planetary boundaries. They are entangling investor, government and community interests and aspirations in efforts to shape the governance of coasts and oceans as simultaneously spaces of accumulation and spaces of ecological resilience and resourcefulness. Natural resource governance and management however is largely ill equipped to engage effectively in the necessary institutional re-construction of economy in multi-use coastal and ocean environments. New kinds of interpretive and forward thinking framings are required to re-assemble knowledge of and for coast and ocean that confronts the agency, complexities and, dynamics of competing values-means-ends pathways. This challenge is overshadowed by an inability to confront the relations between economy and ecology. This paper considers recent efforts in the New Zealand context to develop knowledge building capabilities that are grounded in already existing agency, trajectories of investment and institutional emergence and meet the new contextual conditions. We argue that the concept of geographic rent and institutionalized geographic rent platforms offer opportunities to enable a re-setting of the agenda, debate, dialogue and analysis. The notion of territorialized rent platforms prioritises the constitution of relationalities needed to recognize and actively make economic, ecological and collective social value in place. The paper outlines this research agenda and asks questions about the value of geographic rent as a platform for co-making futures from different value bases.

Session: WED-1.30-1

Engaging students in the principles of New Urbanism; lessons learned from a neighbourhood assessment field exercise.

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Students enrolled in geography courses typically possess an interest in environmentalism and a conviction of the importance of education in increasing environmental awareness and promoting lifestyle change. Yet a disconnection often appears between their environmental commitment and their willingness to adopt lifestyle choices that may promote environmental sustainability. This disconnection became especially clear in a field exercise completed by a first year geography class designed to assess neighbourhood liveability based on the principles of New Urbanism. Despite a familiarity with New Urbanist principles, the criteria used to assess neighbourhood liveability and an accurate scoring of such criteria, subjectivity continued to guide students' written responses on the topic. Personal opinions informed by life experiences and suburban living, rather than course material, shaped responses leading to a bias for neighbourhood design features that impede rather than support liveability. An evaluation of this exercise prompts a questioning of the environmental understanding of geography students, the

willingness of a suburban student population to embrace New Urbanist principles and the ability of education to alter lifestyle choices.

Session: TUE-1.30-8

“You don’t want to lose that trust that you’ve built with this patient...”: (Dis)trust, medical tourism, and the Canadian family physician-patient relationship

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Medical tourism occurs when patients travel internationally with the intention of obtaining privately funded medical care. The physician-patient relationship impacts and is impacted by decision-making surrounding this practice. Our objective is to examine the views of Canadian family physicians about the roles that trust plays in decision-making about medical tourism, and the impact of medical tourism on the therapeutic relationship. We conducted six focus groups with 22 family physicians in British Columbia, Canada. Thematic analysis was employed using deductive and inductive codes that captured key concepts across the narratives of participants. Family physicians indicated that patients distrust local health systems when their health care needs are not met. They also trust their patients to make decisions, but are conflicted when some decisions contradict the best interests of the patients. Trust fractures in the physician-patient relationship can arise from shame, fear and secrecy about medical tourism. Family physicians face multiple challenges about medical tourism as they must balance their roles in providing information, supporting decision-making, and acting as agents of patients and the domestic health care system. These tensions highlight the need for reliable third-party informational resources about medical tourism and the development of responsive policy.

Session: FRI-3.30-4

Quantifying Grassland Non-photosynthetic Vegetation Biomass Using Remote Sensing Data

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The ecological importance of non-photosynthetic vegetation (NPV) has driven considerable research on quantitatively estimating NPV in diverse ecosystems including croplands, forests, grasslands, savannah, and shrublands using remote sensing data. However, in mixed prairie grasslands, previous research concluded that there is no way to quantitatively estimate NPV biomass using multispectral remote

sensing currently available. This paper will comprehensively explore the feasibility to quantify NPV biomass in Canadian mixed prairie grasslands using optical remote sensing data. Data used were ground hyperspectral and NPV biomass data sampled in the growing seasons of 2003 to 2005, 2009, 2011, and 2013 in Grasslands National Park. Greenness indices, canopy water indices, hyperspectral NPV estimation indices, and multispectral NPV estimation indices were used to establish simple linear regression with NPV biomass. Preliminary results show that red-edge based greenness indices have the best performance on NPV estimation, while the most popular NPV estimation index, Cellulose Absorption Index (CAI) cannot estimate NPV. Further research will be conducted to validate the results.

Session: WED-8.30-8

Estimating Geographical PV Potential Using LiDAR Data for Building in Downtown San Francisco

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Sustainable solar energy is of the interest for the city of San Francisco to meet their renewable energy initiative. Buildings in the downtown area are expected to have great photovoltaic (PV) potential for future solar panel installation. This study presents a comprehensive method for estimating geographical PV potential using remote sensed LiDAR data for buildings in downtown San Francisco. LiDAR derived DSMs and DTMs were able to generate high quality building footprints using the object-oriented classification method. The GRASS built-in solar irradiation model ([r.sun](#)) was used to simulate and compute PV yields. Monthly and yearly maps, as well as an exquisite 3D city building model, were created to visualize the variability of solar irradiation across the study area. Results showed that monthly sum of solar irradiation followed a one-year cycle with the peak in July and troughs in January and December. The mean yearly sum of solar irradiation for the buildings in the study area was estimated to be 1675 kWh/m². A multiple regression model was used to test the significance of building height, roof area and roof complexity against PV potential. Roof complexity was found to be the dominant determinant. Uncertainties of the research are mainly from the inherent [r.sun](#) limitations, boundary problems, and the LiDAR data accuracy in terms of both building footprint extraction and 3D modeling. Future work can focus on a more automated process and segment rooftops of buildings to achieve more accurate estimation of PV potential. The outcome of this research can assist decision makers in San Francisco to visualize building PV potential, and further select ideal places to install PV systems. The methodology presented and tested in this research can also be generalized to other cities in order to meet contemporary society's need for renewable energy.

Session: FRI-10.30-8

Climate Change Adaptation in Coastal Communities: Spatial Decision Support Tools as a Way of Opening the Discussion

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For Canadian communities, successful adaptation to climate change hinges partly on an ability to visualize future scenarios, a willingness to confront the implications, and a willingness to creatively reimagine human-environment relations. Drawing from a case study situated in southeast New Brunswick, an area vulnerable to coastal flooding from sea level rise, this study presents the findings of a web-based spatial decision support system (SDSS) software project. Referred to as the Community Adaptation Viewer (CAV), the thin-client, Javascript enabled web-SDSS software was constructed to allow interaction with urban infrastructure, and support "on-the-fly" assessment of social and economic vulnerability. Facilitated, decision-making workshops were conducted with small groups of stakeholders to evaluate the effectiveness of the prototype. The test case illustrates that high levels of information integration are practical to achieve, and that the SDSS can significantly enhance the ability of communities to conduct elaborate, geographically-specific climate change adaptation planning. However, significant impediments can continue to limit the ability of communities to proactively respond to the findings of such projects: lack of leadership, unwillingness on the part of the community to face their vulnerability, lack of public awareness, and lack of resources.

Session: WED-3.30-5

Historic mapping of Bluebird trails surrounding the Cross Conservation Area

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Mountain Bluebirds (*Sialia currucoides*) are one of three North American bluebird species. When bluebirds declined during the 20th century, habitat loss resulting in a shortage of nest sites was identified as a contributing factor. This inspired volunteer conservationists to erect bluebird nest boxes along fence lines across the continent, resulting in a system of "bluebird trails." Other bird species have also benefited from these efforts. The foothills region near Priddis Alberta has supported a system of Mountain bluebird trails for nearly 30 years. Multiple times each year, a dedicated group of amateur birders monitor and nest box occupancy. However, over the past 30 years there have been considerable changes with regards to development and agricultural land use near these bluebird trails. Geographic information systems (GIS) were used to map active and unused Mountain Bluebird nest boxes within and adjacent to the Ann & Sandy Cross Conservation Area near Priddis. Historic mapping of land use and nest box occupancy trends may help to illustrate the story that has been documented by volunteers throughout the development of this area.

Session: TUE-1.30-9

Early Child Development & The Built Environment: Promoting Child-Friendly Neighbourhoods

Amber Lindsay, Jim Dunn, McMaster University

Neighbourhood physical disorder is thought to affect child development through various pathways however it is difficult measure to objectively and across large geographic areas. Virtual Systematic Social Observation (V-SSO) is a reliable alternative to in-person audits to assess neighbourhood characteristics. Drawing from previous work (Raudenbush & Sampson, 1999) and the theories of ecological systems and social disorganization, we have developed a measurement tool including items of disorder (e.g., graffiti, litter, deterioration); adding visual cues of child-friendliness (e.g., greenery, opportunities for play, infrastructure for active transportation) to assess children's residential neighbourhoods in Victoria, BC remotely using Google Street View. Drawing from independent sets of linked data (Early Development Instrument and V-SSO), preliminary analyses suggest that neighbourhood physical disorder is associated with high rates of vulnerability among children five years of age. It is hypothesized that areas rich in child-friendly resources will present better outcomes, and may moderate the effects of disorder on children's vulnerability.

Session: TUE-10.30-2

Land Use Rifts and Landscape Multi-functionality in Richmond, BC: Implications for urban ecological planning and development

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The urban fringe often exhibits significant and abrupt ecological and social rifts in the landscape between contradictory and homogenous patches – such rifts are an anathema to ecological urbanism where the emphasis is on what amounts to spatial collaboration between landscape functions. A multi-functional perspective in landscape planning sees land as having key functions – ecological, economic, social, cultural, and aesthetic – that can be expressed by mediating between conflicting land uses, overcoming rifts in the complex landscapes found in urban fringe areas. In Richmond, BC, a patchwork of land uses exists in a complex yet rigidly delineated matrix of agriculture, residential, commercial and industrial and other land uses. We explore this landscape and define its character through mapping. Visual observation and photography are used to complement the characterisation. Its functionality is analysed through a multi-criteria matrix approach. The focus is on agricultural patches based on areas identified by the City of Richmond (n.d.) as agricultural sub-areas and buffer zones where rifts and most apparent and multiple land use functions coexist in close proximity. We then identify areas in that landscape with multi-functional attributes and which have greatest potential to contribute to ecourban progress.

Session: TUE-1.30-3

Crime at places and spatial concentration: Exploring the spatial stability of property crime in Vancouver BC, 2003-2013

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Spatial analyses of crime have long shown that crime is not random and occurs at very concentrated locations. The most recent research in this area is referred to as the crime at places literature. A subset of the crime at places literature, using trajectory analyses, has found that such patterns remain relatively stable over time. However, there are very few of these studies that investigate the stability considering longitudinal data. Moreover, the trajectory analyses exclude criminal events at intersections within a given city. This study investigates whether similar trends emerge when offences at both street segments and intersections are incorporated in a longitudinal setting. Spatial point pattern tests were employed at a disaggregate micro-spatial scale using property crime data obtained for the city of Vancouver, BC from 2003-2013. Results suggest that despite a substantial decrease in the volume of property crimes committed in Vancouver over the 11 year time period, the spatial patterns and concentration of crime remain relatively stable.

Session: FRI-1.30-2

Cultivating more culturally appropriate research methodologies: Reflecting on the role and value of elder/youth land camps in Gjoa Haven, Nunavut

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Rebecca Mearns, Nunavut Sivuniksavut; Simon Okpakok, Gjoa Haven

Since 2011 we have been working collaboratively with the Kitikmeot Inuit Association and the local Elder's Group in Gjoa Haven, Nunavut, to learn about Inuit-caribou relationships in the context of changing northern lifestyles. This project emerged from local research planning workshops in 2010 and is tailored to address community concerns expressed about caribou health and implications for local diets, livelihoods, and cultural practices. After organizing and facilitating land camps for three consecutive summers (August, 2011, 2012, 2013), and analyzing interview results from the same time periods, we are now reflecting on the effectiveness of land camps for research purposes. These land camps brought together Inuit elders, youth, community support staff, researchers, and teachers, with the goal of: i) fostering inter-generational knowledge transfer; and, ii) moving closer to culturally appropriate research methodologies in the spirit of working within the principals of an Indigenous research paradigm (i.e. respect, reciprocity, and relationality). We will use this presentation to share our emerging evaluations on the role and value of land camps as a research method, including: i) logistical and financial considerations; ii) local committee leadership; iii) employing Indigenous (and more Inuit-specific) research methodologies in a cross-cultural context; iv) building relationships; and, v) documenting and representing Inuit knowledge of caribou.

Session: FRI-3.30-5

Searching for the post-welfare urban-regional fix: poverty, addiction, and the recovery house 'solution'

Andrew Longhurst

Within the context of inner city gentrification, lack of affordable housing, and underfunded public addictions treatment programs, this paper examines the burgeoning private addictions recovery house sector in the Vancouver region as a key site of neoliberal social policy experimentation. For conservative policymakers, private recovery programs – rooted in an abstinence-based, 12-step self-help approach – are imagined as a politically expedient (market) solution to homelessness, addiction, and criminality. Using Surrey, Vancouver's largest suburban municipality as a case study, I explain how (extra)local policy innovations are attempting to legitimize the 'unregulated' recovery house sector by increasing the reach of state regulatory institutions as well as public subsidies. Recent provincial policy reforms increase public assistance for recovery houses if they agree to minimal oversight, largely conducted by the local state. In this way, Surrey is an important site through which recent rounds of welfare state restructuring are underway, providing insight into the importance of the scalar politics of neoliberal social policy experimentation and failure across urban regions.

Session: FRI-8.30-1

Action for sustainability through community gardening

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In a world facing an increasing ecological crisis, there is recognition that changes in individual and community behaviour are crucial. However, the mechanisms for producing lifestyle changes towards sustainability remain elusive. One path to behaviour change may be rooted in nature experiences, which allow for connection to nature and transformative learning. The purpose of this research was to explore action on sustainability through the nexus of learning, nature experience, and being a community gardener. This was approached through interviews with gardeners about their experiences with gardening, their garden organizations, sense of connection to nature, and what they learned through participation in a community garden. Interview data were coded for both emergent themes and for themes related to Transformative Learning theory and Connection to Nature theory. Results show that participants reflected on many pro-environmental behaviours, perceiving that these behaviours and gardening were intertwined in their lives, each feeding and supporting the other. This study suggests that gardening may provide a helpful method of encouraging pro-environmental behaviour, and provides reflections on ways in which community gardens may be optimized to do so.

Session: TUE-8.30-8

Developing Climate Change Action Plans for U.S. Cities: Success and Challenges

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Climate change has emerged as one of the biggest challenges for urban planning. The goal for a climate change action plan (CAP) is to reduce greenhouse gas (GHG) emissions to avoid dangerous climate change, and to plan for adaptation strategy for a changing climate. Because of its complex characteristics, CAP is also one of harder issues for local U.S. governments to address. What are the success and challenges involved in developing a CAP? Our small city of Valdosta currently does not have a CAP due to its limited resource and lack of support. There is an urgent need for Valdosta to develop a plan since it is close to the coast and has been affected by recent climate change.

Expanding upon previous research on CAPs, this research involves a group of undergraduate students using service-learning methods to examine CAPs and their developing process, summarize their success and challenges, and suggest a practical guideline for a CAP for city of Valdosta.

This research applies survey, interview, archive review, and field research approaches. 20 cities were selected as our study subjects, and a comprehensive qualitative and quantitative data were collected. Extensive interviews by phone or in person were conducted by students and results were analyzed afterwards.

The results provide insights regarding how to build a successful CAP for U.S. cities, and suggest policy guidelines for city of Valdosta.

Session: TUE-8.30-5

Best Practices for Cumulative Effects Assessment

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Cumulative effects assessment is a critical component of environmental impact assessment. The objective of this paper is to identify a cumulative effects assessment and management (CEAM) framework that can be used to guide the assessment and analysis of cumulative effects for the Metlakatla First Nation. The methodological approach follows five steps that include: (1) review CEAM literature; (2) Identify best practices based on the literature review; (3) Evaluate existing CEAM frameworks based on best practices; (4) Develop a proposed framework for CEAM that meets best practice criteria; and (5) Identify issues implementing proposed CEAM framework.

Session: WED-1.30-5

The Economic Effects of Renewable and Sustainable Energy Production on in the Kingston Region

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As part of its effort to mitigate emissions, the Government of Ontario has phased out coal-generated electricity in favour of renewable energy. Over the past decade, eastern Ontario has drawn significant renewable energy development. In particular, Kingston has benefited from these projects due to the potential of the local geography and the presence of human capital to support biomass, wind and solar energy development. This research identifies regional driving forces that enabled the industry, as well as the socioeconomic and political outcomes that have resulted from this “cluster” of business activity. A mixed methods approach, using online quantitative surveys and qualitative semi-structured interviews, was applied to gain a comprehensive understanding of the cause and effect relationships that exist between policy and employment in the renewable energy sector.

Survey results indicate two dominant categories of renewable energy employment exist in the Kingston region. New, direct jobs in which >80% of the company's focus is renewable energy make up one of these categories; ongoing indirect jobs in which <20% of employee's time is dedicated to renewable energy is the other. Interview results suggest that the Green Energy and Green Economy Act was a key driver of renewable energy development in the region, enabling economic prosperity as well as a steady growth in employment. Results suggest that the policy was poorly implemented, resulting in an unstable local renewable energy industry and fragmented employment trends. This research can be applied to other emerging renewable energy regions and may help maximize employment from development of this technology.

Session: FRI-10.30-5

The New Nature: Value and Limitations of Paleoenvironmental Studies in Addressing 21st Century Environmental Challenges

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Paleoenvironmental studies have long been important research foci for physical geographers. Paleostudies of the impacts of environmental change on past societies also provided a point of intellectual contact and some contention between physical and human geographers. More recently climate and global change studies have served to reengage physical and human geographers in addressing the complex environmental challenges of the 21st century. In this context paleostudies have been widely employed to determine the boundaries of natural variability in the climate and environmental resources, elucidate relationships between forcing factors and climatic, environmental and societal responses and to provide benchmarks for conservation and restoration efforts. However, it can be argued that in many cases the environmental and societal changes occurring now and expected over the remainder of the 21st century are beyond the range of interpolation of past conditions. In

addition, some of the forcing factors now operating are simply without analog in the past. Finally, past ecosystem form and function may not always provide optimal or even desirable conservation and restoration targets due to changing environmental contexts. At an even deeper level, traditional concepts of nature and how it is valued are changing and past conditions may not hold their previous relevance.

Session: TUE-1.30-6

The Geopolitics of Gold in Northern Amazonia

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Recent migration of Brazilian small-scale miners (garimpeiros) through the Amazon region and across the Guyanese border threatens to increase pressures on Makushi and Wapishana territories within Guyana, resulting in the annexation of traditional ancestral lands and potential losses of subsistence and livelihood practices, as well as disturbances to traditional cultures and ways of life. I argue these migration trends may be part of a larger intraregional geopolitics emerging out of Brazil, wherein development and protection of the northern Amazon frontier was encouraged primarily through regional colonization. Following an historical account of the geopolitical motivations for the evolving legislation, political action, and program and project implementation decisions that impacted the Brazilian Amazon, I trace the specific interventions that caused the garimpeiros to then shift across the border to Guyana, and outline the environmental and social impacts this migration is having upon the places and the peoples of the Rupununi. I conclude by suggesting that the Rupununi is unknowingly enmeshed within the larger geopolitical concerns of the region, and that the migration of Brazilian miners from across the border may be signalling the advent of a larger geopolitical concern, that of the integrity of the Rupununi as a Guyanese territory.

Session: WED-10.30-2

Teaching Food Literacy: Applying A Humanistic, Holistic, Multi-Disciplinary Pedagogical Approach.

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In this presentation, I seek to develop two new terms, food literacy and food kinship and to explore their significance and meaning by applying a humanistic, holistic approach, with an emphasis on self-reflective (Roser & Peck, 2009), and experiential learning (Kolb 1984). My research methodology is a mix of both inter and multi disciplinary approaches.

My basic contention in this work is that a more grounded knowledge of food will enable people to make better choices concerning its use. The term I use for this is food literacy, and its teaching, (if it is to be worthwhile), must include a wide range of perspectives which include ethnicity, religion, socio-economic status, level of education, sex and gender, age, (self)-identity, and geographic origins, to list a few.

Session: FRI-3.30-7

The everyday health geographies of Bhutanese and Nepalese migrants: findings and researcher reflexivity

Asli Mahdi, Carleton University

Attention to the everyday health geographies of recent migrants have been little explored in health geography research. This presentation will draw on my MA research, which examined perceptions of health and well-being among several Nepalese and Bhutanese migrants in Ottawa, Ontario. Through semi-structured interviews and Smyth's (2006) concept of therapeutic networks, I explored how we can view health as a part of everyday life. The results of the research were divided into four themes: i) definitions of health and well-being; ii) ideas of health related to food and cooking; iii) health, employment and income independence; iv) the role(s) of the neighbouring community in health maintenance. In all, I suggest that these narratives of health, which captured pre-migration memories in post-migration contexts, should be seen by researchers as a form of knowledge that can reveal ethnic geographies of health. My attention will also be given to discussing the many challenges I faced with recruitment, interview scheduling, as well as my self-esteem as a graduate student researcher. I propose that health geographers need to also pay greater attention to their own lived health geographies while both "on" and "off" the field, to give a greater picture of their experiences as a researcher.

Session: TUE-8.30-2

From Annual to Intra-annual: Exploring the Radial-Growth Climate Relationship with High Resolution Data

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The purpose of this research is to determine whether a refinement of the temporal resolution of tree-ring data will improve our understanding of the radial growth-climate relationship in Northern Labrador. Since temperature acts as the main climatic driver of tree growth at high latitudes throughout the circumpolar boreal forest, tree growth responds to climate variably along a natural latitudinal temperature gradient. In Northern Labrador, this relationship varies more with longitude than with latitude. This phenomenon has been well documented yet the exact cause is still not fully understood. Band dendrometers and weekly micro-core sampling were used to continually monitor intra-annual radial-tree growth at two sampling sites, one coastal, and one inland. Environmental parameters were collected from a Meteorological Services climate station, and via a programmable data logger. Radial growth was initiated during the last week of June 2014. The lignification of secondary cell walls began three weeks later after July 21st and radial cell production had ceased by August 25th. A significant

relationship was found between diurnal temperatures (mean and minimum) and daily radial-growth at both sites over the eight week long growing season.

Session: THU-10.30-2

Seasonal variation in potential spatial access to maternal health services: The case of regions in Southern Mozambique

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This study proposes a new approach for modeling spatio-temporal access to maternal health services. Facility assessment of 56 health care centres in Gaza and Maputo provinces of Mozambique were used in the study; these were categorized into primary, secondary and tertiary levels. A measure for capacity of each facility was calculated based on the resources available. GPS coordinates of the health facilities were acquired from the Ministry of Health while roads were digitized and classified from high-resolution satellite images. ArcGIS network analysis was used to compute both distal and time based measures of access to maternal health services. Daily historical precipitation and flood extent data were used to quantify the seasonal effect on access to maternal care due to potential disruption of road access. The results show how spatial access to care changes over the year and also identifies populations that would be completely isolated from maternal health services in the event of flooding. This approach allows for GIS output related to spatial access to care to be utilized not only health services planning and assessment, but also aid near real time community level health delivery of maternal health services.

Session: WED-1.30-6

Inventer une tradition : la chasse aux champignons au Québec

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Jusqu'à tout récemment au Québec, la cueillette de champignons à titre récréatif était une pratique très peu répandue. Malgré l'existence de cercles mycologiques depuis plus de 50 ans, la population en général était assez peu sensibilisée à cette pratique. Entre la méconnaissance quant à l'accès au territoire et la crainte « mortelle » de se tromper en consommant un champignon, mieux valait encore s'abstenir.

L'intérêt pour développer le champignon est venu d'ailleurs. Les crises successives qui ont marqué l'industrie forestière ont amené cette dernière à s'intéresser plus activement à la gestion intégrée des ressources du territoire, notamment en considérant les ressources non ligneuses, dont fait partie le champignon.

Comment dès lors contribuer à la valorisation de cette ressource, notamment pour la consommation locale ? L'intérêt médiatique et social grandissant pour la gastronomie se présente comme une opportunité pour intégrer le champignon dans les habitudes alimentaires. Mais beaucoup reste encore à faire pour rendre la consommation du champignon forestier plus régulière : pour développer une « culture du champignon ».

Quoique le Québec possède une image touristique et traditionnelle fortement associée à la nature et la forêt, aux coutumes de chasse et de pêche, à la villégiature près des plans d'eau, la cueillette des champignons est encore une « tradition à inventer ». La seule présence de la ressource n'est pas garante de son utilisation. La culture mycophage, plus largement répandue dans les pays méditerranéens, s'oppose à la tradition mycophobe anglo-saxonne.

A partir des résultats d'enquêtes réalisées auprès de visiteurs ayant participé à des sorties mycotouristiques, et de séances d'observation participante à la Forêt Montmorency, forêt de recherche associée à l'Université Laval, nous présenterons quelques résultats de cette recherche sur le développement d'une culture mycologique au Québec.

Session: FRI-1.30-7

“We’re in this all together:” Community Impacts of Long-distance Labour Commuting

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Labour and economic development patterns in rural regions and small towns have shifted substantially as a by-product of both economic and political restructuring. An important manifestation of this restructuring has been the growth of long distance labour commuting (LDLC) associated with increased labour flexibility and worker, family preference. In this article, we draw upon research in Mackenzie, British Columbia (BC), Canada, to explore the broader impacts of LDLC on a home community from a series of different perspectives. Our findings focus on two core themes: 1) family and community dynamics; and, 2) the capacity of community organizations. It is clear from our findings that there are numerous negative outcomes associated with the LDLC phenomenon: for example, family stress, and volunteer burnout associated with trying to maintain community services and events with a depleted

community capacity. Our research also reveals a variety of positive dimensions associated with LDLC including the ability to continue to call Mackenzie home and a strengthened sense of community. The experience in Mackenzie offers some important themes for research in other communities and places experiencing LDLC.

Session: FRI-10.30-2

Coexistence with Geographic Algorithms

Michael Martin, Simon Fraser University

Digital Geographies have a fascinating history when it comes to the World Wide Web. From the early days of Internet GIS, to the explosion of Google Maps Mashups, the emergence of Citizen GIS and recently geo-embedded social media data streams, geography has been present on the web and well researched by geographers (Goodchild 2007, Crampton, Graham et al. 2013, Crooks, Croitoru et al. 2013). A common thread throughout this research has been a focus on privacy, and the dangers to individuals by leaving geographic fingerprints in their data (Acquisti and Gross 2006). Those fears have been realized in several instances, such as the 'rob my house' website, and most recently in hacking and government snooping scandals. Increasingly too, computer algorithms are getting better at understanding what we mean when we contribute to social media and exploiting geographic patterns that exist, with computing sub-fields like natural language processing gaining increasing attention (Allen 2003, Blei, Ng et al. 2003, Arya, Ragini et al. 2012).

In this research talk I will elaborate on how geographic data on the web has changed to its present status, and then move on to look at how it can be used in conjunction with algorithms that I have been developing on topic modelling and predictive analytics, as well as present some preliminary results from the application of these algorithms on a 'big' dataset of Twitter posts. Once these examples are presented I will dig into the societal implications of living with algorithmic design using critical social theory familiar to geographers (Haraway 1988, Law 1992, Kitchin and Dodge 2011).

Session: FRI-3.30-7

Causal mechanisms and connections: the possibilities of a biogeoscience framework for physical geography

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Living organisms are connected to their environment, and in turn the environment is affected by these living organisms. As a result of this interdependence, a variety of complex process feedbacks exist between the living and inanimate worlds, and it is the understanding of these interactions that forms the core of biogeosciences research. One hallmark of biogeosciences research is a focus on causal mechanisms. A key contribution of the biogeosciences is that it is a process-driven discipline. It is often

the case that one field treats phenomena associated with a second field as a static entity, boundary condition or in a simplistic manner; the biogeoscience approach seeks to address this shortcoming. A second key characteristic of the biogeosciences is that it strives to unravel the complex interplay of biological and environmental processes. To achieve the above stated characteristics, biogeoscience studies require the expertise and mutual contribution of researchers from a number of fields. This interdisciplinary approach ensures that each component of interconnected systems is considered appropriately. Physical geography, by the nature of its broad range of sub-disciplines, is well positioned to be a major player in the biogeosciences. Herein, we will explore the degree to which physical geographers have taken advantage of their unique positioning to make contributions to biogeoscience initiatives at local/regional/national/international levels.

Session: TUE-1.30-6

Spatial Analysis of Obesity and Accessibility to Healthy Food and Health Facilities: A Case Study in A Small U.S. City

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Obesity is a major problem in the U.S. Residents of low-income neighborhoods tend to have higher rates of obesity. Past research have shown that access to healthy food is important to reduce obesity, and distances to a supermarket, fast food establishments, and health facilities may be underlying causes. However, most recent studies focused on large cities, and few study has been conducted for small cities and rural areas in the U.S. The objective of this project is to involve our students in the analysis of food locations in a small city and surrounding rural area in South Georgia: city of Valdosta and rural Lowndes County. Expanding upon previous research, we collected and assembled location data of supermarkets, convenient stores, fast food establishments, and health facilities into a digital database, and utilized Geographic Information System (GIS) to map all locations. Through further GIS analysis, we conclude that low-income neighborhood residents have problems in accessing health providers and healthy food in the supermarkets, but they have higher accessibility to unhealthy fast food locations and convenient stores, which contributed to their health issues. We suggest our health officials to increase accessibility to healthy food and health facilities for low-income neighborhoods.

Session: WED-3.30-6

Loft Living in the Prairies: The Warehouse District, Regina

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The transformation of the historic Warehouse District in Regina, SK at the turn of the twenty-first century ushered in a new sense of place with residential “loft style” condo conversions, and a web of retail stores, restaurants, and cultural venues to support a new clientele. In the contemporary period, “loft-living” is a viable economic product circulated by the real estate industry and the media, and demanded by consumers. In this presentation, I focus on the conversion of several Chicago style warehouse buildings into residential spaces in the District, and highlight how “loft living” circulates as a set of aesthetic conventions and ways of living that engenders gentrification. The focus on loft-style aesthetics embraces open concept living, and celebrates the high ceilings, large windows, columns, and wood flooring as “authentic” and legitimate remainders of an industrial past. The discussion is informed by textual analysis of newspaper reports, planning and policy reports, and promotional material.

Session: WED-8.30-5

Social policy, social movements, social space

Eugene McCann

What is social policy and social policy-making? How is the making and implementation of policy political? These questions, in themselves, are not novel. This paper will nonetheless address them from a perspective that deliberately casts a wide net in identifying the political spaces of social policy. It will draw on the anthropological notion of ‘policy worlds’ as socio-cultural domains of meaning that are created and reflected by policies. This will be combined with contemporary geographical perspectives on policy as enacted, scaled, and mobile. Through this combination, the paper will outline a tentative framework through which to conceive of social policy. A foundational premise is that policy, in its making and its implementation, is situated, scaled and political, but that how this happens in the context of specific problematizations is worth ongoing empirical examination. The paper will address questions of scale, mobility, presence, absence, practice, encounter, evidence, persuasion, the state, power, and place through examples of social movements and social policy concerned with the consumption of food and drugs by low-income people.

Session: FRI-1.30-1

Fostering a progressive sense of place? Re-visiting Massey’s work in the context of urban multicultural leisure festivals in Canada

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Multicultural festivals have become a significant feature of multicultural societies, offering a distinct and valuable experience for visitors. Such festivals play a role engendering multiculturalism in outwardly diverse social contexts but few studies have considered how, and to what degree, in contemporary and sometimes conflictual social settings. Moreover, little research to date has critically examined the role of events, as components of multicultural society, in fostering sense of belonging and place. In 1991, Massey developed a progressive sense of place as a reaction to the charge by some theorists that the significance of place(s) was being eroded by large-scale “space-time compressions” due to globalization. According to Massey, a progressive understanding of place unifies the tensions between local and global, while recognizing uniqueness and difference, acknowledging the unevenness of processes shaping places. The purpose of this paper is to examine the role of a multicultural festival in contributing to a progressive sense of place for ethnically diverse migrants. Semi-structured and open-ended questions guided informants in their story-telling. Narratives provide privileged access for understanding the way individuals articulate their experiences with festivals over time. The sense of place of festival participants emerged as feelings of belonging, attachment and identity and as a way of re-affirming their connection with a place far away through cultural traditions and community. Notions of progressive sense of place in conjunction with dual place identities will be discussed.

Session: THU-10.30-3

Cultivating Capital: Urban Agriculture, Eco-Habitus, and the Valorization of Social Reproduction

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Despite the fundamental linkages between urban consumers and rural producers, recent theorizations of “planetary urbanization” have yet to figure explicitly in agrarian political economy. Similarly, agri-food scholarship has contributed little in the way of theorizing urban change despite growing interest in – and legibility of – urban food production. In this paper, I suggest that critical agri-food studies and critical urbanism might be mutually generative by honing in on social production and how it is transformed into capital and scaled up from the household to the urban. Drawing on urban political economy, feminist political economic theorizations of social reproduction, and Bourdieu’s “species of capital”, I interpret the results of a mixed-methods study of residential urban agriculture in Portland, Oregon to demonstrate how urban agriculture undergirds an “urban sustainability fix” and processes of eco-gentrification while resisting the logic of capitalist accumulation. The capitalist valorization of urban agriculture – i.e., the commodity moment itself – is spatially dependent according to the logics of uneven capitalist development and related emergence of an eco-habitus, while also contingent on urban policy and politics.

Session: THU-10.30-1

Food Security and Harm Reduction in the Greater Vancouver Area

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Although food in various forms is often provided in harm reduction settings, such as in needle exchanges and drug consumption rooms, there has been little systematic discussion of the role that food provision plays in the lived experiences of people who use drugs (PWUDs). There are physical, social, and economic factors that contribute to, and result from insecure access to food for PWUDs, such as poor nutrition, non-adherence to medication regimes, and stigma. With these factors in mind, this paper provides preliminary findings from a project undertaken in partnership with the Dr. Peter Centre, an AIDS services and harm reduction facility in Vancouver. This research seeks to illustrate how harm reduction service providers understand, and facilitate food provision as one way of reducing food insecurity, and the drug-related harms for PWUDs. Semi-structured interviews with harm reduction service providers in Greater Vancouver explore how these organizations conceptualize the role of food in their programming, what foods are provided, in what settings, and what barriers and opportunities exist to providing healthy, client-appropriate food. Interview questions and site visits also uncover how the locations of harm reduction service providers impact their access to food, and to network-building opportunities with other organizations. Analysis of the interviews involves systematically coding for emergent and expectant themes drawn from literatures on: risk and safety environments; therapeutic landscapes; geographies of poverty, survival, and poverty management; and food security, and food justice. The research will inform service providers and policymakers on ways to improve PWUD's access to safe, nutritious food by elucidating the relationships between food (in)security and harm reduction services.

Session: TUE-3.30-1

The risks to potable water trucked to cisterns in Beardy's Okemasis First Nation, Saskatchewan

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Provision of safe drinking water is a key driver of public health, yet access to this valuable resource is a perennial and endemic problem in First Nations communities across Canada. The Federal Government transferred safe drinking water responsibility and legal liability to First Nation communities by passing of The Safe Drinking Water for First Nations Act. Beardy's Okemasis First Nation is one community affected, where 24% of the community is dependent on cisterns for their potable water. Cisterns are frequently contaminated and attract limited attention in terms of academic research and government initiatives. My research aims to identify the potential risks to water quality through the supply chain of trucked water-to-cisterns. Water trucks and 60 residential cisterns were analyzed for potable water quality and deterioration from the period of June-October 2014. During a repeated measure of 60 cisterns across 4 sampling time periods, 58% of the cisterns sampled did not meet the drinking water quality standards, in total coliform, E. coli, turbidity, uranium, and total/free chlorine. Additionally, residents and water distributors were interviewed to assess use and distribution. Data gathered will advance guidelines on management, monitoring, and strengthen governmental policy change for safe

drinking water for First Nations across Canada.

Session: THU-10-30-6

Area Restrictions, Risk, Harm, and Health Access Among People Who Use Drugs In Vancouver, Canada: A Spatially Oriented Qualitative Study

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Area restrictions prohibiting individuals from entering drug scene areas or areas where they were arrested are a socio-legal mechanism increasingly employed to regulate and exclude people who use drugs (PWUD), often under the guise of preventing further engagement in drug-related activities. To explore how socio-spatial patterns stemming from area restrictions shape risk, harm, and health and social care access among drug-using populations, we conducted qualitative interviews and mapping exercises with 24 PWUD who had received area restrictions in Vancouver, Canada. Our findings underscore how area restrictions disrupted access to health and social resources (e.g., HIV care) concentrated within drug scene areas and thus produced diverse risks and harms (e.g., HIV treatment interruptions, unsafe drug use practices). Meanwhile, territorial stigmatization functioned to prevent participants from accessing much needed supports elsewhere. Rather than preventing involvement in drug-related, area restrictions displaced these activities to other locations and functioned to increase vulnerability to the risks and harms associated with drug scene involvement (e.g., unsafe drug use practices, violence). The severe harms stemming from area restrictions eventually led participants to violate these orders to assert their right to survival and urban space. Collectively, these findings underscore the urgent need to reconsider this socio-legal strategy.

Session: TUE-8.30-1

Evaluating the Environmental Assessment Process in Canada and British Columbia: A Case Study of the Prosperity Mine Project

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A major mining proposal in BC (Taseko) was subject to both a BC and federal assessment process. The BC process recommended approval while the federal process recommended rejection. The divergent environmental assessment (EA) outcomes offer a unique opportunity to compare and contrast the federal and provincial processes to assess the role of process structure, values and science in determining EA decisions. This paper assesses the reasons for the different outcomes and discusses the implications of the findings for EA theory and practice

Session: WED-1.30-5

Photovoice in the Buffer Zone of Chitwan National Park, Nepal: Towards a Postcolonial Research Ethic

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The negative social impacts of conservation are well documented. Especially in developing countries, conservation clashes with human development objectives. Participatory approaches to conservation, which encourages the meaningful participation of marginalized voices, are championed as the socially just and pragmatic means of achieving the dual objectives of conservation and human development. However, participatory methods are rarely used in conservation research. Many researchers have investigated the social impacts of Chitwan National Park (CNP), Nepal, but participatory methods have been sparsely used to explore this issue. Furthermore, the literature on CNP park-people conflict is noticeably silent and uncritical of Western researchers' roles as producers of knowledge in a non-Western context. Motivated to fill the qualitative research gap, and informed by postcolonial theory, a Photovoice project was initiated to explore the perceptions, attitudes, and experiences of marginalized people living near CNP. The research project culminated with a co-researcher curated photo exhibit which opened up a dialogue with CNP staff, local politicians, and International Environmental Non-Governmental Organizations. This research affirms the potential for reconciling conservation and human development goals through more inclusive, participatory, and democratic approaches to conservation.

Session: THU-8.30-3

Project Comeback: Rural British Columbia's place-based experience of youth-migration and employment mobility

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Project Comeback was a two-year initiative (2013-2014) to identify, build, and share community-based knowledge about enabling young-adult retention in five BC rural communities. Out-migration and changing community demographics due to young-adult employment mobility were identified as common challenges in all five communities – particularly as young adults sought high-paying jobs in the oil and gas sector in other regions of BC and Alberta. Although employment mobility allows some young adults to live-in and commute from their hometowns, it also creates age and gender imbalances within the community that negatively affect perceptions of community-connectedness and young peoples' decisions to remain in their hometown.

This presentation will discuss Project Comeback findings, mainly the ways rural BC communities are addressing the effects of employment mobility and out-migration of young-adults. In particular, the development of retention strategies to increase the engagement of young people from diverse backgrounds in local activities is a main outcome of the project. Such strategies are enhancing community-connectedness among young people in the Project Comeback communities helping balance

the negative effects of employment mobility. Key highlights and lessons learned from Project Comeback will be shared for other rural communities to gain insight into addressing employment mobility issues.

Session: FRI-8.30-2

Crime concentrations and similarities in spatial crime patterns: the importance of spatial scale

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Research within spatial criminology most often shows that the spatial scale of analysis impacts the analysis at hand, most often in the context of spatial heterogeneity. However, some research questions the importance of spatial aggregation in contexts of regression analysis. However, there is very little research that investigates the importance of scale within criminological research. In this paper, using crime data from Campinas, Brazil, we investigate the importance of scale in the context of aggregation of crime types. Similar to some recent research, we find that it is not appropriate to aggregate crime types when research is concerned with spatial patterns. Moreover, we find that the degree of this inappropriate spatial aggregation depends on spatial scale as well as the micro-spatial unit under analysis.

Session: FRI-1.30-2

The Contradictory Role of Mortgage Debt in Instituting a Household's Economy

Pablo Mendez, Carleton University

As part of a broader geographic project of 'placing the economy', there is growing interest in thinking of the economy in Polanyian terms as an 'instituted process.' Research in this field has so far emphasized the national and local scales. But as feminist critiques of political economy would suggest, it is important not to neglect the scale of the household. In this paper, I examine residential mortgage finance in a North American context in order to explore the role of debt in instituting the household economy. I argue that mortgage debt plays a contradictory role in this uneven process. On the one hand, mortgages have been ideologically constituted as a promise of socio-economic integration, particularly to young households and those with low incomes and negligible savings. On the other hand, a mortgage threatens disintegration of a household's economy via repossession and foreclosure -- legal mechanisms through which state and capital force a household to rearrange or reconstruct its patterns of socioeconomic organization. A Polanyi-inspired analysis of mortgage debt highlights the unstable and always incomplete character of the economy as instituted process.

Session: WED-8.30-3

Artisanal fisheries and biosphere reserves as a territoriality strategy for management: The case of Punta Allen in Mexican Caribbean

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The Vigía Chico fishing cooperative, located in the community of Punta Allen inside the Biosphere Reserve of Sian Ka'an, México, has been the number one in lobster production in the state of Quintana Roo for over 30 years. This cooperative is a well-known example of sustainable artisanal fishery. To better understand this success story, we performed an in-depth study of multiple factors to analyze their influence on the cooperative's success. The indicators selected were a) capacity to employ and introduce non-destructive fishing practices, b) level and type of social organization, c) resilience to socio-environmental perturbations, and d) response to changing market demands. We found the knowledge the cooperative acquired regarding the functioning of Mexican public policies to be very important for its success. As is the cooperative's ability to translate this knowledge into a set of rules that could be effectively applied to artisanal fisheries more broadly. Punta Allen is an illustrative example of a local community managing to appropriate public policy tools, and translate them into a set of local practices, thereby ensuring the organization's persistence despite the ongoing changes of public policies around fisheries in Mexico.

Session: WED-10.30-1

Roots and Routes: Mobility and Belonging in Francophone Minority Communities in Canada

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This paper examines the effects of geographic mobility on belonging in francophone minority communities in Canada. It seeks to measure how mobility affects individuals' self-identification as Francophones and their engagement within the minority community. Moreover, this study looks at the role of socioeconomic, individual and geographic characteristics influencing belonging to see whether their effects are more or less important than those of mobility. This research is based on data from the Survey of the Vitality of Official-Language Minorities (the Survey) (Statistique Canada, 2009), a postcensal survey of the French language population living outside of Quebec and the Anglophone population of Quebec aged 18 and above. For this analysis, respondents have been grouped according to the magnitude and time of their mobility in order to form the following groups: 1) Established residents 2) Older interprovincial mobiles 3) Older intraprovincial mobiles 4) Recent interprovincial mobiles 5) Recent intraprovincial mobiles. It also explores Franco-mobiles' sense of belonging according to the three regional groups predetermined by the Survey. Data will be considered through a series of

logistic regressions in order to determine which temporal or geographic scales of mobility have the greatest impact on belonging and engagement in francophone minority communities in Canada.

Session: FRI-8.30-4

Moving beyond “Observe, record, report”? Aboriginal resource guardian programs as an alternative model of marine governance

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Along the coast of British Columbia Aboriginal communities are regaining control over resources in their territories and are returning to practices rooted in traditional management and law. In many communities this is an important way to counteract the legacy of assimilationist laws and legislation, such as loss of culture and identity and high youth unemployment. Concurrently, the direction of court decisions and government policies in Canada and in British Columbia suggest that Aboriginal people who develop their capacities as marine resource managers will be able to play an increasingly larger role in fisheries and marine management.

This paper presents preliminary results of research into monitoring and stewardship training programs offered on the north coast of British Columbia. First, I provide an overview of current opportunities for Aboriginal youth and young adults to be trained as monitors and resource guardians of their traditional territories. I will then explore how the Guardian Watchmen and Stewardship Offices that make up the Coastal Stewardship Network offer an alternative model of marine stewardship and governance. Finally, I consider what standards and training are needed for Aboriginal resource guardians looking to assume a larger role in fisheries and marine conservation enforcement.

Session: WED-3.30-1

Spaced for Public Participation in Crown Land Governance in New Brunswick and Nova Scotia

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This research analyzes the current spaces for public participation in Crown (public) land management through a comparative study that focuses on the provinces of New Brunswick and Nova Scotia. I define spaces for public participation as opportunities for meaningful public involvement in the decision-making arena of forest management. I examine the experiences of public participation in those aforementioned provinces to more fully understand the barriers and bridges to public participation through the lens of agency capture theory. The proposed project uses a mixed method approach, blending discourse analysis, participant observation, semi-structured interviews, surveys with a social network analysis of key stakeholders from both provinces. To assess the measure of agency capture, three variables are analyzed: industry-government association, economic dependence, and political

culture. Forty semi-structured interviews have been conducted. In addition to interviews, approximately 100 surveys will be used as a foundation for the social network analysis. Exploiting this mixed methodology will promote a better understanding of the barriers and bridges to public participation in Crown land management and help identify the opportunities for improved public involvement in Crown land decision and policy-making in the aforementioned provinces.

Session: TUE-8.30-8

Building power: the resource development /employment nexus in Northern Canada.

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This paper uses a case study of First Nations employment in the construction of the Lower Mattagami Hydroelectric Project, located in the James Bay basin to discuss how employment services in the north are increasingly tied to specific resource development projects. First Nations in northern Canada benefit less from education, training and employment-support services than other Canadians. As a result, First Nations are increasingly using their ability to encumber resource development in their traditional territories, to negotiate employment and training provisions for their members. This shift in the regulation of employment from the scale of the province to the local scale re-focuses the responsibility for training and employment to development proponents and First Nations, away from the province and trade unions. In the case of the Moose Cree First Nation, participation in the construction of a Hydro-electric project provided them with the ability to counter barriers to training and employment such as union entry, training costs and travel distance. The attachment of employment and training services to resource development projects, however, imposes a short-term model of community development and renders it difficult for initiatives to forge long-standing relationships with unions and governments that serve the long-term interests of community members.

Session: TUE-1.30-5

Factors Influencing the Threatened Salish Sucker in the Fraser Valley: A GIS Perspective.

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Salish sucker is SARA listed species found in the Fraser Valley. In our study we examine the spatial relations between land use, water quality and the occurrence of Salish sucker in order to be able to better identify critical habitat and the impact of land uses on that habitat. Field studies over two summers in five streams in the Fraser Valley sampled water quality and for Salish Sucker occupancy, and

the adjacent land uses were noted. Water quality data collected included dissolved oxygen, temperature, conductivity and depth. In order to assess the relative impact of different land-uses on water quality we used an exploratory spatial analysis technique to help us identify fundamental site differences. Intensive land-uses result in hypoxic water conditions, which is the most important factor driving Salish sucker presence at a site. We used occupancy probabilities, derived from the sampling data, to determine the spatial relation between fish presence and the water quality parameters. The results of the grouping analysis showed a clear relation between land use and water quality. The results of the occupancy probability analysis showed clear relations between Salish sucker presence and water quality parameters. However, the relations changed over the summer as the site conditions changed, which clearly demonstrates the need for a multi-temporal study. Our results show that multi-temporal and large spatial scales are important for identifying seasonal habitat usage and land-use impacts.

Session: FRI-8.30-6

Climate Change Adaptation in the Philippines: Resources Planners Need to Move Adaptation Forward

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As the necessity for climate change adaptation grows, it is integral to understand what resources are of actual use to planners confronting this challenge. A research project in California, by Tribbia and Moser (2008), discussed this concern in a developed country context. Our research explores planning adaptation complexities through a developing country lens by evaluating local government needs and challenges to accessing data and information to assist climate change adaptation processes in the Philippines. Using the SurveyMonkey platform, the International Council of Local Environmental Initiatives (ICLEI) administered a survey to local government officials throughout the Philippines to understand the similarities and differences in adaptation planning strategies for each locale's context. This research addresses how local governments can be better assisted in climate change adaptation by exploring: current challenges; information presently available and used; and additional information and/or knowledge required to enrich context-specific climate change adaptation planning.

Session: WED-3.30-5

Analysis of the Microclimatology of the Green Roof at Toronto

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The mitigation of urban warming by building green structures became an integral process to create comfortable open spaces in urban areas. The microclimatic conditions in urban areas are affected by the solar and terrestrial radiation, wind, air temperature, humidity and precipitation among others. In green roofs, stored moistures within the vegetation evaporate either directly from the roof-surface or are released from plants by transpiration and thus generate the evaporative cooling. In this study, the temperature distribution and humidity of an urban station, Toronto City, are compared with that from a Green Roof station located near the city, for four seasons to study the micro-climatology of the green roof. The results from the analysis of both daily and hourly data suggested that out of the four seasons, spring, winter and fall seasons are mainly benefited by the cooling effect of the green roof. In some hours during the day, the temperature of the green roof exceeded from that of the city core, which can be accounted for by the fact that the green roof is situated near a major highway, Don Valley Parkway that may have caused the increase in ozone emission during rush hours and thereby, amplified the localized warming.

Session: TUE-8.30-5

The Geography of Multinational Management Consulting Firms: Mapping and Exploring a Global Expansion, 1939-Present

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Management consulting firms claim to offer expert advice on improving the performance of governments and business alike. Over the last fifty years, these firms have spread from the United States to locations all over the world, and now generate at least \$165 billion a year and employ 1.3 million workers (IBISWorld, 2015). Despite their increasing importance in influencing public policy, little literature exists tracking the geographies of these firms or why they locate where they do. We develop the world's first database tracking the locations and spread of multinational management consulting firms worldwide since 1939, and map the results in ArcGIS. We identify over 1600 distinct office locations for 36 firms in 81 countries. Focusing on emerging markets, we compare and test existing accounts of why management consulting locate their offices where they do using time-series and spatial analyses and provide novels insights into the expansion of multinational firms.

Session: THU-8.30-7

The evolution and integration of a cultural district in a mid-size Canadian city: Kelowna, British Columbia.

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Cities around the world have, in the last 25 years, promoted and facilitated the creation of cultural districts and clusters to insure local economic development and rejuvenate derelict downtown areas. A number of studies have dissected the emergence of these districts from a variety of lenses, however, little research exists on the evolution of cultural districts in medium size cities. This paper examines the four development stages (groundwork, incubation, foundation and integration) of the cultural district in Kelowna, British Columbia, to determine whether this district can be considered successful after fifteen years of existence. The success of the district was measured by assessing the usage of the facilities, population increase and land use impact of the District on surrounding areas. Preliminary results indicate that Kelowna's Cultural District is well integrated within the downtown and has attracted new development to the adjacent areas.

Session: WED-8.30-5

Assessment of economic inequality as a predictor for province-level water scarcity in China

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Xiaojun You, Institute for Innovation Strategic Studies, East China Normal University

China's water resources are sixth in the world by volume, but its per capita water availability is near one quarter of the world's average. As such, the three main river basins in Northern China have per capita renewable water levels below the critical level accepted for severe water scarcity of 1000 m³ per capital. The Chinese government has noted this problem and began to reform its water resource management in the early 1990's, but water quantity and quality issues still exist, especially in Northern China. A predictor for small-scale water scarcity in Northern China is needed, as models of future and present water scarcity have high variability and low resolution. We know that there is a link between modelled water use efficiency and net household profits in Northern China at village-level resolution, and this relates to measures of economic inequality. We use measures of remotely sensed nighttime stable lights (NSL) data which are normalized by economic inequality indicators to predict the location of water stress "hotspots." This methodology provides a way to understand the extent and location of water scarcity and water stress in Northern China with shorter response times and higher resolution, and works well in areas where data is scarce or unreliable.

Session: WED-10.30-4

Soft computing, GIS and multi-criteria evaluation for agricultural land capability and suitability

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Increases in population and food demand impact regional land use development through the designation of available land for future development. In order to effectively manage available land, it is important to develop analytical approaches that integrate GIS, geospatial datasets and optimization methods such as multi-criteria evaluation (MCE) to determine land suitability. When applying common GIS-based MCE optimization methods, generated alternatives do not fully address the entire range of human decision-making logic. The Logic Scoring of Preference (LSP) method is more complex as it relies on soft computing reasoning, utilizes a variety of logic aggregators and a large number of inputs to evaluate decision-making goals. Therefore the main objective of this study is to integrate soft computing, GIS and the LSP approach to evaluate agricultural land capability and suitability. The proposed approach was developed using geospatial datasets from Boulder County, Colorado, USA. A large number of evaluation criteria were integrated into the development of various LSP aggregation structures to evaluate decision-making objectives. Resulting suitability output maps provide the overall agricultural land capability and land suitability. Results indicate that the LSP method produced realistic and refined suitability scores and can be used as an improved MCE optimization method in land-use planning and decision-making.

Session: FRI-8.30-6

A Third Generation of Gateway Initiatives? Singapore, Youth and Ethopolitics

Jean Michel Montsion, Department of International Studies, Glendon College, York University
Building on its hard (i.e. infrastructure) and soft (i.e. education and business support) gateway dimensions, the city-state of Singapore has been focusing over the last 20 years on the socialization of the next generation of gateway elite. Since the 1997-98 Asian Financial Crisis, the gateway metaphor has been utilized to socialize the city-state's youth in becoming cultural bridges between the Chinese and Western worlds, from school curriculum reforms, to civic education practices, and young professional training. The state and community actors have been actively involved in transmitting specific 'gateway' cultural, social and affective competencies to students and young professionals. In light of Nikolas Rose's ethopolitical framework, I explore in this paper some of these competencies and related socializing mechanisms as understood by local Chinese voluntary associations. I argue that important divergent interpretations exist on these competencies between the government and voluntary associations, and between these associations and their young members, in terms of the roles that languages, cultures and specific emotions play in building a successful and sustained gateway in Singapore. Exploring these divergences will help shed new light on some of the most significant power relations and narratives on which the gateway project is built.

Session: WED-1.30-3

Dendroglaciological evidence of late Holocene glacier activity in the Andrei Icefield area, British Columbia Coast Mountains

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The Andrei Icefield area is located in the northern Boundary Ranges in the British Columbia Coast Mountains, Canada. Radiocarbon dated wood samples from glacier forefields and lateral moraines at Forest Kerr, Glacier B, Meringue, More, Sphaler, and Scud glaciers in the area have revealed episodic glacier fluctuations during late Holocene. Sphaler Glacier was advancing downvalley and overwhelming a mature forest at 3.2 ka which was followed by ice expansion between 2.9 and 2.6 ka at Scud and Forest Kerr glaciers. Following this interval there is no evidence of activity until 1.7 ka where mature forests were overwhelmed by at least five glaciers in the Andrei Icefield area until 1.4 ka. During the past millennium, advances at 0.9, 0.6, and 0.1 ka culminated in most glaciers in the region reaching their late Holocene maximum positions. Since this time, glaciers in the region have subsequently down wasted to their present size. The dendroglaciological evidence from the Andrei Icefield area corresponds with the global record of glacier fluctuations in response to climatic changes caused by decreased solar activity. The discovery of episodic late Holocene glacier expansion in the region strengthens our spatial and temporal resolution of activity in Pacific North America and understanding of the impact of long-term climate changes during this epoch.

Session: THU 10.30.2

SpatioTherapeutics

Dawn Moore, Law and Legal Studies, Carleton University

This article explores the intersection of geography, law and treatment through the lens of drug treatment court. We show how the courts facilitate addiction treatment in part through specific definitions of urban spaces as either healthy or unhealthy. We argue that these definitions rely on the problematic notions that drug use is a geographically fixed activity and that neighbourhoods deemed unhealthy (because of either drug using or criminal activity) are essentially bad, void of any supportive features. These observations lead us to a broader framework of 'spatio-therapeutics' which is simultaneously productive and repressive.

Session: TUE-8.30-1

Growing together: Cultivating community through gardening in Kenora, Ontario

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Community gardens are places where people connect, share, and engage their social and ecological communities. The purpose of this participatory thesis research was to explore and communicate experiences of community-building through community gardening in Kenora, Ontario. Using a Photovoice technique, twelve participants documented photos and stories of their garden communities, and shared these in a series of workshops. The participants then compiled a selection of their photos and stories into a public exhibit that was displayed throughout Kenora. Follow-up interviews were used to fill gaps in the data and get participant feedback on the Photovoice process. Participant observation was used to triangulate the data. Results of this research were produced through narrative analysis. They point to a uniquely relational perspective of community gardening, the significance of sharing and learning in the garden, and the successes and challenges in achieving positive social and ecological outcomes. Of particular interest to the research participants, garden initiatives in Kenora should facilitate opportunities for intergenerational bonding, connecting across community gardens, accessing garden locations, and addressing systemic barriers to inclusion. Through participatory methods and documenting lived-experiences, this research may provide insights into developing people-centred approaches to urban planning and public policy-making.

Session: TUE-8.30-8

Mapping Play Deserts: A GIS Approach to the Study of Playability in the City of Vancouver

Hollie Moulaison, Samantha Bets, Ian Lochhead, Andrew Wilson, T. Wilkie, Simon Fraser University

A play desert is a geographical area that does not have a present, accessible and stimulating outdoor space for use by children for play. The design of high quality outdoor landscapes has the ability to promote physical and mental health and development in children. Therefore, by locating where play deserts occur, they can be prioritized for urban development projects in the future. There are many inherently spatial questions linked to the examination of the provision of high quality play for childhood development, and the visualization capabilities of GIS are an excellent opportunity for incorporating multiple contexts in a diverse representation of the social and physical aspects of the issue. Therefore, the main purpose of this project was to identify locations of play deserts within the City of Vancouver. In doing so, this project provides a spatial context to the issue surrounding the level of playability present within Vancouver's green spaces. Furthermore, while this project only addresses playability within the City of Vancouver, it holds substantial value in that it can be used as a foundation for other play space research.

Session: TUE-10.30-2

Evaluating Benefits to Geography from Place-Based Teaching: Mixed Results from Preliminary Interdisciplinary Research

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In an examination of place-based assignments across eight disciplines, we found that we were able to identify a benefit to teaching with place, though not in geography, itself. Overall, the place-based assignments were well received by students, but return data for geography students was very low. In addition, there were distinct differences in responses between the other disciplines studied. This led to a re-evaluation of the theory, methodology, and data of the research itself. Was the concept of place too well established in geography for an extraordinary place-based assignment to be effective or inspire response? Was the assignment design too diverse to identify comparable differences between and within disciplines? Or were the selection criteria merely too stringent, unnecessarily reducing the potential sample size? By more extensive examination of an extended data set, including interviews, questionnaire responses, and assignment content, we try to identify differences in responses to place-based assignments by discipline and by assignment parameters.

Session: TUE-1.30-8

Parasitic Horrors: Examining the Boundaries of Medical Knowledge in Popular Culture

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Parasites hold a specialized cultural currency within popular discourse. On TV and in books they are conceptualized as a grotesque Other and portrayed as monsters for both our amusement and our horror. Within the genres of science fiction and horror, parasites have become a popular muse for the creation of alien forms. What about parasites allows them to be taken up in such horrific and other-worldly ways? And what effect does such constructions of parasitism have for those humans who host them? Using discourse analysis of popular texts discussing parasites, including news and magazine articles, websites, non-fiction popular texts, novels, and films, this paper examines the ways in which parasites are taken up in popular culture and how such representations both perpetuate and diverge from biomedical knowledge about them. Further, using discourse and content analysis of blogs of human hosts, both hosts who chose to infect themselves with parasites and hosts who inadvertently became infected with parasites, this research explores the effects of popular discourse on individuals' understandings of their own experiences as hosts.

Session: TUE-3.30-3

Spatiotemporalities of Violence and Political Response Across More-Than-Human Bodies and Ecologies

Heidi Nast, DePaul University

Noémie Boulanger-Lapointe, University of British Columbia

Christine Biermann, University of Washington

Eda Acara, Queen's University

Sue Ruddick, University of Toronto

Politics, its violences, and its responses have never been solely 'human' domains. Ongoing scholarship within critical studies of the more-than-human (e.g., posthumanist theory, animal geographies) and various bodies of intersectional social theory (e.g., subaltern studies, postcolonial, critical race, feminist, and queer theory, to name a few) have demonstrated how violence operates through the envelopment of more-than-human processes and the simultaneous exclusion of these bodies under the markers of 'death', 'nonpolitical', 'non/natural', 'animal', and others. Such formations of political violence and response are neither simple nor uniform. They involve multiple geographies and temporalities. Different lifeforms, different imaginations of futurity, different demarcations of legible space and place, different ontoepistemologies of what counts as 'the political'.

This panel hopes to stage fruitful conversations and questions around these entanglements. What might a social justice approach look like that does not separate 'the social' from 'the natural'? What are the spatial and temporal limits to political legibility? How might a rethinking of this il/legibility force a different sort of politics? In this panel session, we invite scholars to engage these questions and/or others in critical conversation about the temporalities and spatialities of violence and political response across human and nonhuman bodies and ecologies.

Session: THU-10.30-4

Built environment variables influencing aggregate walking: a multivariate analysis of Halifax neighborhoods.

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In the walkability literature it is typically assumed that walking occurs primarily in residents' home neighborhoods, and that certain built-form variables (e.g. land-use mix, high residential density, street connectivity) characterize "walkable" neighborhoods. However, neighborhoods rated as highly walkable are not necessarily those where most walking occurs. This research examines the extent to which walkability and walking are spatially related at the neighbourhood level, in urban and suburban areas of Halifax, Nova Scotia.

Using data from the unique Halifax STAR Project, time-diary survey results and associated GPS tracking were employed to map the location of many individual walking events. These data were then aggregated by census tracts, and expressed as walking densities (per resident and per metre of road). The highest walking densities were observed in inner-city commercial and institutional areas.

A statistical analysis was conducted to determine if built-environment variables are useful estimators of walking activity. Such variables were found to have only moderate estimating power, whether modelled separately or in combination. The most useful were land-use mix and the retail floor area ratio. However, socio-demographic control variables were found to be the best estimators.

Session: WED-10.30-6

City planning, design, and Indigenous experiences of the built environment

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Urban planning and design, as means for regulating spaces and places, have long been applied as colonial instruments to marginalise Indigenous peoples. In contemporary times, cultural diversity and an increasing number of Indigenous peoples living in cities has created a special context for Canadian urban development. While research on eliminating socio-cultural disparities has been focused mainly on the provision of civic services for Indigenous peoples, the role of the built environment in de-colonising urban life should be addressed more thoroughly. An important issue in post-colonial Canadian cities is to understand interactions between Indigenous peoples, diverse ethno-cultural immigrant groups, and mainstream society in shared urban areas and figuring how Canadian cities create 'spaces' and 'places' for these communities. Indigenous input in planning, design, and programming of public spaces has an important role in restructuring urban identities and fulfilling the right to the city for Indigenous peoples. Using semi-structured interviews with Indigenous peoples living in inner-city Winnipeg, this paper intends to elicit the perspectives of Indigenous citizens toward their urban experience regarding 'place', placemaking, and public space programming in cities and consequently, how urban planning and design could provide an enhanced 'urbanism' for Indigenous people based on claiming their rights, needs, and aspirations.

Session: TUE-3.30-2

BikeMaps.org: a global tool for collision and near miss mapping

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Real and perceived concerns about safety are primary barriers to new ridership. Due to limited forums for official reporting of cycling incidents, lack of comprehensive data is limiting our ability to study cycling safety. Our goal is to introduce BikeMaps.org, a new VGI website for crowd-source mapping of cycling collisions and near misses. BikeMaps.org is a global mapping system that allows citizens to map locations of cycling incidents and report on the nature of the event. Attributes collected are designed for spatial modelling research on predictors of safety and risk, and to aid surveillance and planning. Released in October 2014, within two months the website had more than 14,000 visitors and mapping in 14 countries. Collisions represent 38% of reports (134/356) and near misses 62% (222/356). In our pilot city, Victoria, citizens mapped data equivalent to about one year of official cycling collision reports within two months via BikeMaps.org. Using report completeness as an indicator, early reports indicate that data are of high quality with 50% being fully attributed and another 10% having only one missing attribute. We are advancing this technology, with the development of a mobile App, improved data visualization, real-time altering of hazard reports, and automated open-source tools for data sharing.

Session: FRI-10.30-7

A Popular Geography of Peru through Media Representations of Food

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Destinations around the world have recognized the value in creating and/or promoting distinctive cuisines. This provides an attraction for gastronomic tourists and an effective means of raising awareness about the destination. Representations of food convey meanings about the place with which it is associated, including characteristics of the environment, the culture, and its identity. Peru has experienced significant tourism growth, which is partially attributed to their growing status as a leading gastronomic destination. Popular media articles on Peru as a destination have begun to focus on its food and drink. However, these representations go beyond depicting the eating and drinking experiences one might have upon visiting Peru to create an image of the place itself. The purpose of this paper is to examine the construction of a popular geography of Peru through media representations of food. Based on quantitative and qualitative content analysis of magazine and newspaper articles, this paper discusses the manifest content of Peru as a gastronomic destination and of Peruvian food as well as the latent content of Peru as a place. This constitutes a form of popular geography, in which non-academic or professional media plays an important role in shaping public knowledge of a place.

Session: THU-8.30-6

Picturing a Place by the Sea: A Review Study Exploring Geovisualizations as a Place-based Tool for Collaborative Coastal Management

Robert Newell, Rosaline Canessa, University of Victoria

Effective coastal management is integrative and aims to incorporate the wide variety of user needs, values and interests associated with coastal environments. This requires inclusive approaches to management that are cognizant of how different user groups understand coastal environments and relate to them as 'places', imbued with values and meanings, rather than simply 'spaces'. Accordingly, tools and techniques that can capture and convey place-based information have potential for supporting coastal management strategies, which suggests a role for geovisualizations that inclusively reflect the range of values and meanings through immersion and realism. The current paper aims to advance coastal geovisualization research by using the concepts of 'place' and 'sense of place' to develop insight on different understandings of and behaviours toward coastal environments, and it uses this insight to create recommendations for developing geovisualizations that can effectively enhance coastal understandings and facilitate collaboration among conflicting user groups. The paper identifies different coastal user groups using a cultural model framework and employs a structured literature review methodology to examine how the values and interests of these user groups influence understandings and perceptions of coastal places. Recommendations for geovisualizations that emerged from this research include full navigability, dynamic elements, and capabilities for building scenarios.

Session: TUE-10.30-6

Mind the Gap? Access and Use of Support Services Amongst Disabled Immigrants in Canada

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While immigrants are typically healthy at the time of their arrival in Canada – the so-called 'healthy immigrant effect' – this advantage is quickly lost over time. Recent immigrants, for example, are less likely than the Canadian-born to report chronic conditions or disability, attributed to the fact that those in good health are more likely to immigrate to Canada along with the screening process at the time of entry that disqualifies those with serious medical conditions. With time, the prevalence of chronic conditions and disabilities among the immigrant population appears to converge with that of the Canadian population.

While the prevalence of disability within the immigrant population does not differ significantly from that observed in the native-born population (after controlling for age and gender), immigrant males are typically characterized by lower levels of disability than immigrant females. Moreover, immigrants and the native-born may need or have access to different levels of support. Using Statistics Canada's 2006 Participation and Activity Limitation Survey (PALS), this paper explores differences in the type and level of care received by immigrants and the native-born, with consideration to the type of care and level of disability. Results suggest that immigrants are somewhat more likely to rely on family and friends for support.

Session: FRI-1.30-5

Agriculture on the edge: Farm stores and the rural imaginative in British Columbia's Fraser Valley

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The region surrounding Vancouver, BC, contains Canada's most productive farmland, and 50% of the lush Fraser River valley bottom has been placed in an Agricultural Land Reserve to prevent urban sprawl from displacing farming. Land prices, however, are unusually high, and farmers must either farm intensively or create value-added "experiences" catering to urban residents. Our purpose was to understand how farm stores and related agricultural and culinary activities contribute to sense of place and agricultural identity. Our presentation addresses what we call a "rural imaginative," in which foods, along with idealized symbols and text, are used to represent and evoke past and present farming and rural life, even when they may not reflect the realities of local agriculture. Our team studied four farm stores over six months using a multiple case study methodology and interviewed operators to examine how they use regional food production to engage audiences. Lacking a coherent historical basis, operators have taken unique approaches to recreating an imagined rural past that has, over time, evolved to link what is currently produced in the Fraser Valley with a sense of place and local bounty.

Session: TUE-8.30-7

From porkknocking to pit poking: Akawaio women's perspectives on environmental sustainability and Amerindian development in Guyana

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Guyana's rainforest has attracted global attention since the sixteenth century colonial era when Europeans were led to believe that it was the home of a city paved with gold; called 'El Dorado' and that finding this city would lead to immense wealth. The quest for El Dorado led the Europeans to settle the country but the vast wealth was never discovered. After independence in 1966, post-colonial government viewed the forest once more as a panacea for Guyana's chronic economic maladies and as such implemented policies to attract multinational and individual investors.

The paper examines the impact of mining and conservation negotiations in Isseneru, a traditional Akawaio community in Guyana's rainforest. The main research questions explored how Akawaio women are shaping their notion of development from working as pork-knockers to mine owners in a time of conservation services negotiations. The findings indicate that these women are seeking their own economic wealth while forest negotiations continue to exclude them. Land use needs to be contextualized from a contemporary approach if alternative livelihood methods are to be pursued.

Session: WED-8.30-2

Spatial Analysis of Home-Based Businesses in the City of Surrey, British Columbia: Implications for Post-Industrial Cities of North America

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This study examines the growth, spatial distribution, and implications of home-based businesses (HBBs, a.k.a. home businessness, home occupations) in a post-industrial city, using licensed business data obtained from the City of Surrey in British Columbia. Geographic Information Systems (GIS) and other quantitative techniques were used to analyze the secondary data. The findings of the research suggest that there are distinct as well as similar local characteristics of HBBs throughout the city's neighbourhoods. The key factors that have contributed to spatial variation of HBBs across the urban landscape include land use regulations or zoning by-laws, development policies, distribution of population, and types of dwellings. Also like most post-industrial cities in North America, recent growth in home businesses in Surrey is attributed to global economic restructuring, advancement in technology, and restructuring of urban economic policies and land use regulations. Considering similar factors are shaping home occupations in cities throughout North America and elsewhere, the question is what are the implications of the resurgence in HBBs for urban milieu in the Global North? Therefore further studies of this growing phenomenon would help better understand the changing nature of work and its implication for the development and sustainability of the post-industrial North American city.

Session: WED-1.30-7

Tourism invasion in arctic wilderness - Positive for whom?

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The complex tourism's relationship with the environment involves numerous activities that can have adverse environmental effects, and gradually change the environment and subsequently tourists' experiences. Holistic understanding of the causal relationship between the different impact factors is therefore fundamental in order to sustain the fragile balance between tourism and the environment. The general aim of this study is to use systemic approach to examine the impact of tourism destination exploitation as regard attractiveness on different type of visitors using the tourism scale by: i) identify important key factors influencing attractiveness of a natural destination through tourism development; ii) design a causal loop diagram (CLD) in order to obtain a holistic overview and understanding of the key factors identified and their causal relationships; and by iii) clarifying the complex interplay between identified factors. The CLD analysis indicates that "number of visitors" is not a suitable measure of evolution of a tourist destination since it is an "effect" variable that comes late in the cause chain. A more suitable measure would be an index for "attractiveness". Attractiveness of a tourist destination

captures the evolution of the system and its sensitivity more clearly. The results demonstrates the critical importance of tourism destination planning and management to prevent environmental damages as well as to avoid all destinations to evolve the same direction decreasing the destination value for other tourist types than non-purists that represent mass tourism.

Session: TUE-1.30-4

Forecasting radial growth in shelterbelt trees across southern Saskatchewan

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Shelterbelts have played an important role in prairie agriculture since the late 1800's; however, little is known about how they may be affected by climate change. Our team of researchers set out to sample over 100 sets of shelterbelt tree species across all soil and climate zones of southern Saskatchewan. After establishing the past radial growth patterns of six of the most prominent shelterbelt species (white spruce, Manitoba maple, green ash, Scots pine, hybrid poplar, and caragana), we conducted dendroclimatological analysis to highlight climate related factors influencing their growth. With such a large sample size, we automated the procedure in 'R' and modelled historical radial tree growth using monthly temperature and precipitation data, and then used these calculations to forecast growth under three future SRES scenarios. The data were input into an online user interface where landowners may visualize how these tree species may grow on their property in the future under each scenario. This information will assist in the decision-making process of landowners selecting which species of trees and shrubs to plant in new or existing shelterbelts.

Session: THU-10.30-2

Governing Green Transitions: Diffusing Green Building Approaches in the UK and Germany

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Governments and other bodies are increasingly keen to engender a transition to a low carbon economy. Buildings, and the methods and products used in their construction, account for some 45% of carbon emissions. Targeting new buildings and retrofitted buildings can help contribute towards meeting reduced carbon emissions by 2050, and has also been framed as a business opportunity during the financial crisis. Recent research with green building businesses and policy makers in both the UK and

Germany highlights the uneven development of green construction in different geographical contexts. In this paper, we focus on the contingent political, economic and social contexts of Germany and the UK, in particular the role of policy makers and green building entrepreneurs in shifting practices within green building. Drawing on sustainability transitions theory, we explore the potential for the diffusion of green building practices between countries – Germany was frequently cited by UK respondents as having made the transition to green building, whereas responses from German businesses and policy makers involved in this research suggests otherwise. By attending to the experiences of green building entrepreneurs and policy makers in both the UK and Germany, we explore their potential as systems builders to enact green building transitions, and the impact of different geographical contexts on this.

Session: TUE-10.30-7

Governance dynamics in Central Region of Mexico: Textiles, pottery craft and fireworks.

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The aim of this paper is to analyze the socioeconomic production systems of textiles (Tlaxcala), pottery craft (Tlaxcala-Puebla) and fireworks (Estado de México), in Central Region of México, in order to understand the difficulties they face and prevent to improve their economic and social performance.

At first we analyze the debates on Local Productive Systems and characteristics that favor specialization in the localities analyzed. The second section provides an overview on socio-economic changes experienced by Mexico that gave rise of what we call archipelago of production systems. In a third section we delve into the difficulties and challenges of coordination among local producers, which define economic governance in each locality. Finally, we develop a discussion on the challenges that producers and their associations face, to promote local economic development initiatives.

The investigation was mainly based on fieldwork carried out in different stages, as well as interviews with key producers and local officials related to the predominant economic activity in each locality.

Session: WED-1.30-7

Intersections of Marginality; Area Restrictions via Immigration Conditions in Vancouver's Downtown Eastside

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My research will investigate the use of quasi-judicial administrative law as a spatial tactic in controlling the mobility of marginalized refugee claimants in Vancouver, specifically, the use of “conditions” under the Immigration and Refugee Protection Act. Under IRPA, an officer can impose conditions and it has

become a normative response to restrict the mobility of specific claimant populations by creating a quasi-judicial “no-go” in the Downtown Eastside. If violated, the result is arrest and detention. I seek to address the motivation for this creative tactic and will argue that it arose as a result of the inability of the criminal justice system to respond to issues of refugee claimants trafficking narcotics in the downtown eastside due to the higher standard of evidence, and because only members of the judiciary are able to impose strict mobility conditions. Under IRPA, the standard of evidence is significantly lower and rules of evidence are far less stringent, with individual officers having the capacity to arrest without warrant and impose strict conditions on the marginalized citizens to whom the act applies (those without Canadian citizenship). This creative spatial tactic is troubling as non-citizens have little capacity to resist state control of their movement within Canada.

Session: TUE-10.30-1

Sexual diversity and the politics of global urbanism

Natalie Oswin, McGill University

The issue of LGBT human rights struggles has taken on truly global importance and reach recently. Events like the passage of anti-gay laws in Russia ahead of the 2014 Sochi Olympics, or the extension of the definition of marriage to include same-sex couples in New Zealand in 2013, garner worldwide media attention. Further, international and activist organizations compile data on the legal status of LGBT persons in all of the world’s countries and such information has formed the basis of various non-binding United Nations declarations. Scholars have responded to these trends such that an extensive body of literature on LGBT rights struggles at the global and national levels now exists. Yet, this work neglects the ways in which LGBT human rights struggles play out at the urban scale and, as such, misses connections between these national and global trends and crucial urban contexts and dynamics. This is a significant gap, especially as the relationship between cities and LGBT politics has intensified and changed over the same period in which we have witnessed the changes at the global and national levels. In short, we have seen an extraordinary political convergence: in many sites, not only LGBT groups and individuals promote cities as sites of sexual diversity and tolerance, but city governments, tourism bureaus, and business associations do so as well. In this paper, I begin to address this gap, with suggestions for a research agenda into the role that global urban policy circuits play in shaping sexual diversity discourses.

Session: FRI-1.30-1

Determinants of residential vulnerability to flood hazards in Metro Vancouver, Canada

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What influences residents' vulnerability to flood hazards in a Canadian coastal city? This study addresses the question by identifying and testing hypothetical determinants of residential vulnerability to flood hazards in Metro Vancouver. A household survey is conducted in four neighbourhoods in Vancouver and Surrey to test seven determinants: (1) social vulnerability, (2) hazard perception, (3) institutional arrangements, (4) amenity value conflicts, (5) self-protection, (6) attribution of responsibility, and (7) attenuation of risk due to another dominating concern. Survey findings offer insights as to how these determinants interact to produce unequal vulnerability to flood hazards among residents in a Canadian city. The study finds that social vulnerability is an important factor in determining overall vulnerability to flood hazards. Household income, as a key contributor to social vulnerability, is found to have significant correlations with variables that define the other determinants. Institutional arrangements, including property insurance and development regulations, appear to interact with social vulnerability and the other determinants to allow powerful groups of people to live in hazardous places without taking on the full associated risk. The findings of the study have implications for our understanding of how vulnerability is produced and how, or whether, local policy can address these factors to equitably reduce risk.

Session: TUE-8.30-5

Exploring cross-national variations in informal e-waste recycling practices across North America

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Kate O'Neill, University of California, Berkeley

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E-waste governance is becoming one of the most relevant and challenging issues facing the North American region. While developmental trajectories of North American countries have diverged through time, there is growing consensus that e-waste governance is an important yet often overlooked North American environmental policy issue. Much of the literature that has examined e-waste governance in Canada, the US and Mexico has done so by looking at patterns of trade (legal and illegal) and cross-border flows. Most of these studies focus on the formal sector. Nevertheless, so far we have found no evidence of any scholarly examination of informal e-waste recycling across all three countries, and how it affects the shape and effectiveness of e-waste governance at different levels, local to regional. In this paper we present preliminary results of a cross-national comparison of informal e-waste recycling practices in selected cities across the three North American nations. We explore how these practices vary across borders and posit hypotheses on which factors account for these variations. By comparing how informal e-waste recycling practices occur we can draw empirical lessons that can be then applied

to a more systematic, larger-scale study of e-waste governance in the North American region and beyond.

Session: TUE-3.30-7

The extinction of forest species in Guyana

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Schemes for Reducing Emissions from Deforestation and forest Degradation (REDD) have difficulty in defining and estimating the second 'D' (forest Degradation) in Guyana and other countries. This difficulty and the consequent low priority contrast with the greater agreement on definition, and accuracy/precision in estimation, of deforestation. Meanwhile the rising demand in China and India for tropical forest timbers suitable for the preferred dark-coloured furniture and impact-resistant flooring drives the continuing selective over-cutting and export of Guyana's prime commercial species. I outline the ways in which selective logging is carried out across all spatial scales of logging concessions and under the control of a few transnational log traders. I examine the changes in policy and procedures, including in the Code of Practice for Forest Harvesting, by the Guyana Forestry Commission in order to facilitate the over-cutting. I present the evidence for localized commercial extinction of two important timber species – purpleheart (*Peltogyne venosa*) and wamara (*Swartzia leiocalycina*).

Session: WED-8.30-2

Anthropogenic Waterways and Nationalism in Guyana, South America

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Guyana's coastal landscape is deeply anthropogenic, rife with multifarious water control systems: drainage and irrigation canals, dykes and kokers, water conservancies, runoff trenches, re-introduced mangrove forests, and the seawall defense system. This paper does two things, first inspired by Hugh Raffles' *In Amazonia* (2002), it examines the ways in which this manipulation and transformation of nature in the making of these water management systems, transforms people's lives. Guyana is facing a major rubbish removal crisis. Weeds block trenches and plastic garbage clogs up kokers and mangroves, contributing to flooding. In the Atlantic, rubbish creates sea-scouring action damaging sea defenses. The facilities and infrastructure for waste disposal are in desperate need of improvement and regular maintenance. Billboards sponsored by various state agencies proclaim 'Littering is a crime, let's keep Guyana clean,' promoting the 'Keep Guyana Clean' campaign, and garbage removal strategies are one of the major campaign concerns for the 2015 elections. Accordingly, the second concern of this paper then draws on Arun Agrawal's "Environmentality," that is the "governmentalization of the environment" (2005:11) as processes, related institutions, practices and subjectivities that (re)shape the environment, to analyze the ways people speak formally and informally about the environment, waste management, and discourses of Guyanese nationalism.

Session: WED-1.30-2

Mental wellness in the university sector: Feminist geographers' perspectives

Kate Parizeau, University of Guelph

There would appear to be a resonance between feminist geography and attention to mental wellness issues in academe. Feminist geographers believe that the personal is political/structural/institutional, and topics of embodied knowing, emotional well-being, caring, and affect are central to feminist geographical research and teaching. However, despite the seeming relevance of mental wellness to our work, there has been a collective silence on this issue in feminist geography writings and academic presentations. Based in conversations with members of the Great Lakes Feminist Collective, I will discuss some of the concerns, assumptions, beliefs, and constraints expressed by feminist geographers that contribute to our personal hesitations in addressing mental wellness, as well as institutional silences on this issue.

Session: FRI-10.30-6

Restoring a Jewel in the City: Exploring the potential for urban Ecosystem-based Management in Still Creek, Vancouver.

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This study examines Ecosystem-based Management (EBM) as a tool for urban communities to use in ecological restoration. It explores how community-driven watershed restoration can be augmented by reframing community perceptions of ecosystems through a holistic, Ecosystem-based approach to watershed management. The case study of watershed restoration in Still Creek, Vancouver, British Columbia is informed by document review and semi-structured interviews with community members, local government representatives, and EBM experts. We focus on understanding the community's interest in and motivation for implementing an Ecosystem-based Stewardship Plan, the nature of collaborations between interested stakeholders, and the potential value that an Ecosystem-based approach will bring to the restoration of the Still Creek watershed. Results indicate that the EBM approach is helping the community to perceive Still Creek as a valuable asset that provides significant ecological, social, and economic benefits to the community. In order to fully implement EBM, attention needs to be paid to addressing challenges that the community is experiencing, which include navigating jurisdictional context, identifying the spatial scale of watershed restoration, and establishing the priority areas of concern in this urban watershed. This research recommends solutions to challenges and provides insights into the benefits of EBM in the urban setting.

Session: FRI-3.30-2

First Nations and source water protection planning on the Canadian Prairie

Robert Patrick, Department of Geography and Planning, University of Saskatchewan

The provision of potable water continues to challenge many First Nation communities across Canada. Many of these water challenges are systemic reaching back to colonization and creation of 'Indian Reserves'. Lack of running water and chronic problems with water delivery in many First Nation communities has resulted in documented health problems. The challenges are many and yet the solutions have been slow to develop. The financial burden of water delivery and water treatment further cripples First Nations economically. The Federal government has invested in water treatment technology, an approach that has not always proven effective or sustainable. This paper will identify ongoing threats to drinking water supplies as well as the potential of source water protection planning to address many of those threats. The results in this paper are based on case study evidence from First Nation communities in western Canada.

Session: WED-8.30-7

Advocating for Immigrant Workers in Toronto's Industrial Cleaning Industry

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A recent report (Lewchuk et al. 2013) found that only 60 percent of Greater Toronto and Hamilton Area workers were in full-time and stable jobs. In 2006, 27,000 workers in Toronto were employed as light duty cleaners, specialized cleaners, janitors, custodians, and heavy-duty cleaners. Over three quarters of the industry's workforce are over 40 years in age. They work in situations where wages and hiring are not regulated by government policy or union contract provision. This paper examines the industrial cleaning industry in Toronto and the roles of union and non-union organizations in improving working conditions for immigrant workers. With few exceptions, direct action by immigrant workers and non-union organizations in response to precarious employment remains understudied in labour geography. Labour geographers have emphasized workers' potential to contribute to economic development. Citywide organizing campaigns have sought to enhance collective bargaining agreements, raise wages for low-wage service sector workers, and hence, force employers to compete by providing better standards of service. This paper will present preliminary findings in the field on the advocacy work by union and non-union organizations in response to the contracting out and privatizing of cleaning services in the GTHA. It concentrates on workers who clean large-scale workplaces, including manufacturing facilities, commercial and retail complexes, and public buildings and facilities but excludes small-scale cleaning operations. A primary objective is to understand how the treatment of precarious workers, whether they endure discrimination because of their skin colour, legal employment status, or gender is being addressed by non-union advocacy groups.

Session: TUE-1.30-5

How I talk about my white privilege to students of Canadian geography

Sarah Paynter, Geography Department, Douglas College (paynters@douglascollege.ca)

For years I've wanted to decolonize my geography classrooms, but discussions on white settler mythologies and privileges were invariably met with resistance and/or confusion. My strategies relied on using non-Indigenous pedagogies to decolonize Canadian and other geographies, and they were lacking to say the least. Today, after years of learning from Indigenous scholars and elders in Canada, my students and I are engaging with Indigenous perspectives on both Aboriginal and Non-Aboriginal geographies, and developing common ground as Natives, non-Natives, newcomers, and old-timers. Indigenous pedagogies ask teachers to show their students that learning is a life long practice—in part by modeling their own ongoing learning—and to use storytelling to connect theory to everyday life. I implement these and other Indigenous pedagogies by sharing my story of being both a non-Native teacher and a learner of Aboriginal geographies in Canada, and by acknowledging the Indigenous teachers and perspectives that have helped me uncover my own role in reproducing white settler narratives and privileges for so many years.

Session: WED-3.30-3

Cultivating an Ethic of Wellness in Geography

Linda Peake, York University

Beverley Mullings, Queen's University

A rising number of students seeking mental health services across university campuses has prompted faculty, administrators and student service providers to call attention to what some describe as a “crisis of mental health”. Geography, however, has not yet begun to explore a collective and professional response to this crisis. In this session we seek to explore what a critical commitment to emotional and mental health in the academy might look like. We invite reflection as educators, administrators and researchers on these emerging conversations and interventions from a variety of critical perspectives. Drawing on various debates, for example, over the relationship between mental health and social space, the changing balance between work and life, the value of social reproduction and the relationship between the neoliberalization of the academy and mental health, we seek to explore how the organized practices that produce the space of the Academy are implicated in the current state of mental health among students, faculty and staff across university campuses.

Session: FRI-10.30-6

Spatial analysis of homicides in Recife, Brazil

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Violence is one of the biggest problems in society, because it often leads to the loss of human life. Since 2000, approximately 50,000 Brazilians were murdered per year, and between 1980 and 2010 more than 1 million homicides occurred in Brazil. Many people believe that the violence in Brazil is related to poverty and inequality, problems that involve a large portion of the population. In this context, we investigated demographic, social and economic variables that can be associated with the homicides in Recife, Brazil. We used data from the demographic census of 2010 and the homicide data come from the Secretariat of Social Defence. We found that homicides in Recife are positively related to inequality, rented houses and quantity of houses. However, homicides are inversely related to income, literacy, percentage of married people, water supply, percentage of women responsible for the house and demographic density. These results are in accordance with important theories of crime, such as social disorganization theory and routine activity theory.

Session: FRI-1.30-2

State of Kanaka Creek Watershed Riparian Vegetation In Maple Ridge, BC: Determining Impacts on Monitored Water Quality

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The relationship between riparian vegetation extent and stream water quality was investigated in the Kanaka Creek Watershed located in Maple Ridge, British Columbia. The upstream portion of the watershed is densely forested, gradually giving way to more intensive land use downstream. As Kanaka Creek and its tributaries flow southwest towards the Fraser River, “natural” vegetation surrounding the watercourses becomes more fragmented and confined by rural and suburban land cover. Moreover, suburban development continues to spread eastward, altering land cover composition in favor of less vegetated, impermeable surfaces. Consequently, Kanaka Creek and its tributaries are increasingly at risk of contamination from surface runoff as well as flooding. Riparian vegetation extent around watershed streams was mapped at a detailed level and compared to water quality measurements taken at key locations to evaluate possible relationships at watershed- and subwatershed-scales. Water quality measurements were collected monthly from February to May, 2015 for concentrations of nitrate and phosphate, and bimonthly for pH, temperature, conductivity, and turbidity. Preliminary findings indicate that subwatersheds with a greater percentage of impervious surfaces and less riparian vegetation have higher levels of conductivity and higher nitrate concentrations, while variations in other measurements between subwatersheds do not demonstrate differences at this time.

Session: THU-8.30-4

Uncovering the hidden curriculum: Implications for geography education

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In post-secondary education, much thought is given to the curriculum to be covered in any course or program. Less often considered are the implicit messages that are transmitted to students through the education process. Underneath and surrounding the content that is taught is a series of messages that students receive about knowledge formation, the discipline being studied, the world that they will be entering and the students' place in that world. Known collectively as the hidden curriculum, these often unexamined and unintended messages come through in a variety of ways such as language choice, assignment design and classroom set-up. As an environmental educator, the presenter wrestled with the concern that the messages being transmitted to students through the hidden curriculum may be in conflict with or even undermining the disciplinary goals and way of understanding the world. This presentation focuses on ways to ensure that alignment exists between the implicit messages and the explicit curriculum within a geography classroom. Participants will explore the goals of geography education, individual teaching philosophy and disciplinary assumptions. They will leave with some guiding questions to help them to analyze their own course design and teaching from the lens of the hidden curriculum.

Session: FRI-1.30-6

Industrial emissions, environmental justice, and mortality in Canada: A cohort analysis from 1991 through 2008

Paul Peters, University of New Brunswick

Recent large-scale cohort studies have demonstrated significant inequalities in exposure and measureable effects on cause-specific mortality from long-term exposure to air pollution. Most notably, the Canadian Census, Environment, and Health Cohort (CanCHEC) has shown significant and positive associations between long-term exposures to ambient air pollution and mortality. The CanCHEC cohort combines a national-level database of approximately 2.7 million adults who completed the 1991 Canadian Census linked to mortality, cancer, and annual place of residence. This paper integrates the CanCHEC with reported industrial emissions of PM_{2.5}, NO₂, and SO₂ from the Canadian National Pollution Release Inventory. This is the first major study to examine the health effects of industrial emissions using spatially varying individual-level exposures and including a broad range of socioeconomic controls. The results show significant inequalities in the potential exposure to PM_{2.5}, NO₂, and SO₂ emissions and increased risk of death from cardiovascular disease and respiratory disease.

Session: TUE-10.30-2

Financialization and Municipal Debt in the USA

Sage Ponder, University of British Columbia

From 1981-2011, the US municipal bond market grew by a staggering \$110 billion each year on average; while for the 'bubble years' of 2000-2008, the average growth rate rose to a mind-boggling \$254.5 billion each year for that period alone. (SIFMA, author's calculations). This paper seeks to chart the historic rise of this private market for municipal debt using the analytic lens of financialization in combination with a unique data set of municipal bonds covering the years 1954-2013, and containing approximately 5.5 million records. Particular attention will be paid to changes in the regulatory environment at the time of market "take-off", as well as to a consideration of the infrastructural consequences of municipal bond financing on urban space.

Session: WED-10.30-3

Young people in the city: Living and experiencing daily places

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Drawing from young people's geographies and humanistic geography this research focuses on young people's place experiences in urban environments. While children's and teenager's perspectives are quite well studied in geography, less research has focused on young people who are 'almost-adults'. Here, I understand place as a personal and social experience composed in daily mobile contexts. Together these elements of place form a web of meaningful places uniquely experienced by each individual. The research questions are: 1) how young people's place experiences are constructed in contexts where their lives are defined by socio-spatial possibilities and regulations; 2) how social encounters influence on young people's daily places; 3) how daily mobilities influence on young people's place experiences. Research material composes of go-along interviews, photographs and GPS-data. The analysis suggests that young people tend to associate with places where they can put their emerging adulthood 'in action' leaving at the same time the places of earlier youth behind (e.g. places to hangout). Second, while wanted encounters (e.g. with friends) strengthen connections between places unwanted encounters may disturb the connection between places. Finally, the possibilities for daily mobilities are crucial as they connect young people's meaningful places with ways their new adult identities would suggest. Instead, the experienced immobility limits the feelings of independency and disconnects places.

Session: FRI-8.30-4

Home as ways of gathering in Newfoundland and Labrador: An emerging decolonial perspective on the study of home

Michelle Porter, Memorial University of Newfoundland

Notions of home and place have often been understood through an idea of stasis and staying-in-place, effacing the movements which make up the spatiality of home and place. The impact of this effacement has been to cut off the ability of particular cultural groups from claims to home and place, resulting, in Canada, in the widespread de-stabilization of aboriginal homes and places. Invoking evidence collected from a literature review, an ethnography at a provincial museum, and interviews with the designers, curators and aboriginal guest curators of two new permanent exhibits, this article suggests that home can be better understood through the notion of gathering.

Home as ways of gathering forefronts and explicitly engages with the movements and geographies in which home is made. As a conceptual innovation, home as ways of gathering reaches beyond home's often unstated cultural boundaries and defines home as intersections of movements of people, imaginations, time, place and land. In this presentation home as ways of gathering engages with the contemporary narratives of home of an Innu woman living in St. John's, Newfoundland and Labrador.

Session: TUE-3.30-2

Individual and community responses to climate variability: Experiences from the Western Himalayas, India

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Environment and natural resources management issues involve dealing with factors that are generally non-linear, complex and uncertain. Add to that the complexity involved with climate variability, deemed a “wicked problem.” Scholars indicate that addressing these “wicked problems” call for the development of new forms of governance, collaborative institutions, and learning. This paper presents findings of research about community perceptions, responses and learning related to climate variability in the high mountain regions of Western Himalaya, India. The study was undertaken in three sites that varied altitudinally from 1850 meters to 4100 meters. The study was qualitative in nature and data was collected using various tools such as semi-structured interviews and participant observation. Results show that locals in all three sites have witnessed and reported variability in terms of snowfall, temperature and intensity and frequency of rainfall. The findings also reveal that new forms of governance – both formal and informal – and actions are developing as a response to variability. Finally, the findings show that the community action responses to climate variability, such as changing agricultural policy and farming practices, check dams to slow snow melt, among others are underpinned by their learning experiences.

Session: TUE-8.30-5

Performance as Transnational Transaction and Scholarly Inquiry: Migrant labour and urban dispossession

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In the summer of 2014 we began working with Migrante International to bring and perform our testimonial play with a community of urban poor in Manila. Rather than a straightforward presentation of Canadian testimony gleaned from research on Canada’s Live-In Caregiver Program, we reworked and adapted the material to situate the play and issues more fully within in the remittance-receiving community of Bagong Barrio. This reshaping became a means of organizing cultural workers within Migrante, and opened up a process of transnational exchange and an inquiry into local community histories and struggles. We report here on some of what we learned about another site/side of the labour export and remittance economy, and how our script became a means of circulating stories and gathering new ones. Performed by local youth in metro Manila, the play served to gain insight into a remittance-dependent community where Canada is seen as an elite migrant destination and labour migration has often led to financial and familial ruin rather than economic gain.

Session: FRI-3.30-3

Immigrants in the Suburbs: A Comparative Study of Housing Trajectories in Toronto and Vancouver

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The suburbs of Canada's major metropolitan areas are home to increasing numbers of immigrants who often report difficulties finding affordable, suitable and adequate housing. Using survey information, we compare the housing trajectories of newcomers to investigate their reasons for moving to various Vancouver and Toronto suburbs, the impacts of discrimination, and whether the move to the suburbs indicates a progressive housing career. Our comparative analysis confirms the diverse paths to suburban living. Some immigrants settle in the suburbs directly upon arrival, while others move there after establishing new lives in Canada. The move is motivated by diverse concerns with some immigrants seeking a large suburban dwelling and lot, while many locate near friends and family, and still others live in some of the cheapest rental accommodation in each metropolitan area. Discrimination affects immigrants in both metropolitan areas, although it is mentioned more in Toronto where it is related to household size and composition as well as race than in Vancouver. For most newcomers in this study, moving to the suburbs does not indicate success in the housing market.

Session: FRI-1.30-5

The Paradox of Dispossession Amidst Plenty: Social Differentiation, Canal Technology and Institutions in Intra-Rural Water Conflict in the Mumbai-Dahanu region.

Bharat Punjabi

Water security in large metropolitan cities is an increasingly important topic in the developing world. In Mumbai, for example, rapid urban growth has dramatically increased the demand for water curtailing the water entitlements of rural communities that are located near water reservoirs. This paper focuses on the regional dimensions of water and examines the impact of the local institutional architecture (laws, agencies, governance etc.) and the manner in which it has evolved on the sharing of water between rural and urban areas in Mumbai. It utilizes Ostrom's Social Ecological Systems framework to present a single case study focusing on action situations around rural water entitlements in a forested water district outside the city of Mumbai, India

Session: WED-8.30-7

The influence of alcohol outlet density on violent crime calls-to-police in Waterloo Region, Ontario: A Bayesian spatial analysis

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This research applies a Bayesian spatial regression model to analyze the association between alcohol outlet density and violent crime calls-to-police at the census dissemination area level in Waterloo Region, Ontario for 2011. Past research has suggested that alcohol availability may influence criminal behaviour at the neighbourhood level, however few studies have employed spatial analysis techniques that appropriately model over-dispersed and spatially autocorrelated count data for small-areas and analyzed call-to-police data, which provide location- and time-specific records of reported criminal behaviour. This research finds that alcohol outlet density is positively associated with violent crime calls-to-police after accounting for socio-demographic characteristics at the census dissemination area level. Using map decomposition, we visualize the contribution of alcohol outlet density, socio-demographic characteristics, and random effects to small-area risk estimates of violent crime calls-to-police. In areas where alcohol outlets are present, we explore the temporal pattern of calls-to-police (i.e., season and time of day) to further unpack the association between alcohol outlet density and crime. Broadly, this research highlights how land use and features of the built environment influence the spatial patterning of reported violent crime at a micro-scale.

Session: FRI-8.30-3

Les écrivains de la rénovation urbaine de la Basse-Ville Est d'Ottawa: Archétypes de la mémoire d'un traumatisme territorial

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A partir des années 1970, les géographes se sont mis à considérer la littérature non plus seulement comme une source de descriptions mais comme moyen d'accéder à un autre niveau d'expérience des objets spatiaux. La part d'imaginaire des romans, des nouvelles, de la poésie et des mémoires a trouvé sa place dans ces études. Dans cette présentation, je m'intéresserai à trois textes littéraires portant sur la rénovation urbaine de la Basse-Ville Est d'Ottawa, quartier canadien-français central de la capitale canadienne et très largement détruit dans les années 1960 et 1970. Je dégagerai les différents rôles joués par le territoire dans ces textes et définirai les archétypes de la mémoire territoriale qui y sont dessinés. Nous verrons que trois modèles font surface : une mémoire s'attachant à la morphologie urbaine, une autre aux caractéristiques socioéconomiques de la communauté urbaine et une dernière à son identité ethnique, chacune s'incarnant dans des personnages oscillant entre nostalgie, indifférence et révolte. S'ouvrir à ces manières d'écrire le souvenir de la perte territoriale permet de mieux comprendre la persistance et la réactivation dans les discours actuels de défense patrimoniale de certains mythes autour du quartier, qui s'appuient sur des références à cette littérature.

Session: TUE-3.30-3

The unseen role of coastal communities in the governance of marine protected areas in Colombia

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In pursuing the international Aichi Targets the number of marine protected areas (MPAs) in Colombia has doubled over the last decade. This rapid increase in MPAs raises concerns about equity and efficacy in achieving conservation outcomes. This deserves particular attention in the context of Colombia where, regardless of the dependence of local communities on marine resources for livelihoods, MPAs are highly restricted and follow a top-down governance approach that limits local communities' participation in MPA planning and managing. Although current governance approaches do not recognize the role of coastal communities in the successful performance of MPAs, there are inherent and long term interactions among coastal communities and marine ecosystems that have a major impact on conservation and sustainability outcomes.

This research examines interactions in coastal communities and implications for governance in three MPAs located in the southeastern Caribbean of Colombia. Findings from this research show that MPA governance highly depends on opportunities for communication and collaboration among environmental authorities and communities as well as on the capacity for community organization and leadership. Understanding interactions among coastal communities and MPAs is central to address the complex and dynamic aspects that constrain governance effectiveness.

Session: THU-8.30-3

Science and Sensibility: The origins of the UNESCO Man and Biosphere Program and World Biosphere Reserves

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The rise of ecosystem concepts and ecology in North America and Europe in the 20th Century was motivated by the desire to build a science rooted in ideas of integration, conservation and expert knowledge and a sensibility that included aesthetic, pragmatic and moral underpinnings. These dual motivations helped ecologists build their scientific credibility and establish international programs of research and action. Once credible as integrative and 'sensible' scientists, ecologists were formative in creating the Man and Biosphere (MAB) Program of the United Nations Education, Scientific and Cultural Organization (UNESCO) and its most enduring legacy – world biosphere reserves. Drawing on original reports of UNESCO, conference proceedings and retroactive analyses, I describe key events and actions between 1949 and 1976 to explain the motivations and characteristics of the MAB Program and world biosphere reserves. I illustrate that ecologists were at the forefront of debates over "environment and development" long before sustainable development became a popular concept and describe the on-going relevance of biosphere reserves in light of contemporary debates about ecosystem approaches to sustainability.

Session: WED-1.30-8

Ramen Girl? The real and imagined feminization of ramen in Japanese media: A geographical perspective

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From comic books to monthly magazines, from television variety shows to feature films, ramen is a popular reference point in Japanese society. The domestic ramen industry is currently worth 400 billion yen. At the same time, eight out of ten new ramen shops close within a year. This competitive situation forces the ramen industry to be continuously innovative. One recent trend is the purported expansion of the ramen market to appeal to female consumers. The purpose of this research is to investigate the way in which a variety of Japanese media represent this feminization of the ramen market, in particular by examining how gendered representations are performed at the scale of the shop, the city and internationally. The research draws upon content analysis of manga and anime series, food magazines and guidebooks, as well as interviews with key informants. It concludes that while these media often train consumers to approach ramen culture with these stereotypical gendered representations in mind, there is also evidence of a counter narrative that equates the breaking of gendered stereotypes with innovation. Moreover, whether and how ramen restaurants play this gender card may be a factor in their survival in particular locations.

Session: WED-8.30-4

Boreal wildfire footprint and residual vegetation patch morphologies in Ontario: influence of scale on characterization

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The emulation of natural disturbances (END) directs forest management in the vast boreal forest biome in Ontario and beyond when designing harvesting layouts. As our understanding of natural wildfire systems evolve, so do implementations of END, and thus monitoring and assessment of implementation effectiveness become increasingly important tasks to ensure compliance with regulations. This study provides the initial steps in building the expectations within these systems by measuring the morphological structure of wildfire footprints and insular residual stands of boreal vegetation to learn about both the disturbed areas, but particularly the unburned forest fraction following a wildfire. The focus is on 11 wildfires in Northwestern Ontario, represented at 5 spatial resolutions that were ignited by lightning strikes and never suppressed. Measurements of morphological structures characterizing footprints and residual stands provide tangible and visual understandings of disturbances. This work compares the mapping and characterization of wildfire footprints and residual vegetation patches across spatial resolutions, focusing on scaling effects on morphological representations. Results indicate more severe shifts among the morphological element proportions within residual vegetation patches than for entire footprints when spatial resolution decreases. The trends indicate that using a spatial resolution

coarser than 16 m leads to a loss of stability that otherwise exists at higher spatial resolutions. A follow-up study will replicate the analysis on harvesting sites and then compare the results.

Session: THU-10.30-7

The relatedness of people, land and health: Stories from Anishinabe Elders

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Drawing on interview data with Anishinabe Elders from the North Shore of Lake Superior, the purpose of this chapter is to push the limits of critical thinking around what determines First Nations health, and more specifically, to engage First Nations health and policy research to consider how fundamental land – in all of its various meaning – is for the health and cultural identity of First Nations people. This chapter seeks to widen the dialogue around critical population health thinking, in both research and policy worlds, about the important role that land plays for the cultural identities, social relationships and overall health and wellbeing of First Nations. Further, this chapter asks how and why it is that processes of environmental dispossession, particularly in the form of industrial development, have had such devastating consequences for the current day health and social realities of First Nation communities, and what role researchers and policy makers can play in drawing greater public attention and awareness to these inequities.

Session: TUE-8.30-2

The 'English disease': economic development, rachitic deformities and the corporeal geography of health

Sébastien Rioux, Université de Montréal

In spite of its vital role in medical and health geography, the human body has largely remained an implicit premise in a subdiscipline that has mainly focused on disease ecology, access to care, and environment and health. The result is not only the undertheorised approach of the body as mere 'support' to a geography of health and diseases, but also the tendency to conceptualise the spatiality of health (or the lack thereof) in abstraction of the body itself. This paper argues that the body is a deeply spatial affair, a subject at once shaping and shaped by its social and ecological environment. I explore the absolute, relative and relational space of the body through a study of rachitic deformities in Great Britain c.1830-1914, and argue that health geography is first and foremost a corporeal geography within which sociospatial inequalities are embodied unevenly. The paper aims to break new theoretical ground while offering a reflection on what a normative approach to social justice in health geography might look like.

Session: TUE-8.30-2

The Melancholy of the Creative Economy: Urban Transformation and Working People's Intangible Heritage in St. Catharines, Ontario.

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In this paper, I seek to answer recent calls to explore the intangible heritage of working peoples. At the centre of this project is the neoliberal reshaping of the city. On one hand, the transformation of cities around new economic models may lead to radical realignment of employment. But there is so much more at stake. Such changes lead to the reorganization of material and symbolic lived spaces as factories are closed and razed. The context of home and community are severely diminished. As manufacturing jobs are lost, shrinking opportunities and lower wages can mean both familial trauma and loss of home. Communities tied by class and occupations fade as people, and particularly children, move on. On the other hand, the reorganization of downtown spaces may lead to exclusion of particular groups of people as an art and culture focus caters to the desires of middle class creative workers and new forms of public citizenship take hold. More, as the city invests in the seduction of middle-class consumers, other opportunities for economic and community development are closed off. In this paper, I offer some preliminary findings based on surveys with local residents and interviews with former factory workers in St. Catharines, Ontario.

Session: TUE-1.30-5

Twitter-based activity signatures

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The idea of the healthy city has gained significant practical and research attention in recent years. Empirical analyses of how aspects of urban form and function impact the health of urban citizens has demonstrated effects due to extreme heat, traffic congestion, air pollution, and stress-related health conditions. There is therefore interest in better understanding how city design and the use of urban space contributes to well-being – in its physical, social, and psychological manifestations.

Traditional methods of examining how people use urban space are typically costly and/or difficult to apply to large areas. Urban spaces are increasingly overlain with layers of digital information, some of which are generated by private firms and governments (e.g. traffic flows), while others are generated by citizens as by-products of their social activities and communications (e.g. geotagged photos). In this research, we mine one year of Twitter data for the City of Toronto to derive individual geographies of human activity. Our interest lies in identifying activity signatures that are defined by spatial and temporal movement patterns and examining how these activity signatures are distributed across the city and with relation to specific types of urban places (e.g. parks, squares, streetscapes).

Session: FRI-10.30-7

An Evaluation of the Northern Gateway Pipeline Joint Review Panel Process: The Views of Participants in the Process

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This paper evaluates the Joint Review Panel (JRP) process for the Northern Gateway Project by surveying intervenors who participated in the process. The survey asks respondents to evaluate the process based on best practice criteria and to assess potential reforms to improve the project review process. The survey was conducted prior to the JRP decision to try to minimize the impact of responses to the decision on participants' views of the process. Findings show that participants were highly critical of the JRP process and that there is strong support for a number of reforms to improve the pipeline approval process.

Session: WED-1.30-5

Freshwater Security in the Inuvialuit Settlement Region (ISR), NWT, Canada

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Concern for water security, the measurement of the level of accessibility to a reliable quantity and quality of water for health and livelihood, is a topic growing in interest. While freshwater in Canada's northern regions is in abundance, resources are less secure than many would assume, with the widely dispersed and remote nature of northern communities presenting unique challenges to the treatment and distribution of freshwater. Challenges to freshwater security are not limited to the physical environment but also encompass political, social, cultural and economic challenges that are unique to northern Canada. This paper seeks to characterize the state of freshwater security in the Inuvialuit Settlement Region (ISR), NWT, Canada. A systemic literature review was undertaken to develop and analyze six key themes related to water security: environment, governance, health, economy, social and cultural. Coding and content analysis was done for 116 documents identified as relevant to one or more of the key themes. Within the literature focused on the ISR, the major emphasis to date has been placed on the environment and governance of freshwater. Results will highlight nuances and connections between the themes and will include the development of a conceptual diagram representing a visual understanding of freshwater security in the ISR.

Session: THU-10.30-6

Defining Urban Problems by Donation: Crowd-Funded Philanthropy and Urban Social Policy

Emily Rosenman, Department of Geography, University of British Columbia

In this paper I consider the implications of crowd-funded philanthropy for the prioritizing and financing of urban social policy. I explore the evolving relationships between the practices of crowd-funding and social policy when, through their investment and donation choices, members of the crowd define urban social problems and claim various levels of ownership over the results of interventions. I focus specifically on crowd-sourced and -funded 'solutions' to urban poverty. While discursively this approach proffers a new alternative to both sluggish public policy and the overbearing economic motivations of the private sector, it in fact reinforces the neoliberal relationships characteristic of contemporary urban policymaking.

Session: THU-10.30-1

Tearing Down the City to Save It? 'Back-Door Regionalism' and the Demolition Consensus in Cleveland, Ohio

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Following the 2007-2008 United States mortgage crisis, municipalities in shrinking cities are struggling to address a crisis of housing abandonment and vacancy. In this paper we use Cleveland, Ohio, as a case study to illustrate the ways that neoliberal and austerity logics are present in post-crisis government-led housing market interventions. We trace the emergence of a 'demolition coalition' at the local level, showing how demolition policy travelled from Michigan to Ohio and has been actively promoted by local actors as a realistic solution to the housing crisis. We find that this process united diverse political interests around salvaging plummeting home values and removing blight with limited financial resources. Additionally, we theorize demolitions as a spatio-temporal fix, a politically-negotiated local response to the challenging limits imposed by neoliberal austerity. We identify this fix as occurring at the local level, where demolitions clear urban land for future reinvestment, and at the regional level, where the increasingly more-than-urban nature of the housing crisis allow demolitions to gain support among fragmented municipalities outside the inner city.

Session: THU-8.30-1

Recreating the British Columbia Forest Service: Managing Mount Seymour Provincial Park, 1936-1957

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From 1936 until the establishment of a Parks Branch independent of the Forest Service in 1957, Mount Seymour Provincial Park served as a sort of 'test lab' for Department of Lands and Forest Service officials as they figured out how to order, manage, and present the forest-as-park to nearby urban populations. Highlighting activities such as road construction, supervision of private cabins, insect control, and ski area development, the paper demonstrates how Forest Service work at Mount Seymour produced an exemplar for a new management paradigm of forest-as-park in the post-war years. This paradigm would go on to guide the development of other areas such as Manning Provincial Park and Cypress Provincial Park.

Session: FRI-10.30-4

UN-subsidized socialist hydropower developments: Carbon credits in a Chinese frontier powershed

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The Clean Development Mechanism (CDM) promotes the reduction of anthropogenic greenhouse gas emissions and 'sustainable development'. In this paper, I investigate if riparian Handai populations settled nearby the Madushan hydropower plant built along the Chinese section of Red River have experienced positive outcomes from this project participating in the CDM. I scrutinize how these populations' access to assets at the core of their livelihoods has been modified after the completion of the dam. I also probe how the CDM reconfigures scalar relations between the stakeholders involved in hydropower governance in southwest China's Yunnan province. I find that while the CDM facilitates hydropower expansion in this area, it fails to make such developments more sustainable than 'business as usual' scenarios from a local perspective. Rather, the CDM consolidates hydropower governance as it unfolded in Yunnan before the province became an active participant in the greenhouse gas emission alleviation scheme. It also facilitates a contested national development campaign fostering the socioeconomic modernization of China's western provinces.

Session: WED-3.30-7

Weather forecasts for skiers: a double-edged sword

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Weather forecasts are one of the most publicly consumed items in the media, yet little empirical research has examined how and why the public obtains and responds to this information. Studies underscore that forecasts are used most for discretionary activities, playing an important role in recreational decision-making. A survey of 1,010 skiers from Ontario (Canada) is the basis for understanding how forecasts are sourced, perceived and used for the weather-dependent activity of skiing. Results indicate that all skiers (>99%) check the forecast when planning an outing to a snow resort, which is predominantly (95%) sourced through Internet and mobile devices. The results also show that the majority (84%) of skiers would be deterred from skiing as a result of a weather forecast, with freezing rain and rain being the greatest deterrents (85% and 93%, respectively). As such, weather forecasts represent a double-edged sword; while accurate forecasts are valuable and highly sought, inaccurate or misrepresented forecasts can unnecessarily dissuade snow resort visits – a lament often heard among tourism managers and operators. The findings highlight deficiencies in the provision of currently available weather forecast information for skiers, with opportunities to meet the differing weather needs of this subpopulation discussed.

Session: FRI-8.30-5

The search for new practices guiding industry-community relationships: A critical examination of the structural underpinnings of rapid growth in resource regions

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More than three decades of restructuring has transformed the nature of work and community relationships in resource hinterlands. Towns once built to accommodate large local workforces are now immersed in much more fluid flows of labour and capital. In British Columbia, proposed mining, oil and gas, LNG, and hydro projects may provide potential opportunities to diversify and strengthen communities. However, many community, industry, and senior government stakeholders have concerns about their capacity to be ready for the anticipated “boomtown” circumstance of rapid growth and development. Drawing upon experiences from Canada, the US, Australia, and Scotland, this presentation examines structural impediments undermining the capacity of stakeholders to respond to the challenges and opportunities associated with rapid growth and mobile workforces. Our findings suggest that policies and information structures have not been retooled and redesigned to support mobile workforces. Key structural concerns include obsolete policies and regulations to guide the development, tracking, and decommissioning of work camps; limited information and Census data

about mobile workforces; the use of different methodologies to forecast growth and impacts; underdeveloped information management systems to track the cumulative impacts of single and multiple resource projects; and an absence of orientation packages and information portals for industry and mobile workers.

Session: FRI-8.30-2

Virtual Daylighting: Enhancing Arboriculture Consulting Practices Through Tree Root Location with Ground-Penetrating Radar (GPR)

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City trees are important public assets that provide social, environmental and economic benefits to the neighbourhoods in which they grow. While most municipalities require protection of urban trees, this requisite action is frequently in conflict with urban construction projects. Knowledge of root locations can provide land developers with important information necessary to ensure preservation of city trees. The purpose of this project is to investigate the potential for integrating Ground Penetrating Radar (GPR) into arboricultural consulting practices as a tool for identifying the location of urban tree roots. This project has two objectives: 1) to verify the accuracy of an automated root detection algorithm; and, 2) to create a semi-automated software application capable of importing GPR-identified root locations into architectural site plans. Root systems of four trees were scanned using GPR with varying antenna frequencies and analyzed with signal processing software to identify root locations. Excavation was conducted to field verify actual root location and depth. Results indicate that roots greater than 2 cm in diameter were accurately located using GPR 70-95% of the time. A prototype semi-automated tool was designed, with moderate success, in QGIS to code root locations and export data in CAD compatible format. Overall, findings indicate that GPR is a good candidate technology for tree use in arboricultural consulting; however, its accuracy is dependent upon some prior knowledge of soil conditions and an optimized data collection approach.

Session: WED-8.30-8

Decision Tree method for modelling urban land-use changes

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Decision Tree (DT) method presents simple but very powerful machine learning technique which is not sufficiently elaborated in the field of land use change modeling. The main objective of this study is to implement and evaluate the performance of DT, precisely C5.4 algorithm, when used for modeling urban land use change. In order to provide more informative data sets for learning relationship between causal factors and land use change process, the data sampling and the selection of attributes were performed using Gain Ratio and recursive attribute elimination methods. The implementation and evaluation of DT method were performed using data sets for three municipalities in Metro Belgrade Area, Republic of Serbia. Geospatial datasets used consisted of nine land use classes at 10m spatial resolution and for years 2003, 2007 and 2010. The obtained results indicate that DT method is suitable to model land use change and can forecast possible scenarios. The capability of this machine learning method to reduce the model with the logical IF–THEN rules enables a domain expert to have an easier understanding of the land use change process. Additionally, accuracy and complexity of the model can be improved with selections of the subset of most informative attributes.

Session: FRI-8.30-6

The Pedagogy of Public Spaces: Visual Culture and Filipino Settlement in Vancouver

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Scattered across Metro Vancouver are public spaces dedicated to the Filipino community, the oldest perhaps being the “Filipino Plaza” along Vancouver’s Skytrain transit line. These sites are like streets, where passersby walk through, “rarely stopping to acknowledge the significance these spaces hold as determiners of our physical and symbolic social context” (Hickey, 2010). What meaning then, can be ascribed to these sites of commemoration and celebration? What role, if any, do these sites play in the settlement and integration of the Filipino community in Vancouver? From a visual culture framework, can the visibility or invisibility of these sites be perceived as a metaphor for the “invisibility” of the Filipino community itself, drawing on the notion that the Filipino community in Canada faces a “Hypervisibility” and yet, remains largely “invisible” (McElhinny, Davidson, Catungal, Tungohan and Coloma, 2012)? Investigating these sites can enrich the discourse surrounding migration and settlement in Vancouver, and of “claiming” or “occupying” land/space within the context of Canada’s colonial legacy.

Session: FRI-3.30-3

Environnement routier et blessés cyclistes résultant d'un accident avec un véhicule : quels facteurs de risque dans un milieu faiblement densifié ?

Ryan Séguin, INRS – Centre Urbanisation Culture Société

Objectifs

Cette affiche décrira les concentrations spatiales d'accidents entre un véhicule et un cycliste sur le territoire de la MRC d'Arthabaska (Québec) et de tester l'influence de certains éléments de l'environnement routier sur le risque d'accident ainsi que sur le risque de blessure.

Méthodologie

Quatre méthodes seront utilisées pour analyser les données des accidents spatialisés, en ayant recours aux systèmes d'informations géographiques et à l'analyse spatiale et statistique : le Kernel Density Estimation, les statistiques de balayage de Kulldorff, la régression de Poisson et la régression logistique.

Résultats

Les concentrations spatiales d'accidents sont toutes localisées dans la municipalité de Victoriaville (le pôle urbain de la MRC), surtout aux intersections. Il existe quelques facteurs à risque pour expliquer un accident (présence d'une intersection; rues locales urbaines et artères urbaines; absence d'infrastructures cyclables) et pour expliquer un blessé (jeunes cyclistes (24 ans et moins); cyclistes âgées (75 ans et plus); accidents le jour; absence d'infrastructures cyclables).

Session: THU-8.30-8

Analysis of the Geomorphometric Parameters in High Altitude Glacierised Terrain using SRTM DEM data in Central Himalaya

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Natural geomorphological forms are formed by various surface natural agencies and their impact on considering area. Along with surface agencies, the tectonic forces originating deep below the surface of earth also change surface configuration, increase or reduce the rate of surface modification intensity. In this study, the drainage and basin morphometric parameters were obtained from SRTM DEM data of the Central Himalayan region and analysed using Semi-automated cartographic techniques. The area is situated north of MCT, which separates the metamorphic from the underlying very low grades of un-metamorphosed sedimentary sequence of the lesser Himalayas. The high density of stream frequency and high drainage texture on surface of big glaciers indicate that glacier surface is not uniform in lower altitude and these two parameters can be utilized in automatic mapping of the debris covered glaciers in Central Himalayas. Distribution of the relative relief along the major drainage at some location show asymmetrical distribution, indicate active tectonic at such locations. Dissection index is low at high

altitude and increase in downstream direction, it indicate that convex profile at higher altitude and concave at lower altitude.

Session: FRI-10.30-8

Re-imagining Canadian urban water resilience through transformative scenario planning

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Scenario planning is an inclusive process that engages diverse citizens to develop bold yet plausible narratives of future human-nature (social-ecological) interactions of the urban water space. This presentation highlights experiences of a Canada-wide network that co-facilitated scenario planning exercises to engage hundreds of participants in future urban water planning across major Canadian cities. The purpose of this exercise, set against a backdrop of uncertainties, was to push creative boundaries to re-imagine and challenge the status-quo of urban water planning and management. First, I highlight the process of scenario planning and coordination at the Canada wide level, touching on the creation of inclusive spaces, the methods of engagement, and the refinement of envisioned scenarios. Second, I highlight the scenarios that emerged and were crafted through several workshops of engagement. These scenarios were not designed as a static and end-goal, but as 'living' and evolving with respect to the regional and global uncertainties of our urban water spaces. As a cross-Canada collaborative network, we will share these scenarios with municipal and provincial leaders as possible avenues for future policy development.

Session: WED-1.30-4

Urban ecology and governance at the regional scale: A case study analysis of the Toronto Region Conservation Authority

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Urban conservation organizations are facing increased pressure to respond to new sustainability concerns that extend beyond traditional ecological preservation. The Toronto and Region Conservation Authority (TRCA) is one of 36 provincially legislated conservation authorities tasked with managing flood risk and biodiversity at a watershed scale. The TRCA's operating environment has changed significantly over its 60-year history and the Toronto region is now faced with new climate change problems and societal challenges. Consequently, the TRCA now seeks to extend its influence to encompass new urban sustainability initiatives while still honouring its legislated responsibilities.

Our qualitative research explores how a conservation authority might respond to future sustainability concerns while still effectively fulfilling a necessary mandate. Specifically, we catalogue and analyze expectations for TRCA's current and future role by conducting semi-structured interviews with key stakeholders. Preliminary results indicate that stakeholders generally perceive TRCA as a legitimate and efficacious watershed steward that is performing an essential function. The majority of respondents did not support an extension of TRCA's mandate beyond flood risk management and biodiversity preservation. The findings contribute to broader research on evolving roles for traditionally conservation-focused organizations and how an understanding of stakeholder perception might inform future collaborative sustainability initiatives.

Session: FRI-3.30-2

Bare Nature

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This paper explores bare nature -- life reduced to the caloric lure of the capacity of raw hydrocarbon bearing sands and shales (Shields 2012; Arnold 2014). Reduced to its energy capacity the supplementarity of values -- nature as beauty or as a complex ecosystem -- is repressed. This form of natural bare life (Agamben 1998; Benjamin 1996; Simmel 2007) can be consumed without responsibility for the collateral damage to these repressed aspects of the ecosystem. 'Place' may literally be consumed by being dug up and strip mined in resource extraction -- a disruption for decades of flora, fauna and any habitation before meaningful remediation and renewal of the local biosphere is possible. Landscape without meaning is technically monstrous, eliciting an affect of horror (Davidson Park Shields 2011). A reflection on the inadequacies of current theory including Heideggerian 'standing reserve' proceeds via an examination of how this reduction is spatialized onto land.

Session: FRI-10.30-5

Looking Back to Move Forward: On the Prospective Emergence of a New "Urban Renewal Order"

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This paper engages with a new generation of research, conducted largely by urban historians, on the subject of urban renewal. It aims to assess how this body of work might better inform -- and, in turn, be enriched by -- contemporary debates in urban geography and urban theory more broadly. I contend that urban renewal in the North American context is all-too-often approached by urban studies scholars as a temporally bounded, over-and-done-with sociospatial configuration: one that came to a grinding halt by the end of the 1960s against (1) the rise of quality-of-life community organizing and activism usually exemplified by Jane Jacobs and the rash of freeway protests commonly associated with her (in Canada especially), and (2) amidst the backdrop of a descent into "urban crisis" that it was, to a significant extent, held responsible for (particularly in the US). Against this oversimplified interpretation,

I argue that recent reappraisals of the contradictions and consequences of the urban renewal era offer the potential to deepen our understanding of contemporary urban processes and policies – like those pertaining to gentrification and neoliberal urbanization – by casting light on a number of embryonic conflicts and political trajectories that would become increasingly dominant in the turbulent years ahead.

Session: THU-8.30-1

Incorporating citizen science into freshwater research in Metro Vancouver

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Citizen scientist collected data from 2013-2014 was used to characterize stream condition across Metro Vancouver, monitor seasonal trends, analyze spatial differences in water quality, and contribute to a global network of monitoring data. During 7 workshops hosted in collaboration with Earthwatch Institute, over 100 volunteer citizen scientists were introduced to global water issues and regional research involving temporal and spatial aspects of stream water quality. Citizen scientists were instructed in stream sampling protocols, including measurement of nitrate, phosphate, and turbidity as well as in recording observations such as relative water level and flow rate, presence of algae, and types of disturbance. In combination with researcher sample data, a total of 460 unique samples from 57 different stream locations across Metro Vancouver were collected. Data were also uploaded into the FreshWater Watch database, a global network of over 3000 active citizen scientists from 30 urban areas gathering data on their local aquatic ecosystems under the supervision of in-country scientists. Analysis of the 460 samples shows the spatial variation of impacts to streams across Metro Vancouver and the relationship of these impacts to surrounding land cover and land use. Future analyses will seek to separate seasonal trends from long term impacts.

Session: FRI-3.30-2

Notes on landscapes, wisdom, and social conflict

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Human competitions that depend on the quality of one's strategic behavior constitute one of the less obvious problematics that promises to foster the development of the concept of wisdom alongside strikingly novel dimensions. The geographical analysis of this problematic can be ushered in by distinguishing four different ways to think about landscapes: as material records, as ways of knowing, as dwelling, and as abstract representations depicting agents attempting to maximize their fitness function. The latter way of thinking about landscapes invites reflections about the relationships between strategic rationality and wisdom, especially if fitness functions are conceived as endogenous to a given landscape and subject to frequent and unexpected change.

Session: TUE-3.30-3

Does the 'Healthy Immigrant Effect' also apply to Finances? Immigrant Neighbourhoods and Household Debt Levels

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Two key attributes of contemporary global capitalism are on the one hand, financialization and rising household indebtedness, and on the other, high levels of mobility and migration between nations, particularly into the 'global' cities. Studies on household debt as it relates to race and immigrant status are scarce outside of the US. This thesis investigates levels and types of household indebtedness at the neighbourhood scale among immigrant communities and areas containing more racialized people, in Canada's three largest metropolitan areas – Toronto, Montreal, and Vancouver (TMV). In particular, it seeks to understand whether racialized and immigrant neighbourhoods experience higher levels of debt, whether this involves more onerous forms of debt (such as unsecured forms of consumer debt), and the correlations between different kinds of debt. Regression models demonstrate that neighbourhoods housing immigrant groups, and certain visible minority groups, relate to higher levels of unsecured consumer debts across neighbourhoods in TMV, whereas immigrants and visible minorities experience disproportionately higher levels of mortgage debt in those metropolitan areas with the tightest housing markets.

Session: WED-8.30-3

Learning outcomes through participating in community forestry in British Columbia

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Community forests were created in BC to provide a wide array of local benefits and to adopt inclusive, deliberative and adaptive governance approaches. These characteristics, among others, have made community forests potential platforms for individual and social learning about sustainable forest management (SFM). In this paper, we explore what community members learned through their participation in community forestry, what types of activities encouraged individual and social learning, what barriers were evident, and what actions were taken to support SFM. We focus on two community forests, Harrop-Procter and Wetzinkwa. Participants learned about SFM, how to run a business, government regulations, and gained a better understanding of the attitudes and values of one another. However, both faced challenges with building inclusive, open and deliberate forums for managing their forests that resulted in a narrowing of participation over time and consequent loss of social learning

opportunities and outcomes. We conclude that without explicit mechanisms to improve engagement and a more favourable regulatory environment, community forests will begin to resemble 'local industrial forests' wherein the benefits of forest management across the community are unclear and poorly articulated.

Session: TUE-8.30-8

Critical Realism And Physical Geography

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The distinctive identity of physical geography cannot be coincident with the sum of the traditional fields of geomorphology, climatology, hydrology and biogeography. That which is value-added in physical geography is a way of looking at the world which shares with our parent discipline Geography a consideration of spatial interrelatedness, differentiation and stratification as well as historical contingency and immanence.

Many still employ the philosophical viewpoints of the 1960s, particularly those of logical empiricism and Popperian falsificationism, without being aware that these doctrines have been largely discredited by philosophical advances of the past five decades. Few Canadian physical geographers have responded because most find Popperian falsificationism to be an adequate framework for their ideas and methods and partly, as indicated by recent discussions at CGU and CGRG, for example, because the philosophical debate is of no interest to them. Such stances will permit a continuing flow of publications in the peer-reviewed literature but will be inadequate to sustain the field over the long haul as we recall the eagerness with which many of us jumped on to the Popperian bandwagon in the 1970s.

We explore the possibility that critical realism, a framework which recognizes that human experience is as real as the existence of elementary particles, may provide a more robust philosophical framework for physical geography and generate a discussion about motivations that guide our research. Ethical grounds do exist for an integrated physical geography. Concerns with humanity and environment need to be carefully balanced and the mechanisms sustaining reflexive relationships could benefit from critical enquiry.

Session: TUE-1.30-6

Progress and Debate in the Yukon Environmental Assessment Regime

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As in Canada's other northern territories, environmental impact assessment (EIA) was long undertaken under federal regulations and administration. In the Yukon that changed after devolution in 2003, where a Yukon-designed, more locally responsible environmental assessment legislation was created: the Yukon Environmental and Socio-Economic Assessment Act (YESAA). This proved a complex process, and

this paper assesses the process, challenges, and achievements in the context of overall land and water resource management. YESAA was implemented through an arms-length, co-management board the Yukon Environmental and Socio-economic Assessment Board (YESAB). A five-year review YESAA was undertaken by an external consultant in 2008-9. Key issues have included cumulative effects, decision bodies, reasons for decisions, timelines, capacity, relationship to other comanagement boards, and traditional knowledge. Since then considerable consultation and discussion over suggested improvements occurred through formal and informal channels among the governments and other parties. Legislative amendments (Bill S-6) were recently introduced by the Federal government, but a few of them have provoked great contention as they had not been discussed during the main consultations. Differences in priorities, perceptions of what is needed for development, and in relations between Federal, Territorial, and First Nations governments appear to be key to the controversy.

Session: FRI-10.30-4

Documenting the Tourist Experience in Kenya's Indigenous Maasai Villages

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When visiting Kenya, most tourists participating in a wildlife safari also make the effort to visit an indigenous Maasai cultural village where they watch the hosts' traditional dances, photograph their way of life, and learn about their cultural geography. Yet despite the popularity of these cultural village visits, the manner in which the tourist is impacted by these experiences has yet to be documented. Informed by tourism and development theory, the purpose of this participatory research was to document the effect that visiting a Maasai cultural village had on the participating tourists, as well as the various motivating factors that led to their visit.

Through interviewing 50 different tourists shortly after their visit to a Maasai village, a number of interesting conclusions were drawn. For example, 90% of those surveyed reported being "extremely satisfied" or "satisfied" with their visit, 84% deemed the visit to be an authentic experience, and 72% stated that they would definitely recommend a village visit to their friends. However, the empirical evidence also demonstrated that 54% of the participants felt "extremely pressured" to purchase crafts in village, with 68% left wondering whether the money they paid was actually used to the benefit the community as was suggested.

Session: FRI-8.30-5

That old fiction: Towards a critical geography of fictitious capital

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Marx defines fictitious capital as a future claim to wealth on the means of production. Real capital, conversely, is invested into the material means of production. Geographers draw on Marx's theory of fictitious capital to scrutinize some aspect of the credit system, currencies, or interest in relation to economic events, but few scholars challenge its classification as 'fictitious' or 'unreal'. And yet, fictitious forms of capital, such as stocks, securities, and more recently, crypto-currencies, produce real effects. In this article, I examine the ontological tensions surrounding fictitious capital by arguing for an overdetermined understanding of the concept. An anti-essentialist theory of fictitious capital helps us attend to the contradictions that result from distinguishing fictitious capital from the material realms they affect. Geographers, I argue, should shake the concept and uproot essentializing interpretations of the term. Current theories of fictitious capital have, through their fixity, stymied our ability as geographers to engage with the concept in a critical manner. An anti-essentialist approach to fictitious capital opens up new theoretical space to analyse both the discursive and material consequences of fictitious capital.

Session: WED-10.30-3

Coping with Uncomfortable Pasts: Automotive Brand Worlds in Germany from a Heritage (Tourism) Perspective

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Automotive Brand Worlds (or Experience Worlds) must be regarded as one of the most spectacular innovations in the creation of new tourist landscapes in Germany over the past decade. The Volkswagen corporation's Autostadt in Wolfsburg (opened in 2000), for instance, is a highly sophisticated, creatively designed automotive experience world. It now consists of various exhibitions (among them a car museum), dedicated brand pavilions (such as VW, Škoda, Porsche) and many services provided at a hotel, restaurants and shops as well as with, of course, factory tours. Other car companies have followed suit, such as Daimler and BMW. These realizations represent striking examples of the car industry's historic and current legacies; they see Germany's leading corporations as the custodians of a renowned heritage.

One crucial facet of these companies' past, however, remains almost unmentioned: their role as important contributors to the Third Reich's armament industry. The corporations not only produced passenger vehicles but also tanks, airplane engines and even, in the case of VW, the infamous V1 flying bomb, mainly made possible by the exploitation of forced labor.

The main objective of the paper is to discuss, in the light of recent findings of dark (heritage) tourism, ways of displaying and interpreting this disturbing past in a context that is meant to increase the companies' reputation and customers' brand loyalty.

Session: TUE-1.30-1

Intersectionality in online teaching? Elusive opportunities and structural challenges

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In this presentation I explore the opportunities and challenges of teaching intersectionality online. Comparing experiences with a MOOC on globalization and the development of an online degree in Integrated Social Sciences, highlights the many complex intersections involved. Both interdisciplinarity and the inclusion of multiple student perspectives and experiences are easier to accomplish online. And both enable intersectionality to inform pedagogic practice as well as being a focus for instruction and study. Many instructors report, for example, that online discussion boards provide a safer space for more marginalized voices to be articulated and for sensitive personal issues to be discussed. But at the same time the structural forces that surround and condition online teaching – its advancement by venture capitalists, its common association with university corporatization, its tendencies towards consumerist models of learning, and its more general alignment with the global construction of market subjects – mean that experiments in teaching intersectionality online are overdetermined by notably neoliberal interests and intersections.

Session: WED-3.30-3

Spatialized Protest and the Transformation of Public Cultures of Collective Care

Jennifer Beth Spiegel

In the spring of 2012, students in Quebec went on strike against a proposed 75% increase in university tuition and the further privatization of education that it signaled. The strike lasted 6 months and repeatedly mobilized hundreds of thousands of students and supporters in collective action. In May, both the provincial government of Quebec as well as the municipal government of Montreal passed laws restricting political protests. While the former was struck down a few months later by the newly elected government, the latter remains on the books and is routinely used to pre-empt protests, often before they begin. This paper explores how creative tactics creative techniques of “togetherness” were developed that not only brought people out into the streets, but also re-invented the ways in which divisions between “private” and “public” unfolded, offering sites of resistance both to austerity budgets and to legislation restricting political protest to these measures. In such recreated space–time divisions, I argue the “private time” of caring for self and the family is able to be extended into collective political space. The paper ends by pointing to some of the ways in which this spatialized memory, tactics of resistance and dynamic of care are, three years later, being re-invoked in Montreal in ongoing struggles to defend public culture.

Session: TUE-10.30-1

Cartography and contested ocean space: an analysis of intertidal spaces in the territory of the Heiltsuk First Nation

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Through digital mapping, this research reveals spatial overlap between Heiltsuk-modified intertidal sites for shellfish cultivation and harvest (i.e. 'clam gardens') and areas for commercial shellfish aquaculture tenures identified in Federal Department of Fisheries and Oceans (DFO) planning documents. In many cases, DFO aquaculture development plans encourage ocean privatization in areas of Heiltsuk territory where shellfish cultivation and harvest has occurred for generations. Enabled by the extensive and sophisticated resource use inventories already compiled by Heiltsuk leadership, the maps created for this research synthesize harvest and use surveys, key informant interviews, and the locations of known clam garden and other intertidal archaeological sites. Cartography attentive to modified and cultivated ocean spaces may be an important tool to coastal First Nations as they continue to identify priority areas for planning and negotiation, as well as engage larger questions about rights and title in marine spaces.

Session: TUE-10.30-6

A decade of monitoring cruise ship tourism in the Canadian Arctic: An overview of key trends

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This poster describes key patterns of cruise ship tourism activity across the Canadian Arctic from 2006-2015. Cruise ships have been visiting the region since 1984, but determining the actual number of cruise ships, the destinations visited and routes taken is problematic. Arctic Canada's vessel monitoring service of the Canadian Coast Guard is mandated to collect positioning data only for vessels above 300 gross tonnes, and Parks Canada collects a limited amount of information on northern park visitors. In order to address this data gap we have been collecting cruise data from internet sites since 2006. The process involves a systematic review annually of operator websites and builds a database of planned cruises taking particular note of the routes to be taken and the sites the cruise ships intend to visit. In this poster we review and explain patterns of activity. One pattern illustrates change in numbers of itineraries and shows growing numbers to 2010, followed by a brief decline, and now a return to growth. Another pattern reflects spatial and regional changes in itineraries that have seen vessel traffic concentrated further north (i.e. along the Northwest Passage) and east (i.e. Baffin Bay) than previously. The explanation for these patterns relates to demand, economic conditions, vessel compliance, legislative frameworks, and climate change. To our knowledge, this research provides a unique data set on cruise activity in Arctic Canada over the last decade.

Session: FRI-8.30-5

Risks and Opportunities of climate-related change for nature-based tourism at Aoraki/Mount Cook National Park, New Zealand: Stakeholder Perspectives

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Long regarded as the jewel in New Zealand's tourism crown, Aoraki/Mount Cook National Park, is home to New Zealand's highest mountains and longest glaciers including the Tasman, Hooker, Mueller, and Murchison Glaciers. The glaciers which are central to tourism in the Park are highly dynamic and sensitive to changes in climate. The Tasman Glacier, for example, has undergone significant ice loss, losing volume at around ~0.1 km³ per year, while the pro-glacial lake has increased in size by 20% during the period 2002–2006. Such changes have already had significant impacts on tourist access, opportunities and scenic amenity. Based on interviews with key tourism stakeholders ($n=13$), this research examined how climate-induced change at Aoraki/Mount Cook has affected visitor behaviour, stimulated change in tourism products and affected management decisions and policies relating to conservation and visitor use. The interviews revealed that, despite an increase in observed natural hazards, compromised viewing of, and access to the glaciers, new opportunities such as upgraded facilities and the development of novel products including a pro-glacial lake tourism operation on the Tasman Glacier, were identified. This presentation will explore the implications of these (and future) climate-related changes for visitation at this iconic New Zealand tourist destination.

Session: TUE-1.30-9

Assessing the Predictive Power of Risk Terrain Modeling with respect to Street Level Robbery in the Regional Municipality of Durham, Ontario

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The purpose of this study is to identify statistically significant street level robbery predictors to generate a street level robbery risk surface. Street level robbery and associated geographical factors in the Regional Municipality of Durham, Ontario were compiled in a risk terrain model (RTM) and analyzed in this study. RTM is a multi-criteria technique which explores the combination of crime-related geographic factors into a geographic information system to assist in mitigating future crime events. This method produces a predictive mapping surface representing the presence and absence of crime risk areas. Preliminary statistical analyses (i.e. chi square tests and a negative binomial regression) were conducted to examine the ways in which potential street level robbery risk factors affect crime outcome. The most

significant risk factors were combined in a raster model to highlight high and low risk areas. The RTM was run through a hot spot analysis to identify statistically significant risk clusters and then overlaid with future street level robbery incident counts to determine the predictive capabilities of this method.

Session: FRI-10.30-3

Go West on China's Periphery: "backward" minority farmers in Yunnan enclosed in the abstract space of modernity

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Go West was launched in 2000 to develop western China, enclose it and its minorities more firmly into the nation, and transfer western natural resources to wealthier eastern China. Fifteen years later, minority farmers in Xishuangbanna, southern Yunnan, have been embraced in Chinese modernity. An analysis of transformations in minority land uses discloses how state environment and development projects have changed "backward" minority farmers' aspirations into those similar to urban Chinese. Lefebvre and Netz help explain farmers' inclusion in abstract space and capitalist markets. Prefecture tropical and sub-tropical forests have given way to monoculture rubber and tea, and farmers who are still seen as "backward" now dream of unceasing economic growth.

Session: WED-3.30-7

Front Line Tourism at Matsu Archipelago, Taiwan

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Matsu Archipelago was a confrontational standoff point between China and Taiwan. As the two countries underwent hostile relations in the post WW II era the local Matsu population had to live by special military government rules and under martial laws. As a result, the living conditions for the Matsu people became very restricted. They suffered tremendously and saw themselves as sacrificing for the country. During the 1960s – 1980s, tunnels and other military works for the defense of the rocky islets were completed by the soldiers guarding the military posts on the archipelago. Along with these tangible tunnels intriguing stories about the war events including the killings of hundreds of soldiers by Chinese frogmen form the basis of contemporary dark tourism at Matsu Archipelago. The misery and silent grief of the local people enduring a restricted way of life for decades as well as the remainders of the defense works, living artifacts of the military and the local architecture have become significant resources. Based on qualitative interviews and literature reviews of the historic and geographical development of the archipelago and the application of specific dark tourism approaches the authors of this paper will elaborate on both the tangible and intangible aspects of front line tourism at Matsu Archipelago today. The purpose of this paper is three-fold: (1) to identify how the resources for Matsu tourism have been created, (2) to discuss how the intangible restricted living experiences of the local

population could be made part of the front line tourism and (3) to bring out a hitherto barely addressed perspective for understanding front line tourism as part of “black tourism”.

Session: TUE-1.30-1

Privacy Post-Snowden: A Scoping Review

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Geography is continuing to integrate further into the digital realm, with geospatial data becoming the crux of many emerging technologies and services. While this presents great opportunity, it also raises a number of privacy concerns. These concerns have been articulated within Critical GIS over recent decades, however the rapidly changing landscape demands continued analysis. Additionally, the 2013 NSA leaks have fundamentally shaken previous literature, rewritten narratives, and opened the doors for a much larger and necessary dialogue. The geoweb now rests upon a different infrastructure from that of just three years ago, and an understanding of the nuances and implications of this shift is crucial to anyone working within it. At the public scale, computing hardware costs are now low enough that the average citizen can track a vast number of individuals extensively throughout an urban area. Commercially, corporations can now accurately geolocate users without the need for GPS sensors. Governments have been shown to collect data with near ubiquity, harvesting coordinates sent in smartphone analytics, and bringing the geographies of packet travel into the legal sphere. Privacy is becoming increasingly complex technologically, legally, and philosophically, and therefore this paper examines the status of geographical literature

Session: FRI-3.30-7

Conflicting responsibilities: Using geographic concepts of place and scale to illuminate challenges with enacting ethical community-based participatory Indigenous research in Canada.

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Researchers who engage in community-based, participatory Indigenous health research in Canada operate in multiple conflicting spheres. Developing research agendas with communities in a manner that avoids (re)inscribing colonial forms of dominance necessitates a commitment to a relational ontology wherein concepts of relational ethics, co-production of knowledge, and relational accountability inform research from inception through to dissemination. However, as much as researchers may be community-based they are also university-based, and are required to navigate (and internalize) structures that (re)produce institutional conceptualizations of ethics, knowledge production, and accountability. Both localities (re)produce distinct notions of responsibility that are often at odds with

one another. This places community-based participatory researchers seeking to decolonize their research with Indigenous communities in a precarious position. The goal of this study was to explore how researchers navigate and enact ethical community-based health research relationships with Indigenous communities. We interviewed 20 leading Canadian health researchers affiliated with Network Environments for Aboriginal Health Research. Our analysis included geographical concepts of distance, space/time, jurisdiction, and scale to elucidate how divergent notions of responsibility enter into conversation with one another through Indigenous health research. We examine how power asymmetries emerge to shape these conversations and potentially disrupt attempts at decolonizing research relationships as well as how researchers seek to work through, around, and over such power.

Session: FRI-1.30-8

Whither critical environmental science?

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Arguments for 'integrative' environmental science abound. Funding streams are increasingly prioritizing pursuits that bridge the natural and social sciences; and departments, organizations and careers are shaped by these arguments for integration. This integration can be seen in projects ranging from environmental impact assessment and social-ecological modelling through to Global Environmental Change narratives and research platforms such as IPBES and the IPCC. In practice, however, much of this work gives effect to a very narrow range of scientific and political worldviews, leading to a 'bracketing out' of other ways of describing and understanding environmental change and what are potential (and potentially desirable) social and environmental futures. Critics contend that environmental science has largely become a handmaiden to existing - and inequitable - power relationships.

This raises the question: can a turn to 'integrative' environmental science be leveraged to realize a critical project for environmental science, and what role can physical geographers play in this? I argue that a critical project for environmental science can be realized, but this requires a rethinking of science-society relationships. It requires environmental scientists to 'get political' about scientific practices in ways that may challenge the philosophical bases and norms of contemporary practice. I offer examples from different 'scales' of environmental science in New Zealand to explore how a critical project for environmental science might be constructed.

Session: TUE-3.30-5

Branding Wakatobi: Marine place identity, development and legitimation by science

Chui-Ling Tam, Geography, University of Calgary

Multiple-use protected areas can serve as models of sustainability, integrating the three pillars of economy, environment and society. Science typically provides biophysical evidence to help determine threats to sustainability, and thus guides integrated or ecosystem-based resource management

approaches that negotiate socio-ecological complexity and conflict. This has implications for the role of science in the social production of resource space and how the state and other actors conscript science to legitimate particular translations of sustainability. Biodiversity, conservation and ecotourism constitute a powerful triad of tropes in this discursive process of legitimation by science, especially in tropical marine protected areas with their innate appeal to the 3S 'sun, sand and sea' aesthetic. For Indonesia, Wakatobi National Park is a key plank in its emergence in the Blue Economy. Science shapes the park's identity as a paradise of marine biodiversity, and thus a space worthy of conservation and thereby ecologically sustainable, but science is also conscripted into neoliberal development in pursuit of economic sustainability. An analysis of information and investment materials reveals that a confluence of mutually supportive environmental, political and economic actors produces the Wakatobi brand of a uniquely valuable biological-economic marine space. The social pillar in sustainability is less evident.

Session: WED-1.30-1

Exploring the importance of Business Improvement Areas to Retail Strips: Case studies of Downtown Oakville, Bloor West Village and Hillcrest Village

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Business Improvement Areas (BIAs) are a common feature of many large Canadian cities. Seen as a mechanism to define and support retail areas, they are encouraged by municipal governments and welcomed by many business owners. While BIAs promote their retail area through special events, advertising and streetscape enhancement, their ability to determine retail or service mix or to influence the activities of individual businesses is more limited. As a result their effectiveness is varied; while some thrive others falter.

This research examines three BIAs, two in Toronto and one in Oakville. All have well established administrative structures that have been active in area promotion, street beautification and encouragement of cooperation amongst the business community. Through multiple site visits, discussions with BIA executive members and surveys of the storeowners, the research queries the effectiveness of individual BIAs and attempts to uncover the factors that contribute or detract from success. Consideration is given to location, neighbourhood characteristics and the existing built landscape to explore the relevance of local conditions and to determine the transferability of BIA strategies.

Session: TUE-10.30-7

Understanding northern Indigenous population futures: A focus on modelling 'new identifications'

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The spatial distribution of Indigenous Australians has changed substantially in recent decades with a 'big shift' from northern to southern Australia and increasing concentrations in major cities. Since WWII, the share Indigenous people residing in States/Territories wholly outside of northern Australia rose from 21% to 48%. The cause is differential measured population growth rates between northern and southern areas. Changes have led to reduced funding from the national pool of Goods and Services Tax for northern areas. In addition, population shifts have consequences for determining Indigenous population change and understanding progress towards closing gaps between Indigenous and other Australians in health and other areas. A major contributing factor is new Indigenous identifications where individuals state a different Indigenous category in data collections like the Census. In our talk we report on scenario based modelling in which we varied rates of Indigenous identification change to highlight impacts from ongoing differences for population growth rates in northern sparsely populated compared to southern metropolitan Australia. Because this study is repeatable, we encourage researchers to facilitate policy makers across the 'norths' to grasp and account for the significance of the big shift, complex though it may be, for Indigenous policy conceptualisation and design.

Session: TUE-3.30-2

Housing New Immigrants: Evidence from the Canadian Literature

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In recent years, Canadian scholars have paid increased attention to the relationship between access to affordable housing and the residential concentration of immigrants and minorities on the one hand, and successful integration and inclusion on the other. For immigrants, it is not only the type of housing, but also the neighbourhood in which that housing is found that affects successful integration in a new society. This paper examines the following major research themes: (a) immigrants' housing careers and barriers to housing; (b) access to homeownership; (c) homelessness and hidden homelessness; (d) discrimination by urban gatekeepers in the housing market; (e) settlement patterns, ethnic neighbourhoods, and the social geography of immigrants; (f) neighbourhood institutions and settlement services; and (f) changing residential neighbourhoods and the suburbanization of immigrants.

Session: FRI-1.30-5

Policy activists and differential mobilities: Exploring the institutional spaces of transnational advocacy networks

Cristina Temenos, Northeastern University

In recent years policing of drug use has seen a marked shift in European and North American cities. Discourses characterizing a 'failed War on Drugs', the necessity to reallocate security resources, and the social and fiscal utility of 'compassionate' and public health approaches to marginalized people have emerged in international and domestic media, local governments, and international policy circles. Yet this shift has been slow moving, facing institutional and public opposition, and in some cases retrenchment towards punitive policy measures. This paper explores the institutional actors and policy activists who negotiate unstable state and social movement spaces in order to effect policy change over time. Drawing together recent work on urban social movements and policy mobilities, this paper argues that seemingly 'fast policy' shifts, have much longer institutional and networked histories that transverse static spatial categories such as 'the state' and 'social movement space'. Examining policy activism as understood in relation to institutional infrastructures helps to expand attention to policies that may work towards alternative social policy spaces, spaces of possibility, alterity, and resistance within social policy mobilization.

Session: FRI-8.30-1

U.S. Banking Regulator Induced Bank Office Divergence from Low-Income Neighborhoods.

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This research measures the spatial convergence and divergence between bank branch networks and neighborhoods classified by income following the financial crisis of 2008. U.S. banking policy strives to maintain or improve the proximity of bank branches for all urban communities, and includes special provisions to ensure bank office presence in or near economically marginalized areas. During early stages of the financial crisis, bank rescues often involved mergers, which created redundancies in some merged banks' branch networks. To measure changes in neighborhood bank office accessibility, branch networks of banks that experienced regulator-assisted mergers are compared with those of banks that merged without assistance and also with banks that did not merge. Using data from the US Census and the annual Summary of Deposit Survey for two urban counties before and after the crisis, Lee's (1979) spatial association measure is employed to measure and compare convergences and divergences between bank branch networks and neighborhoods classified by income. The results indicate bank branches diverged from low-income neighborhoods and converged towards higher-income neighborhoods, and that convergence was strongest for bank branch networks resulting from regulator-assisted mergers. This suggests banking regulators de-emphasized neighborhood accessibility and facilitated reduced bank branch presence in low-income neighborhoods.

Session: WED-8.30-3

Hydropower at Patshetshunau

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This paper examines the historical geography of a place the indigenous Innu in Quebec and Labrador call Patshetshunau. Roughly meaning 'steam rising,' Patshetshunau was until relatively recently a massive, 250 foot waterfall whose power could heard many miles away. Today Patshetshunau is little more than a trickle. This is because in the early 1960s the river that formed it was diverted into a massive subterranean power station, said at the time to be the largest in the world, to produce hydroelectricity for industry. From the perspective of the industrial colonizers involved, the generation of electricity at the place they called "Churchill Falls" was essentially story of progress and improvement: the advance of science, enterprise, and even of civilization and modernity itself into northern lands considered empty and unproductive. Yet for the Innu it was primarily one of degradation and loss. This paper considers the techno-scientific, financial, and colonial forces that combined to obliterate Patshetshunau in the early 1960s. It also examines how the Innu experience at Patshetshunau informed later conflicts over the development hydroelectric power on the lower reaches of Mista Shipu (Churchill River).

Session: THU-10.30-6

Espace d'action piétonnier chez les personnes âgées : influence de l'environnement bâti dans une ville régionale

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Objectifs

Comment l'environnement bâti réel et représenté influence-t-il l'espace d'action piétonnier des aînés? Pour y répondre, une combinaison de mesures objectives et subjectives de l'environnement bâti d'une ville régionale (Rouyn-Noranda, Québec) sera effectuée. Il sera possible d'établir à quoi ressemble l'espace d'action des piétons âgés et si leurs habitudes de marche et leur sécurité piétonne sont affectées.

Méthodologie

Des entretiens individuels avec des aînés ont été menés pour identifier les destinations et les trajets des piétons âgés. Ensuite, à l'aide d'un audit piétonnier, les différents tronçons ont été évalués de manière objective. Un système de pointage sera utilisé afin de classifier les tronçons et des ellipses de distance standard pourront illustrer la taille des espaces d'action piétonniers.

Résultats

Les résultats préliminaires font ressortir que :

1. Même une ville régionale propose des destinations de marche pour les aînés, bien qu'il y en ait peu, qui y marchent à la fois pour les loisirs et pour des motifs utilitaires.
2. Les lieux pointés pour leur insécurité ont en commun d'être de grandes intersections (largeur de la chaussée et trafic routier plus importants).

Session: THU-8.30-8

Faith Communities Called to Solidarity with the Poor: Contesting Gentrification and Global City (Post)secularities in Vancouver, BC

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In this paper, I intervene in conversations about 'postsecularism,' the possibility of civic discussions between religious and secular citizens, in global cities, urban financial hubs attracting investment, skilled migration, and tourism that geographers have noted for their economic polarization and social exclusions. I do this through a case study of an interfaith coalition, Faith Communities Called to Solidarity with the Poor (FCCSP), in Vancouver, BC, in the mid-2000s. Ostensibly, FCCSP lobbied for the religious freedom of one evangelical Protestant congregation, Tenth Avenue Alliance Church, to conduct its homeless shelter and meal program without acquiring a social services permit. While the opposition called for secularization, this religious activism needs to be understood as contesting discourses that sought to render invisible the "poor," the "socially excluded and economically marginalized" in material need of food and shelter (FCCSP 2007). FCCSP countered the aspirations of Tenth's neighbourhood and Vancouver's City Hall to become a global city, especially in the municipal policy Project Civil City attempting to produce a marketable urban landscape by reducing the rate of homelessness ahead of the 2010 Olympics. Not only do I demonstrate that these gentrifying processes developed into secularizing geographical visions, but I argue that the presence of the poor in religious communities means that the urban postsecular is not so much situated in dialogues between religious and secular citizens, but in material encounters in religious communities across class divisions exacerbated by global city aspirations. I substantiate this argument with key informant interviews with FCCSP and Vancouver's City Hall. Combining work on global cities and gentrification with geographical debates about the postsecular, I advance conversations in human geography about religion in urban spaces by exploring the material work of religious actors in demystifying secular capitalist ideologies used to construct social exclusions in global cities.

Session: FRI-1.30.1

Not so 'Crazytown': Labour, Austerity, and Urban Populism in Toronto

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In the context of disenchantment with political and economic elites, populist discourses and movements have arisen across the political spectrum. Such developments come together in urban spaces, as both austerity and populism have emerged as political forces in major cities. In Toronto, the election of Rob Ford to the mayoralty typifies an urban populism that confronted labour with both an austerity agenda and contradictions as many 'working people' supported the rise of the so-called 'Ford Nation'. In this

paper, we examine how the rise of austerity and populism creates new challenges and new opportunities for labour movements within and through the urban scale. The paper explores the interplay between austerity and right populism through a study of the impact of Mayor Ford's right populism on municipal workers between 2010 and 2014, specifically through efforts to privatize city services. The paper examines the interconnections between austerity as a political project that aims to reduce government expenditures, the changing configurations of urban labour markets and urban labour movements, and the rise of a new urban populism that both supports and contests austerity. By exploring these interrelated processes we begin to understand populist responses by workers as not entirely unexpected or irrational.

Session: TUE-1.30-5

Aboriginal Peoples' Participation in Environmental Assessment: Stakeholder's Perceptions of the State-of-Practice for Uranium Exploration in Northern Saskatchewan

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Aboriginal participation has gained utmost importance in environmental assessment (EA) practice for resource development. Despite mounting pressures to improve the role and scope of participation in EA, there has been limited consideration given to addressing the need for more meaningful participation, whilst ensuring also efficiency of EA processes. This study examined the following research questions: i) Are community engagement processes in EA both effective as well as efficient? ii) How has community engagement and consultation influenced decision making for resource development projects, mining establishment and operations in Northern Saskatchewan?; iii) What are the constraints and the capacity building requirements to ensure sustained and meaningful engagement in EA, whilst ensuring a timely EA process? We interviewed a cross section of key stakeholders to explore their perception on the effectiveness of Aboriginal participation in EA, the enduring constraints to meaningful participation and the implications for efficient establishment, operations and impact management of Uranium exploration in Northwest Saskatchewan. We conclude with best approaches towards better and influential Aboriginal participation in EA decision making, without undermining the need for efficiency in EA and decision processes.

Session: TUE-10.30-4

Mega-events as a Response to Kasso (Rural Depopulation) syndrome: The 2020 Tokyo Summer Olympics and its Development Implications.

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Since the 1990s Kasso (rural depopulation)-“the theme of the dying village”-has assumed a high profile in Japan. The other side of the rapid economic growth and development in and around the big cities has been the demographic decline and economic stagnation of rural Japan. Although rural areas have often been effectively integrated with metropolitan Japan through transport links, this strategy has still not helped stop Kasso.

Olympic Games hosting has been the project of political and corporate elites, and in Japan large claims were made for the economic and social benefits that would follow from hosting the Games. However, the historical experience of the Olympic suggests that these efforts of ‘place promotion’ have impacts that are fleeting, at best, and as the years draw closer it becomes difficult to isolate the impacts of the games on the fortunes and stature of Tokyo as a city from those of other economic and social triggers.

The developmental impacts of the Olympic Games in the Kasso syndrome are frequently touted; Paying close attention to the relationship between population growth and rural development, the overall aim of this paper is to provide insight into the 2020 Summer Olympics games in relation to rural migration prospects of Japan.

Session: WED-8.30-4

Pro Poor Tourism & Urban Development; A walk through Vancouver’s Downtown East side

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I focus Pro-poor tourism (PPT) on Vancouver’s Downtown East side (DTES) more specifically on the impact of illegal activities and street poverty. The Vancouver’s DTES is one of the oldest neighborhoods in the region, and was known as Canada's poorest postal code. It is home to more than 16,000 people. DTES was once Vancouver’s tourism destination before it started deteriorating due to abandonment, lack of development and the city centre moving further to the West side. This area once housed the City Hall, the courthouse, and Vancouver’s biggest library (Carnegie Library). The surrounding stretch of Hastings Street was a major cultural and entertainment district.

The City of Vancouver has recently approved \$1billion for a 10 year development plan for the DTES, and the government hopes to develop a sustainable housing program with this money during this period. This paper therefore examines the impact of using such an enormous amount of money for providing only low cost housing when recent research has suggested that even with such modern houses, most homeless people will still prefer to stay out on the streets. The paper further suggest using part of the money to restore DTES past glorious days, by restoring its shopping activities and historical buildings in the area and also policing the streets, will attract more tourists to the area.

Session: FRI-8.30-5

Using Geovisualization and Bathymetry to Assess Lead Sediment Contamination in Lake St. Clair

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Many communities depend on Lake St. Clair for drinking water, recreation and transportation uses. The St. Clair River, which flows into the lake from the northeast, is a major source of deposited contaminants. "Chemical Valley" is the name that is sometimes attributed to this area due to the large amount of industrial activity located upstream along the river towards Lake Huron. Sediment sampling surveys were conducted in 1970, 1974 and 2001 by Environment Canada for various contaminants as part of a continuing monitoring program. GIS-based ordinary kriging layers for lead were created from the sample location data and analyzed as two-dimensional surfaces. Bathymetry data obtained from the National Oceanographic and Atmospheric Administration were then utilized to create three-dimensional surfaces to fully explore contamination patterns throughout the lake. The results show that Lake St. Clair generally has lower levels of sediment contamination away from the main flow pathway that leads to the Detroit River outlet. Lead pollution was found to be much lower in 2001 as compared to 1970 and 1974. Overall, assessing lake-wide sediment contamination patterns is most effective using kriging and three-dimensional bathymetry visualization techniques.

Session: TUE-8.30-6

Tenure arrangements and biodiversity conservation in the interior of Suriname

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The interior of Suriname is the traditional ancestral territory of several Indigenous Peoples and Maroon communities who depend upon natural resources for their livelihoods. The areas these Indigenous Peoples and Maroon communities live in are rich in natural resources and therefore logically of great interest to mining and logging companies. Concessions have been issued for natural resource exploitation over claimed customary lands whereby the livelihood of these local communities is often degraded and the ecosystem's biodiversity threatened. Indigenous Peoples and Maroon communities are afforded some avenues in obtaining time-limited individual or group licenses to land over the last decades. They are able to reference international Conventions ratified by the government that recommend legal recognition of customary lands. Despite these advances, issued licenses to land have been overruled by the State or concession holders. I will review the history of tenure systems in Suriname and suggest some strategies to address tenure problems and biodiversity degradation. My

presentation is based on archival research and the exploration of options for tenure security and biodiversity conservation in Suriname.

Session: WED-10.30-2

Identifying Stakeholder Processes for Forest Conservation in Vietnam

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With the limited success of command-and-control interventions to conserve natural areas, payments for ecosystem services (PES) have emerged as a dominant strategy for environmental conservation worldwide, especially in developing countries. Reduced Emissions from Deforestation and Degradation (REDD) is a well-known application of PES in a developing country context. REDD aims to offer incentives for developing countries to reduce deforestation and degradation and promote forest conservation. In design of REDD programs, there is a strong need to go beyond technical focus on carbon management and include community concerns.

Vietnam is part of the United Nations REDD program. In Vietnam, REDD is combined with the National PES program to meet conservation goals in protected forests. The research reported here discusses the application of a Structured Decision Making (SDM) approach to the design of forest conservation programs in Vietnam in villages around Ba Be National Park in Bac Kan province. The research findings identify a need for planning processes that enable community objectives to be included in REDD program design and implementation. The research also points that SDM provides REDD program officials in Vietnam (and elsewhere) a bottom-up way for involving multiple stakeholders, and importantly incorporating their concerns into viable and realistic programs.

Session: THU-8.30-3

Exploring the role of the environmental context in the spatial distribution of calls-for-service associated with emotionally disturbed persons

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Persons with mental illness (PMI) are at risk for becoming involved with the criminal justice system. A subset of PMI will have had multiple contacts with police over their lifetime. A better understanding of the nature of police contacts with this population may provide the necessary empirical foundation to improve policies that are aimed at reducing recidivism and improving the well-being of PMI. This study aims to shed light on the underlying contextual factors that can lead to the initial contact with, and the

type of police response to, PMI. First, a spatial point pattern test is used to compare the spatial distributions of calls-for-service involving emotionally disturbed persons (EDP) (n=2847) to all other police contacts in an urban setting in Western Canada (n=137 901) over a one-year period. Findings indicate that there are significant variations among these two crime patterns, with EDP calls clustering at very few street segments. To better understand the factors that contribute to this clustering, the spatial locations of environmental risk factors that affect EDPs are analyzed. Results suggest that there may be a link between the density of environmental risk factors associated with healthcare and treatment and the density of EDP calls for service.

Session: FRI-8.30-3

Hunger in the Midst of Plenty - The Messy National Buffer Stock Company Policy Debate in Ghana

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Approximately one-third of the food produced globally is lost per year yet chronic hunger persists. This study contributes to the literature on the under-explored domain of food security policy-making processes, such as the National Food Buffer Stock Company (NAFCO) that address food loss in Ghana. This study asks: What stakeholder groups are the main subjects in the NAFCO policy debate? What rhetorical claims are these stakeholders making in different ways to influence policy directions of NAFCO? We specifically examine the ongoing debate using content analysis of Ghana's government policy documents and media analysis of major Ghanaian news outlets. Findings suggest that NAFCO is an example of how ideological paradigms and values inform policy making in an African context where the effects of environmental uncertainty and lack of stable resources are reinforced by poor institutional memory over time. The policy debate about the future control of NAFCO as a public or private enterprise is between two dominant advocacy coalitions: state interventionist and market liberalism. These positions are based more on values and ideologies rather than science based evidence. Institutional memory of similar policies is not used as a guide to minimize post-harvest food losses in Ghana and thereby improving food security.

Session: THU-8.30-6

Post-Immigration Changes in Weight Status and Weight-related Behaviors: Comparing Latin Americans and East-Southeast Asians in the Kitchener-Waterloo

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Our research has three main objectives: 1) assess the generalizability across ethnic groups of the acculturation hypothesis in terms of obesity (the greater the length of residency, the greater the degree of weight gain), 2) examine if, when, and why post-settlement individual changes in diet and physical activity occur, and 3) estimate the relative contributions of diet and physical activity to increasing energy imbalance. To accomplish these tasks, we are comparing two first-generation immigrant groups, whose adaptation processes seem to lead to divergent weight-related behavioral changes and health outcomes after arrival in Canada. In-person semi-structured interviews are being conducted to gather information on anthropometric measurements, current and pre-immigration weight status, perceived changes in dietary and lifestyle behaviors, self-reported mental and physical health indicators, acculturation scores, socio-demographic variables, and motivations behind post-migration changes. Local health professionals and community workers are also being interviewed to gain their insights on the main challenges and barriers that immigrants face to follow a healthy lifestyle.

Session: TUE-1.30-2

Mobile Work and Changing Community Dynamics on the Isthmus of the Avalon, Newfoundland and Labrador

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Residents of many Newfoundland and Labrador rural communities describe “working away” as being ingrained in their culture. Yet development in mining and oil and gas sectors in the province and elsewhere in Canada, combined with changes in transportation, amenity preferences, and corporate and government policies, among other factors have altered employment-related mobility patterns. With a focus on the Isthmus of the Avalon as a case study region, we draw from emerging research findings from the On the Move Partnership together with several related projects to further examine these shifts in mobility patterns and the implications for source and host communities. Impacts of employment-related mobility on communities are diverse and complex, but increased demand for and costs of housing, pressure on infrastructure and services, exacerbated effects of youth outmigration, and changes to corporate-community relations are highlighted. Municipalities and other local actors in Newfoundland and Labrador are often ill-equipped to deal with these impacts. Locally generated industrial benefit planning research and affordable housing initiatives are examples of attempts to minimize negative impacts and maximize opportunities from resource megaprojects and their mobile workforces. These initiatives also illustrate the importance of not just flows of people but of ideas and experiences across rural, resource-dependent regions.

Session: FRI-10.30-2

The effects of land-use regulations and cultural attitudes on landscape form in the Japanese rural-urban fringe with North American comparisons.

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The rural-urban fringe (hereafter fringe) produces a mixture of land uses, both pretty and ugly, and often incompatible and contested. Regulations, or the lack of them, are partly responsible for this landscape, as are cultural attitudes toward rurality. In North America, there is a pervasive bucolic attitude toward rural landscapes on the fringe of cities, which is -- for example -- epitomized by hobby farms and large estate homes. I argue that this social construction of rurality does not exist in the Japanese fringe, which generally has a higher density of population and land uses. The purpose of this paper is to examine the influence of land-use regulations intertwined with cultural attitudes toward rurality on landscape form in the fringe of Japan, focusing on the Tokyo metropolitan area and making comparisons with Canada and the US. The study is based on a literature review complemented by landscape observations. Since the 1960s in Japan, the central government's City Planning Law has resulted in sprawl-like patterns of urban development, but more recent changes in farmland policy have also had an impact on fringe landscapes, which have led to new discourses of rurality on the edge of cities.

Session: WED-8.30-4

The suburbanisation of socioeconomic deprivation in Canada: New challenges in spatial epidemiology

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In the mid-20th century in North America, a move to the suburbs signified a rise in social class and a departure from the deprived inner-cities. However, suburbs once emblematic of the affluent middle class are becoming home to increasingly socioeconomically deprived populations. While previous studies have demonstrated increased risk of adverse health outcomes among low-SES groups, the contextual role of suburban neighbourhoods constitutes an emergent theme in spatial epidemiology research.

In this talk, we present three studies of chronic disease risk and access in Canada, focussing on the unique challenges this trend poses for spatial epidemiology. A study of oral cancer incidence in Metro Vancouver underscores the importance of differentiating suburban settings from their urban and rural counterparts, also highlighting considerations for cluster detection, spatial autocorrelation, and confounding and adjustment. An investigation of obesity and proximity to fast food outlets highlights differential considerations for modelling spatial access. Finally, a Canada-wide study of cancer resections draws attention to the MAUP and data aggregation, emphasising the need for high-quality Census data. Through these examples, we assert that shifting patterns of socioeconomic deprivation require

researchers to rethink health and wealth on the map, calling for further interrogation of suburban deprivation's distinctive health geographies.

Session: WED-3.30.6

The New 'Subprime'? The Debts of Automobility and the Future(s) of the Suburbs

Alan Walks, University of Toronto

A number of researchers suggest that the Global Financial Crisis (GFC) of 2008, which was triggered by the bursting of the US housing bubble, was ultimately rooted in a 'mis-allocation of capital' into low-density automobile-dependent development which, according to James Howard Kunstler (2005), "has no future". Some scholars writing in this vein attribute the financial unsustainability of the suburbs to their reliance on cheap energy, mainly as a result of auto-dependence (Dodson and Sipe 2008; Urry 2009). In this paper, I take issue with these assertions. I demonstrate that, instead of being a financial drain or a misallocation of capital, automobility and suburban development have been a real source of financial power and accumulation for certain nations and cities. At the same time, however, automobility and auto-dependent forms suburbanization have developed into technologies for (regressive) socio-spatial redistribution within the city. As such, they provide important functions in restructuring and reproducing urban social, economic and political geographies in the interests of securing secondary forms of accumulation. The rise of a 'subprime' automobile loan industry across North America is but one important example of how this process operates. Through empirical analysis of the relationships between household automobile-based expenditures, and levels of household indebtedness and financial asset holdings, in Canadian cities, I show how the intra-urban geography of automobility is related to a particular socio-spatial pattern of household wealth accumulation. I then comment on the implications of the research for alternative suburban future(s).

Session: WED-10.30-3

African Elephant Conservation: New Spatial Approaches Bring New Understanding.

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Movements from two extant species of African elephant were studied using GPS tracking over a 15-year period in four distinct ecoregions: Desert, Savannah, Bushveld and Forest. These data were studied in relation to a series of environmental covariates to better understand the ranging behaviour of elephants

across the continent and under diverse conditions. The magnitude of data and geographical extent required development of new software to calculate range metrics and couple them with covariate values. We used emergent Google Earth Engine (GEE) technology (a cloud-based, remote sensing analysis platform), to extract and calculate covariates corresponding to each elephant's 16-day 95% isopleth home-range area, including the Normalized Difference Vegetation Index (NDVI), percent tree cover, human footprint, protected area intersection (PA), and slope among other covariates. We used both linear mixed effects and generalized additive mixed models to explore elephant ranging behaviour in relation to these factors. Elephant range area was found to be highly variable and differ significantly between both sexes and across all four regions. Human presence and protected areas were both important factors in modeling elephant range using mixed effects models and these results contribute new information to the conservation and ecology of elephants.

Session: FRI-8.30-6

Scaling out climate change vulnerability and adaptation assessments: the case of Small Island Developing States

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Vulnerability to climate change and the adaptations undertaken in light of it are context specific, and empirical research into vulnerability assessments is dominated by the case study approach. Despite the rich data it produces, case study research is frequently of limited utility because of this very context specific nature. This paper argues that there are generic vulnerability stories in similar places through an illustration of the tourism-coral reef-fisheries connections and feedbacks in case studies in St. Lucia, Tobago and Jamaica, and that this generic storyline can be found in other small islands. The responses to consistent generic vulnerability via coping and adaptation also share many common strategies, such as the establishment of protected areas, the use of fish aggregation devices, and calls for better managed tourism activity. Despite these common vulnerabilities and adaptations, there are locally-specific solutions to common issues, leading to speculation of "transferrable lessons" for adaptation in Small Island Developing States.

Session: WED-3.30-5

A GIS-assisted analysis of journey-to-crime and activity space of offenders

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Guided by place-based crime theories, this research investigates the patterns of journey-to-crime and activity space of offenders, using Durham Region in Ontario as a case study. The study is based on a five-year dataset (2009-2013, with 4,637 incidents in six types) that contains both crime locations and

locations of offenders' residence. The journey-to-crime analysis reveals that offenders in Durham travel longer distances to commit a crime than those reported in other studies in the literature. This could be attributed to the large size and relatively low population density in the region. Despite that, approximately 75 per cent of the offenders offended within the municipality of their residence. The study also shows that average distance travelled by offenders varies considerably among different types of crime. For example, the "robbery of person" offenders travel the shortest distance, while "motor vehicle theft" offenders travel the longest. Furthermore, serial offenders travel longer distances than do non-serial offenders. The larger activity space of serial offenders, who are typically older than the non-serial offenders, should reflect their criminal experience. Serial offenders tend to seek increased anonymity by committing an offence in a neighborhood with a low likelihood of being recognized, and commit the type of offense that constitutes a better reward but is of lesser risk. The spider-web diagrams that depict the journey-to-crime patterns of the serial offenders and their activity spaces, are particularly useful for law enforcement officers in two ways: to identify the potential residential area of a serial offender, and to predict the location of his/her next offence.

Session: FRI-10.30-3

Undermining CSR mythology: The case of Canadian Oil Sands

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It is claimed that both voluntarism and transparency are defining characteristics of Corporate Social Responsibility, demarcating it from both state regulations and different obscured, irregular forms of greasing of local stakeholders respectively. Parts of the CSR scholarship underscore the weaknesses of voluntary approaches to corporate responsible conduct, while others uphold the strength of the concept regarding transparency and accountability.

However, findings from interviewing key company staff and stakeholders and exploring the CSR activities of the Norwegian oil company Statoil, suggest that the case of extractive industries' involvement in the Canadian oil sands turns the notion of CSR voluntarism and transparency upside down.

Due to a reciprocity mismatch between extractive industries and local communities, a system of irregular financial transfers from companies to communities is emerging. The outcome of compulsory corporation-community consultations is confidential agreements of compensation and social programming, supplementing or substituting government responsibilities to provide social services among its aboriginal citizens.

The intriguing emergence of what I have coined a Public Private Pseudo Partnership (4P) lies at the heart of this reshuffle, undermining the CSR mythology and challenging social cohesion within the extraction zone.

Session: FRI-1.30-8

Predicting the Impacts of Climate Change on Five Species at Risk in Nova Scotia, Canada

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Climate is the dominant factor influencing biodiversity affecting species distribution on global and regional scales and climate change is projected to affect individuals, populations, species and ecosystem composition and function. Understanding how wildlife and plant species will respond to future changes in climate is critical to implement effective conservation and protection of species at risk. It is becoming increasingly important that we expand our understanding of climate change and begin to integrate it into our conservation management practices. Climate envelope models (CEMs) have become a useful tool in predicting the impacts of climate change on biodiversity.

The objective of this study is to develop current and projected CEMs for five species at risk potentially threatened by climate change using a Geographic Information Systems (GIS) analysis. Using ArcGIS software, current (1981 – 2010) and projected climate data (2020s, 2050s and 2080s), and species point location data was used to develop CEMs for each species at risk examined in this study. The CEMs indicate that the climate envelopes for each species will shift away from their current distribution in Nova Scotia. These results suggest that these five species at risk may face extirpation from Nova Scotia if these species are unable to keep up with climate change.

Session: TUE-3.30-4

Reaching Consensus With The Help of a CA Based Land Use Model

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A general purpose CA based model of land use dynamics was adopted by the government of Flanders for spatial planning purposes. Land use is modelled for 37 classes, including six agricultural classes and eleven natural land cover classes. In its original form the model is predictive rather than optimising. However, in order to make it useful as a support tool for solving specific spatial problems, it was modified so that iterations represented steps toward an optimal state rather than time steps in a dynamic process. This optimising version was used to facilitate negotiations among stakeholders in a process to locate some 105,000 ha of Special Areas of Conservation, a requirement under the EU Natura 2000 programme. That programme specifies a number of bio-physical criteria that must be satisfied in the locations chosen. Stakeholders were each allowed to specify two spatial optimisation criteria, and could change or modify these as negotiations proceeded. The constraints imposed by the model quickly unfroze negotiations that had been underway for several years, so that in the nine months following the introduction of the model a set of zones to be protected was identified and passed into law by the Flemish parliament.

Session: FRI-10.30-4

Companion, caregiver and traveler: Experiential resources drawn on by informal caregivers in medical tourism

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The caregiving literature has demonstrated that caregiver burden is a significant risk to the wellbeing of informal caregivers. The unique, cross-border geography of caregiving in medical tourism means that few supports or resources are in place to assist informal caregivers. In order to learn about the experiences of informal caregivers in medical tourism, we conducted semi-structured telephone interviews with 20 Canadians who had accompanied their friends or family members abroad for surgery. Interview questions dealt with the roles they played in supporting medical tourists before, during and after the trip abroad for surgery. Participants who we spoke to had developed practical strategies to deal with the challenges they faced in medical tourism. Specifically, participants drew on previous lived experience to help them in their trip. Three general themes emerged from the interviews. First, did the participants have prior experience of travel? Second, what knowledge did they have as an informal caregiver to the patient? Third, what was their relationship to the medical tourist? The difference of breadth and depth of experience that participants had in these resource domains related to their perspectives on medical tourism and the outcomes of the trip.

Session: FRI-3.30-4

Spatialized Anxieties: Quinoa in a Transforming Andean Landscape

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High international demand for quinoa has brought new opportunities to farmers in the marginal agricultural areas of Bolivia's Andean highlands. However, these opportunities are tempered by new hazards, placing productive land under pressure and raising questions about the future of farming in the region. This paper draws on field research carried out in 2013-2014 in a Bolivian highland community to explore the anxieties that arise in relation to space as quinoa farmers attempt to take advantage of rising international demand for their crop while confronting climate change and severe water pollution from upstream mines. The rise in production results in tensions between efforts to increase production (such as by expanding land holdings, leaving fewer hectares of land fallow year-to-year, and taking advantage of government-funded programs) and the farmers' anxieties related to the fear of soil exhaustion, perceived negative consequences from renting land to outsiders, and suspected efforts by rich northern nations to grow their own quinoa. These spatialized anxieties provide a counterweight to incentives related to the growing market and leave the future of quinoa production in the region unclear.

Session: THU-8.30-6

Through a Green Lens: Examining Urban Change through London's Green Spaces

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In the heart of London's East End lies Victoria Park, which opened in 1845 as the city's first public green space. For a park that is almost 175 years old, Victoria Park has changed relatively little over the years. Yet, Victoria Park is not an isolated example. The preservation of green spaces because of their links to the past is repeated across London.

At the same time, London is experiencing a phenomenal process of urban growth and change. Nowhere is this more apparent than in London's green spaces, where traditional notions of green space collide with evolving demands on green space in a densely built urban environment.

Using qualitative research conducted in three Inner London boroughs, I argue that urban change is forcing a fundamental shift in green space governance and prompting social and cultural responses, such as in the delivery, management and use of urban green space. Yet, this urban change runs head-first into well-ingrained institutions and path-dependent notions about what a public green space should be, how it should look, what functions it should serve and who it should be for. This causes increasing tension and, ultimately, challenges the extent to which urban green space remains an enduring part of life in London.

Session: THU-10.30-1

Communicating toponyms via planning policy: (re)assembling "Japantown" in Vancouver's Downtown Eastside

Trevor James Wideman, Jeffrey R. Masuda, Queen's University

In this presentation we will interrogate the ways in which toponyms are actively (re)worked through and enrolled in communicative planning and policy processes aimed at reterritorializing urban space. Using a recent and contentious participatory urban plan developed for Vancouver, Canada's Downtown Eastside (DTES) neighbourhood as a launching point, this mixed-method study traces the complex interplay between current and historical toponymic spaces of the community and present-day social, political, and economic policy interventions surrounding "revitalization". Through discourse analyses, key informant interviews, and visual readings of maps and built environments, we "reassemble" the neighbourhood as a complex and contested toponymic field, invoking discursive and material threads that weave together past and present experiences, sentiments, and legacies to territorialize toponymic markers such as "Downtown Eastside," "Gastown," and "Japantown." This broader view indicts the participatory planning process as succumbing to multiscale imperatives that promote and reinforce a normative policy vision that prepares urban space for dispossession and recolonization supported by

partial readings of history, landscape, and discourse. But the embedded and participatory nature of our research also illuminates potential openings for subaltern toponymies to emerge that might equip grassroots community activists with new political tools for contesting neoliberalization and altering urban trajectories.

Session: FRI-10.30-1

Shifting Borders at Sea: Exploring State Interaction and Migrant Exclusion in the Central Mediterranean

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From 2006-2014, over 261,000 migrants on at least 1681 boats were intercepted en route to Malta and Italy from North Africa. Frontex, the European Union's (EU) coordinating border agency, and the Governments Italy and Malta made these interceptions through a series of maritime interdiction operations (MIOs) costing at least 93.5 million CAD in the Central Mediterranean Sea. Operations such as Mare Nostrum, Hermes, and Triton make use of new spatial tactics to exclude migrants from entering the EU through externalisation, diversion, detainment, and return. This paper investigates the micro- and macro-geographies of these tactics to explore how states are constructing territory and sovereignty at sea. I use of a diverse series of unconventional data sources to form the first coherent empirical picture of boat interception in the region. I also determine and describes the outcomes of these tactics for sea-borne migrants.

Session: TUE-10.30-1

Assessing University Student Responses to Neighbourhood Liveability Design Features

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Design features that purport to facilitate neighbourhood liveability display an inbuilt bias against built forms common to most suburban residential subdivisions. As a result, the possibility of persuading suburban residents to support such design features or encouraging them to live in neighbourhoods where these design features are prominent seems remote. This poses a fundamental challenge to building liveable neighbourhoods and potentially sustainable cities.

This research explores if personal perceptions impede the adoption of built design features that support neighbourhood liveability. It reports on responses to images of different neighbourhood built forms by students enrolled in a geography course at a suburban campus. Images displayed a diversity of settings and highlight specific features related to liveable design. Respondents were also supplied with paired

images showing contrasting residential design and asked to identify the neighbourhood that best represented their current and their preferred place of residence. Images displaying higher residential densities generally garnered the greatest negative response but degrees of opposition were tempered by the aesthetics of the design. While the results of this research suggest that suburban-based populations continue to exhibit a preference for single land use developments, creative design may foster acceptance for higher density infrastructure that facilitates liveability.

Session: WED-8.30-6

Western Gateway vs. Global City: Understanding the Impact of the Go West Policy on Chengdu's Urban Development Policy

Jessica Wilczak, University of Toronto

Much of the rhetoric about China's Go West policy has posited Western regions as underdeveloped economic hinterlands and ecological buffer zones for the wealthier coastal provinces. In seeming contradiction to this image of the West-as-resource frontier, officials in Chengdu, the provincial capital of Sichuan, have been able to leverage the rhetoric of Western development to promote an intense project of urbanization and position Chengdu as a global city. This paper explores the evolution of the Go West Campaign in Chengdu since its implementation in 2000. Through an examination of policies dealing with infrastructure construction, foreign direct investment, and spatial planning, it highlights the impetus that the Go West campaign has had on urban development in Chengdu. The findings suggest that there is no contradiction between western gateway and global city, but rather that Chengdu's developmental successes have rested crucially on an imaginary geography that locates Chengdu in China's "underdeveloped" west.

Session: WED-3.30-7

Geography and the Blue Economy

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In the 2010s the 'Blue Economy' has been widely advocated by a spectrum of interests as a strategy to save the world's oceans and water. In this paper we probe the set of activities associated with a concerted push to realize new ocean commodities and territories under the Blue Economy rubric during 2014. We conceptualise a Blue Economy relationally, as a compartmentalised yet interconnected composite of diverse investment-institutional initiatives involving biological-economic relations, where different kinds of new knowledge are required. Understanding the Blue Economy moment in these knowledge assembly terms affords unprecedented opportunities for geographic engagement in the knowledge spaces of the Blue Economy. Oceans are being remapped and re-imagined as potential investment spaces. Formative actors 'see' new frontiers, and plan to make capital more productive at

the expense of other solutions, other people, other actors, including the non-human. This challenges the idea of coherent 'industry' perspectives, whether from national fisheries industries or oil and gas industries, as well as coherent 'national' perspectives. The paper argues that in spite of apparent convergence on the need to save oceans, the Blue Economy imaginary disciplines disparate knowledge for economic projects, when the planetary reality is that every economic project is axiomatically a biological project, with some economic aspects.

Session: WED-1.30-1

Informal recyclers' geographies of survival in Vancouver, BC

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Based on our study of informal recyclers' social determinants of health, we draw on "geographies of survival" to understand the challenges that these informal workers experience in a context of urban change in Vancouver, BC. This concept explains that impoverished city residents construct pathways through the urban landscape that provide shelter, access to food, spaces of safety, and community. Informal recyclers' geographies of survival are connected with urban inequality and are exacerbated by neoliberal trends in the governance of Vancouver's physical, social, and political spaces. We observe that certain users and uses of public space are defined as disorderly or illegitimate, the poor are pushed to the margins of society, and rhetorical urban revitalization and "greening" agendas are prioritized over the needs of the poor in policy making. However, neoliberal trends are inherently contradictory and can change based on local contestation and opposition. Geographies of survival are therefore an important mechanism through which informal recyclers can reclaim city spaces as they resist spatial restrictions and work to maintain their access to necessary resources. We conclude that the geographies of survival lens provides an important perspective on urban power relationships and their spatial dynamics in contemporary Vancouver.

Session: TUE-3.30-7

Urban crime clusters: Exploring the impact of land use, activity nodes and pathways on the spatial crime distribution

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Crime is not evenly distributed across the urban landscape. This concept is often repeated throughout environmental criminology literature, and has been extended and expanded upon in recent decades. It is understood that urban form, including land use, road networks, neighbourhood structure, impacts both human behaviour and crime patterns. In spite of a plethora of research supporting these relationships, it has yet to be consistently considered at both the urban planning, and police resourcing stage. This paper explores the site-specific relationships between the built environment and crime and

disorder patterns in one policing jurisdiction in Metro Vancouver, and applies these relationships to consider potential changes in crime patterns as the community develops.

Session: FRI-8.30-3

Primary Geography Education in China: Past, Current, and Future

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In China, geography education in primary schools (grade 1 to 6) has not been emphasized, although many scholars have done research in this area. However, it is vital to develop young children's geographical literacy at the primary level as part of their lifelong education. In this paper, the authors used the method of document analysis and review of associated literature, interviews, and a survey instrument to collect data from 55 primary schools. The data suggested that geography education is not significant in primary schooling, the quality of teachers is limited, and geography curriculum resources have not been fully developed. The paper examines the history, current situation, and future trends of primary geography education in China.

Session: TUE-1.30-8

The Conception of City Growth Polar under Collaborative Regional Development

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As one of the three major urban agglomerations in China, Beijing, Tianjin and HeBei province (Jing-Jin- Ji) coordinated development has been upgraded to national strategies. Through comparing the integrated competition ability of the six major cities in south central Hebei Province by dealing the data from these cities with principal component analysis and SPSS software, Shijiazhuang shows its irreplaceable advantages in many fields such as location, resources, technology, talents and transportation. Therefore the position and development strategy of capital city Shijiazhuang was studied under the background of Jing-Jin-Ji collaborative development. As the center city in central southern Hebei Province, by improving the ecological environment, as well as accelerating the city transformation and upgrading to enhance its overall competitiveness, Shijiazhuang city should become the growth pole and engine for the regional development. Based on current situation, reasonable suggestions are provided to the development of Shijiazhuang, such as clearing central city function, optimizing industry orientation, strengthening the radiant ability of regional central city, arranging functional areas of the central city

reasonably. These strategies are of practical significance for driving the development of the Jing-Jin-Ji region and narrowing differences in regional development.

Session: WED-10.30-4

Wise shrink eco-urbanism: Its legacy and new wave to sustainability

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By the year 2050, most population in the world will be living in megacities. On the other hand, many cities in the developed countries will be shrinking due to the population decrease after the peak of economic growth. Although urban sprawl has been popular in many cities during their growth, at their shrinking stage, the structure and function of these cities have to be reviewed to address the issues of coming over-aged matured society.

We need to control dispersed high density suburban developments effectively and design more sustainable spatial socio-economic structures. Unorganized urban sprawl impacts natural and social resilient lives. This lock-in effect will make it difficult to mitigate and adapt to future climate change. In a sense, our sustainability challenge in the coming decades is to reverse this process in a sensible manner. The magnitude of change of such post-modern transformation is called “Wise Shrink Eco-urbanism” in this paper, could be almost comparable to the emergence of modern cities after the industrial revolution.

We are not yet sure what kind of scenarios could be sustainable as emerging eco-urbanist lifestyles. However, we are observing that younger generation’s preferences are shifting toward a sharing economy. Exploring practical knowledge, we have been experimenting and networking “Kominka Saisei” (traditional house renovation) sharing house, Eco-urbanism, and Eco-village projects in Japan. Linking with these activities, to support community level new urban designs, we are also developing assessment tools which can look at both human well-beings and ecosystem services.

These newly designed scenarios could actually be similar to a traditional one. We may learn effectively from legacy such as “Satoyama” (traditional rural landscape). However, it should not be a simple replication of the old tradition. As a part of new transformation, we need to design sustainable housing, mobility and energy technology innovations in order to achieve high quality of life standards. Capability to develop appropriate-technology, by employing the “socio-technical” approach in its regional context, is also a very important criteria for assessing the regional sustainably.

In this presentation, by reviewing some of the old and recent Eco-urbanism cases in Japan, new research topics on “Wise Shrink Eco-Urbanism” are explored and their sustainability assessment tools for international comparative studies are discussed. Finally, “Wise Shrink Eco-urbanism” are described as spatial socio-economic scenario narratives in terms of IPCC Shared Socioeconomic Pathways (SSPs).

Session: TUE-10.30-5

The Shan-Shui City Theory and Shan-Shui Eco-Urban Projects: Exploring China's Ecological Urbanism

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Hoping to continue its fast speed of urbanization as a means to achieve economic growth and improve people's quality of life, China is experimenting with building eco-cities and eco-urban projects. While many of these projects are symbolically showcasing China's economic power, technological advancement, and the rising ecological sensibilities, the planning and implementation process of these projects has been undermined by logistical, theoretical, and political difficulties (Yip, 2006). Practitioners and scholars believe that adopting a quintessentially Chinese place-making tradition referred to as the "shan-shui city theory" could potentially help overcome those barriers (Rowe and Seng, 2002). This paper examines the roots of the Shan-Shui city theory in Chinese philosophy and culture, and compares it with place-making approaches underlined by ecological urbanism of the western origin. The paper suggests that the ancient Chinese theory maintains conceptualization of nature and city and their relationships similar to ecological urbanism. The shan-shui city theory places strong emphasis on the nature's form-shaping contributions to place-making as a way to enhance people's aesthetic experience of nature in a city. This paper uses two shan-shui-city-theory-inspired eco-urban projects to demonstrate the theory's unique resonance with Chinese culture, suggesting that the theory can be a source of inspiration to and a guide for building eco-urban projects in China.

Session: TUE-10.30-5

Using alternative data streams to understand a complex and illegal fisheries

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In order to assess the impacts of conservation actions on threatened marine species, studies need to be conducted over extended temporal and spatial scales. Underwater surveys of this kind are prohibitively expensive, so alternative, cheaper data collection methods need to be explored. Here we examine landed seahorse (*Hippocampus comes*) catch in the Philippines, as well as trade statistics and interviews with wholesale buyers in Hong Kong (a major trading hub for seahorses), to assess the possible impacts of community-based marine reserves, minimum size limits (MSL), a Filipino seahorse-fishing ban, and the listing in 2002 of seahorses under Appendix II of the Convention on the International Trade of Endangered Species (CITES). Our results indicate that the community-driven MSL was more effective than the nationally imposed fishing ban. Furthermore, interviews and analysis of trade data told different stories about the impacts of CITES on the seahorse trade. By monitoring a wide range of variables intensively over long time scales and cross-validating data, we were able to document the biological and social consequences of management action for a depleted, threatened species, even though there was no single data source that was complete and wholly reliable.

Session: TUE-3.30-6

On the correlation between innovation performance and DMSP-OLS nighttime stable lights: evidence from the US

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Innovation has been widely acknowledged as one of the key driving forces for regional economic development. Since nighttime lights based on Defense Meteorological Satellite Program Operational Line-scan System has been used as an effective tool to estimate economic growth, a potential correlation between nighttime stable lights (NTSL) and innovation performance has been strongly indicated. To this end, this study examined the relationship between NTSL and innovation performance of 3105 counties in the United States of America through grey relation analysis. In order to test the validity of NTSL mapping of the innovation performance, all the sample data of NTSL and innovation performance were separately grouped into five categories using k-means clustering method, and the deviation between two classifications was calculated. Overall, NTSL shows a noticeable connection to innovation performance with a grey relation grade of 0.76, indicating that NTSL could properly simulate innovation performance with slight deviation, which is mainly caused by differences of industrial structure and natural environment. It is demonstrated that NTSL data could be used as a proxy for regional innovation performance. This study contributes to a better understanding of the relation between NTSL and innovation performance as well as offering an efficient approach to detect the differences in regional innovation performance.

Session: THU-8.30-7

Monitoring deciduous boreal forest phenology and CO₂ uptake from PhenoCam: a case study at four North American Sites

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Vegetation phenology plays an important role in ecosystem dynamics on biome carbon and energy fluxes. Thus, the continuous and automated monitoring of vegetation phenology is of increasing scientific interest. Digital repeat photography co-located with the eddy covariance (EC) measurement provides a new opportunity to study the relationship between vegetation phenology and the seasonality of CO₂ uptake. In this study, we investigated 15 site-years digital camera (DC) imagery at four North American deciduous boreal forest sites from PhenoCam archive affiliated with the EC data. Those data were used to explore the potential of DC derived color indices for tracking seasonal phenology and CO₂ uptake. We also derived phenology metrics from vegetation indices obtained by the Moderate

Resolution Imaging Spectroradiometer (MODIS) product. A strong relationship was found between DC derived indices and gross primary productivity (GPP). Also, those indices were well correlated with vegetation indices from satellite, even though they both had bias from eddy flux derived phenology metrics, suggesting that the DC imagery is capable of providing supplement data for evaluating the satellite monitored phenology. Moreover, we showed that the DC derived indices along with light use efficiency (LUE) derived from and environment factors (i.e., Temperature, vapour pressure deficit) can be used to predict daily GPP.

Session: WED-8.30-8

Estimate ground-level particulate matter 2.5 (PM_{2.5}) concentrations in the city of Ulaanbaatar, Mongolia

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Ulaanbaatar, Mongolia's capital city, has some of the highest PM_{2.5} concentrations in the world primarily due to wintertime coal combustion in gers (traditional dwellings) surrounding the city. Ambient PM_{2.5} accounts for 10-20% of the mortality in the city, but the PM_{2.5} monitoring network is not sufficient for estimating PM_{2.5} spatial variability, limiting exposure assessment in epidemiologic studies and risk assessments. We sought to assess the spatial variability using mobile monitoring. Monitoring was conducted during winter evenings in 2013 - 2015 by driving predetermined routes selected based on local knowledge to capture different land uses and a wide range of PM_{2.5} concentrations. A nephelometer recorded the particle light scattering coefficient (bsp) at 15-s resolution and a GPS receiver recorded the vehicle's location at 5-s resolution. Fixed-site government monitoring data were used to adjust for temporal changes and determine the bsp-PM_{2.5} relationship. The highest PM_{2.5} concentrations were consistently found in the ger neighborhoods. Mobile monitoring shows promise for capturing PM_{2.5} spatial gradients across highly-polluted cities in developing countries. Incorporating GIS and remote sensing data into this analysis will allow us to develop a land use regression model of long-term average PM_{2.5} concentrations across the city.

Session: WED-3.30-6

Towards regional resilience: a case study of Metro Vancouver region

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Climate change poses novel challenges for cities. With over half of the global population living in urban centres (over 80% in Canada) and rapidly increasing variability of climate events combined with aging infrastructure, the challenge of planning for resilient cities and regions emerges as an important field of inquiry. In the field of water infrastructure management, climate change undermines a basic

fundamental assumption of 'stationarity' that historically has facilitated management of supply, demand, and risk. Climate change also exacerbates the challenge of identifying the range of impacts of natural hazards in terms of scale, location, timing, and frequency. Metro Vancouver is considered to be one of the most vulnerable regions to natural hazards due to its location, density and development history (subject to river flooding, intense rain storms and an increasing rate of sea-level rise in the future). This study identifies mechanisms by which municipalities in the region design and invest into responses for future risks under conditions of uncertainty. The responses in soft infrastructure (governance networks) and hard infrastructure (storm and wastewater systems) are analysed. Given the geographic, demographic and socio-economic differences across municipalities, the study finds a diverse set of responses in planning regimes to the long-term risks and short-term political pressures that municipalities face. This results in a variability of adaptation policies and practices across this non-amalgamated region which could potentially reduce overall regional ability to adapt to change.

Session: WED-8.30-7
