



UNIVERSITY OF  
CALGARY

## CAG/ACG 2011



Canadian Association of Geographers  
Association Canadienne des Géographes

# Program / programme Tuesday May 31 / Mardi 31 Mai

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## Tuesday May 31 / Mardi 31 Mai

14:00 - 20:00 Registration / Inscription Hotel Alma

09:00 - 17:00 CAG Executive Meeting ES 342

12:00 - 17:00 CCA Executive Meeting ES 332

10:00 - 13:00 GEOBIA Workshop ES 415

13:00 - 17:00 IMMERSE Workshop ES 920

18:30 - 22:00 President's Welcome Icebreaker MacEwan Ballroom,

*Opening Ceremony begins at 19:00* Student Centre

Room 301

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# Program / programme Wednesday June 1 / Mercredi 1 juin

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## Wednesday June 1 / Mercredi 1 Juin

08:00 - 17:00 Registration / Inscription Hotel Alma

08:30 - 10:30 Poster Session A / Séance de communication par affiche A

### **Cassio A & B, MacEwan Convention Centre**

Authors will be standing by their posters from 12:30 - 13:30

Les auteurs seront debout près de leurs affiches de 12h30 à 13h30

09:00 - 10:30 Paper Session W1 / Séance générale W1

W1.1 Heath Geographies 1 - Urban and Rural Issues ES 908

W1.2 Family and Home Geographies: Spatialities of Everyday Life SB 142

W1.3 Watershed Governance and Lessons from Practice Bianca

W1.4 Geopolitics and Asian Perspectives Ariel

W1.5 The Power of Water Guilderstern

W1.6 Dendrochronology I Escalus

W1.7 Methods 1: GIScience for Land Use Monitoring and Ecology ES 342

10:30 - 11:00 Coffee Break / Pause santé

11:00 - 15:00 CAG Teaching and Learning Workshop ES 920

12:00 - 13:30 Study Group Chairs Lunch ES 342

12:30 - 13:30 Parks Canada Lecture ICT 121

12:30 - 13:30 Cartographica Editorial Board ES 332

11:00 - 12:30 Paper Session W2 / Séance générale W2

W2.1 Health Geographies II - Adolescent and Child Health ES 908

W2.2 Concepts and Methods of Place Making and Diversity SB 142

W2.3 Watershed Planning, Science and Management Bianca

W2.4 Geographies of Asia: East Asia Ariel

W2.5 Alberta's Eco Narratives, Discourse Politics and the Media Guilderstern

W2.6 Dendrochronology II Escalus

W2.7 Methods 2: GIScience for Land Use Monitoring and Ecology ES 342

12:30 - 13:30 Lunch Break / Repas du midi

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13:30 - 15:00 Paper Session W3 / Séance générale W3

W3.1 Health Geographies III - Social Geographies of Health ES 908

W3.2 Canadian Housing and Demographics: Struggles and Strategies SB 142

W3.3 Watershed Users and Perception Bianca

W3.4 Geographies of Asia II China Ariel

W3.5 Communication, Citizenship and Participatory Space Guilderstern

W3.6 The Changing Physical Landscape Escalus

W3.7 Methods 3 - Urban GIScience ES 342

15:00 - 15:30 Coffee Break / Pause santé

15:30 - 17:00 Paper Session W4 / Séance générale W4

W4.1 Health Geographies IV – Health, Space and Place ES 908

W4.2 Geographies of Canadian Immigrant Experiences SB 142

W4.3 Environmental Innovation Bianca

W4.4 Issues, Challenges and the Unexpected in the Field Ariel

W4.5 Geoparks and New Conservation Strategies: Scale, Boundaries, Guilderstern  
Inclusiveness

W4.6 Biogeography Escalus

W4.7 GIS Modelling ES 342

17:30 - 19:30 The Canadian Geographer (TCG) Editorial Board Cocktail Reception ES 908

17:30 - 19:30 Orienteering (Outside) - Meet at the Registration Desk

19:30 - 20:30 Wiley Lecture MacEwan Ballroom

20:30 - 22:30 Department Reception MacEwan Ballroom

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**CAG2011: OUR HERITAGE, OUR LEGACY**

# PROGRAM: POSTERS AND ORAL PRESENTATIONS

**Wednesday June 1 / Mercredi 1 Juin**

**08:00 - 17:00**

**Registration / InSCRIPTION**

**08:30 - 17:00 Poster Session A/Séance de communication par affiche A**

**Room: Cassio A & B, MacEwan Convention Centre**

Authors will be standing by their posters from 12:30 - 13:30

Les auteurs seront près de leurs affiches de 12h30 à 13h30

- Informal recycling in Buenos Aires: Perceptions of health, safety, and risks (Working Paper) (**Binion, Eric**)
- Testimonio: A Tool for Documenting the Lived Realities of Mining-Affected Maya Q'Eqchi' Communities in El Estor, Guatemala (**Bois, Claudette**)
- Investigation of Household Energy Attitudes and Decision Making within three Neighbourhood Contexts (**Borth, Kurt**)
- Locating Elementary Schools in Edmonton 1960s vs. 2000s (**Cheesbrough, Alison**)
- Land Use Regression model development to assess traffic-related air pollution in Calgary (**Elikan, Olesya**)
- Evaluating the traffic impacts of neighbourhood designs using multi-agent models (**Jin, Xiongbing**)
- Dialectics of home spaces and family life in Cuba (**Kozak, Kim**)
- Disaster Risk Reduction in Developing Countries (**McGetrick, Jennifer**)
- Deep Ontological Visualization Environments (DOVE): Beyond metadata for geovisualization (**Mueller, Shawn**)
- Rethinking the Design of Back Alleys (**Randa, Daryl**)
- Walkability and Aging in Edmonton (**Shamchuk, Adam**)
- The Small City Quality of Place Reporting System and Toolkit (**Viaud, Gilles**)

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**09:00– 10:30 Paper Session W1 / Séance générale W1**

W1.1

**Health Geographies 1 – Urban and Rural Issues (Special Session)**

**Chair: Theresa Garvin**

**Room: ES 908**

Aboriginal Peoples Mobility & Health in Urban Canada: Navigating the Landscape of Service Provision in Winnipeg, Manitoba

Snyder, Marcie

Stealth voluntarism, social entrepreneurship or what? Hanlon, Neil

Geographies of Suburban Aging Garvin, Theresa

Emotional geographies of aging & care: a view from rural Ontario Herron, Rachel

**W1.2 Family and Home Geographies: Spatialities of Everyday Life**

**(Special Session)**

**Chair: Kim Kozak**

**Room: SB 142**

Navigating Cuban bedrooms: the dialectic between physical & social space

Kozak, Kim

Interpreting the Maya house: notes on contemporary Maya domestic architecture

Brown, Denise

Families, memories and place: a critical examination of Disney's "Let the Memories Begin" campaign

Hallman, Bonnie

Secondary suites: An examination of state toleration of illegal housing in Calgary

Tanasescu, Alina

**W1.3 Watershed Governance and Lessons from Practice (Special Session)****Chair: Robert Patrick****Room: Bianca**

The Multi-Scalar Nature of Watershed Governance Davidson, Seanna

IWRM in Canada: a journey towards sustainability Afrin, Sadia

Reporting on the states of things, such as Alberta's watersheds Schmidt, Jeremy

Grassroots Participation in Watershed Planning: An Examination of the

Effectiveness of Alberta's Local Watershed Stewardship Group

Zary, Amber

What can we learn about watershed management from river basin councils and organizations in Mexico

Pacheco-Vega, Raul

**W1.4 Geopolitics and Asian Perspectives (Special Session)****Chairs: Tristan Sturm and Luke Struckman****Room: Ariel**

God's Just Gaza War: American Christian Zionist Landscape Pilgrimage and the Justification for Palestinian Expulsion

Sturm, Tristan

Popular American Geopolitics and the 'Arab Spring' Struckman, Luke

Water Security Amery, Hussein

The Geopolitics of Armageddon: The U.S., the Muslim World, and the

Triumph of China

Cravins, George

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**W1.5 The Power of Water****Chair: Darren Sjogren****Room: Guilderstern**

A study on the cause and effect of reducing the natural drainage channels in Dhaka City

Kaiser, Rezwana

Critical erosion velocity for natural shale gravels: An empirical study McGinn, Rod

Climate change and source water protection in Northwestern Ontario Cornwell, Adam

**W1.6 Dendrochronology I (Special Session)**

**Chair: Colin P. Laroque**

**Room: Escalus**

An intra-annual reconstruction of climate in northern interior BC using tree ring width, density and cell wall thickness proxies

Wood, Lisa

Investigating the paleohydroclimate of west central British Columbia using a multi-species tree-ring network

Starheim, Collette

Mid Holocene and Little Ice Age (LIA) glacier activity in central Coast Mountains, British Columbia

Harvey, Jill

Dendroglaciological Exploration At South More Glacier, Northern British Columbia Coast Mountains

Craig, Jessica

**W1.7 Methods 1: GIScience for Land Use Monitoring and Ecology**

**Chair: Dan Cole**

**Room: ES 342**

Use of citizen science to examine wildlife distribution along a Mexican highway

Brichieri-Columbi,

Typhenn

Mapping of European Frog-bit (*Hydrocharis morsus-ranae*) using Quickbird Imagery

Proctor, Cameron

Classifying burned areas in a mixed-grass prairie ecosystem using a decision tree classification

McDonald, Shayne

Predicting Suitable Habitats for Four Endangered Orchid Species in Southern Ontario Using GIS

Wong, Kelly Ka Lei

**11:00-12:30 Paper Session W2 / Séance générale W2**

**W2.1 Health Geographies II - Adolescent and Child Health (Special Session)**

**Chair: Caroline Barakat-Haddad**

**Room: ES 908**

Factors That Influence Physical Activity among School-aged Emirati Females

Barakat-Haddad,

Caroline

Immigrant Neighbourhood Health Baldeo, Navindra

Physical Activity among Female Adolescents: An Examination of Shared and Ethno-cultural Barriers

Wilson, Kathi

**W2.2 Concepts and Methods of Place Making and Diversity**

**Chair: Derrek Eberts**

**Room: SB 142**

Neighbourhood Quality of Life in Brandon, MB Eberts, Derrek

Traditional folk culture meets modern insulation: geographies of Summerby-Murray,  
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vernacular 'banking' in small-town New Brunswick Robert  
Monuments in Urban Management in Iran Alizadeh, Katayoon

### **W2.3 Watershed Planning, Science and Management (Special Session)**

**Chairs: Robert Patrick, Bram Noble**

**Room: Bianca**

Cumulative effects assessment for river systems: bringing science into  
practice

Noble, Bram

Scaling-up valued ecosystem components for watershed cumulative  
effects assessment

Ball, Murray

Summary of an approach for watershed scale aquatic cumulative effects  
assessment

Squires, Allison

Institutional requirements to support watershed cumulative effects  
assessment and monitoring in the South Saskatchewan Watershed

Patrick Robert

Capacity for watershed cumulative effects assessment in the Lower Fraser  
Watershed, British Columbia

Kristensen, Stephanie

### **W2.4 Geographies of Asia: East Asia**

**Chair: David Ley**

**Room: Ariel**

Gentrification in Hong Kong? Ley, David

Evolutionary Cross-Strait Economic Spaces between Taiwan and Mainland  
China

Wang, Wen-Cheng

Colonial power on practices: Governmentality, Farm Improvement Project  
and Pig Farming in Hong Kong's New Territories, 1950-1970

Chan, Kin Wing

Between convenience and authenticity: anime fansubs, new geographies  
of media consumption and the challenge to copyright

Reiffenstein, Tim

'Glocalization' and Regional Headquarters: Japanese Electronics Firms in  
the ASEAN Region.

Edgington, David

### **W2.5 Alberta's Eco Narratives, Discourse Politics and the Media**

**Chair: Conny Davidsen**

**Room: Guilderstern**

Transdisciplinarity, Human Geography & Free Roaming Horses in Alberta Kincaid, Adela  
Cowboys & Carnivores: A Survey of Ranchers in the Waterton Biosphere

Reserve, Alberta

Quinn, Michael

Portrayal of Coyote-human Interactions in the Canadian media Alexander, Shelley

Environmental Problem Framing and the Media: The Case of the Alberta

Oil/Tar Sands

Daividsen, Conny

Exploring ecological citizenship in Kluane Region, Yukon Solmes, Amanda

### **W2.6 Dendrochronology II (Special Session)**

**Chair: Colin P. Laroque**

**Room: Escalus**

Dating First Nation "Brush Structures" in Kluane National Park and Reserve

Luckman, Brian

Creating a Multi-Century Tree-ring Record in the Bella Coola Area, British Columbia

Pitman, Kara

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Multi-century reconstructions of western spruce budworm outbreaks and climatic variability in the Cariboo-Chilcotin Region

Axelson, Jodi

Dendrohydrological investigations on the Sunshine Coast, Southern Coast Mountains, British Columbia, Canada

Coulthard, Bethany

Wood anatomy identification in dendroarcheology: "Don't touch the wood please".

Laroque, Colin

A Tree-Ring Reconstruction of the Flow of the Athabasca River Perez-Valdivia, Cesar

### **W2.7 Methods 2: GIScience for Land Use Monitoring and Ecology**

**Chair: Roger Wheate**

**Room: ES 342**

Semi-automated generalization and updating of the EOSD land cover map in Alberta

Castilla, Guillermo

Enhancing Land Use Decisions for Sage-grouse Recovery in Alberta Dalton, Sandra

Geospatial Technology for Biodiversity Monitoring in Alberta, Canada Hird, Jennifer

A field based depth correction algorithm for submerged aquatic vegetation spectra

Birkigt, David

The Use of Geospatial Tools and Exploratory Analysis on Two Bear

Populations in the Russian Far-East

Latham, Erin

### **1:30 – 3:00 Paper Session W3 / Séance générale W3**

#### **W3.1 Health Geographies III - Social Geographies of Health (Special Session)**

**Chair: Theresa Garvin**

**Room: ES 908**

Do Neighbourhoods Matter?: Exploring Neighbourhood Significance through the Eyes of Women Who have experienced Housing Instability  
Plane, Jocelyn

Unpacking Disability Through Health Care Cameron, Keri

Access to health care services in the outer suburbs of York Region: the

lived experience of immigrants from India with diabetes

Baldeo, Navindra

Census tracts, place names and postal codes, oh my: Examining neighbourhood boundaries useful in adolescent health research

Asanin Dean, Jennifer

De-normalization in action: The spatial regulation of smoking within university campus environments

Procter, Amy

A risk to other people's kids; environment and health risk perceptions among new mothers

Crighton, Eric

### **W3.2 Canadian Housing and Demographics: Struggles and Strategies**

**Chair: Tom Carter**

**Room: SB 142**

The Lived Experience of Aging in Edmonton's Suburban Neighbourhoods McNairnay, Esther

Lodgers, landlords and laundry: the Geography and Spatiality of Lodging Grant, Miriam

No Bubble? No Meltdown? However New Challenges for Canadian

Housing Consumers

Carter, Tom

"We're in a dangerous position": The Ground Observer Corps and Cold

War Citizenship

Farish, Matthew

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Developing Cultural Indicators to Inform the Planning Process Momer, Bernard

Dormitory spaces and re-domestication of migrant workers Reid-Musson, Emily

### **W3.3 Watershed Users and Perception (Special Session)**

**Chair: Gerald Stark**

**Room: Bianca**

Evaluating Alternative Water Allocation Policies among Competing Users Khoshroo, Nader

Public values and attitudes towards irrigation water transfers in Alberta's

South Saskatchewan River Basin

Russenberger, Martin

Values and attitudes of irrigators towards water reallocation policies Hall, Matthew

The Impacts of Households and Small Businesses on the Sources of

Drinking Water

Verma, Romila

Water, watersheds and health: Integrating ecohealth and watershed management approaches

Hallstrom, Lars

### **W3.4 Geographies of Asia II China**

**Chair: Alan Smart**

**Room: Ariel**

Extra legality in Hong Kong and China Smart, Alan

Market transition, labour market transformation, and geographies of inequality: a case of Fujian

Xu, Wei

Escaping the neon glamour: return migrant in China Yu, Li



### **W3.5 Communication, Citizenship and Participatory Space (Special Session)**

**Chairs: Chui-Ling Tam and Gwendolyn Blue**

**Room: Guilderstern**

Communication as Negotiative Space Tam, Chui-Ling

Public engagement, climate change and the limits of scientized politics Blue, Gwendolyn

Reconstituting society as a political force: the case of the Vietnamese

bauxite mining controversy

Morris-Jung, Jason

Process, event, and attribute: information preservation across ontological categories

Simandan, Dragos

Local Food, Sustainability and the Social Economy: Exploring the

Potential of Convergence for Community Transformation

Connelly, Sean

### **W3.6 The Changing Physical Landscape**

**Session Chair: Shawn Marshall**

**Room: Escalus**

Is climate the most important driver of landscape change? Slaymaker, Olav

Quality of regional analysis data for hydro climatic research in the

Canadian Prairies

Choi, Woonsup

Evapotranspiration Comparison between a Field at the Kortright Centre

for Conservation and a Rooftop at Downsview Park, April to November,

2010

Handa, Shishir

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Impacts of ice-free winters on shoreline changes in Western point Pelee BaMasoud, Abdullah

### **W3.7 Methods 3 - Urban GIScience Room: ES 342**

Empowering Urban energy Efficiency with Residential Waste Heat

Monitoring: The HEAT Project - Phase 1

Hay, Geoff

Developing a Roof-Shape Heat Loss Index to enhance Urban Energy

Efficiency: A GEOBIA and Data Mining Approach

Bharanidharan,

Hemachandran

Assessing the impacts of urbanization and historical changes of the

Humphreys Brook, Moncton, N.B.

LeBlanc, Melanie

Normalizing the effects of local microclimatic and temporal variability in

thermal airborne imagery

Rahman, Mir Mustafizur

### **3:30 – 5:00 Paper Session W4 / Séance générale W4**

#### **W4.1 Health Geographies IV – Health, Space and Place**

**Chair: Theresa Garvin**

**Room: ES 908**

Examining the spatial accessibility of trauma services in Canada using

Geographic Information Systems

Lawson, Fiona

Accessibility to primary health care and its contribution to population health status

Elikan, Olesya

A spatial protocol for determining lifetime exposure to ultraviolet B Schuurman, Nadine

Mobility of Elderly People: A Geographic Perspective Isaacson, Michal

#### **W4.2 Geographies of Canadian Immigrant Experiences**

**Chair: Lucia Lo**

**Room: SB 142**

The McConachie case: how a disabled baby came to dominate

Parliament's debates on medical admissibility in 1928

Capurri, Valentina

The Economic Experiences of Immigrants in a Mid-size City – Kelowna, B.C.

Lo, Lucia

Greek Canadian Legacy: Social and Economic development and cultural continuity of female members of the Halifax Greek Community

Alexandrou, Penelopi

#### **W4.3 Environmental Innovation**

**Chair: Virginia MacLaren**

**Room: Bianca**

Recreational Value of Irrigation Infrastructure Bewer, Robert

Paying for Waste: Extended Producer Responsibility and Management Fees

MacLaren, Virginia

Searching for Sustainability: Three years inside a local biodiesel cooperative

Mount, Phil

Tracking international patterns of investment in biofuels Hunsberger, Carol

Village-Level Water Management Institutions in Rural Malawi: Context and Conditions for Sustainability.

Joubert, Brian

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#### **W4.4 Issues, Challenges and the Unexpected in the Field (Special Session)**

**Chair: Sarah Skett**

**Room: Ariel**

Challenges in the field Mambo, Tatenda

Finding a Balance between Vested Interests and Realities while Analyzing the Outcomes of a Collaborative Environmental Project

Ouko, Evans

Researcher positionality as a tool for access and managing “image problems”

Yembilah, Rita

Tourist? Volunteer? Either way, outsider Skett, Sarah

Scientific Spinoffs: Cooperative Field Research Contributions To Local

Development

Moorman, Brian

#### **W4.5 Geoparks and New Conservation Strategies: Scale, Boundaries, Inclusiveness**

**Chair: Maureen Reed**

**Room: Guilderstern**

Geoparks: An Exciting New Reality in Canada Nowlan, Godfrey

Geoheritage and Geoparks in China

Xu, Kejian

Biosphere reserves as learning sites for sustainability: The debate about representativeness in the Canadian network

Reed, Maureen

#### **W4.6 Biogeography**

**Session Chair: Darren Bender**

**Room: Escalus**

Habitat Identification for Spatially Dynamic Populations Bender, Darren

Can Bison Play A Role In Conserving Habitat For Endangered Sandhills

Species In Canada?

Fox, Arcadius

Spatio-Temporal Distributions of Female Muskoxen Ovibos Moschatos in the Sub-Arctic Boreal Forest of the Northwest Territories

Cullen, Rachel

Estimating the parameters that govern the existence of residual vegetation patches within a fire disturbed boreal landscape

Araya, Yikalo

Identification and assessment of northern pike spawning sites in South Lake, Riding Mountain National Park, using micro-VHF tele

Malcolm, Christopher

Un modèle multi-agents pour la conservation des mammifères marins Chion, Clément

#### **W4.7 GIS Modelling**

**Chair: Dan Jacobson**

**Room: ES 342**

Preliminary GIS Analyses of Selected Archaeological Sites in Western Mongolia

Cole, Daniel

Modeling Patient Evacuation Flow During A Mass Casualty: A Decision Making Model Using GIS

Amram, Ofer

An Affordance Based Approach to Improved GIS Access for Blind and Visually Impaired Users

Hagedorn, Douglas

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# **Program / programme**

# **Thursday June 2 / Jeudi 2 juin**

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## **Thursday June 2 / Jeudi 2 Juin**

08:00 - 16:00 Registration / Inscription Hotel Alma

08:30 - 10:30 Poster Session B / Séance de communication par affiche B

### **Cassio A & B, MacEwan Convention Centre**

Authors will be standing by their posters from 12:30 - 13:30

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09:30 - 17:30 Bar U Site Field Trip

09:00 - 10:30 Paper Session T1 / Séance générale T1

T1.1 Methods 4 Guilderstern

T1.2 Arctic Energy Development Escalus

T1.3 Rethinking Feminist Interventions into the Urban ES 908

T1.4 Putting Metis on the Map: Cartography and Archival Research as Ariel

Methods to Visualize an Ignored Past

T1.5 Geography of Education Bianca

T1.6 Valuing Qualitative Research in Planning ES 920

T1.7 Social Dimensions of "Development", Dependence and Effectiveness ES 342

10:30 - 11:00 Break / pause-café

11:00 - 12:30 Paper Session T2 / Séance générale T2

T2.1 Methods 5 - GIScience II Guilderstern

T2.2 Arctic Energy Development Escalus

T2.3 Directions in Political Ecology: Bringing Culture Back In ES 908

T2.4 Putting Metis on the Map: Cartography and Archival Research as Ariel

Methods to Visualize an Ignored Past

T2.5 Geographic Education: Practices and Priorities Bianca

T2.6 City Planning and the Built Environment ES 920

T2.7 Rethinking "Development" Geography: Experiences from the Field ES 342

12:00 - 13:30 Department Chairs Lunch (Dining Centre) Legacy Suite

12:00 - 13:30 CCA AGM ES 342

12:00 - 13:30 Health Care Studies Group Lunch ES 332

12:00 - 13:30 The Canadian Women and Geography Study Group Lunch Bianca

12:30 - 13:30 Burgess Shale Public Lecture ICT 121

12:30 - 13:30 Asian Geographies Study Group Meeting Guilderstern

12:30 - 13:30 Historical Studies Group Meeting Ariel

12:30 - 13:30 The Resources and Environment Study Group Lunch Escalus

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12:30 - 13:30 Lunch

13:30 - 15:00 Paper Session T3 / Séance générale T3

T3.1 Methods 3 - GIScience for Forest Ecology Guilderstern

T3.2 Land Use Planning and Regional Struggles Escalus

T3.3 Environmental Justice ES 908

T3.4 Indigenous Communities, Governance and Resilience Ariel

T3.5 CAG Workshop: From 'Revise and Resubmit' to Bianca

'Your MS has been accepted' Part 1

T3.6 Suburbia ES 920

T3.7 Urbanization, Environmental Health and Development Challenges ES 342  
in Africa – Part 1

15:00 - 15:30 Break / pause-café

15:30 - 17:00 Paper Session T4 / Séance générale T4

T4.1 Methods I: Mapping/Cartography Guilderstern

T4.2 Boomtown Geographies Escalus

T4.3 Natural Resources and Economic Strategy ES 908

T4.4 Adaptation, Vulnerability, and Climate Change in Northern Arie  
Indigenous Communities

T4.5 CAG Workshop: From 'Revise and Resubmit' to Bianca  
'Your MS has been accepted' Part 2

T4.6 Modern Cities and Conflict ES 920

T4.7 Urbanization, Environmental Health and Development Challenges ES 342  
in Africa – Part II

19:30 - 21:30 Banquet Calgary Zoo

Guided groups will leave the convention centre starting at 16:30.

Please watch for more information

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## **Thursday June 2 / Jeudi 2 Juin**

**08:30 – 17:00 Poster Session B/ Séance de communication par affiche B**

**Room: Cassio A & B, MacEwan Convention Centre**

Authors will be standing by their posters from 12:30 – 13:30

Les auteurs seront près de leurs affiches de 12h30 à 13h30

- Spatial Exploratory Analysis of Oil Spill Volumes in Canada's Pacific Region (**Brandon, Cathryn**)
- Determining the Optimal Protocol For Optical Dating Of Eolian Landforms in the Foothills Of Southern Alberta (**Cullen, Justine**)
- Seasonal Dune-Forming Processes in Point Pelee National Park, Ontario, Canada (**Dale, Janis**)
- Evaluation of SAR Polarimetric Parameters for Sea Ice Classification (**Gill, Jagvijay Pratap Singh**)
- Evaluation of thermal influence on the microwave backscatter of snow-covered Smooth First Year Sea Ice (FYI) using SAR Data (**Hossain, Md. Mosharraf**)
- Seasonal population dynamics and habitat use for Ord's kangaroo rat in Southeastern Alberta (**Koenig, Shantel**)
- Institutional Arrangements and Capacity Building Needs for Watershed Governance in Northern Saskatchewan (**Lemoine, Nadine**)
- Facies and Deposits on Stagnating Glacial Ice, Glacial Lake Proven Basin, Riding Mountain Uplands, Manitoba (**McGinn, Rod A.**)
- Conditions of establishment of an invasive species (*Ciona intestinalis*): a comparative study of two subwatersheds, PEI, Canada (**McLaughlin, Janelle**)
- Impact of Band-Ratio Enhanced SAR Image for Sea Ice Types Discrimination (**Thai Nguyen, Nicolas**)

- Soil Geography and Its Implementation on Ecological Integrity of the Arctic Tundra Ecosystem in Aulavik National Park (**Wu, Wanli**)

## **09:00– 10:30 Paper Session T1 / Séance générale T1**

### **T1.1 Methods 4 - GIScience I**

**Chair: Greg McDermid**

**Room: Guilderstern**

Extracting geometric features from airborne LiDAR for tree species classification

Ko, Connie

Integration of swarming intelligence and GIS: ForestSimMPB modeling approach for mountain pine beetle infestation

Perez, Liliana

Using GIS to measure habitat fragmentation for Blanding's turtle in a Mui, Amy  
21

Southern Ontario Wetland

Coupling GIS with an air dispersion model to estimate the relative impact of air pollution sources on human populations in Central Alberta

Fraser, Scott

T1.2

### **Arctic Energy Development (Special Session)**

**Chair: Bram Noble**

**Room: Escalus**

Arctic Sovereignty, Nation-Building, and the Canadian North in the 21st Century

Poelzer, Greg

Opportunities and Challenges for the Oil and Gas Industry in Northern Canada

Peters, Mike

Indian and Northern Affairs Canada and its role in oil and gas management in Canada's North: Beaufort Regional Environmental Assessment

Carr, Genevieve

International Strategic Environmental Assessment Experiences in the Offshore Oil and Gas Sector

Fidler, Courtney

Regional Strategic Environmental Assessment Roles and Stakes in Arctic Oil and Gas Development

Ketilson, Skye

### **T1.3 Rethinking Feminist Interventions into the Urban (Special Session)**

**Chair: Linda Peake**

**Room: ES 908**

Rethinking Feminist Interventions into the Urban Peake, Linda

Unsettling Urbanism and Migrant Domestic Workers Pratt, Geraldine

Women and the Jamaica Drug Lords Mullings, Beverley

Sensory Engagements With The City: Emotions, Gender And Everyday Life In Mumbai And Managua

Shillington, Laura

Learning from Bangladeshi women's labour market integration experiences in Toronto, Canada

Akbar, Marshia

#### **T1.4 Putting Metis On The Map: Cartography and Archival Research as Methods to Visualize an Ignored Past (Special Session)**

**Chair: Frank J. Tough**

**Room: Ariel**

The Confines of Conservation: establishing fur block boundaries in Northern Saskatchewan

Lindquist, Kirsten

Métis Archival Sources and Cartography Tough, Frank

King's Map : Tracing the English River Fur Trade 1894 ca. Dimmer, Kathleen

Into "the land of the singing tires": Aboriginal stories of transition from nature-rich and rural-remote to city places

Saull, Christine

#### **T1.5 Geography of Education**

**Chair: David Connell**

**Room: Bianca**

Teaching planning theory from first principles Connell, David

Integrated Landscape Research and Graduate Environmental Education:

Student Reflections

Ing, Jasmine

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Education in transition: Integrating cultural and academic development in Nunavut high schools

Sullivan, Carmelle

French Immersion: "Like a Private Education in the Public System" Cegin, Jeanette

Understanding the planning studio as a core component of professional

planning education: Lessons from the front lines

Viswanathan, Leela

#### **T1.6 Valuing Qualitative Research in Planning (Special Session)**

**Chair: Naomi Bartz**

**Room: ES 920**

From Classroom to Practice: Using Service Learning to Model Qualitative Methods in the Field

Vilches, Silvia

Opportunities and Challenges in Community-Based Research:

Reflections from the Field

Gurstein, Penny

The use of Qualitative Methods in Studies of Immigrants' Housing Patterns

Thomas, Ren

Politics and Revitalization in Vancouver's Downtown Eastside:

Understanding Policy Implementation through Case Study Research

Bartz, Naomi

#### **T1.7 Social Dimensions of "Development", Dependence and Effectiveness**

**Chair: Tatenda Mambo**

**Room: ES 342**

Development Impacts of Nurse Migration: From Zimbabwe to the UK Mambo, Tatenda  
The geography of "effectiveness" in Canada's international development assistance

Essex, Jamey

Canadian Food Aid and Foreign Assistance: Cause or Effect of Foreign Policy?

Marantz, Uri

**11:00 – 12:30 Paper Session T2 / Séance générale T2**

**T2.1 Methods 5 - GIScience II (Special Session)**

**Chair: Tarmo Remmel**

**Room: Guilderstern**

Modelling Great Lakes Coastal Wetland Vegetation Response to Changing Water Levels

Deadman, Peter

Critical GIS and its relevance for GIS practitioners Cinnamon, Johnathon

A method to quantify feasible roof area for green technologies Blakey, Andrew

Privacy in the age of new spatial media Leszczynski, Agnieszka

Deconstructing Participation on the Geoweb Walker, Blake Byron

**T2.2 Arctic Energy Development (Special Session)**

**Chair: Bram Noble**

**Room: Escalus**

Mackenzie Gas Project: A Cumulative Environmental Effects Case Study Kennedy, Alan

Impact of Seeding with non-native grasses on Patterns of Tundra

Vegetation Recovery 30 Years after industrial Disturbance

Wunderlich, Nicole

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Advancing a network of marine protected areas in the Canadian Arctic: an urgent conservation issue

Jessen, Sabine

The Kiggavik Uranium Mine Proposal in Baker Lake, Nunavut: Barriers to

Inuit Participation in the Consultation Process

Bernauer, Warren

Advancing Environmental Assessment in Canada's Arctic Energy

Environment: Opportunities, Challenges, Research Directions

Noble, Bram

**T2.3 Directions in Political Ecology: Bringing Culture Back In**

**Chair: James Proctor**

**Room: ES 908**

Permaculture as Political Ecology Haluza-Delay, Randolph

What's unnatural about urban 'nature'? Towards a poststructural urban political ecology

Leffers, Donald

Political ecology and cosmopolitan ecologies in Oregon Proctor, Jim

Resource to Yinta: Retheorizing the Ecopolitics of Unceded Land in a Settler State



McCreary, Tyler

Cultural Politics and the Political Ecology of Forestry Reforms in Madhya Pradesh, India

Fehr, Gerry

#### **T2.4 Putting Metis on the Map: Cartography and Archival Research as Methods to Visualize an Ignored Past (Special Session)**

**Chair: Frank J. Tough**

**Room: Ariel**

CURA Otipimsuak Atlas Overview Dimmer, Kathleen

Map-based DS Systems to Consultation Frameworks: BC Coastal First

Nations go Web 2.0

Burnett, Charles

Mapping the Northwest Territories Métis Scrip Commissions:

cartographic and data challenges when mapping "Place of Application"

Lisitza, Lyndsey

#### **T2.5 Geographic Education: practices and Priorities (Special Session)**

**Chair: Bob Sharpe**

**Room: Bianca**

**A Formal paper (20 minutes each)**

Geography in school curriculum, Opare Service

Responding to the challenge of Geographic Illiteracy, Leydon, Joseph

**B Speed presentations (10 minutes each)**

"Project Explorer" in the Geography Department at the University of

Calgary, Hall-Beyer, Mryka (University of Calgary)

Atlas of Canada: responding to the needs of today's geography and social

sciences teachers, Jasiak, Anna (Natural Resource Canada)

A new teaching & learning initiative within the Canadian Association of

Geographers, Sharpe, Bob (Wilfrid Laurier)

**C Open discussion for 20 minutes**

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#### **T2.6 City Planning and the Built Environment**

**Chair: Byron Miller**

**Room: ES 920**

Canadian Urbanism: what causes this unique form of city building? Wlodarczak, Duncan

The fury of the blast: An exploration of the historical geography of

Toronto's urban wind canyons.

Anderson, Richard

Flows in the City: Perspectives on Planning and Logistics Woudsma, Clarence

Politics, Process, and Path Dependency: The Transition to a More

Sustainable City in Groningen, the Netherlands.

Miller, Byron

The 'Greenest City' Competition: Motivations and Influences for Urban

Environmental Policy in Vancouver and Portland

Kristensen, Freya

#### **T2.7 Rethinking "Development" Geography: Experiences from the Field (Special Session)**

**Chair: Rita Yembilah and Evans Ouko**

**Room: ES 342**

Neoliberal globalization and global-local conflict in community forestry institutions in Nepal

Bastakoti, Rishi

The Theory and the Practice: Sustainable Livelihoods in Tallensi East, Ghana

Yembilah, Rita

The disconnect between Universal Primary Education (UPE) and access in rural Uganda

Skett, Sarah

From Postdevelopment to Micro-management: The Discourse and Reality of Development Through Basic Ecclesial Communities, Philippines

Moxham, Chris

Decentralizing Development: A Myth or a Reality in the Management of the Commons in Kenya

Ouko, Evans

**1:30 - 3:00 Paper Session T3 / Séance générale T3****T3.1 Methods 3 - GIScience for Forest Ecology****Chair: Guillermo Castilla****Room: Guilderstern**

A GEOBIA approach to estimate forest canopy height using lidar transects and Quickbird imagery

Chen, Gang

A GIS-Based Approach to Projecting Responses of Sugar Maples to Climate Change in Ontario, Canada

Lamhonwah, Daniel

An Examination of Tree Line NDVI Trends in Northern Canada Using Landsat Imagery

Krnic, Christian

Changes in Grizzly Bear Habitat due to Human Disturbance in the Rocky Mountain Foothills of Alberta from 1985 to 2005

McDermid, Greg

**T3.2 Land Use Planning and Regional Struggles****Chair: Scott Slocombe****Room: Escalus**

Structures of Regional Land Use Planning in Canada: Lessons for Governance and Implementation

Slocombe, Scott

The Regional Structure of Employment Growth in Western Canada:2001-2006: A Regional typology based on an advanced Shift-Share Ty

Ray, David Michael

'We will survive this by focusing on our core competencies': The recent recession and local development in BC's northern Interior

Martin, Alex

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For Every Region, Regional Development Agencies: The History and Next Generation of Regional Development in Canada

Hall, Heather

Regional Identity of Southern Alberta Warkentin, John

**T3.3 Environmental Justice (Special Session)**

**Chair : Randolph Haluza Delay**

**Room: ES 908**

Conceptualizing Environmental Justice in the Alberta Oilsands Haluza-DeLay, Randolph

(Health) Justice for all: Creating a tool for environmental justice with an ecological integrity lens to improve well-being

Neimanis, Aelita

Community opposition to wind energy development in Ontario Songsore, Emmanuel

**T3.4 Indigenous Communities, Governance and Resilience**

**Chair: Yvonne Prusak**

**Room: Ariel**

Reflections on Comprehensive Community Planning on First Nations in Saskatchewan

Walker, Ryan

The 1000th cut? Exploring the relationship between biodiversity loss and local indigenous rights

Augustine, Skye

Meeting Extinction - Caribbean Indigenous Narratives MacDonald, Katherine

Community Freezers Supporting Food Security: Perspectives from

Residents of Nain, Nunatsiavut

Jennifer Organ

**T3.5 CAG Workshop: From 'Revise and Resubmit' to 'Your MS has been accepted' Part 1**

**Workshop Organizer: Ian MacLachlan (Editor, Canadian Geographer).**

**Panellists: David Edgington, Roger Hayter & Nadine Schuurman**

**- Two 2-hour workshops back to back in early afternoon**

**Room: Bianca**

**T3.6 Suburbia Room: ES 920**

Gentrification Revisited: Struggling with an Expanding Beast in Suburban Calgary

Peterson, Kyle

Suburban Nation? Estimating the size of Canada's suburban population Gordon, David

Building up while sprawling out: The paradox of urban intensification Leffers, Donald

Situating Canada's "Fourth City": The Challenge of Calgary, Alberta Shmuelly, Andrew

**T3.7 Urbanization, Environmental Health and Development Challenges in Africa – Part 1 (Special Session)**

**Chair: Godwin Arku**

**Room: ES 342**

Residential Patterns And Gender Relations In Urban Domestic Water Supply

Mensah, Kenneth

An Assessment of Residents' Housing Satisfaction and Coping in Accra, Ghana.

Arku, Godwin

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Poverty and Livelihood Strategies of Households in Urban Ethiopia: A Case Study in Mekelle city, Northern Ethiopia

Abdela, Yesuf

Geography of Flooding in Urban West Africa: Accra Yeboah, Ian

### **3:30 - 5:00 Paper Session T4 / Séance générale T4**

#### **T4.1 Methods I: Mapping/Cartography**

**Chair: Guillermo Castilla**

**Room: Guilderstern**

Canada's Community Map Program Heersink, Paul

Atlas of Canada Moving Forward Williams, Donna

TECTERRA - A Catalyst for Applied Research in Geomatics Gorecki, Richard

Mapping patterns from the 1911 Canadian century research

infrastructure microdate: Households and languages in 1911

Moldofsky, Byron

Information design; Cartography without the map Mueller, Shawn

#### **T4.2 Boomtown Geographies**

**Chair: Paul Plummer**

**Room: Escalus**

Unpredictable influx and other challenges of being an In-school

Settlement Practitioner in Fort McMurray, AB

Major, Claire

Dawson City, Yukon: A geography of (colonial) public memory Cooke, Lisa

House rich, food poor, boom town: Rescaling social reproduction in Fort

McMurray, Alberta

Major, Claire

Socio-economic Wellbeing in Small Western Australian Resource Towns:

An Empirical Analysis

Plummer, Paul

Community Perceptions of the Economic Future of Sparwood, BC

Chapman, Rachel

#### **T4.3 Natural Resources and Economic Strategy**

**Chair: Wayne Caldwell**

**Room: ES 908**

Canadian Entrepreneurship and Regional Culture: A Bourdieusian

Perspective

Spigel, Ben

Political Economy of Industrial Restructuring: A Historico-geographical

Analysis of the Coir Industry in Kerala, India

Bordoloi, Sudarshana

Lot creation in the agricultural landscape from 1990-2009: Lessons for local and provincial policy from Ontario

Caldwell, Wayne

Planning for agricultural lands in BC: A review of recent planning efforts Connell, David

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#### **T4.4 Adaptation, Vulnerability, and Climate Change in Northern**

## **Indigenous Communities (Special Session)**

**Chair: Andra Syvanen**

**Room: Ariel**

Comparing the local level climate change adaptation strategies in Europe and Canada

Rahaman, Khan

Modelling climate change impacts and adaptation strategies for winter tourism in the Pyrenees region

Pons, Marc

Community-based Vulnerability Assessment of Rural Communities in Southern Saskatchewan

Luk, Ka Yan

Wemindji Cree Observations and Interpretations of Climate Change:

Assessing Vulnerability and Adaptability in the Sub-Arctic

Syvanen, Andra

**T4.5 CAG Workshop: From ‘Revise and Resubmit’ to ‘Your MS has been accepted’ Part 2.**

**Workshop Organizer: Ian MacLachlan (Editor, Canadian Geographer)**

**Panellists: David Edgington, Roger Hayter & Nadine Schuurman**

**Room: Bianca**

**T4.6 Modern Cities and Conflict**

**Chair: Scott Bennett**

**Room: ES 920**

Environmental condition and pedestrian accidents in Ontario Rahaman, Khan

Using the risk of bicycle-motor vehicle collisions for bicycle commuters to develop a bicycle route safety rating model

Bennet, Scott

The Role Of Place Promotion And Urban Image In Cities’ Development

And Marketing Of Rapid Mass Transit (Rmt) Systems

McLellan, Andrew

The neoliberalization of the urban built environment in Kelowna, BC Marten, Tina

**T4.7 Urbanization, Environmental Health and Development Challenges in Africa – Part II (Special Session)**

**Chair: Godwin Arku**

**Room: ES342**

Household Food Acquisition Strategies in Accra, Ghana. Aguda, Nathaniel

Migrant Farmers in Ghana and Challenges to meeting Food Remittance Obligations

Kuuire, Vincent

Zubedaar

Gendered Strategies among Northern Migrants in Accra: A Case Study of Madina

Zaami, Mariama

Does HIV/AIDS affect sustainable resource management? case studies of artisanal fisheries on Lake Victoria, Kenya

Spaling, Harry

Orphan status and sexual risk-taking among adolescents in northern  
Malawi  
Mkandawire, Paul  
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# Program / programme

## Friday June 3 / Vendredi 3 juin

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### Friday June / Vendredi 3 Juin

08:00 - 14:00 Registration / Inscription Hotel Alma  
08:00 - 13:00 Calgary Urban Growth Change and Conflict Field Trip  
09:00 - 10:30 Paper Session F1 / Séance générale F1  
F1.1 Methods 2 - Spatial Analysis Guilderstern  
F1.2 Disasters: Risk Assessment and Capacity ES 920  
F1.3 Placemaking through (Sub) Urban Cultural Interventions Ariel  
F1.4 Challenging Environmental Management and Governance Escalus  
F1.5 Tourism and Recreation Landscapes Bianca  
F1.6 Adoption & Use of Volunteered Geographic Information in Governance ES 908  
10:30 - 11:00 Coffee Break / pause-café  
11:00 - 12:30 Paper Session F2 / Séance générale F2  
F2.1 Arctic Cryosphere Monitoring Guilderstern  
F2.2 Contested Epistemologies of Risk: Implications for Equitable  
Decision-Making and Governance ES 920  
F2.3 Landscapes and Territories: Placemaking and Identity Ariel  
F2.4 Alberta Oil Sands, Discourse and Media OilLiteracy (2009) Escalus  
F2.5 Geographies of Farming and Food Bianca  
F2.6 Adoption & Use of Volunteered Geographic Information in Governance ES 908  
12:00 - 13:30 CCA Executive Meeting ES 332  
12:30 - 13:30 NSTP Lecture ICT 121  
13:30 - 16:30 CAG AGM ES 162  
18:00 - 21:45 Nose Hill Field Trip  
19:00 - 21:30 Student Night

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### Friday June 3 / Vendredi 3 Juin

#### 09:00 -10:30 Paper Session F1 / Séance générale F1

##### F1.1 Methods 2 – Spatial Analysis (Special Session)

**Chair: Dr. Steven Roberts**

**Room: Guilderstern**

Shape metrics for analysing landscape feature boundaries Roberts, Steven

The dasymetric method for mapping population Siemer, Julia

Statistical geo-computing: spatial outlier detection in precision agriculture Chu Su, Peter

Evaluating ecologically constrained spatial weights matrices in hotspot  
analysis

Robertson, Colin

## **F1.2 Disasters: Risk Assessment and Capacity**

**Chair: Ivan Townshend**

**Room: ES 920**

Perceived Resiliency and Community Cohesion in Wildfire Communities Townshend, Ivan  
Disaster Risk Based on the Informal Settlements in Iranian Cities Gharakhlou, Mehdi  
Potential hazard warning responses by on-campus university students McGee, Tara  
Community capacity and vulnerability, example Kobe earthquake Japan Yasui, Etsuko  
Measuring And Evaluating Perceptions Of Vulnerability To Earthquakes In  
The Capital Regional District, British Columbia Canada

Stoner, Sarah

## **F1.3 Placemaking through (Sub) Urban Cultural Interventions (Special Session)**

**Chair: Alison Bain**

**Room: Ariel**

Festive Fogs the Spectacle(s): Urban Campus Culture and the U Clown  
Collective

McLean, Dylann

The creative art of place complexity in suburbia Bain, Alison

Cecil Hotel, Calgary Jonsson, Tomas

Don Blanche: Resisting Competitive culture Planning Trends McLean, Heather

“They just get together and hang out.” First Nations appropriation of  
urban space in Saskatoon, Saskatchewan, Canada.

Peters, Evelyn

## **F1.4 Challenging Environmental Management and Governance**

**Chair: John Sinclair**

**Room: Escalus**

Contextualizing fisheries rebuilding as wicked problems: A fish chain  
analysis of Northern Gulf cod rebuilding options

Khan, Ahmed

Provision of Ecosystem Services: Landowners’ acceptance of marketbased  
instruments

Howard, Kyle

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Certifying the status quo: Investigating the role of FSC certification in the  
management of Ontario’s forest resources.

Hackett, Ryan

Mediation in Environmental Assessment in Canada: Unfulfilled Promise? Sinclair, John

Territorial jurisdiction in rural regions: Informal inclusion and formal  
exclusion in resource development

Heisler, Karen

## **F1.5 Tourism and Recreation Landscapes (Special Session)**

**Chair: Barbara McNicol**

**Room: Bianca**

Recreation Landscapes in Canmore: Permanent and Non permanent  
Attribute Preferences

McNicol, Barb

Producing Imperial Wilderness: Resources and Recreation on Vancouver, BC's North Shore

Rossiter, Dave

Bagging Peaks and Busting Trails: Place-Making in the Canadian Rockies Harding, Lauren

Last chance tourism? Public Sector Views of Marketing Endangered

Tourism Destinations in North America

Olsen, Dan

'Stomp': The Ecological Footprint of Travel for a Competitive Girls Sports Team

Crumplin, William

Fishing for improvement: recent changes in, and future chances for, sport fishing in the British Virgin Islands

Malcolm, Christopher

### **F1.6 Adoption and Use of Volunteered Geographic Information in Governance (Special Session)**

**Chair: Peter A. Johnson**

**Room: ES908**

Processing food issues: Exploring how the Geoweb can support understanding and stimulate discussion in the Central Okanagan

Corbett, Jon

What motivates governments to collect and use VGI?: Evidence from rural development in Quebec, Canada

Johnson, Peter

Building Bridges to the Future: Citizen Science at Banff National Park – A Focus on volunteer motivations and youth engagement

Puckett, Nicole

### **11:00 – 12:30 Paper Session F2 / Séance générale F2**

**Room: Guilderstern**

#### **F2.1 Arctic Cryosphere Monitoring**

**Chair: Dr. Roger Wheate**

Estimation of Arctic tundra biophysical variables from IKONOS multispectral data

Atkinson, David

The use of non-conventional photogrammetric techniques for glacier studies

Whitehead, Ken

Mapping glacier retreat in the western Cordillera Wheate, Roger

Sea ice in the Canadian Arctic: A Review and Update Yackel, John

Modelling glacier response to climate warming in the Canadian Rockies Marshall, Shawn

#### **F2.2 Contested Epistemologies of Risk: Implications for Equitable Decision-Making and Governance (Special Session)**

**Chairs: Sara Edge and Christianne Stephens**

**Room: ES 920**

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Where everyone is, sort of, 'me and mine': Scaling up discourses of risk for health equity intervention in the urban environment

Masuda, Jeff



Knowledge, Power & Legitimacy in the Governance of Environmental Health Risks: A Comparison of Epistemic & Place-Based Engagement

Edge, Sara and

Christianne Stephens

A Risk to Other People's Kids: Environment and Health Risk Perceptions among New Mothers

Crighton, Eric

"When Death Hides in a Snack Bowl": Attribution of food allergy messages to sources in the Canadian media.

Harrington, Dan

### **F2.3 Landscapes and Territories: Placemaking and Identity**

#### **Chair: Reuben Rose-Redwood**

#### **Room: Ariel**

The Making of the 'Salish Sea' Rose-Redwood,

Reuben

Rethinking the structure of the subjective experience of place Simandan, Dragos

QuelleLes représentations territoriales des Québécois francophones et anglophones

Breux, Sandra

Connecting Canada and Brazil McCalla, Robert

Protecting and Conserving Land in Canada: Reproducing Canada's identity as a non-urban nation in land trust creation

Aslam, Farrah Chanda

Polish and Ukrainian Cemeteries in Manitoba as Markers of Identity and Assimilation.

Lehr, John

### **F2.4 Alberta Oil Sands, Discourse and Media**

#### **OilLiteracy (2009) Environmental/Political**

Documentary about the Canadian Oil/Tar Sands

#### **Conference Special Screening and Panel discussion**

#### **Chair: Conny Davidsen**

#### **Panelists: Gwendolyn Blue, Randolph Haluza Delay, Ann-Lise Norman**

#### **Room: Escalus**

### **F2.5 Geographies of Farming and Food Room: Bianca**

Vineyards and Geography: A Spatial Connection Jollineau, Marilyne

Social support for Cuban small farmers Willott, Lisa

The Problems of Scale in Local Food Systems: Lessons from local beef groups in Ontario and Ireland

Mount, Phil

Global Meat Consumption Trends and Western Australia's Livestock Export Trade

MacLachlan, Ian

Mapping the Flow of Craft Beer in Southern Ontario Robertson, Julie

La culture du coton en Iran et son rôle dans l'économie nationale Yazdani, Lotfollah

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### **F2.6 Adoption and Use of Volunteered Geographic Information in**

## **Governance (Special Session)**

**Chair: Peter A. Johnson**

**Room: ES 908**

Opportunities and Barriers to VGI Use in Community Planning Cowan, Terri

Methods for the Evaluation of Geovisualization Techniques to Explore

Volunteered Geographic Information (VGI)

Deparday, Vivien

Planning for flood 'Catastrophe': PPGIS as a tool for preparing communities for climate change in SE New Brunswick

Lieske, David

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# **Program / programme**

## **Saturday June 4 / Samedi 4 juin**

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### **Saturday June 4 / Samedi 4 Juin**

09:00 - 18:00 (Sunday) - Two Day Field Trip - Banff/Waterton Head Smashed In/Frank Slide

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# **Abstracts / les résumés**

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Presenter: Yesuf Abdela

### **Poverty and Livelihood Strategies of Households in Urban Ethiopia: A Case Study in Mekelle City, Northern Ethiopia**

By Yesuf Abdela

This work addresses issues of urban poverty and livelihood strategies of households in Mekelle City, Tigray, Ethiopia, by focusing on income and housing situations of households. It also looks at various strategies households employ to cope with poverty mainly the role of social capital- in its form of family relations, neighbourhood reciprocity and traditional self-help organizations. Household survey, interviews and focus group discussions were employed to gather information and were analysed using a mix of quantitative and qualitative analysis.

The result of the study shows that poverty is intense among women headed households, casual workers, self-employed and unemployed household heads. Poor households tend to live in the central old part of the city where many of the "informal" activities are performed. It also shows poverty and urban labour market are clearly associated as earnings from labour market are the main source of income for about 73 % of the surveyed households. This indicates the ability to earn income is important determinant of poverty. In turn housing ownership, level of education and social capital are found to be assets that enable or disable households to earn income and secure their livelihood.

### **Session T3.7**

Presenter: Sadia Afrin

### **IWRM in Canada: A Journey towards Sustainability**

By Sadia Afrin, University of Waterloo

The concept of IWRM is very popular in Canada even though no operational model exists. The study investigated IWRM's key challenges in Canada and also explored its current state of progress at the implementation level. The study followed the case study approach based on a literature review and

secondary data collection. It discussed three Canadian IWRM initiatives: i) Ontario Conservation Authorities, ii) Fraser Basin Council, and iii) Prairie Provinces water Board. The results identified that water pollutions, water scarcities, conflicting water demands, weak coordinations among multistakeholders, complex institutional settings, jurisdictional overlaps, and knowledge gaps were the key challenges for implementing IWRM in the country. The case studies translated one or more IWRM's principles into practices. They also successfully faced some IWRM's key challenges at the local and provincial level. However, Canada's national level progress is slow in IWRM due to non-existence of a vision. Finally, the study recommended some policy measures to strengthen IWRM's implementation in the country.

### **Session W1.3**

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Presenter: Nathaniel Aguda

#### **Household Food Acquisition Strategies in Accra, Ghana**

By Nathaniel Aguda, African Public Policy Research Centre

This paper discusses food sources and consumption patterns for households in various neighbourhoods in Accra, Ghana. It examines how households are altering their food acquisition patterns in response to structural changes within the city. Data was gathered through customer surveys in three markets and household surveys in six neighbourhoods across the city. The paper describes the relative importance of different sources of food to the city's households and examines the reliability of food markets and other sources of food. The household surveys paint a picture of how households engage with food markets and other food outlets in the city, and depict what is happening to the central role of food markets in household food provisioning in the city. These observations deepen our understanding of the broad patterns of food acquisition on the bases of the type of food purchased, and where this food is purchased. They also enable us to draw linkages between the changes occurring within the city and household food acquisition strategies and consumption patterns. The paper concludes with a discussion on some emerging trends in food acquisition across the city's neighbourhoods and their implications for access to food and food consumption.

### **Session T4.7**

Presenter: Marshia Akbar

#### **Learning from Bangladeshi Women's Labour Market Integration Experiences in Toronto, Canada**

By Marshia Akbar, York University

Immigrant women, who are members of a visible minority group, are disadvantaged in the Canadian labour market. Considering the situation of visible minority women in a position of relative powerlessness, the notion of empowering them to gain access to appropriate forms of employment has been highlighted in the current literature. Drawing on theoretical perspectives of women's empowerment, this study investigates the labour market integration of Bangladeshi married women in Toronto. Insights from poststructuralist feminism and feminist qualitative methods have enabled this study to explore how Bangladeshi married women, who are family and dependent class immigrants, are trying to make a place in the Canadian labour market. The inquiries of the study are explored through three types of qualitative research methods consisting of focus group discussions with Bangladeshi Married women, participant observation in a Community Based Organization (CBO) and in-depth interviews with three CBO workers. The study critically analyzes the notion of women's empowerment, and sheds light on how the empowerment process takes shape in the practical context through the influence of women's different positionalities, micro level socio-cultural factors and macro level policies.

### **Session T1.3**

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Presenter: Shelley Alexander

### **Portrayal of Coyote-Human Interactions in the Canadian Media**

By Shelley Alexander, Michael Quinn, University of Calgary

The coyote (*Canis latrans*) is a highly adaptable carnivore that can live in densely populated urban areas. When urban coyotes are habituated this can lead to conflict with people. A highly charged discourse about coyotes often plays out in the media, and provides a rich source of data for characterizing conflict events (e.g. where, when, how, why), human perceptions, management responses, and pathways to coexistence. We conducted a content analysis of 453 primary print media articles (1995 -2010) that documented coyote interactions with people and pets in Canadian cities. We identified the types (i.e., coyote versus human or pet) and possible causes of attacks, summarized wounds received by pets and humans, examined breed-specific susceptibility of dogs to coyote predation or attack, identified primary emotional experiences of people, and characterized management responses (e.g. the cull of 71,000 coyotes in Saskatchewan, 2010). We briefly explored two events that have become pivotal in defining human-coyote relationships in Canada: the death by coyote mauling of a woman hiking in Cape Breton National Park, October 2009, and; the social movement that arose after the first recorded naming of a “problem” coyote, Neville, near Toronto, Ontario.

### **Session W2.5**

Presenter: Penelopi Alexandrou

### **Greek Canadian Legacy: Social and Economic Development and Cultural Continuity of Female**

#### **Members of The Halifax Greek Community**

By Penelopi Alexandrou, Kingston University, London

“Women, who...despite their “contributions and legacy” as emigrants...received very little attention from those interested in the history of immigration and settlement (LeJeune, 2003).”

The Greek female migrants of the Greek community of Halifax serve as a case study to examine experiences of new Canadians from a female perspective that had in the past been represented by the male migrant (Bondi, 1992; Ackers, 1998). In depth interviews of personal histories combined with archival data guide us through their journey that led them to Canada and the various roles they assumed when they settled into their new community as Greek but also as Canadian women with focus on the development of their social networks, their economic development and the issues and responsibilities of cultural continuity.

This study differentiates itself by focusing on histories previously neglected of a smaller yet present ethnic community, in a smaller urban centre with different dynamics to those of larger preferred migrant destinations of Canada.

References:

Le Jeune, F. (2003), *Legacy and Contribution to Canada of European Female Emigrants (11-28)*. Bern, Switzerland: Peter Lang.

See, Bondi, L. (1992). *Gender and Dichotomy*. *Progress in Human Geography* , 98-104; Ackers, L. (1998). *Shifting Spaces*. Bristol: The Policy Press

### **Session W4.2**

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Presenter: Katayoon Alizadeh,

### **The Role of Historic-Religious Monuments in the Future Economy of Mashhad City**

By Katayoon Alizadeh, Islamic Azad University of Mashhad, Iran

Mashhad as the largest city in eastern part of Iran with the population of 2.5 million, due to its historicreligious

monuments, it annually hosts 20 million visitors from which it gains a considerable income. An income which plays an important role in the economic livelihood of the city.

This paper attempts to analysis the role of these monuments in the decision making of urban management. The study on the decisions, taken in this respect, shows that the maximization of economic advantage from the historic-religious tourism activities demands an integrated urban management and joined decision of all managers in different parts of the city. Accordingly the aspects which require more attentions are as follows:

- considering the tourism master plan in the city's master and detail plans
- planning for the provision of required infrastructure
- compiling particular regulation for the historical and religious urban textures as cultural heritage for the promotion of city's future economy
- Transferring the management of performance and utilization of recreational spaces to private sector
- Increasing supervision on services institutes

Key words: Historic-religious monuments- religious tourism- future economy of Mashhad

### **Session W2.2**

Presenter: Hussein A. Amery

#### **Water Security**

By Hussein A. Amery, Colorado School of Mines

This paper investigates the national security of the Arab Gulf states' growing dependence on the water from desalination plants. Conceptually, the research is guided by human security and interdependence, and views security as a complex, multi-dimensional process.

Desalination plants are geographically concentrated, growing in physical size and capacity, and their infrastructure which takes the form of pumps and pipelines, is becoming spatially extensive. In addition to this, there is a ruling class that is unelected, a native population base that is globally connected and well-informed, and a massive reliance of guest workers, a small portion of whom are treated poorly. In some countries, you also have social tension and distrust that run along sectarian or ethnic lines. As a consequence, these countries have been increasing their dependence on vulnerable structures and related infrastructure which can be deliberately sabotaged, destabilized by natural hazards, compromised by catastrophic oil spill, or from release of radioactive materials from Bushehr, Iran's nuclear facility on the Gulf. This paper will offer policy recommendations as to how to mitigate these consequences.

### **Session W1.4**

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Presenter: Ofer Amram

#### **Modeling Patient Evacuation Flow during a Mass Casualty: A Decision Making Model Using GIS**

By Ofer Amram, Nadine Schuurman, Simon Fraser University

The survival or recovery of persons critically injured in incidents involving mass casualties is directly related to their access to timely and appropriate treatment. The pre-hospital stage of an MCI is typically chaotic, characterized by dynamic changes and severe time constraints. In addition, the capacity to care for critically injured patients is directly correlated to the flow of patients into a particular hospital. The management of mass casualty evacuation priorities has been underexplored from a spatial perspective. This model uses a web-based GIS to support the evacuation of critically injured patients. Incorporating real time information concerning hospital driving times and capacity in addition to injury type and severity, this model assists front line decision makers in determining the facility to which each patient should be evacuated.

#### **Methods and Data**

This web based SDSS uses pre calculated driving times to provide estimates of the driving time to each hospital within the metro Vancouver region of British Columbia. In calculating and displaying its results, the model incorporates both road network and hospital data (e.g. capacity, treatment specialties, etc.).

The model also enables hospital personal to update hospital capacity dynamically, as is required within an MCI situation.

### **Conclusions**

The use of SDSS in the prioritization of MCI evacuation decision making has been successful. Key to this success is the utilization of pre-calculated driving times from each hospital in the region to each point on the road network.

### **Session W4.7**

Presenter: Richard Anderson

### **The Fury of the Blast: an Exploration of the Historical Geography of Toronto's Urban Wind Canyons**

By Richard Anderson, York University

Wind is a basic aspect of the urban environment. A part of the taken-for-granted outdoor vernacular of the urban inhabitant. So vernacular, perhaps, that historical scholarship has ignored it. It seems to be a force of nature. Yet as Barthes reminds us, natures have histories. Wind has complex if seldom explored relations with urban history. It shaped the city's seasons, its landscapes, politics and culture. It played a role in urban commerce, filling the sails of its schooners. It played a role in urban health, filling its cemeteries. Cities also modify winds, and to some extent create them. Toronto's urban canyon system began to exert its effect deep in the Nineteenth Century, and reached the basic threshold of pedestrian deadliness by 1910. Since then its artificial gales and manufactured whirlwinds have spread to new areas and increased in severity.

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For more than a century deadly pedestrian wind conditions have been permitted with almost no attempt to manage them. Prime elements of urban public space, such as Nathan Philips Square have been rendered dysfunctional by the unmanaged hazard of urban wind. It is time that the wind environment of the Canadian city was rescued from scholarly and policy neglect.

### **Session T2.6**

Presenter: Yikalo Araya

### **Estimating the Parameters that Govern the Existence of Residual Vegetation Patches within a Fire**

#### **Disturbed Boreal Landscape**

By Yikalo Araya, Tarmo K. Rimmel, York University

Wildfires are frequent boreal forest disturbances in Ontario and emulating them with forest harvesting has emerged as a common forest management goal. Wildfires typically leave a large number of unburned vegetated residual patches of various size and shape; understanding the characteristic features of these residuals is the primary requirement for effectively emulating forest disturbances. The existence of residual patches within a fire-disturbed landscape, at a spatial resolution of 8 m, is studied using the Random Forest algorithm to explore six variables that are believed to influence their occurrence: distance (from water, wetlands and fire footprint edge), topographic parameters (ruggedness index and slope), and land cover. This study focuses on eleven fire lighting-ignited events that occurred in Ontario's northern boreal forest and were never suppressed, thus providing insight to the natural disturbance regime in the area. We assess the importance of the characterizing variables and measure the probability of residual occurrence within the 11 fire events. The results indicate that distances from fire footprint edge and wetlands are the most important variables that determine the formation of residuals. The probability of occurrence of unburned residuals increases with an increased in distance from the fire footprint edge. The residual occurrence also tends to be high in areas in proximity to wetlands. Topographic variables are found to be the least important variables but where the probability of residual occurrence generally increases with slope.

### **Session W4.6**

Presenter: Godwin Arku

### **An Assessment of Residents' Housing Satisfaction and Coping in Accra, Ghana**

By Godwin Arku, University of Western Ontario

The paper explores housing satisfaction and residents' ability to cope with day-to-day demands, taking into account other dimensions of housing and socio-demographic factors. A cross sectional survey (n=562) was randomly administered to residents in three neighbourhoods (Labone, Asylum Down and Nima) in Accra, Ghana. The association between the outcome variables and housing attributes were analyzed using logistic regression. The findings indicate that housing satisfaction was significantly predicted by age, with older people more likely to be dissatisfied with their housing arrangement. Respondents were dissatisfied with housing arrangement if they lived in Nima (OR=2.75, p<.001), Asylum Down (OR=1.72, p<.01), crowded households (OR=1.158, p<.05), or in compound houses (OR=2.50, p<.001). In the context of housing attribute variables, respondent's ability to cope with day-to-day demands was significantly associated to their income level. Odour annoyance as an indicator of housing condition emerged as a strong predictor of respondent's inability to cope with daily demands with odds ratio ranging from 1.68 to 2.33. Those who were dissatisfied with the location of their home as a place to live also reported poor coping abilities (OR=1.86, p<.01). From the findings, government policy on housing should encourage the construction of more affordable housing units to ease the crowding situation in Accra. There is also a need for the Accra City Council to provide clearer guidelines for both tenants and landlord in response to increasing tenancy disputes in context.

#### **Session T3.7**

Presenter: David Atkinson

### **Estimation of Arctic Tundra Biophysical Variables from IKONOS Multispectral Data**

By David Atkinson, Paul Treitz, Ryerson University

Arctic tundra vegetation covers approximately six million square kilometers of the Earth's surface, is a major circumpolar ecosystem, and is an important consideration within the context of global climate change. The potential exists to predict carbon storage and flux patterns from remote sensing data. The following requirements first need to be addressed: (i) unique electromagnetic signatures need to exist and correspond to variations in biophysical variables; (ii) one or more models are needed to transform remotely sensed data into derivative values pertaining to the biophysical variables. This study explores the relationship between the normalized difference vegetation index (NDVI), percent vegetation cover, and above-ground biomass in two latitudinal disparate tundra environments. IKONOS multispectral data were collected for Cape Bounty, Melville Island, and the Lord Lindsay River watershed on the Boothia Peninsula, Nunavut. Each locations vegetation communities were sampled to confidently characterize the species composition, percent cover, above-ground biomass, and soil moisture. Over 880 biomass samples were collected. Preliminary results from plot level mean values show strong, significant linear relationships between transformed wet and dry biomass values with NDVI. At Cape Bounty  $r_2$  values of 0.91 and 0.60 were obtained, while the Boothia Peninsula site had  $r_2$  values of 0.78 and 0.86, each for wet and dry biomass respectively.

#### **Session F2.1**

Presenter: Skye Augustine

### **The 1000th Cut? Exploring the Relationship between Biodiversity Loss and Local Indigenous Rights**

By Skye Augustine, Phil Dearden, University of Victoria

Biodiversity is essential to the maintenance of life-supporting ecosystems yet global biodiversity loss continues as an unprecedented rate. Canada's national parks have been established to preserve biodiversity, and are managed with the prime mandate of ensuring ecological integrity. The goal of

biodiversity preservation can at times conflict with the traditional practices of local aboriginal peoples. Conservationists argue that traditional practices contribute to the decline of biodiversity through 'death by a thousand cuts'.

First Nations along the Northwest coast of North America have historically created clam gardens, building rock walls at the low tide line to extend the intertidal region and augment clam production. Clam garden sites now exist within Canadian National Parks, opening the possibility for the reintroduction of this practice. Current trends of aboriginal involvement in park management indicate that this could be a possibility yet clam gardens alter ecological processes and shift the natural state of the intertidal region. In this paper we ask: Are clam gardens another cut?

#### **Session T3.4**

Presenter: Jodi Axelson

#### **Multi-Century Reconstructions of Western Spruce Budworm Outbreaks and Climatic Variability in the Cariboo-Chilcotin Region of British Columbia**

By Jodi Axelson, Dan Smith, University of Victoria

Recent climate shifts are resulting in increased forest disturbance by fire, drought, insects, and disease. Future climate changes are expected to have strong direct and indirect effects on forest insect survival, development, reproduction, dispersal and geographic distribution. As temperature warms over the next century, insect outbreaks are expected to increase in severity, frequency and spatial distribution. In British Columbia, the western spruce budworm (*Choristoneura occidentalis*) is the most destructive defoliator of coniferous forests, and has a long-term coexistence with its primary host tree Douglas-fir (*Pseudotsuga menziesii* Franco). The influence of climate change on the spread and intensity of this lepidopteran pest is considerable, and recent outbreaks of western spruce budworm appear unprecedented in extent and duration. In the central interior of British Columbia the western spruce budworm has gradually expanded its range north and west into the Cariboo-Chilcotin region. This paper presents multi-century reconstructions of western spruce budworm outbreaks in this region, where the historical frequency, intensity and duration of budworm outbreaks will be constructed. The pervasive influence of climate and weather on outbreak dynamics will be discussed by presenting reconstructions of climatic variables such as temperature and precipitation. Long-term trends in climatic variability and western spruce budworm outbreaks will also be explored.

#### **Session W2.6**

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Presenter: Alison Bain

#### **The Creative Art of Place Complexity in Suburbia**

By Alison Bain, York University

This paper examines how the infrastructural constraints of undertaking cultural work in the ambiguous, in-between landscape of the Canadian suburbs has the potential to encourage innovation and collaboration amongst cultural workers and local residents. Based on interviews with cultural workers in the inner and the outer suburbs of Toronto and Vancouver, this paper directs particular attention to the establishment of informal, multi-purpose community service hubs in retrofitted storefronts, strip malls, and schools. These case studies of grassroots cultural interventions show how service hubs maintained often through voluntary reciprocity act as creativity incubators that productively recombine people and social groups to create new collaborative opportunities, spin-off activities, and unexpected synergies. In addition to possessing a gentle gravitational-like pull for suburban creatives, these unofficial service hubs add valuable layers of under-appreciated complexity to suburban places. The focus of this paper is on cultural service hubs as suburban creative mileux and the role of cultural workers as suburban place makers.

#### **Session F1.3**



Presenter: Navindra Baldeo

### **Access to Health Care Services in the Outer Suburbs of York Region: The Lived Experience of Immigrants from India with Diabetes**

By Navindra Baldeo, York University

This presentation will share findings from qualitative research used to capture the experiences of Indian immigrants with diabetes, and how they come to access health care services. The research focuses on the outer suburbs of York Region which has been under represented in health geography studies. The research design includes a descriptive data analysis based on information from Statistics Canada which describes settlement patterns in York Region. The primary methodological tool is in-depth interviews that involve 20 Indian immigrants above the age of 50 with diabetes. Diabetes is a growing problem here in Canada and is influenced by social and environmental factors. Immigrant subgroup perspectives provide valuable insights for alleviating barriers to receiving health care services. Many of the barriers experienced include challenges involving language, transportation, lack of information and cultural mismatch. This research will contribute to a growing number of studies in immigration and health, and will help to advance both immigration and public health agendas. It is hopeful that this study will help to inform policy recommendations and alight the many intersectionalities and contextual dimensions involved in accessing health care, especially amongst an increasingly diversifying Canadian population.

#### **Session W3.1**

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Presenter: Navindra Baldeo

### **Immigrant Neighbourhood Health**

By Navindra Baldeo, York University

Large-scale quantitative data from the National Population Health Survey (NPHS) show that immigrants arrive in Canada with an initial health advantage that deteriorates over time. The South Asian Indian immigrant subgroup experiences disproportionately high rates of chronic health conditions such as diabetes especially in outer Toronto suburbs, which has outpaced population growth of the inner city. Studies in the city of Toronto have produced an atlas of diabetes in northeastern and northwestern parts of the city, but there is a noticeable silence in the outer suburbs which are immigrant reception zones.

Qualitative in-depth interviews will be conducted with 20 Indian immigrants with diabetes in York Region to glean experiences in accessing health care services. In-depth interviews permit respondents to communicate their own understandings and meanings, and to raise and discuss issues they perceive as salient in accessing care when dealing with diabetes. The target group will be above the age of 50 and will include 10 male and 10 female participants.

The research may lead to more effective, inclusive and contextualized health care, and will help better understand how to implement diabetes intervention programs amongst immigrant subgroups that are increasingly contributing to a growing Canadian society.

#### **Session W2.1**

Presenter: Murray Ball

### **Scaling-up valued ecosystem components for watershed cumulative effects assessment**

By Murray Ball, B.F. Noble & M.G. Dube, University of Saskatchewan

The accumulating impacts from human development are threatening water quality and availability in the watersheds of Western Canada. While environmental impact assessment (EIA), is tasked with identifying such cumulative impacts, the practice is limited by a project-by-project approach. A regional framework for assessing aquatic cumulative effects within watershed boundaries is emerging outside of the practice of EIA. Watershed-based cumulative effects assessment (W-CEA) will need a standard set of ecosystem components for assessment across the watershed, but it is not clear how such valued

ecosystem components (VECs) should be identified. This study examined how aquatic VECs and indicators were used within project-based EIA in the South Saskatchewan River watershed and considered whether they could be scaled up for use in W-CEA. Results showed that indicators and VECs were used infrequently and inconsistently. Regulatory compliance was the dominant factor in aquatic VEC selection, followed by the varied preferences of different government agencies. The selection of VECs and indicators for aquatic assessment does not reflect the aquatic cumulative effect assessment priorities for the watershed. Project-based EIA requires guidance from a regional perspective in selecting VECs and indicators for aquatic cumulative effects assessment.

### **Session W2.3**

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Presenter: Abdullah BaMasoud

#### **Impacts of Ice-Free Winters on Shoreline Changes in Western Point Pelee**

By Abdullah BaMasoud, Mary-Louise Byrne, Wilfred Laurier University

The western shores of Point Pelee National Park (PPW) in Ontario exhibited high recession rates in the winter of 2006. In the past, the western side of the Park generally exhibited accretion, attributed to longer duration of ice coverage during winter and favorable topography and sedimentary conditions. Compared to 2004, there were minimum differences in Lake Erie water levels, winter storm frequencies and human-made structures in the relevant littoral cell of western Lake Erie. However, the winter of 2006 was very mild, resulting in ice-free conditions as seen from examining ice-cover concentration data for the period 2002-2007. The high recession rates in the shores of PPW are attributed to the ice-free conditions in the winter of 2006. Future climate change patterns are expected to result in more frequent ice-free winters, which will likely reverse the accretion trend in PPW shores that was observed in the past, resulting in net loss of the park's natural habitat.

### **Session W3.6**

Presenter: Caroline Barakat-Haddad

#### **Factors That Influence Physical Activity among School-aged Emirati Females**

By Caroline Barakat-Haddad, University of Toronto, Scarborough

Research from the United Arab Emirates (UAE) suggests that Emirati school-aged and post-secondary females have low levels of physical activity. This study investigates factors that influence physical activity among 128 female students who attend public schools in Dubai (UAE). Logistic regression modeling was undertaken to assess factors that predicted low levels of physical activity. Results indicate that 25% do not engage in any physical activity after school hours. Individual-level factors include time limitations (74%), body discomfort especially during the menstrual cycle (47%), feeling embarrassed from wearing sport attire (27%), discomfort or shyness from body perspiration (13%), feeling that physical activity has no personal benefits (13%), and lack of motivation (10%). Other factors include the hot UAE climate (61%), not always having parental support (42%), unpleasant experience of the physical education class during school (27%), lack of safe and private locations for engaging in physical activity (18%), and lack of encouragement from peers (13%). Participants who felt that physical activity has personal benefits were 8.14 times more likely to engage in physical activity after school hours (95% CI 1.62–40.94). Educational campaigns that enhance awareness about the benefits of physical exercise in the UAE culture are needed and can lead to ample health benefits for the UAE female population.

### **Session W2.1**

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Presenter: Naomi Bartz

#### **Politics and Revitalization in Vancouver's Downtown Eastside: Understanding Policy Implementation through Case Study Research**

By Naomi Bartz, University of Chicago/ University of British Columbia

The construction of mixed-income developments (MIDs) has taken hold across Canada, and other postindustrialized nations as an urban revitalization approach and strategy for improving the lives of low-income residents. The majority of research testing the policy goals of MIDs has generated analysis of outcomes culled from empirical data on so-called socially disorganized urban neighborhoods. However, there are places in which MIDs are being deployed as revitalization strategies that have existing and enduring political and social network structures. Empirical research should be expanded into cities, such as Vancouver, that promote an ideology of political pluralism. Investigation of neighborhoods with a history of successful political structures can bring new insight into the potential for existing community members to play a mediating role in shaping the reverberating outcomes of mega-projects such as MIDs. As this research pivots on an investigation into the process by which specific outcomes of mixed-income housing development in low-income areas occur, the case study approach is an excellent tool for inquiry. Further, 'deviant' cases provide the opportunity to offer more exacting and/or variant tests of the policy goals of MIDs. Case studies that investigate how specific variables mediate planning outcomes provide fertile ground for policy expansion and revision.

### **Session T1.6**

Presenter: Rishi Bastakoti

#### **Neoliberal Globalization and Global-Local Conflict in Community Forestry Institutions in Nepal**

By Rishi Bastakoti, Conny Davidsen, University of Calgary

Globalization and increasing neoliberalization of nature have changed the global-local dynamics and added multi-scale commons by augmenting the roles of forests for local goods to forests for global environmental services. Nepal has begun to prepare for new global funding opportunities for conservation embracing REDD (Reduced Emission through Deforestation and Degradation) as potential solution for mitigating climate change, halting deforestation and reducing rural poverty, and introduced a neoliberal forest policy reform. This national shift has added challenges to established community forestry institutions and posed threat to rights and well-being of communities by diminishing the local autonomy. This paper analyzes recent Nepalese forest policy lessons in two areas of conflict: First, the clash between emerging neoliberal privatization and the strong established culture of local collective governance. Second, the challenge of increasingly multi-scale governance between global environmental interests and local institutional development. Both areas of conflict have caused considerable pressures on community forestry institutions in Nepal. Problems emerge particularly from unresolved issues surrounding carbon ownership and conflicting interests between the state –bound by international commitments and local forest communities. The observed policy lessons raise conceptual questions about future research shifting away from Hardin's (19968) single-scale notions of commonpool resources to globalized multi-scale systems.

### **Session T2.7**

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Presenter: Darren Bender

#### **Habitat Identification for Spatially Dynamic Populations**

By Darren Bender, Julie Heinrichs, University of Calgary

The protection of wildlife and their habitats often necessitates the generation of maps of critical resources or essential habitats. Habitat mapping approaches based on empirical models of locations of wildlife observations (i.e. species occurrence models) are commonly used, but may be prone to errors of interpretation. We hypothesized that this would be especially true for wildlife that occupies habitats of heterogeneous quality, because the demographic response of wildlife occupying heterogeneous areas

should reflect local habitat quality. Further if the spatial distribution of the population is dynamic through time, an occupancy bias is likely to arise in regions of very high or very low habitat quality. We tested our prediction by comparing two techniques for habitat mapping the distribution of the Ord's kangaroo rat in Alberta, and compared the outcome to real field data collected on the species. The habitat map created using traditional occurrence-based mapping techniques yielded a very different expected distribution than the technique accounting for heterogeneous habitat quality. We examine the pitfalls of incorrectly interpreting occurrence-based maps within the context of critical habitat identification and species protection, and we offer an example of one approach to overcome these limitations.

#### **Session W4.6**

Presenter: Scott Bennet

#### **Using the Risk of Bicycle-Motor Vehicle Collisions for Bicycle Commuters to Develop A Bicycle Route Safety Rating Model**

By Scott Bennet, Niko Yiannakoulias, Darren M. Scott, McMaster University

With growing concerns over the rise in motorized vehicle use and its contribution to serious environmental, economic and public health problems, there has been a growing interest in the promotion of bicycles as an alternative form of transportation. Bicycle commuters identify safety as one of their highest priorities in selecting a route for their commute. This study develops a method for comparing the risk associated with different bicycle commuter routes by combining cyclist-motor vehicle collision data with bicycle commuter traffic data. Rates of bicycle collisions per commuter flow by bicycle are calculated for the street network of two Canadian cities: Hamilton, Ontario and Calgary, Alberta. Our findings are useful for transportation engineers and planners as a way to determine the location of safe bike routes, and evaluate the effectiveness of existing transportation infrastructure to support safe bike commuting. Our results also provide bicycle commuters with an empirical way for assessing the safety of their current and prospective commuting routes. For researchers, the methods developed in this paper are useful for measuring the equitability of access to safe bicycle commuting routes by commuters of different social classes and in different regions of a city.

#### **Session T4.6**

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Presenter: Warren Bernauer

#### **The Kiggavik Uranium Mine Proposal in Baker Lake, Nunavut: Barriers to Inuit Participation in the Consultation Process**

By Warren Bernauer, York University

The mostly Inuit community of Baker Lake, Nunavut has been faced with issues related to energy development since the late 1960s. Uranium exploration and proposals to build uranium mines have been particularly controversial issues in the community, due in part to fears over community health and a continued reliance upon the harvesting of wildlife. A recent proposal by Areva Resources Canada Inc. to mine uranium west of Baker Lake is currently undergoing an environmental review by the Nunavut Impact Review Board, and the community is being consulted accordingly. However, numerous local Inuit feel that they are unable to participate in the consultation process in any meaningful way. Drawing from oral interviews with local hunters and Elders, as well as my own experience working as a consultant for the Baker Lake Hunter's and Trapper's Organization, I will provide a brief social, historical, political and economic context for Areva's proposal and highlight the problems local Inuit are having with the consultation process.

#### **Session T2.2**

Presenter: Robert Bewer

## **Recreational Value of Irrigation Infrastructure**

By Robert Bewer, Wei Xu, Henning Bjomlund, University of Lethbridge

Alberta's irrigation infrastructure is serving increasing demands from multiple users as the population and economy grow. At the same time, water shortages are pressing with supplies becoming less predictable. Decisions about access and how much is received need to be made as the allocation system was created during a time when no water shortages loomed. Addressing the problem of allocation needs to be done now before shortages force drastic actions and unpredictable socioeconomic outcomes. This requires water managers to make choices between economic, social and environmental use of water. The work of changing the allocation system has begun with policies and directives that turn to the use of water markets which will provide insight into the economic value of water. There is far less knowledge about the social and environmental value of water. The objectives of this work are twofold. The first is to discover the value of reservoirs for recreation by identifying the recreational users and activities. The second is to establish the recreation value of the reservoir using the Travel Cost Method. The results of this work will assist policy makers and water managers in making informed decisions about water allocation and management rules of irrigation reservoirs that more clearly reflect social value of water for non-consumptive use.

### **Session W4.3**

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Presenter: Eric Binion

## **Informal Recycling In Buenos Aires: Perceptions of Health, Safety, and Risks (Working Paper)**

By Eric Binion, University of Victoria

Globally, millions of individuals subsist on the collecting, sorting, and selling of solid waste. Informal recycling is not only a source of employment and income, but also an insurmountable practice to recycling, environmental stewardship, and preserving resources. Evidently, the profession operates in the informal sector and is thus prone to job insecurity, stigmatization, physical danger, and emotional distress. The study details how informal recyclers perceive their health, safety, and risks. The research analyzes 21 semi-structured interviews with informal recyclers that occurred on three nights in three separate neighbourhoods of Buenos Aires in late November 2010. The semi-structured interviews delve into their perceptions of health and risks associated with collecting and sorting residential and commercial solid waste. The majority of the respondents reported pain or discomfort of some type, with the greater part mentioning lower back pain and cuts to their hands as being the most ubiquitous. Furthermore, over half the recyclers mention concerns of syringes as the most common perceived risks. Interview findings, secondary source literature, and 6-weeks of nightly observation support further research in perceived health and risks of informal recycling, a global push for applicable policy enforcement and government attention, public adherence to household waste separation, health and waste education for both the public and the recyclers, and occupational health training for the recyclers and the recycling cooperatives.

### **Poster Session A**

Presenter: David Birkigt

## **A Field Based Depth Correction Algorithm for Submerged Aquatic Vegetation Spectra**

By David Birkigt, Greg McDermid, Foothills Facility for Remote Sensing and GIScience, University of Calgary

To assess the abundance of primary producers in aquatic ecosystems, which is one element of assessing ecosystem health, aquatic managers are reliant on intensive and destructive sampling methods. Remote sensing has the potential to provide non-destructive and efficient sampling of aquatic biomass, however, the effects of the water column on spectral signatures must be corrected. This study seeks to apply a water column depth correction to submerged aquatic vegetation spectra collected in a reach of

the Bow River, Calgary Alberta. A white panel and a black panel were submerged at incremental depths from the water surface to the river bed. At each increment a spectroradiometer was used to record the spectral signature of the panels. The recorded spectra were used to model water column absorbance and reflectance, producing coefficients that describe the depth dependent spectral characteristics of the water column. These coefficients were used to correct submerged aquatic vegetation spectra for the effects of the water column, resulting in a significant signal clarification and an improvement in biomass estimates.

### **Session W2.7**

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Presenter: Andrew Blakey

#### **A Method to Quantify Feasible Roof Area for Green Technologies**

By Andrew Blakey, Robert Feick, University of Waterloo

Interest in “green” technologies such as PV panels, solar hot water heaters and green roofs has been encouraged recently in response to both government incentives and public concerns regarding climate change. In urban environments, rooftops are potentially the largest areas available for these green technologies. Many municipal governments have set up web-applications targeted at enabling citizens to investigate the potential to applying these technologies to specific buildings. In most cases, however, the applications rely on vertically extruded building footprints for topography, which leaves numerous assumptions for the user to define including roof slope, aspect, and total available area. This limits the usefulness of these tools since users must either have expert knowledge of the site in question or accept generalised assumptions.

This presentation outlines a method to quantify and visualise feasible areas for rooftop green technologies based on aerial Lidar data. The methodology is demonstrated in central Toronto, with particular attention given to identifying areas that could be feasible for solar panel and green roof installations. In addition to comparing the results from this analysis to traditional rule-based approximations, the presentation outlines some of the challenges and potential extensions associated with the approach.

### **Session W2.1**

Presenter: Gwendolyn Blue

#### **Public Engagement, Climate Change and the Limits of Scientized Politics**

By Gwendolyn Blue, University of Calgary

Efforts to engage lay citizens in discussions about climate policy often confront an intractable dilemma in the relationship between scientific facts and political values. A common normative assumption is that science should provide the unquestioned foundation from which political negotiations emerge. Using World Wide Views on Global Warming (WWViews) as a case study, this paper explores the limitations of relying on predominant scientific framing of climate change for public engagement initiatives. The first citizen deliberation on climate policy held on a global scale, WWViews provides a site for theorizing trans-national democratic practices. Climate science played an instrumental role in setting the agenda for WWViews, resulting in the tendency for participants to focus discussions on narrow technical matters rather than more contentious social, regional and ethical differences. My intent is not to downplay the relevance of climate science, but to highlight the need to reflect on the difficulties of distinguishing strictly scientific matters from the value-laden concerns debated by the public. The manner by which fact / value distinctions are negotiated in practical settings has bearing on the wielding of voice in public debates as well as the types of knowledge that might in turn inform environmental policy.

### **Session W3.5**

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Presenter: Claudette Bois

## **Testimonio: A Tool for Documenting the Lived Realities of Mining-Affected Maya Q'eqchi' Communities in El Estor, Guatemala**

By Claudette Bois, Catherine Nolin, University of Northern British Columbia

The ancestral lands of several Maya Q'eqchi' communities located in the Department of Izabal in northeastern Guatemala are part of Canadian-owned HudBay Minerals Inc.'s nickel mining concession. As a result, the communities live with the violence, threats, and insecurity that accompany nickel mining exploration and exploitation on their lands. Through centuries of use throughout Latin America, testimonio evolved as a fundamental tool to capture critical problems and situations of marginalized sectors. Testimonio represents in Guatemala the detailed telling of a community's collective memory of events or experiences of oppression and/or exploitation. Researcher solidarity is an essential characteristic of testimonio along with a commitment to conduct research that is aimed at raising social awareness and creating social change.

Preliminary research conducted over the summers of 2008 and 2010 employed testimonio to document the forced and violent evictions experienced by the Maya Q'eqchi' communities of Loté Ocho, Loté Nueve, La Paz, and La Unión between October 2006 to January 2007. The power of the recorded testimonios is demonstrated through our formal human rights violation complaint submitted to the Canadian Government and two lawsuits filed against Canadian companies HudBay Minerals Inc. and HMI Nickel.

Ongoing research will use testimonio to document Maya Q'eqchi' connections to their ancestral lands, Maya Q'eqchi' perceptions of mining development, and Maya Q'eqchi' perceptions of mining as it affects their connections to their ancestral lands.

### **Poster Session A**

Presenter: Sudarshana Bordoloi

## **Political Economy of Industrial Restructuring: A Historico-Geographical Analysis of the Coir Industry in Kerala, India**

By Sudarshana Bordoloi, York University

Contemporary literature within economic geography is concerned on how industrial locations are sociospatially

organized in the current era of neoliberal globalization. While most of this literature tends to examine- albeit a 'top-down' approach- how external forces like global economic trends and the changing nature of global capital-class relations are influential in shaping the economic geography of production across the globe; few have actually focused on the specificities of internal 'socio-spatialtemporal'

dynamics that have been equally instrumental in determining the local geography of production often at par with the needs of global capital but with implications for local capital-class relations. The current research is based on recent field work on the coir industry-a form of traditional industry in the state of Kerala in southern India-which has been linked to the global market since the pre-colonial era. This paper aims to examine through a historical materialist perspective how spatial restructuring and the geography of economic processes are determined by place based social relations

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and forces of production. The argument here is that an understanding of the geography of production must take into account the 'dialectical' relation between local structures and global forces as a two way process, each influencing the other simultaneously.

### **Session T4.3**

Presenter: Kurt Borth

## **Investigation of Household Energy Attitudes and Decision Making Within Three Neighbourhood**

## **Contexts**

By Kurt Borth, Robert Summers, University of Alberta

Household energy consumption per capita has continued to rise despite increased global environmental awareness, major improvements regarding the efficiency of homes, appliances, and vehicles, and efforts to both inform and motivate consumers to conserve energy. Research into explaining this gap between environmental attitude and behavior has found that household decisions concerning energy use are inherently complex, sometimes based on widespread consumer misperception and involve diverse social and economic factors. This project's focus is the investigation of the household's attitudes toward energy use and the examination of the relationship between residential context, energy use decisionmaking

and the justification of the attitude-behavior gap. This research uses case studies to compare three geographically diverse neighbourhoods in Edmonton (inner-urban, suburban and commuter) and utilizes semi-structured interviews to investigate the relationships between residential context and household energy use. The level to which households actively engage in energy use decision making or to which it is a passive endeavour influenced by heuristics and hierarchy is also investigated. Initial results show the structural and socio-geographic residential context of each neighbourhood may affect energy use decision making and reconciliation with expressed environmental concern differently. These differences may possibly be related to the inherent structural makeup of each neighbourhood.

## **Poster Session A**

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Presenter: Cathryn Brandon

### **Spatial Exploratory Analysis of Oil Spill Volumes in Canada's Pacific Region**

By Cathryn Brandon, Norma Serra-Sogas, Rosaline Canessa, Trisalyn Nelwon, Charles Burnett, University of Victoria CORAL Lab

Chronic oil pollution from marine vessel discharges has been shown to be a greater ecological threat than large discrete catastrophic spills. Currently in Canada, oil spills are monitored and detected by the National Aerial Surveillance Program (NASP) which collects data on oil spill location, volume, and source. Identifying patterns of small illicit oil discharges in Canada's Pacific waters by marine vessels allows the generation of hypotheses about oil spill distributions. The objective of this research is to determine if the estimated oil volume is clustered by spill location. Two exploratory spatial data analyses were applied to oil spill data: Ripley's k-function to test for the presence of clustering, and kernel density estimation to visualize oil spill intensities based on volume and location.

## **Poster Session B**

Presenter: Sandra Breux

### **QuelleLes représentations territoriales des Québécois francophones et Anglophones**

By Sandra Breux, Université de Montréal

Quelles représentations les Québécois francophones et les Québécois anglophones ont-ils aujourd'hui de leur pays et de leur province ? Leurs représentations divergent-elles en fonction de la communauté linguistique à laquelle ils appartiennent ? Dans quelle mesure ces représentations territoriales façonnent-elles l'identité contemporaine des Québécois ?

Poser de telles questions invitent à sonder l'imaginaire territorial des Québécois afin notamment de comprendre l'influence de cet imaginaire sur la construction des identités tant collectives qu'individuelles. À partir de l'analyse de quelques 2 000 lettres publiées dans le courrier des lecteurs des journaux Le Devoir et The Gazette, entre le 1er janvier et le 30 juin 2009, nous serons en mesure d'identifier les références territoriales qui reviennent le plus fréquemment dans le discours de ces auteurs – quel que soit le sujet d'actualité abordé – et les thèmes auxquels ces territoires sont rattachés. L'analyse de notre corpus se base à la fois tant sur une analyse quantitative que qualitative des propos des auteurs et s'inspire des travaux menés par Gilbert dans les années 1980. Nous montrerons ainsi que



les propos étudiés témoigne d'une identité québécoise en transition, qui peine à sortir des schèmes traditionnels et demeure parfois peu en phase avec la société québécoise contemporaine.

### **Session F2.3**

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Presenter: Typhenn Brichieri-Colombi

#### **Use of Citizen Science to Examine Wildlife Distribution along a Mexican Highway**

By Typhenn Brichieri-Colombi, University of Calgary

The Balam-Ku Reserve and Calakmul Biosphere, located in the Yucatan Peninsula, Mexico, are part of the largest continuous stretch of tropical forest in the Americas after the Amazon. Highway 186 traverses the Calakmul region and divides the reserves; from 2007-2010, it was widened from a six meter-wide road to 12 meters, with fencing on either side. One of the major impacts of roads is wildlifevehicle

collisions, which not only have direct effects on wildlife populations but also large impacts human economics and safety. We used citizen science, collected through semi-directive interviews and community mapping, to examine the effects of the highway on wildlife distribution. Specifically, we addressed 1) where wildlife are crossing the highway over time; 2) how communities in the Calakmul region perceive wildlife and highway effects on wildlife; and 3) differences in wildlife distribution along the highway using interview or community mapping to collect wildlife sighting information. We produced maps of 'crossing hotspot' locations along the highway illustrating the change in location of these hotspots from 2008-2010. These maps, in addition to an understanding of community perceptions of wildlife, can be used to inform highway mitigation and wildlife management strategies while incorporating cultural values.

### **Session W1.7**

Presenter: Denise Fay Brown

#### **Interpreting the Maya House: Notes on Contemporary Maya Domestic Architecture**

Denise Brown, University of Calgary

Building a house involves choices and decisions in which are embedded culturally-determined codes and criteria. This paper explores two predominant styles of contemporary Yucatec Maya houses introducing some local design principles that have been seldom discussed in the literature. It is argued that the placement of the building on the lot as well as the selection of building material are micro-geographic decisions influenced by environmental, aesthetic, and social as well as economic factors. Houses convey complex meanings, which should not be reduced to simple economic cost equations. Based on ethnographic fieldwork, this paper contributes to the understanding of the significance of Maya house structures by looking into some elements affecting the local decision-making process regarding selection of house construction type.

### **Session W1.2**

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Presenter: Charles Burnett

#### **Map-based DS Systems to Consultation Frameworks: BC Coastal First Nations go Web 2.0**

By Charles Burnett, Chris Benninger, Caty Brandon, Rosaline Canessa, Yvonne Coady, Jaimie Imrie, Aleja Orozco, University of Victoria

The Province of British Columbia and First Nations (FN) have recently signed consultation frameworks that describe engagement protocols between the two levels of government to guide discussions on land and marine use planning among other areas. The frameworks have prompted the development of mapbased

decision support systems for First Nations stewardship offices. Custom open-source Web 2.0 tools have been designed, built, and tested to support internal decision-making around land- and marine-use

and land ownership consultation (referrals) and are intended to improve overall First Nation governance capabilities. System testing and development is progressing. Several First Nations, Coast Opportunity Funds, and the University of Victoria's Geography and Computer Science Departments are working together to both document the state of the art and improve these systems. In this paper we describe the legal context of these innovative tools, and discuss systems design in terms of supporting improved decision-making on simple referrals and supporting strategic planning around more complex and comprehensive land- and marine-use planning processes. For examples we will demonstrate the webbased

and spatially-driven Community Information Systems (CIS), which has been cooperatively developed by three coastal Nations—Metlakatla, Gitga'at and Wuikinuxv. CIS was developed to respond to increasing referral requests for development applications and associated demands for project summaries, communication tracking, and rich reporting with spatial queries against large GI databases. We will also discuss the political steps that have been necessary for GI DS tool adoption, such as data and information sharing, FN and BC government capacity building, and institutional collaboration.

#### **Session T2.4**

Presenter: Wayne Caldwell

#### **How Can Lot Creation Statistics Be Used To Understand Changes in Ontario's Agricultural Landscapes?**

By Wayne Caldwell, Arthur Churchyard, University of Guelph

The first half of this presentation will present new data gathered on land division trends across Ontario from 1990-2009, and raises the following questions: What methods can be used to compare landscape and policy changes across regions with varying productivity, non-farm development pressure and proximity to urban density? What are the impacts of more restrictive severance policies in the 2005 Ontario Provincial Policy Statement? How have regional and local municipal decision makers responded? What other factors might be important in understanding changes to the agricultural parcel fabric, such as shifting land economies or aging rural populations?

The second half of the presentation will engage participants in an interactive discussion based on several tough issues within severance policy. This discussion will highlight future challenges faced by planners in the area of land division policy in agricultural areas. The presentation is based on a 20-year study of severance activity conducted by Dr. Wayne Caldwell, University of Guelph, and funded by the Ontario Ministry of Agriculture, Food and Rural Affairs.

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This presentation will interest those working in land use policy, farmland preservation, and the protection of rural landscapes.

#### **Session T4.3**

Presenter: Keri Cameron

#### **Unpacking Disability through Health Care**

By Keri Cameron, McMaster University

The purpose of this study is to reveal how disability is spatially and socially constructed in health care spaces.

This is an ethnographic study; observing and recording are the primary methods employed. As the primary investigator, I followed my mother through her experiences before, during, and following her second total hip replacement surgery. The secondary method consisted of interviews that emerged as conversations between us in addition to two formal interviews.

This research took place over a period of four months in a variety of settings including doctor's offices, pre-operative classes, in surgical hospital, and at home.

Results indicate that health care spaces can be both disabling and enabling. Spatial, social, socioeconomic,

and attitudinal barriers contribute to experiences of disablement. Additionally the lack of 'bridges' between these services create fault lines that have to be mended by family members, friends, and paid care providers. These fault lines further disable people as they create and widen barriers that exist.

The collection of observations and interviews throughout this project has given insight into the spatial and social aspects of health care services and how they affect people utilizing these services, their families, friends, and care providers.

### **Session W3.1**

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Presenter: Valentina Capurri

#### **The McConachie Case: How a Disabled Baby Came To Dominate Parliament's Debates on Medical Admissibility In 1928**

By Valentina Capurri, York University

In December 1927, Mrs. Patrick McConachie and her five children arrived in Halifax from Glasgow, Scotland, to join their husband and father, a miner who had immigrated to Canada for work some months earlier. After the routine medical examination aboard the ship by a Canadian doctor, the parents were informed that their youngest daughter, a fourteen-month-old baby, was "feeble-minded" and therefore not admissible to Canada. The little girl and the mother were returned to Glasgow while the remaining children stayed with their father. This paper takes its steps from the day the McConachie were separated to investigate under what legislation the separation took place, how that legislation had developed through time and with what arguments Members of the House of Commons justified or opposed it. In particular, the paper investigates the role immigrants were and are expected to play in Canadian society, namely being economically productive subjects. The issue is of interest not only from a historical perspective as today Canada's immigration doors remain closed to those who are deemed unable to meet that expectation, among them persons with illnesses and/or disabilities.

### **W4.2**

Presenter: Geneviève Carr

#### **Indian and Northern Affairs Canada and Its Role in Oil and Gas Management in Canada's North:**

##### **Beaufort Regional Environmental Ass**

By Geneviève Carr, INAC, Northern Oil and Gas Branch

The management of oil and gas resources on Crown lands north of latitude 60°N in the Northwest Territories, Nunavut and the northern offshore is a federal responsibility carried out by the Northern Oil and Gas Branch of Indian and Northern Affairs Canada. In August 2010, the Government of Canada announced its plan to fund the Beaufort Regional Environmental Assessment (BREA). The BREA is a multi-stakeholder initiative to sponsor regional environmental and socio-economic research that will gather new information vital to the future management of the Beaufort Sea. Through a targeted research program and working groups dedicated to climate change, cumulative effects, socio-economic indicators, spill preparedness and response and waste management, BREA will address regionally relevant

information gaps to inform the regulatory processes and project-specific environmental assessments for oil and gas activity in the Beaufort Basin. The BREA will help ensure governments, Inuvialuit, and industry is better prepared for oil and gas exploration and development in the offshore.

### **Session T1.2**

60

Presenter: Tom Carter

#### **No Bubble? No Meltdown? However New Challenges for Canadian Housing Consumers**

By Tom Carter, University of Winnipeg

Canadians escaped the most extreme consequences of the housing bubble and subsequent meltdown experienced by housing consumers in the United States. Despite significant price escalation in some regions and metropolitan centres there has been no freefall in prices and no significant escalation in mortgage defaults and bank foreclosures. To explain the stability in the Canadian housing market the presentation: analyzes a range of market and economic indicators; examines the legislative framework under which Canada's financial system operates and the steps the government took to strengthen the financial sector during the crisis; and, documents the more prudent lending and mortgage qualification criteria. Combined, these factors may have prevented many of the problems experienced in the United States however, recent trends present significant and often new challenges for Canadian homeowners and renters. When the diverse market scenarios across Canada are combined with growing diversity in Canadian society, housing experiences and outcomes are equally diverse. There have been winners and losers. The presentation suggests that policies to address the many challenges have to be equally diverse.

### **Session W3.2**

Presenter: Guillermo Castilla

#### **Semi-automated generalization and updating of the EOSD land cover map in Alberta**

By Guillermo Castilla, Jennifer Hird, Greg McDermid, University of Calgary

Wide-area full coverage land cover information is necessary for the monitoring and management of Canadian forests. The Canadian Forest Service's Earth Observation for Sustainable Development (EOSD) project produced a 23-class raster land cover dataset from classified Landsat 30m pixel ortho-images acquired circa 2000. Unfortunately, the thematic accuracy of this product is suspected to be marginal at the local level. Here we demonstrate how a more accurate land cover product can be generated semiautomatically

by generalizing the EOSD pixels into GIS polygons. We use a hybrid method that is based on morphological segmentation of the original Landsat imagery and that integrates governmental GIS layers to correct specific features (transportation corridors, forestry cut blocks). We assign a label to each image segment based on the distribution of EOSD classes within the segment; merge adjacent segments with the same label; and finally merge segments below a minimum size to their most similar adjacent segment. We show results in a 25,000 sq km area in the foothills of the Rocky Mountains of Alberta; compare them with the EOSD-based Geobase Land Cover circa 2000-Vector; and explain how we plan to apply a semi-automated change-detection framework to update this land cover map for province-wide habitat monitoring.

### **Session W2.7**

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Presenter: Jeanette Cegin

#### **French Immersion: "Like a Private Education in the Public System"**

By Jeanette Cegin, York University

Presently in Canada, certain educational programs are highly sought after by parents. One such program in Ontario's education system is, French immersion. This paper examines whether through analysing the spread of French immersion education in Ontario it can be concluded that French immersion education has been an elitist form of education since its inception. I draw on newspapers to provide a reliable picture of the spread of French immersion education programming in Toronto. The research questions explored are: How was French immersion education portrayed in its early years? And how and where did French immersion education spread in Toronto, Ontario? Recent newspaper reports point to the specialization of schools, which has clear linkages to the neoliberalism of education. The neoliberal system of schools competing for students through educational programs provides parents and children with more choice, but it also encourages inequality within the educational system.

### **Session T1.5**

Presenter: Kin Wing Chan

#### **Colonial Power on Practices: Governmentality, Farm Improvement Project and Pig Farming in Hong Kong's New Territories, 1950-1970**

By Kin Wing Chan

This study employs Michel Foucault's governmentality to examine how the Farm Improvement Program (1950-1970) reproduced pig farm order and pig farming knowledge in order to convert refugee farmers into productive workers in Hong Kong.

The rationale is to maintain food security and colonial stability to become the governing institutions' motivations to put refugees' problems, traditional farming practices and poor accessibility into the political agenda. There are six major techniques to reproduce pig farming order and knowledge: Pig donations, experimental farms, pig breeding units, boar distribution centers, interest free loans, and portable pigpens. Through spatial transformation of pigpens, refugees' farmers were imbued with the concepts of efficiency, uniformity, standardization, farm management, inculcation and self-help mentality. This paper employs both quantitative and qualitative methodologies to examine how Farm Improvement Program transform refugees' farming practices, reproduces new spatial orders and creates new farming knowledge.

This paper concludes that different ruling rationalities and technologies in the Farm Improvement Program reproduced pig farming order and transformed refugees' farmers into productive workers. New pig farming orders implied the political rationalities of nurturing loyalty, increasing food supply and maintaining colonial security. Distributing free pigs and construction materials are not simply philanthropic activities; these were political tactics to confront the penetration of communism into the colony.

### **Session W2.4**

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Presenter: Farrah Chanda Aslam

#### **Protecting and Conserving Land in Canada: Reproducing Canada's Identity as a Non-Urban Nation in Land Trust Creation**

By Farrah Chanda Aslam, S. Bunce, University of Toronto, Scarborough Campus

The emphasis on land protection and conservation in Canada has been historically placed on wilderness and rural areas. Canadian heritage has been largely defined in relation to the ability to preserve nonurban

lands as a way to protect these spaces from urban encroachment and at the same time reproduce Canada's identity as a land of vast wilderness and rural spaces. While protecting these spaces is integral to ecosystem conservation and conservation of agricultural land, the protection of urban land has not been a priority, particularly in the establishment of land trusts. Organization trusts for the stewardship of land have largely reflected the Canadian focus on non-urban land, despite its transformation as an urbanized nation. This paper presents a survey of existing land trusts in Canada and suggests that the creation of land trusts might further expand to include the protection and conservation of developed land in urban areas. Urban land faces pressures from processes such as speculation and gentrification, as well as redevelopment. The protection and conservation of urban land for the provision of affordable housing and green space, in keeping with the urban community land trust movement in the United States, offers new possibilities for re-conceptualizing land preservation in Canada.

### **Session F2.3**

Presenter: Rachel Chapman

#### **Community Perceptions of the Economic Future of Sparwood, BC**

By Rachel Chapman, University of the Fraser Valley

Coal has a history in British Columbia older than the province itself. Since the 1840s, when Europeans first discovered coal on Vancouver Island, the industry has contributed to the birth of many communities throughout the province. An area still very dependent on coal is the East Kootenay region. The landscapes of entire valleys have been altered as mountain-top removal has taken place in this resource-dependent region. In February 2009, after being pressured by environmental groups, the state of Montana and the public, the BC government placed a ban on mining activities and coal bed methane development in the Flathead River drainage basin. Numerous multi-million dollar projects were shelved. The economies of many towns in the area are dependent on the primary resource sector and this legislation could prevent large amounts of money and jobs from coming into these communities. Sparwood, BC is one of these towns. The aim of this research is to use focus groups to gain insight into how young adults perceive their economic future, and that of their community, in light of the ban on mining.

### **Session T4.2**

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Presenter: Alison Cheesbrough

#### **Locating Elementary Schools in Edmonton 1960s vs. 2000s**

By Alison Cheesbrough, Theresa Garvin, University of Alberta

This project is a historical overview of school site planning in Edmonton, Alberta. Schools are public buildings that influence how neighbourhoods and communities develop, but little research has been done in Canada on school site planning and the forces that shape these location decisions. The study looks at the ways school site location planning has changed in Edmonton and what factors have influenced those changes by comparing two planning eras: the 1960s vs. the 2000s. The study considers the macro scale of placement within a neighbourhood or groups of neighbourhoods, rather than micro scale issues of site selection for drainage, accessibility, or health concerns. The study combines qualitative interviews with current school planners with archival research and data from both Edmonton Public and Edmonton Catholic schools. Findings at this stage of the project include: 1) school locations are substantially different in the current era compared with eras of sustained building such as the 1950s and 1960s. 2) multiple social, political, and economic forces have contributed to the changes that are evident.

### **Poster Session A**

Presenter: Gang Chen

#### **A GEOBIA Approach to Estimate Forest Canopy Height Using Lidar Transects and Quickbird Imagery**

By Gang Chen, Geoffrey Hay, University of Calgary

The GEOgraphic Object-Based Image Analysis (GEOBIA) paradigm continues to prove its efficacy in Remote Sensing image analysis by providing tools which emulate human perception and combine analyst's experience with meaningful image-objects. However, challenges remain in the evolution of this new paradigm as sophisticated methods attempt to deliver on the goal of automated geo-intelligence from geospatial sources. In order to generate geo-intelligence (i.e., geo-spatial content in context) from a forest scene, this research introduces a GEOBIA framework to estimate canopy height by combining lidar (light detection and ranging) transects, Quickbird imagery and machine learning algorithms. This framework is comprised of three main components: (i) image-object extraction, (ii) lidar transect selection, and (iii) forest parameter generalization. The rationale for integrating these methods is to provide a semi-automatic GEOBIA approach from which detailed forest information is obtained at the small tree cluster level (i.e., mean object size of 0.04 ha); while dramatically reducing airborne lidar data acquisition costs. Analysis is performed over a 16,330 ha forested study site in Quebec, Canada resulting in a strong correlation ( $R = 0.85$ ) between our GEOBIA framework (where the lidar transect sample

represents only 7.6% of the total study area) and the full lidar cover.

### **Session T3.1**

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Presenter: Clément Chion

#### **Un modèle multi-agents pour la conservation des mammifères marins**

by Clément Chion, P. Lamontagne, S. Turgeon, J. A. Landry, L. Parrott, D. Marceau, R. Michaud, C. Martins, M. Nénard, G. Cantin, S. Dionne, École de technologie supérieure

La modélisation multi-agents est une approche appropriée pour représenter la dynamique des systèmes couplés humain-nature. Nous présentons 3MTSim, un modèle spatialement explicite simulant les déplacements de bateaux et de mammifères marins dans l'estuaire du fleuve Saint-Laurent et la rivière Saguenay au Québec. Ce modèle a été développé dans le but d'aider les gestionnaires des aires marines protégées de la région à anticiper l'impact de mesures destinées à encadrer les activités de navigation. Les composantes de 3MTSim et leurs performances en validation sont présentées. Le type d'information fournie par 3MTSim est décrit à l'aide d'un exemple illustrant le contexte d'application du modèle. Finalement, une discussion est proposée sur les défis à relever pour améliorer la représentativité de cette catégorie de modèles.

### **Session W4.6**

Presenter: Woonsup Choi

#### **Quality of Regional Reanalysis Data for Hydroclimatic Research in the Canadian Prairies**

By Woonsup Choi, Sung Joon Kim, Peter Rasmussen, University of Wisconsin-Milwaukee

This study attempted to evaluate the quality of the North American Regional Reanalysis (NARR) data for hydroclimatic research in the Canadian Prairies where observed data are often scarce at local levels. The agreement of NARR and available weather stations was evaluated for precipitation, temperature, and water balance. To evaluate the quality of the NARR precipitation and temperature data, we selected 50 weather stations across Alberta, Saskatchewan, Manitoba, and Ontario, and compared the data from the stations to those from NARR and ERA-40, another reanalysis data set. The results indicate that ERA-40 has smaller biases than NARR from the stations temperature data while NARR has smaller biases for precipitation. Goodness-of-fit with the stations data is similar for temperature but NARR is remarkably better than ERA-40 for precipitation. When it comes to the water balance, we selected the North Saskatchewan and Souris River basins in the Prairies and evaluated precipitation minus evaporation (PE) from NARR. Comparing P-E to observed streamflow resulted in lower-than-expected agreement, largely due to the unique hydrologic and geologic characteristics of the basins. Overall, NARR is a better alternative to stations data than ERA-40 for hydroclimatic research, but caution must be used in estimating runoff from NARR as P-E.

### **Session W3.6**

65

Presenter: Jonathan Cinnamon

#### **Critical GIS and Its Relevance for GIS Practitioners**

By Jonathan Cinnamon, Simon Fraser University

GIS is a highly practical tool that can contribute to advancement of social causes. GIS has, however, been roundly criticized over the past two decades for social, political, methodological, and epistemological shortcomings. These interrogations – now referred to as 'critical GIS' (CGIS) - have helped to establish a deeper theoretical understanding of the technology and its implications.

Despite the insightful criticism, CGIS theory has had remarkably little influence on applied users or stakeholders. For GIS practitioners concerned with the social implications of their research, CGIS provides little guidance. For instance, there is little in the corpus of CGIS theory that instructs users on how to transfer generated knowledge to decision-makers, communities, or other stakeholders.

This paper describes this particular disengagement between theoretical and practical GIS (with attention

to notable exceptions in the field of public participation GIS). CGIS, despite its genesis in the 'GIS and Society' debates, has disregarded a vital link to social change, the process of knowledge translation. We outline key tenets of CGIS and examine the extent to which they apply to GIS practice. A GIS case study is described to underscore the lack of attention to this issue from GIS theory. Ultimately we argue that CGIS should re-articulate its goals, as inattention to this important element of social advancement is a missing brick in the theoretical foundation of GIS.

### **Session T2.1**

Presenter: Daniel Cole

#### **Preliminary GIS Analyses of Selected Archaeological Sites in Western Mongolia**

By Daniel Cole, Catherine (Ke) Chen, Smithsonian Institution

Mapping and spatial analysis of archeological sites in western Mongolia presents some challenges and opportunities for the field season during the summer of 2011. Prior to going out in the field, as support for the project, we need to spatially analyze previously collected archaeological data collections from colleagues at East Tennessee State University with high resolution 3D renderings of the study areas. Compiling survey and GPS readings confirmed the elevation data created from the satellite image stereo-pairs.

After receipt of the ½ meter resolution stereo-pairs from GeoEye in June 2010, DEMs were created, followed by maps of shaded-relief, contours (1 and 3 meters), aspect, slope, and viewsheds with the geographic information system software, ArcGIS. Overlaying the collected archaeological points on the images and maps allowed us to conduct an initial evaluation of the landscape in relation to the points. Most of the points in the area fall on the slopes and ridges of the hills. Many of these points are easily visible from the surrounding landscape. While yet to be determined are the directions that individual features face, a large majority of these features were placed on southern and western aspects.

### **Session W4.7**

66

Presenter: David Connell

#### **Teaching Planning Theory from First Principles**

By David Cornell, University of Northern British Columbia

The literature on teaching planning theory, albeit limited, has focussed on the general challenges of teaching planning theory. Key issues are the focus within the planning profession on practice and a ubiquitous lack of interest among students to learn about theory. In this context the preferred method for teaching planning theory is to emphasise its application to real practices. In this presentation I will present an alternative approach that I have used with undergraduate students in a fourth-year course on planning theory. The starting point for the course is a definition of planning in the most general sense of the term. From this I have developed a specific definition of planning as it applies to the profession of planners: 'to plan is to make the future public interest a visible part of present decision making processes.' I use the elements of this definition as the first principles of planning that underpin a range of schools of planning thought. By applying these principles to each school of planning thought students discover, through discussions with their peers, the unique features of each theory of planning. In this presentation I will focus on the details of using this approach to teach planning theory.

### **Session T1.5**

Presenter: David Connell

#### **Planning For Agricultural Lands in BC: A Review of Recent Planning Efforts**

By David Connell, Daniel Sturgeon, University of Northern British Columbia

Effective land use planning is critical to the viability of farming. In British Columbia, the province recognised the need for agricultural planning in the early 1970s and created the Agricultural Land Reserve to protect agricultural land. In the mid-1990s, amendments to the provincial regulatory framework shifted the planning focus from land preservation to land use. The purpose of this



presentation is to review the results of an evaluation of agricultural plans in BC that were completed over the past ten years. The purpose of the project was to evaluate the extent to which planning efforts resulted in changes to agricultural land use policies. The research was based on key informant interviews and content analysis of completed plans. The results show that these plans positively influenced agricultural land use policy decisions, improved consistency between provincial policy and legislation and local government policies, and provided sufficient details about the legislative context to provide a “thread” that helps to integrate policies across jurisdictions. The planning process itself was identified as positively influencing the level of awareness and opinions of agriculture. Overall, the completed plans had a positive influence over a range of outcomes, but this influence may have been more indirect than direct.

### **Session T4.3**

67

Presenter: Sean Connelly

### **Local Food, Sustainability and the Social Economy: Exploring the Potential of Convergence for Community Transformation**

By Sean Connelly, Sean Markey, Mark Roseland, Simon Fraser University - Centre for Sustainable Community Development

Sustainability and the social economy are two approaches that provide critiques of mainstream economic growth based on the failure to integrate environmental and social concerns. This article explores the potential for community transformation by bridging these two approaches - bringing more environmental considerations into the social economy and using the social economy to advance equity concerns within sustainability. This paper examines local food initiatives in two Canadian cities that are striving to create a synthesis of social and environmental objectives to achieve structural change in the way that food is produced, accessed and consumed. Both projects are founded on commitments to sustainable community development and social economy approaches. While the initiatives illustrate the potential for community transformation by integrating sustainability and the social economy, they also illustrate the challenges associated with an incremental approach to change in the context of competition with mainstream economic activities that are heavily subsidized and do not account for negative social, economic and environmental externalities.

### **Session W3.5**

Presenter: Lisa Cooke

### **Dawson City, Yukon: A Geography of (Colonial) Public Memory**

By Lisa Cooke, Thompson Rivers University

North happens in Canada. It is a space upon which national-cultural ambitions, desires, and power are inscribed and activated. In this paper we travel North, through the layers of meaning, politics, histories, and power that constitute the very notion of North, to Dawson City, Yukon. Once there we will pause on the banks of the Klondike River and trace how North takes place, happens, on the ground around us as an emotional national-cultural geography. We will examine the smooth surface of national-cultural narratives as they take place around us as a collection of National Historic Sites of Canada. In Dawson City, national cultural ambitions and narratives assemble and take place by way of official commemorative efforts that turn northern Canadian spaces into national-cultural places of significance. Through this officialized commemoration, the Klondike Gold Rush is called into meaningfulness in the present and takes place in Dawson City as simultaneously an emotional national-cultural geography of public memory and a tourist destination. In this paper I am interested in the ways that nationalistic and touristic forces converge to take place, happen, in Dawson City and the corresponding politics of inclusion and exclusion that congeal in place.

### **Session T4.2**

Presenter: Jon Corbett

### **Processing Food Issues: Exploring How the Geoweb Can Support Understanding and Stimulate**

#### **Discussion in the Central Okanagan**

By Jon Corbett, Shayne Wright, University of British Columbia, Okanagan

This presentation examines an ongoing community-university research project that seeks to engage the inhabitants of the Central Okanagan in local food security dialogue using the Geospatial Web (Geoweb). The Central Okanagan represents an interface-community, where the rural (producer) and urban (consumer) population exists side by side. Increasingly urban consumers want to better understand how and where their food is grown, processed and sold in order to improve access to and make informed decisions about food. This project seeks to support these processes by providing a web-based mapping tool that displays information and media, as well as supports dialogue and debate related to local food. The focus of the project is twofold. Firstly, it includes an 'action' component that has involved the development of a Geoweb application that allows community members to share their own knowledge and experiences about local food. Secondly, a theoretical component has explored questions surrounding the social and political implications of engaging citizens using these tools. The presentation will examine these two components and further describe the process of project partners negotiating the project agenda, methods and evaluation, and finding common ground in the collaborative research process.

#### **Session F1.6**

Presenter: Adam Cornwell

### **Climate Change and Source Water Protection in Northwestern Ontario**

By Adam Cornwell, Robert Stewart, Lakehead University

Recent legislation in Ontario has mandated the formation of regional committees to plan for long-term protection of drinking water supplies. Included in this legislation is a requirement to consider the potential for climatic change. This study describes the inclusion of climate change in the preparations of the Lakehead Source Water Protection Committee in Thunder Bay, to date one of the only committees to address this requirement.

Climate change forecasting is performed using the results of a regional climate model (CRCM4). Among the most relevant expected changes are alteration in the seasonal timing and variability of precipitation. A shift to more precipitation in winter and spring and less in summer will lead to an increase in spring flooding and most likely inhibit groundwater recharge in the summer. The change in climate will also affect the ice-free season on Lake Superior, where the city of Thunder Bay obtains its drinking water. The expected impacts from this forecast were incorporated into the long-term planning process of the Source Protection Committee.

#### **Session W1.5**

Presenter: Bethany Coulthard

### **Dendrohydrological Investigations on the Sunshine Coast, Southern Coast Mountains, British Columbia, Canada**

By Bethany Coulthard, Jill Harvey, Dan Smith, University of Victoria

Seasonal drought and seasonally-variable water supplies are growing issues for communities located on the Sunshine Coast, British Columbia. Dendroclimatological investigations were conducted in the Chapman Creek watershed in fall 2010 to discern long-term relationships between stream discharge and a variety of climate variables including temperature, precipitation and seasonal snowpack. Tree-ring chronologies were developed from ancient yellow cedar (*Chamaecyparis nootkatensis*) and mountain

hemlock (*Tsuga mertensiana*) trees. Extreme topography and complex microclimates and have hindered some past attempts at tree-ring based climate reconstruction on the western slopes of the Coast Mountains, where limited dendroclimatological research has been conducted.

### **Session W2.6**

Presenter: Terri Cowan

#### **Opportunities and Barriers to VGI Use in Community Planning**

By Terri Cowan, University of Waterloo

The term Volunteered Geographic information (VGI) has been coined to describe the processes whereby non-professionals or “citizen scientists” participate directly in spatial data creation, editing and shared use. These data vary considerably in thematic focus, purpose, and format and may be used to correct or augment official data stores or to document features that are not recorded in authoritative databases. VGI offers some promise as an innovative way for members of the public to participate directly in the use, production and sharing of spatial information that is relevant to issues of personal or community concern. However, despite this potential the use of VGI in local planning processes remains quite limited. In part, this is due to a number of uncertainties such as the representativeness of citizen generated data, issues of quality, and its degree of correspondence with official data resources, among others. In this presentation, these uncertainties will be examined in light of published VGI applications to identify the opportunities and barriers to incorporating VGI into community planning processes. Based on this assessment, recommendations for the potential uses VGI in community planning are outlined.

### **Session F2.6**

70

Presenter: Jessica Craig

#### **Dendroglaciological Exploration at South More Glacier, Northern British Columbia Coast Mountains**

By Jessica Craig, Dan Smith, Dave Lewis, University of Victoria

South More Glacier can be found at the headwaters of More Creek, in the northern British Columbia Coast Mountains. The glacier, which is 2 km wide and 10 km long, divides into southern (terminus 1010 m asl) and northern (terminus 1150 m asl) lobes about 5 km apart. The southern lobe extends in an easterly direction. The forefield of the southern lobe is characterized by an extensive outwash plain and residual till islands positioned inside the recently deglaciated forefield. The maximum extent of South More Glacier during the Little Ice Age is demarcated by a distinct trimline and a terminal moraine that crosses More Creek at 900 m asl. Reconnaissance surveys in July 2005 within 0.5 km downstream of the glacier snout led to the discovery of subfossil boles and stumps exposed in gullies eroded through the till islands. Dendroglaciological and radiocarbon analysis identify the majority of the glacially-killed trees as having been entombed by an advance of South More Glacier into a standing forest around 1500 14C years BP. The discovery and dating of dendroglaciological samples to this interval documents one of the northernmost locations where the regionally-extensive First Millennial Advance has been described in the British Columbia Coast Mountains.

### **Session 1.6**

Presenter: Georges Cravins

#### **The Geopolitics of Armageddon: The U.S., the Muslim World, and the Triumph of China**

By Georges Cravins, University of Wisconsin-La Crosse

Compelling evidence suggests that China will have the military capacity to surpass the United States as the world's leading geopolitical power over the next two decades. In fundamental economic terms, China has already surpassed the United States economically. A number of major developments over the past three decades – most notably the demise of the Soviet Union, and the support given to China's economic development by both governmental and private interests in the United States since the 1970s

– have facilitated China's rise. The continuation of aggressive, unyielding and inflexible U.S. policies, especially vis a vis the Muslim World since the 1990s, have laid the ground-work for a seemingly stellar, meteoric and flawless rise by China and the demise of the United States as the dominant global power. This research will focus on the inevitable eclipse of the United States by China by the year 2030, and will attempt to explain why and how forces in the United States are facilitating this turn of events.

#### **Session W1.4**

71

Presenter: Eric Crighton

#### **A Risk to Other People's Kids: Environment and Health Risk Perceptions among New Mothers**

By Eric Crighton, J Masuda, C Brown, F Ursitti, J Baxter, L Lemyre, C Thompson, University of Ottawa  
New mothers and pregnant women receive numerous messages about environmental health risks to their infants. Infants from low-income homes, ethno-racial minorities and other socially marginalized groups often face a double burden of higher exposures and fewer resources to modify their environments. New mothers face added social pressure to 'protect' their children yet feel helpless coping with these risks. Being unable to cope effectively with such challenges has been shown to lead to significant concern, stress and other health issues. Using a mixed-method parallel case study design involving new mothers recruited through Peel and Ottawa Public Health Units, this ongoing study is examining how new mothers perceive and negotiate environmental hazards that may be impacting their young children across socioeconomic and environmental contexts. Results from interviews and focus groups suggest that new mothers are typically aware of many environmental hazards communicated in the media including poor outdoor air quality, BPA in plastics and pesticides in foods, yet the level of concern about these hazards was generally low with many risks seen as avoidable. While outdoor air quality was regarded as being a significant, largely unavoidable hazard, few reported there to be any significant risk to their children. These results and lessons learned leading into the quantitative survey phase of this study will be discussed.

#### **Session W3.1**

Presenter: William Crumplin

#### **'Stomp': The Ecological Footprint of Travel for a Competitive Girls Sports Team**

By William Crumplin, Donna Williams, Laurentian University

This paper builds on an earlier investigation regarding the impacts that supporting competitive youth athletes can have on families. In this presentation, we investigate and calculate the ecological footprint of travel for a Midget girls A level hockey team during its 2010-11 season including practices, land training, league games and tournaments. The data used in this investigation was derived from the schedule and participant observation by both authors of many of the families. While parents rarely discuss of the financial costs of supporting their youth athletes, they do not seem to consider the environmental footprint of this activity at all. This assessment looks at the cost of travel in terms of its ecological footprint for the team's travel as a whole.

#### **Session F1.5**

72

Presenter: Justine R Cullen

#### **Determining the Optimal Protocol for Optical Dating Of Eolian Landforms in the Foothills of Southern Alberta**

By Justine R Cullen, Lian B Olav, Stephen A Wolfe, University of the Fraser Valley

Potassium feldspar and a multiple-aliquot technique had been used almost exclusively to provide reliable age information for sand dune development in the prairie dryland regions of Saskatchewan, Manitoba and Alberta [e.g., 1]. Recently, a standard protocol of the single-aliquot regenerative dose

(SAR) method has been tested at University of the Fraser Valley on quartz extracted from a series of sand dunes and loess deposits in the Alberta Foothills. These features are important in that they contain charcoal and tephra beds that provide well-constrained independent ages that can be used to test our dating methods. Preliminary experiments using the standard SAR technique and quartz yielded optical ages that significantly underestimated the independent ages [2]. To determine an optimal optical dating protocol for the area, quartz and feldspar minerals were isolated from new samples taken above and below known-age tephra beds. The standard SAR protocol used in the initial trials was modified by changing various measurement temperatures (i.e. the preheat, cutheat and read temperatures) for siltsized

feldspar, and coarse-sized quartz and feldspar. The ages determined from these new samples showed significant improvement over those acquired from the original samples.

Sources cited: [1] Wolfe, S.A., & Hugenholtz, C.H. 2009. Barchan dunes stabilized under recent climate warming on the northern Great Plains. *Geology*, 37: 1039–1042; [2] Wolfe et al. 2009. Timing and rates of Holocene eolian deposition in the eastern Canadian Rockies: preliminary results. *CANQUA Program & Abstracts*, p. 175.

### **Poster Session B**

Presenter: Rachel Cullen

#### **Spatio-Temporal Distributions of Female Muskoxen *Ovibos Moschatos* in the Sub-Arctic Boreal Forest of the Northwest Territories**

By Rachel Cullen, A. Veitch, P. Spencer, B. Tracz, A. Massolo, University of Calgary

Often viewed as a quintessential Arctic species, muskoxen are generally associated with habitats on the Arctic islands, Nunavut, and the northern mainland of the Northwest Territories (NWT). As such, it is interesting that muskoxen are now not only found well below treeline in the Sahtu Region of the central NWT, but that they appear to be increasing in numbers and expanding their distribution farther south and west. This southward expansion is happening at a time when northward expansion of other wildlife species is being documented, which may be in response to climate change. We analyze GPS radiocollar data from 10 female muskoxen from 2008 until present, in the transitional spruce-lichen forests of the Sahtu region, east of the Mackenzie River. The animals monitored in this study are located considerably farther south than their arctic counterparts (over 500 km below treeline), and habituating to open woodland habitat versus their more typical tundra habitats. Mean movement rates (0-20 km/day) and home ranges (0-700 km<sup>2</sup>) were significantly higher in summer from June until September (4-20 km/day; 100-700 km<sup>2</sup>), with minimal movement from January to April (<4 km/day; <100 km<sup>2</sup>). Seasonal and annual home range and movement patterns are presented, along with a discussion about factors affecting movement such as resource distribution, environmental conditions, and biological cycles.

### **Session W4.6**

73

Presenter: Janis Dale

#### **Seasonal Dune-Forming Processes in Point Pelee National Park, Ontario, Canada**

By Janis Dale, Mary-Louise Byrne, University of Regina

A large section of dunes in Point Pelee National Park on the north shore of Lake Erie, Ontario, was previously paved for parking lots between 1951 and 1953. One of the parking lots was removed in 2008 to rehabilitate habitat for the endangered Five-lined Skink (*Eumeces fasciatus*). Seasonal field studies initiated in 2009 provide a better understanding of the modern aeolian processes, in order to reestablish the dunes, address habitat concerns, create a more natural park, and reduce human impact.

Detailed GPS surveys of the affected and control sites were conducted and volumes and rates of sand transported analyzed using ArcGIS and Surfer mapping software. Sedimentological studies of the sands provide data on the sediment most susceptible to movement and deposition.

Results show that most sediment transport is in the lake, moving alongshore towards the end of the Point Pelee spit, with little onshore translation of material. Most sand transport occurs in winter, but total amounts are low and unlikely to make significant contributions to the reformation of the dunes. Little change in shape and elevation of the sites was noted throughout the 2009-2011 GPS surveys. It is likely the dunes will have to be reformed and vegetated manually to ensure re-establishment.

### **Poster Session B**

Presenter: Sandra Dalton

#### **Enhancing Land Use Decisions for Sage-grouse Recovery in Alberta**

By Sandra Dalton, Janna So, Greg McDermid, C. Gates, University of Calgary

Human development has diminished the sagebrush steppe of North America. Sagebrush steppe landscapes are crucial for dependent species, including the sage-grouse (*Centrocercus urophasianus*). To date, sage-grouse range has been reduced by more than half, and what is left is fragmented. In Canada sage-grouse range is 10% of its historical area. This analysis investigates the decline of sage-grouse populations in correlation with human development in Alberta. The study area is the southeast corner of Alberta. The data for this analysis spans from 1968 to the present, and includes sage-grouse lek attendance counts, current human development information, and historical airphotos. With current development information and historical imagery, historical developments are mapped. Lek counts are regressed with corresponding human development, a time series of regression analyses are created, and trends of that series are described. Results will include (a) areas where sage-grouse attendance counts have been most affected by human development, (b) types of development that affect sage-grouse the most, and (c) distances at which human development least affect sage grouse. The results of this analysis will help to improve Alberta land use decisions, limiting harmful development and allowing sage-grouse recovery in the south-eastern prairies of Alberta.

### **Session W2.7**

74

Presenter: Seanna Davidson

#### **The Multi-Scalar Nature of Watershed Governance**

By Seanna Davidson, University of Waterloo

Determining appropriate scales for water governance can be a complex and daunting task that must consider numerous variables and particularities. The long held assumption that the watershed scale is best is being challenged and on the ground cases are seeking context appropriate solutions. This paper reviews a water governance system in transition over a thirty year period in the Lake Simcoe watershed and observes the presence of several governance systems during this time. A close examination of the current governance structure will be provided, and illustrate the nested governance system that characterizes this watershed.

### **Session W1.3**

Presenter: Peter Deadman

#### **Modelling Great Lakes Coastal Wetland Vegetation Response to Changing Water Levels**

By Peter Deadman, Ray Cabrera, Linda Martsch, University of Waterloo

The vegetation communities within coastal wetlands on the Great Lakes are significantly influenced by changing water levels, which are in turn influenced by both changes in regional climate patterns and by regulations governing water control structures. Understanding the dynamic interactions between vegetation communities and changing water levels informs policy discussions related to climate change impacts and adaptation strategies. Here we present recent work on the development of a series of spatial models designed to capture the dynamic response of vegetation communities within the Long Point wetland complex to changing water levels. These cellular models utilize a series of rules, derived from a historical analysis of vegetation response to changing water levels to associate water depth and duration with the vegetation communities that exist on a water table continuum. We present the results

of recent work focused on the calibration of these models using airphoto analysis. We discuss how model results inform the definition of coping zones for The International Upper Great Lakes Study.

### **Session T2.1**

75

Presenter: Jennifer Asanin Dean

#### **Census Tracts, Place Names and Postal Codes, Oh My: Examining Neighbourhood Boundaries Useful In Adolescent Health Research**

By Jennifer Asanin Dean, Susan J Elliott, McMaster University

Place is now widely accepted as a determinant of population health. The contextual factors of those places have been and continue to be interrogated in order to ‘unpack the black box’ of area-level effects on health. Within this body of research, local environments, namely neighbourhoods, have been acknowledged as important settings that shape the healthy of residents. However, there has been much discrepancy about how to most effectively define neighbourhood boundaries for the purposes of health research. Much of this debate is based on the fact that neighbourhood effects on health do not operate in isolation of the larger scale place effects (i.e., municipality), nor of smaller scale place effects within the neighbourhood (i.e., home and school). This research examines the appropriateness of common neighbourhood boundaries for low-income adolescents in the context of health behaviours. Using indepth

interviews and participant drawn maps, this research assesses the interpretation and use of neighbourhoods space by 32 adolescents in two low- SES areas in Southern Ontario. The results compare participant defined neighbourhood boundaries with more commonly used neighbourhood boundary measures including census tracts, forward sortation areas and place names. Additionally, the findings reveal the factors and amenities that influence adolescents’ use of neighbourhood space. The importance of population-specific definitions of place is discussed in addition to methodological and policy implications.

### **Session W3.1**

Presenter: Vivien Deparday

#### **Methods for the Evaluation of Geovisualization Techniques to Explore Volunteered Geographic Information (VGI)**

By Vivien Deparday, Rob Feick, University of Waterloo

While some types of Volunteered Geographic Information (VGI) resemble traditional GIS data and are relatively easy to benefit from, other types are loosely structured and can prove difficult to utilize due to challenges such as the overload of information and the extraction of meaning. One of the approaches to deal with these challenges is to use geovisualization techniques such as data filtering and data aggregation. Although many of these techniques are experimented with in various contexts on the Internet, there is limited evidence to determine to what extent they improve the ability of the users to explore VGI. Building upon a VGI typology developed to characterize the broad spectrum of VGI, this study presents the design of a prototype application that provides an environment for the evaluation of a set of visualization techniques. This prototype was used with rich citizen-generated data in a series of workshops. A range of methods from the usability engineering field was used to collect data on the participants’ use of and satisfaction with the visualization tools. This study illustrates that these methods can be successfully employed to develop useful and usable visualization tools; a key element toward a better utilization of VGI.

### **Session F2.6**

76

Presenter: Kathleen Dimmer

## **CURA Otipimsuak Atlas Overview**

By Kathleen Dimmer, Frank Tough, Keith Carlson, Liam Haggarty, Métis Archival Project, University of Alberta

The University of Alberta and the University of Saskatchewan partnered with the Northwest Saskatchewan Métis council have been working to produce an atlas of the Métis of Northwest Saskatchewan. The Otipimsuak Atlas endeavours to visualize the economy, governance, and culture of the Métis of North West Saskatchewan. Métis land and society has been represented spatially and temporally through the digitization of archival materials and by the creation of maps, graphs, and charts. Select Atlas plates represent key historical events and issues affecting all Métis across Canada. For this presentation we will be showcasing maps concerning the Rupertsland Transfer, Hudson's Bay Company Land Sales, the Distribution of Dominion Lands, and Métis Scrip. The Presenters will explain why an Atlas was chosen as the method to disseminate such information versus a more text based approach as well as the difficulties of finding a balance between graphics and text in this form of publication.

### **Session T2.4**

Presenter: Kathleen Dimmer

#### **King's Map: Tracing the English River Fur Trade 1894 ca**

By Kathleen Dimmer, Frank tough, Métis Archival Project - University of Alberta

In 1894 the Chief Factor at Isle a la Crosse, William Cornwallis King, submitted a sketch map of the English River District as the District Report for that year. This sketch map visually captures the spatial structure of late 19th century Hudson's Bay Company (HBC) operations in Northwest Saskatchewan. No hydrology or topography is included in this map only elements essential to the fur posts operations; Indian camps, routes of Métis employees, angles and distances to outposts. Analysis of the map took several forms. The genealogy and kinship of employees on the map were located through census, scrip, and HBC archival documents. The angles and distances recorded were redrawn digitally allowing us to compare King's outpost locations to known locations. King's recorded distances between posts were compared to the distances of known trails and river routes. A Pearson correlation was run in SPSS along with scatter plots for the relationship between the absolute value of King's distance error and the known distance therefore demonstrating that the farther the distance the greater the inaccuracy. The analysis of how the map was drawn reveals what information King deemed necessary for the successful operation of a fur district.

### **Session T1.4**

77

Presenter: Derrek Eberts

#### **Neighbourhood Quality of Life in Brandon, MB**

By Derrek Eberts, Doug Ramsey, Alex Michalos, Brandon University

This paper reports on a major study of health and quality of life in Brandon, Manitoba. The primary purpose of the study was to establish a series of quantifiable measures of health and quality of life in the city. In addition, we sought to discover if there were any geographical variations at the neighbourhood level. In summer 2010, approximately 2,500 randomly selected households were surveyed on a variety of indicators of well-being and quality of life, from which 518 usable surveys were returned. In addition to questions compiled from standardized health and quality of life instruments used previously by one of the co-investigators, a series of questions probed specific aspects of 'neighbourhood' and 'community' satisfaction. Using postal code information, the responses were linked to Brandon's neighbourhoods. The results are presented here.

### **Session W2.2**

Presenter: Sara Edge and Christianne Stephens

#### **Knowledge, Power & Legitimacy in the Governance of Environmental Health Risks: A Comparison of**



## **Epistemic & Place-Based Engagement**

By Sara Edge, Christianne Stephens, McMaster University

Diverse stakeholders increasingly demand involvement in assessing and managing environmental health risks from chemical exposures at various spaces of engagement from local places and communities, to federal and international regulatory jurisdictions. This is fueled by increased recognition of ubiquitous exposures, scientific uncertainties, and growing skepticism of science and industry. Decision-makers weigh risks against other benefits based upon “evidence” divergently interpreted by stakeholders vying for the legitimacy to shape policy in favourable ways. There is need for critically analyzing power dynamics and discourses shaping risk knowledge production and governance. This includes how emerging actors/structures interact with more conventional modes of authority; implications for types/sources of knowledge legitimized for decision-making; and governance ramifications.

Using a comparative case-study we:

**i)** explore how evidence and stakeholder perspectives are interactively constructed, negotiated and (de)legitimized with respect to perceived risks; and how/whose knowledge is “validated” for informing decisions

**ii)** analyze implications for equitable health impacts and governance

**iii)** explore the influence of place, space & epistemic networks on the agency of stakeholders

Two different case contexts are examined to compare place-based governance and community activism with forms of engagement driven by epistemic or value-based networks transcending place. With respect to the former, the first case involves an Indigenous community concerned with exposures from a petrochemical industrial centre. The second case focuses on stakeholder engagement around the ubiquitous toxic substance Bisphenol A. We explore how different types and origins of organization constrain and enable the agency of environmental health governance actors.

### **Session F2.2**

78

Presenter: David Edgington

#### **‘Glocalization’ and Regional Headquarters: Japanese Electronics Firms in the ASEAN Region.**

By David Edgington, Roger Hayter, University of British Columbia

For Japanese multinational corporations (MNCs), glocalization (dochakuka) refers to the challenge of balancing the need to adapt foreign subsidiaries to local circumstances and to integrate corporate operations as a whole. From the perspective of corporate governance, regional headquarters (RHQs) are at the fulcrum of the idea of glocalization. Despite their implications for local development, however, research on the structure and scope of RHQs has been somewhat dormant in recent years. This paper addresses this neglect with particular reference to Japanese electronics multinational corporations (MNCs) in the Association of Southeast Nations (ASEAN) region. Interviews were conducted with over 50 managers of Japanese electronics firms in Tokyo and Osaka, and their subsidiaries in Singapore, Bangkok and Kuala Lumpur. The results indicate that the evolution of RHQs reflects developments by Japanese firms in Singapore itself, across ASEAN, in the rest of Asia, and how (Japanese) corporate governance is organized within Asia-Pacific as a whole, in contrast to the other triad regions of Europe and North America. At best, Singapore’s role as a RHQ centre has stabilized, and there is no indication of continued devolution of Japanese corporate decision-making in the city or ASEAN as a whole.

### **Session W2.4**

Presenter: Olesya Elikan

#### **Land Use Regression Model Development to Assess Traffic-Related Air Pollution in Calgary**

By Olesya Elikan, F. Underwood, A. K. Azad, S. Bertazzon, G. Kaplan, M. Johnson, University of Calgary  
Recent epidemiological studies have shown the association between health effects and exposure to

traffic related air pollution. Air quality monitoring has been done in summer of 2010 in Calgary. In order to assess statistical relationship between land-use characteristics and pollutant concentration in the area at the smaller scale, land use regression technique was used. Two major traffic related pollutants were used in the study: benzene and NO<sub>2</sub>. Land use regression model have been created for each of them.

Analysis indicates that for benzene pollution concentration in Calgary main predictor is population dwelling density, along with length of local roads in the area. The benzene model did not reveal any direct link to the traffic volume as a main predictor. However, surrogate measures of traffic volumes such as length of local roads and proximity to expressways turned out to be important predictors of benzene concentration. Overall, the benzene model indicates that the local factor plays an important role in benzene distribution. The NO<sub>2</sub> model, on the other hand, indicated a strong association with industrial sources of pollution, commercial land-use, and traffic volume. That was also confirmed by visual assessment of interpolated pollutant surfaces and land-use maps.

### **Poster session A**

79

Presenter: Olesya Elikan

#### **Accessibility to Primary Health Care and Its Contribution to Population Health Status**

By Olesya Elikan, University of Calgary

Accessible health care is known to be one of the major determinants of overall population health and well-being. Research has shown that disparities in access to quality health care result in inequality in health status. Within Alberta, the combination of various urban, rural and remotes areas has resulted in a highly uneven distribution of health providers that increased cost of health care access for those who need to travel longer for the primary health care. Ideally, accessibility to health care must reflect population health needs that are defined by current health status; those in a higher need should be able to access care more easily.

The purpose of this study is to evaluate how accessibility to the primary health services in Alberta contributes to the health status of the population. Accessibility was measured by travel time from the centre of each dissemination block to nearest health care provider using GIS techniques. The relationship between level of health care accessibility and health needs in Alberta was assessed in spatial regression. The regression results indicated that accessibility to primary health care is a significant predictor of overall population health status.

### **Session W4.1**

Presenter: Jamey Essex

#### **The Geography of "Effectiveness" in Canada's International Development Assistance**

By Jamey Essex, University of Windsor

Canada has long been an important actor in the global aid architecture, contributing funding and expertise to development planning and practice, promoting multilateralism, and setting precedents in untying aid. Canadian development priorities and strategies, however, have also been sensitive to changes in political leadership and criticisms about waste and slow progress, and Canada's development programs and agenda have often operated in instrumental ways. In recent years, and following a more general trend, "effectiveness" has become one of the primary rubrics for programming and allocating aid through the Canadian International Development Agency (CIDA). Yet the meaning of aid effectiveness is not straightforward, and the term is often used in different and even incommensurable ways, sometimes referring to development impacts and progress in developing countries, and sometimes to CIDA's own program testing, expenditures, and ability to produce political and economic returns beyond development. Effectiveness is operationalized in relation to concerns over accountability and development funding, and the allocation of resources to an increasingly limited number of countries and a growing set of partner organizations. This paper examines "effectiveness" in CIDA's development

strategies, looking especially at how this has shaped thematic priorities and decision making in geographic allocation of aid.

### **Session T1.7**

80

Presenter: Matthew Farish

#### **"We're in a dangerous position": The Ground Observer Corps and Cold War Citizenship**

By Matthew Farish, University of Toronto

When it was disbanded in 1959 the US Ground Observer Corps (GOC) was described in the New York Times as "the greatest civilian peacetime volunteer defense organization in the history of the nation." During the Second World War, and again during the 1950s, the GOC recruited hundreds of thousands of 'skywatchers' to scan the horizon for enemy aircraft. Building on studies of civil defense and the militarization of daily life during the early Cold War, this paper examines the understudied history of the GOC in North America and its role within a growing, cybernetic system of continental defence. By the middle of the 1950s, the GOC was a significant cultural phenomenon, an overtly national and public initiative in two countries. It was dependent, like civil defense, on a combination of fear and preparation. And as with civil defence, the case of the GOC is particularly important for understanding the relationship between gender and geopolitics during the Cold War. But the GOC's specific relationship to concurrent UFO crazes – sparked in part by reports of mysterious objects from skywatchers – also suggests that the cultivation of Cold War citizens and the creation of a secure continent were both precarious projects.

### **Session W3.2**

Presenter: Garry Fehr

#### **Cultural Politics and the Political Ecology of Forestry Reforms in Madhya Pradesh, India**

By Gerry Fehr, University of the Fraser Valley

Some political ecologists have questioned whether a first world version is distinct from its rural roots in the developing world, thereby relegating culture to a contextual supporting role in the struggle for access to natural resources. This paper argues that not only is an understanding of cultural politics integral to negotiating the maze of India's forest sector reforms but that social institutions of caste and gender at least in part created the structural barriers that the reforms were designed to overcome. The research behind this paper uses a multi-scalar and multi-sited methodology that utilizes participatory mapping, focus groups, household surveys and key informant interviews. The results of this research demonstrate that not only does culture in the form of social institutions continue to protect traditional strongholds of access to forest resources from the urban offices of forest officials to the village sites of benefit distribution, but class and gender continue to informally regulate the operationalisation of forest sector reforms. Although a political economy approach is essential to understanding the broad strokes of India's economic liberalisation and deregulation, it would appear that cultural politics create the boundaries that the reforms are forced to work within and constrain the economic transition's forward momentum.

### **Session T2.3**

81

Presenter: Courtney Fidler

#### **International Strategic Environmental Assessment Experiences in the Offshore Oil and Gas Sector**

By Courtney Fidler, University of Saskatchewan

The purpose of this discussion is to advance what an offshore strategic environmental assessment (SEA) framework in the Canadian North may entail, through the examination of lessons from current practice in the offshore oil and gas sector. International SEA offshore experiences in Norway, Atlantic Canada and the United Kingdom are reviewed to identify how they are being used in other jurisdictions as

mechanisms to integrate existing programs and ensure decisions about development are made in a much broader environmental and socio-economic context. Based on data analysis and key informant interviews, emerging themes and lessons learned are discussed based on key case findings. To bring clarity to the diversity of each SEA system within each jurisdiction, the approach focuses on eight SEA criteria, informed by a set of principles and categorized into three components: (i) structure; (ii) procedure; and, (iii) results/output. The implications and relevance of these results in respect to the Canadian North are considered.

### **Session T1.2**

Presenter: Arcadius Fox

#### **Can Bison Play A Role In Conserving Habitat For Endangered Sandhills Species In Canada?**

By Arcadius Fox, Chris H. Hugenholtz, Darren Bender, Cormack Gates, University of Lethbridge  
Relative to their cultivated surroundings, sandhills of the southern Canadian prairies represent intact, heterogeneous ecosystems. However, due to changes in climate and suppression of natural disturbance, the dunes have experienced drastic rates of stabilization over the past 200 years, such that the proportion of open sand in the region is currently less than 1%. This continuing trend is resulting in a gradual loss of sparsely vegetated, sandy habitat for many uncommon, specialist species, including a number that are considered to be at risk of extirpation or extinction. We contend that the reintroduction of disturbance, such as that created by bison, may be necessary to restore and sustain actively-eroding sandhill habitat for threatened and endangered species. While bison do not currently inhabit the Canadian sandhills, we outline several lines of evidence (geological, geomorphological, archaeological, and historical accounts) indicating they occupied sandhills and actively modified these ecosystems until European settlement of the prairies. Furthermore, we propose that their presence sustained an environmental patchwork mosaic characterized by successional variability over vast spatiotemporal spectrums. In an attempt to sustain biodiversity in the sandhills, management initiatives may do well to consider the possibility of using bison as a natural tool for habitat restoration and conservation.

### **Session W4.6**

82

Presenter: Scott Fraser

#### **Coupling Gis with an Air Dispersion Model to Estimate the Relative Impact of Air Pollution Sources on Human Populations in Central Alberta**

By Scott Fraser, Danielle Marceau, Alexander DeVisscher, Sheldon Roth, University of Calgary  
This paper describes the loose coupling of a comprehensive air dispersion model (CALPUFF) with a Geographic Information System (ArcGIS) to estimate the relative impact of individual air pollution sources on human populations in a large area in Central Alberta. Using ArcGIS libraries in Microsoft Visual Studio, a custom toolbar was developed for ArcMap that contains all the tools necessary for importing and analyzing the CALPUFF results. Using public domain pollution emission data, gridded ground level pollution concentrations were generated with CALPUFF and imported into ArcGIS for analysis. Data of the location and attributes of the population living in the study area were collected for each census dissemination area and integrated into the ArcGIS database. An index called the intake fraction, defined as the fraction of the mass released into the environment from a particular source that is absorbed by a population or a sub-population, was calculated. Maps were generated to illustrate the distribution of ground level pollutant concentrations, intake fractions, and pollution sources. These results will enable users to identify relatively dangerous pollution sources and prioritize decisions

regarding their management. The CALPUFF/ArcGIS system is also capable of scenario modeling to simulate hypothetical conditions of air pollution and population distribution.

### **Session T1.1**

Presenter: Theresa Garvin

#### **Geographies of Suburban Aging**

By Theresa Garvin, University of Alberta

As our population grows older, there is a developing discussion around concepts of aging-in-place, agefriendly

cities, and how built environments can enable or constrain healthy aging. This work presents recent findings from a set of focus groups with seniors representing groups living in inner-ring suburbs (built 1940-1960s) and outer-ring suburbs (built 1980s -2010s) in Edmonton. The project used a photoelicited

method to identify three main emergent themes around aging and sense of place in suburban environments. First, inner-ring residents report strong 'emplacement' with considerable importance placed on retaining links to neighbourhood and community. By comparison outer-ring residents report moving to new neighbourhoods because they are familiar and comfortable environments that are reminiscent of their youth. Second, when preparing for aging-in-place, all residents report a limited time frame of approximately five years ahead in their planning trajectories. Finally, expectations differ between inner-ring and outer-ring suburban residents in what they feel the built environment should or should not provide for them as they grow older. These expectations are embedded in the decisionmaking

process regarding how and where one 'should' grow old.

### **Session W1.1**

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Presenter: Mehdi Gharakhlou

#### **Disaster Risk Based on the Informal Settlements in Iranian Cities**

By Mehdi Gharakhlou, University of Tehran

This paper investigates the informal settlements that are highly at risk by natural and human disasters in Iranian cities. Spontaneous informal settlements have gradually developed during recent decades in the periphery of large cities in Iran. These marginal settlements are the means of access to land and serve as the main sources of shelter for the low-income population migrated from rural areas or poor city dwellers dislodged from existing urban texture. Home to poor inhabitants with insecure employment, and suffering from lack of services and poor physical conditions, the informal settlements are prone to social problems and highly at risk by natural and human disasters.

About one over seventh of population in the cities of Tehran, Mashad, Ahwaz, Bandar Abbas, Kermanshah, and Zahedan live in rapidly expanding informal settlements. This is alarming condition that demands serious attention. The solution should be addressing both the current and the future conditions in a manner different to the conventional policy and practices.

The objective of this article is to provide a voice and vital information for government official and for the public in general. Archival materials, census data, and result of some recently studied projects are analyzed to report the research design and finding of investigation.

The result of this study attempts to reflect the provision of a safe, healthy, living and working environment securing human dignity and social participation, in an inclusive and sustainable manner. In addition, provision of accessible and affordable infrastructure and basic services for all so as to reduce differences in the quality of life in these settlements and the rest of the city, with a view to future expanding demands, and also sharing of these settlements in decision making and local operations.

### **Session F1.2**

Presenter: Jagvijay Pratap Singh Gill

## **Evaluation of SAR Polarimetric Parameters for Sea Ice Classification**

By Jagvijay Pratap Singh Gill, Nidhi Bishnoi, Yohn Yackel, University of Calgary

The study investigates the potential of polarimetric C-band SAR parameters for sea ice classification. Quad-polarized Radarsat-2 imagery acquired during the IPY-CFL 2008 experiment simultaneous to in-situ geophysical and meteorological observations is used to investigate the sensitivity of polarimetric parameters to various ice types, snow depth classes and surface roughness categories. The influence of incidence angle on radar signatures is also examined. A combination of feature space analysis and two classification techniques (Minimum Distance to Means and Maximum Likelihood) is adopted to assess the ice type discrimination potential of each parameter.

Our results demonstrate variable sensitivity of polarimetric parameters to ice types, snow depths and surface roughness categories. The sensitivity also varies incidence angle. Most parameters possessed

84 the capability to separate between three or more classes but none discriminated between all ice types. The highest overall single parameter classification accuracy is observed at 61.12%. Pairing of parameters increased the accuracy by at least 25%. Further increase in accuracy by approximately 5% is observed by tripling the parameters. The highest overall classification accuracy is achieved with the combination of  $\sigma^{\circ}(\text{HH})$ ,  $\sigma^{\circ}(\text{HV})$  and fractional polarization( $f_{\text{p}}$ ) at (99.33%).

### **Poster Session B**

Presenter: David Gordon

## **Suburban Nation? Estimating the size of Canada's Suburban Population**

By David Gordon, Mark Janzen, Queen's University

Canada is a suburban nation. The research for this paper tested a series of models to estimate the proportion of Canadians who live in suburban neighbourhoods. Census tract data was extracted and classified with basic GIS to test definitions of 'suburbs' for all 33 Census Metropolitan Areas (CMAs) and a sample of Census Agglomerations. Anomalies were checked with Google Earth and StreetView and results were examined by an expert panel. Built-Form classifications proved problematic due to wide variations in building types and block morphology across the country. Density classifications proved most useful for classifying exurban and rural areas. The most reliable definitions of inner city and suburban development emerged from journey-to-work data. Walkable cores were areas with higher proportions of active transportation (walking and cycling). Twelve models for classifying suburbs were attempted, with the most credible results emerging for a classification of Walkable Cores, Transit Suburbs, Auto Suburbs and Exurban areas. These classification models estimate that the suburban areas make up approximately 80% of the metropolitan population and 66% of the national population.

### **Session T3.6**

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Presenter: Richard Gorecki

## **TECTERRA - A Catalyst for Applied Research in Geomatics**

By Richard Gorecki, TECTERRA Inc.

TECTERRA Inc. is a national organization supporting the Canadian development and commercialization of geomatics technologies for integrated resource management. With current funding from the Province of Alberta and Government of Canada, TECTERRA invests in technology solutions for energy, forestry, agriculture, environment, and land management and development applications. The first centre of its kind, TECTERRA works with researchers, industry, entrepreneurs and government partners to enable the use of geomatics technologies in addressing local, national and global challenges in resource management.

This presentation will provide an overview of TECTERRA's mission, structure and investment programs. Particular attention will be focused on TECTERRA's programs designed to support Universities and other areas of applied geomatics research.

## **Session T4.1**

Presenter: Penny Gurstein

### **Opportunities and Challenges in Community-Based Research: Reflections from the Field**

By Penny Gurstein, Margot Young, University of British Columbia

This paper analyzes the opportunities and challenges surrounding community-based research (CBR) with the goal of better informing the use of this methodology and focus in a variety of contexts. CBR is broadly defined as research that: is generated from and calibrated to the concerns of a community; is located in a community setting; has a research agenda that is equitably controlled by both community members and researchers; and has a process and research results that are useful to community members' aspirations for social change. Because of the emphasis on social change as a key element of such research, typically the community population it accesses are disproportionately disadvantaged and marginalized. Research for this study is in two phases. In the first phase, the experiences of participants from both the university and community perspective in CBR projects in the Downtown Eastside, one of the poorest neighbourhoods in Vancouver, were assessed through focus groups and in-depth interviews to understand how these partnerships best function and what difficulties they encounter. The second phase expands the scope of this research both geographically to a rural/ remote First Nations community and methodologically to address: Whether we need common or locally specific protocols for engagement, conduct of research and dissemination of findings? This paper specifically analyzes the findings from the DTES phase. The paper findings point to the many benefits to CBR for both researchers and the community, but also identifies challenges to its effectiveness. Members of studied communities report dissatisfaction and disenchantment with involvement in university-based community initiatives. The benefits to the community and its participants are not always clear or straightforward. The relationship between the academy and the community in and around these initiatives can be fraught, and the ethical issues complex. Our paper analyzes the research findings so far, and speculates on key aspects of effective, responsive, respectful, and relational university originated community-based research partnerships.

## **Session T1.6**

86

Presenter: Ryan Hackett

### **Certifying the Status Quo: Investigating the Role of FSC Certification in the Management of Ontario's Forest Resources**

By Ryan Hackett, York University

After years of government efforts to promote certification in the province many of Ontario's forest management units are now certified to one of three internationally recognized standards. Widely considered the most rigorous of these programs, the Forest Stewardship Council (FSC) plays a particularly strong role in the province and is intended to provide independent third party verification that forests are managed in a manner that is socially, economically and ecologically sustainable. However, during the same time period that saw substantial progress in FSC certification forest dependent communities in the province faced mill closures, job losses, and disputes over allocation which threatened social sustainability. What explains this apparent contradiction? Why has certification emerged as one of the dominant paradigms in the management of the province's forests and who benefits from the dynamics of this policy approach?

An investigation of the relationships at the core of Ontario's forestry crisis suggest that structural policy reforms, including amendments to provincial tenure and wood allocation systems, are required to address social sustainability in Ontario's forest dependent communities.

## **Session F1.4**

Presenter: Douglas Hagedorn

### **An Affordance Based Approach to Improved GIS Access for Blind and Visually Impaired Users**

By Douglas Hagedorn, Dan Jacobson, University of Calgary

Greater emphasis has recently been placed on the performative nature of mapping. Proponents of this perspective contend that cartography has been hampered by a preoccupation with viewing maps in terms of what they represent and mean, rather than what they do. Recognising the affordance qualities of maps – properties that define what actions a map facilitates, for whom and how – creates opportunities to change the interactive relationship between map and map user.

This study introduces an affordance-centric approach to geographic information system design intended to help improve map accessibility for blind and visually impaired people. The system documented here, referred to as the Functionally Separated Multi-Modal Mapping System [FuSe-Map], was developed using an interactually rich systems analysis methodology to identify key affordances needed by nonsighted

map users. This system leverages recent innovations in human computer interaction technology, such as motion capture body tracking, magnetic haptics, and speech recognition, to achieve the desired affordances. Affordable, open source and commercially available componentry were used to implement this design. Initial proof-of-principle tests to this prototype system, performed by users with simulated vision impairment, indicate a high degree of viability for improving non-visual access to coarse spatial representations.

#### **Session W4.7**

87

Presenter: Heather Hall

### **For Every Region, Regional Development Agencies: The History and Next Generation of Regional Development in Canada**

By Heather Hall, Queen's University

Spatial inequalities are a distinctive feature in a country as vast as Canada. Over the years these inequalities have profoundly influenced public policy regarding regional development. In 1987, regional development in Canada became the responsibility of three regional development agencies (RDAs) and one regional development organization: Atlantic Canada Opportunities Agency; Western Economic Diversification; Federal Office of Regional Development-Quebec (1991); and FedNor. The RDAs were created in response to growing criticism over the effectiveness of the Department of Regional Industrial Expansion in managing spatial disparities. The roles of the RDAs vary across the country but all coordinate national economic development activities in their respective regions. Initially, they were only established in the peripheral regions of the country, like: Atlantic Canada; Northern Ontario; Western Canada; and Quebec. In 2009, two new regional development agencies were created FedDev Ontario and CanNor. However, the creation of FedDev Ontario has sparked a debate about regional development: should resources be focused on the more dynamic and growing regions of the country or managing spatial disparities and the needs of peripheral regions? This paper will briefly outline the history of regional development agencies in Canada and the changing nature of policies and strategies using FedNor as a case study. It will argue that regional development is moving away from supporting peripheral regions to treating unequal regions equally.

#### **Session T3.2**

Presenter: Mathew Hall

### **Values and Attitudes of Irrigators towards Water Reallocation Policies**

By Matthew Hall, H. Bjornlund, W. Xu, University of Lethbridge

Water scarcity has become a reality in the South Saskatchewan River Basin (SSRB) where irrigation



activities account for more than 70% of consumptive water use. Growing demand for water in the SSRB is therefore likely to require re-allocation of water from the irrigation sector to meet new demand. In order to achieve this, the cooperation of the irrigation sector is needed. Research suggests that currently a large portion of irrigators are sceptical about water transfers and particularly the reallocation of rural water to meet new urban and environmental demand. To overcome this, it is essential to understand the factors that influence this scepticism. Little research has been conducted concerning the values and attitudes of irrigators towards water reallocation in the SSRB. This research will attempt to fill this knowledge gap through reviewing the literature on past water policies, perception-response research and social psychology research. A conceptual model will be constructed based on the literature in order to conduct future field studies. It is expected that the findings will indicate that values and attitudes of irrigators' concerning water reallocation are influenced by past and present water policies in Alberta, and their connection to a rural lifestyle.

### **Session W3.3**

88

Presenter: Mryka Hall-Beyer

#### **Project Explorer: 10 Years of Undergraduate Geographers in the K-12 Classroom**

By Mryka Hall-Beyer, University of Calgary

The Geography Department at the University of Calgary has since 2003 offered "Project Explorer", a one-semester winter term course for senior students. This project was initiated by an honours undergraduate following a model pioneered by the Biosciences Department, and has been further developed and mentored by myself as a faculty member. Individual students are paired with elementary or junior-high teachers to plan and carry out enrichment projects in the classroom related to the Alberta science or social science curriculum, which contains geographical concepts but nothing formally termed "geography." In addition to in-classroom work, Explorer students meet on campus to receive instruction, present and discuss their plans and problems, and engage in questioning broad geographical ideas and their application to novel situations. They present an activity and thought journal and a formal reflection paper. Marking is based on this, on class participation, and on a teacher evaluation. The Geography Department partners with Calgary Science Connection to recruit teachers, and our students' work constitutes volunteer hours for them as well as a UofC course.

Over 50 students have completed this course. Projects have ranged from single classroom ideas to field trips to multi-class projects, from kindergarten through 8th grade, covering all aspects of Geography. The emphasis is not on geographers as student teachers, but rather on geographers as public communicators, in this case to an audience of teachers and children.

### **Session T2.5**

Presenter: Bonnie Hallman

#### **Families, Memories and Place: A Critical Examination of Disney's 'Let the Memories Begin' Campaign**

By Bonnie Hallman, University of Manitoba

Families spending quality leisure time together is viewed as an integral practice in successful parenting, building the emotional bonds between parents and their (young) children through togetherness. Those places that support/reinforce the desirability of time spent in family-centred recreation are cherished locations in family geographies. These same locations figure prominently in family photography, a ubiquitous social practice 'capturing' family groups engaged in 'togetherness' activities. The Disney theme parks have iconic status as 'family-friendly' leisure environments, responsive to the desires of their primary patrons, family groups. In this paper, I critically explore the co-construction of place, memory and family identity as evidenced in the current 'Let the Memories Begin' promotional campaign. I look at the use of social media by families to share images, videos and 'stories' about their experiences and memories of family vacations in the Disney parks. I also examine the 'The Memories,

The Magic and You' show. Here family images taken in the parks are daily incorporated into a projected image, animation, and musical show where family photographs and memories are projected publicly, embedded in the very place of family leisure (i.e., onto Cinderella's Castle).

### **Session W1.2**

89

Presenter: Lars Hallstrom

### **Water, Watersheds and Health: Integrating Ecohealth and Watershed Management Approaches**

By Lars Hallstrom, University of Alberta

Governance that explicitly integrates social and environmental considerations with the determinants of health and well-being is widely supported by international institutions and reports, but under developed both theoretically and in application. In response to this, the Network for Ecosystem Sustainability and Health (NESH) has been working from the premise that a promising approach to managing the complex, reciprocal interactions among ecosystems, society, and health is the integration of the ecohealth approach (which holds that human health and well-being are both dependent on ecosystems and are important outcomes of ecosystem management) with watershed-based water resources management. This paper presents, through the collaborative work of NESH:(1) the importance of water as an effective unit to link such practices; (2) the theoretical and diagnostic potential of the watershed governance prism developed by the authors; (3)the applicability/utility of the prism as a heuristic to guide watershed management; and (4)the initial results of 5 Canadian case studies examining how watersheds affect human health and well-being using this integrative framework to link health, ecosystems, equity and watersheds.

### **Session W3.3**

Presenter: Randolph Haluza-DeLay

### **Conceptualizing Environmental Justice in the Alberta Oilsands**

By Randolph Haluza-DeLay, The King's University College

Environmental justice scholarship has often focused on spatial correlations of environmental risks. I use the example of the Alberta oilsands to develop deeper questions of environmental justice. In the process, I also demonstrate the question of "just sustainability" to be a form of recognitional justice insofar as it requires new social imaginaries of equity and broader conceptualizations of the just and good socio-ecological order. Following Schlosberg, that injustices are "constituted in part by the structures, practices, rules, norms, language, and symbols that mediate social relations", this paper also argues that environmental justice scholarship and activism would be improved by an analysis of production and normalization of difference and inequality. Recent high level reports on the Alberta oilsands have both contested and supported the existing government frameworks and industrial operations. The conclusions of these reports rest of particular conceptions of science that may perpetuate oilsands-related injustices for Aboriginal peoples downstream and the Alberta citizenry. Moreover, such epistemic conceptions cast as illegitimate any attribution of the concerns of justice for other elements of the ecosphere, such as caribou and the Athabasca River.

### **Session T3.3**

90

Presenter: Randolph Haluza-DeLay

### **Permaculture as Political Ecology**

By Randolph Haluza-DeLay, The King's University College

Permaculture is a sustainability initiative in which small-scale food production and naturesscaping in human-dominated environments (like a city) is deliberately conducted. Permaculture suggests a trajectory towards the reintegration of the human species within the local ecology. Edmonton has a thriving permaculture community. This community has branched in several directions, including "River

City Chickens”, guerrilla gardening, Operation Fruit Rescue, and other efforts to promote sustainability. Some of these initiatives have had to directly engage city policy, politicians, bureaucracy and sociopolitical

norms. I analyse these processes using a lens informed by political ecology and cultural politics, that is, “an approach that treats culture itself as a site of political struggle, an analytic emphasizing power, process and practice” (Moore, Kosek & Pandian, 2003, 2). The Edmonton permaculture network has engaged in cultural politics at two levels. The first level is a result of the transformation of individual yards, which have often breached neighbourhood norms, creating contestation about place and practices. The second level is a result of encountering public policies that inhibit ecologically-aware practice. The effort to constitute an environmental citizenship necessarily involves attention to the cultural dimensions as it involves negotiation and contestation over the form and legitimacy of an ecological habitus on the social field.

### **Session T2.3**

Presenter: Shishir Handa

#### **Evapotranspiration Comparison between a Field at the Kortright Centre for Conservation and a**

#### **Rooftop at Downsview Park, April to November, 2010**

By Shishir Handa, Richard Bello, York University and Glenn MacMillan, Toronto and Region Conservation Authority

Despite the fact that evapotranspiration (ET) is the dominant component of the hydrologic cycle, consuming 62% of precipitation over the North American continent on average, it is rarely measured. This adversely affects our ability to understand and model how changes in land-use or climate change might impact other components of the watershed such as the water table, stream runoff and flooding and associated erosion.

This study compares simultaneous ET estimates over two contrasting surface cover types within the Greater Toronto Area and examines their role in the water budget over the snow-free season. Natural areas within the Humber River Watershed in Ontario are being rapidly transformed by development and could shift urban hydrological dynamics. The objectives of the study were to explore factors responsible for variations in evaporation; evaluate methods of measuring evaporation; and model water and energy budgets.

ET fluxes were measured over an eight month study period from April to November, 2010 using two Bowen Ratio Energy Balance (BREB) systems located in a naturalised field and on an impervious gravel rooftop. The systems are semi-automated and utilize infrared gas analysis technology. Adjacent to the

91 BREB on the rooftop, a weighting lysimeter filled with rooftop gravel was installed as an alternative means of measuring evaporation and run-off, which yielded comparable results. Additionally, an evaporation pan at the field site was observed, on a limited time scale, to mimic daily evaporation with the adjacent BREB.

Both experimental sites received similar inputs of precipitation during the study period of approximately 675 mm. However, the field precipitation values ranged from 19 mm per month to 214 mm per month whereas the rooftop had corresponding precipitation values of 36 mm per month to 188 mm per month during 2010. Average Bowen ratios from the field marginally exceed values of 1.0 while on the impervious rooftop values of just over 6.0 were experienced. The proportions of net radiation consumed by the latent heat flux were approximately 40% and 14%, respectively. ET as a proportion of precipitation averaged 71% at the field site but only 19% over the built surface. Consequently runoff from the built areas as a proportion of rainfall was 81% compared to 29% for the field site resulting in an increase in runoff by a factor of 2.7 over the whole study period.

### **Session W3.6**

Presenter: Neil Hanlon

### **Stealth Voluntarism, Social Entrepreneurship, or What? Making Sense of Place Integration in Underserved Setting**

By Neil Hanlon, University of Northern British Columbia

A decade of research in northern British Columbia has brought to light cases of health care professionals providing exceptional levels of service in conditions of persistent resource scarcity and general underservicing.

Sometimes, this takes the form of voluntarism by stealth, where providers give extra of their time and talents to fill gaps in care (Hanlon et al. 2010). Other times, networks have been employed to enhance local service capacity in what I would deem instances of social entrepreneurship (Farmer and Kilpatrick 2009). What appears to connect these cases is a strong sense of professional commitment to place (Hanlon et al. 2009). In this presentation, I outline the beginnings of a framework for advancing the concept of place integration that revisits Cutchin's (1997) original formulation and reflects on themes emerging from various research initiatives carried out in a range of urban and small town settings. Attention to processes of place integration may help us identify conditions under which health care innovation and network synergies are made possible in challenging service delivery environments (e.g., small towns, inner city neighbourhoods). I conclude with a brief discussion of plans for future research in which these ideas will be explored in greater depth.

#### **Session W1.1**

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Presenter: Lauren Harding

### **Bagging Peaks and Busting Trails: Place-Making in the Canadian Rockies**

By Lauren Harding, University of British Columbia

Based on ethnographic research conducted during the summer of 2009, I will explore discourses of landscape and memory created through the activity of backpacking. Using the town of Banff as my 'base-camp', I hiked the surrounding trails, interviewing other Canadians engaged in both the literal and figurative exploration of wilderness through backcountry camping. Arguably, the activity itself is founded upon a modernist (and colonial) separation between nature and culture, and backpackers continue to reify this separation through their idealization of wilderness. However, because hikers engage in a much more tangible and direct way with the landscape than most tourists, they are often simultaneously confronted with places, moments, and actions that do not fit clearly into the paradigm of a pristine wild space. By traversing the landscape, hikers have a sensory encounter with place that possesses far more depth than the panoramas of a typical tourist photograph. Blood, sweat and tears are often shed on these trips, and encounters with snow, hail, rockslides, and wildlife transform the experience. Hiking thus acts as a more complex form of 'place-making' than usually construed in discourses of tourism, and yields insights into the ways in which Canadians imagine and engage with their 'wild backyard'.

#### **Session F1.5**

Presenter: Dan Harrington

### **“When Death Hides in a Snack Bowl”: Attribution of Food Allergy Messages to Sources in the Canadian Media**

By Dan Harrington, S.J. Elliott, A.E. Clarke, McMaster University

Food allergies are newly emerging environmental health risks in Canada and other western industrialized countries, and perception is that the prevalence is increasing. Public perception, however, is that the prevalence of food allergies is much greater than systematic estimates suggest. As food allergies increasingly permeate our everyday environments (e.g. schools, workplaces), we explore how

the associated risks are constructed through the media. In particular, nine years of media coverage of food allergies (598 articles) are analyzed through the lens of issue framing and claims-making. Results show that there are numerous social actors (i.e. advocates, health professionals, affected individuals) competing to define the risks of food allergies. However, discussions around policy action are dominated by affected individuals and members of advocacy groups, while researchers and health professionals are most likely to be represented in stories framed to diagnose the causes. As the framing of food allergies continues to shift over time from stories defining food allergies as a problem, to issues of solutions and regulation, the discussion is becoming increasingly one-sided with affected individuals leading the charge. This has potential consequences for public understanding, perhaps partially explaining the disjoint understanding of food allergy risk between the lay public and the scientific community. These findings will be discussed in terms of their relevance to risk communication and policy around newly emerging environmental risks.

### **Session F2.2**

93

Presenter: Jill Harvey

#### **Mid Holocene and Little Ice Age (LIA) Glacier Activity in Central Coast Mountains, British Columbia**

By Jill Harvey, University of Victoria

Recent dendroglaciological and lichenometric research in the central British Columbia Coast Mountain region contributes to our understanding of Holocene glacier activity. Dendroglaciological investigations at Jacobsen Glacier led to the discovery of the remains of subalpine fir trees overwhelmed and buried by an interval of mid Holocene ice expansion. Located at ice level within the northern lateral moraine, *insitu*

stumps, ice pressed logs and multiple detrital wood samples crossdate to form a mid Holocene 14Cage constrained floating tree-ring chronology. The remains of woody detritus exposed in an incised Gilbert-type delta complex are interpreted to describe the mid-Holocene expansion of Fyles Glacier. Radiocarbon evidence describes subsequent periods of significant ice expansion in 2500 and 1100 14C years BP. Lichenometric surveys on the surface of prominent terminal and lateral moraines at Deer, Fyles, Jacobsen and Pattullo, Purgatory glaciers strengthen our understanding of the timing of Little Ice Age ice front fluctuations. The findings of these investigations provide supporting evidence for regionally consistent periods of glacier expansion.

### **Session W1.6**

Presenter: Geoffrey Hay

#### **Empowering Urban Energy Efficiency with Residential Waste Heat Monitoring: The HEAT Project – Phase I**

By Geoff Hay, Christopher Kyle, Bharani Hemachandran, Gang Chen, Mir Mustafizur Rahman, University of Calgary

Canadian buildings account for approximately 35% of all emitted green house gasses (GHG), use 33% of Canada's total energy production and consume 50% of Canada's natural resources, of which the majority is used for space and water heating. Space heating provides one of the best opportunities for energy cost savings, but the most cited obstacle to energy efficiency improvements is the lack of interest from consumers. This is little surprise when one considers what does energy efficiency really look like? Where is it located, and how do residents know that their home – not the energy saving devices used inside it – is energy efficient?

The HEAT (Home Energy Assessment Technologies) pilot project is a FREE GeoWeb mapping service, designed to empower the urban energy efficiency movement by allowing residents to visualize the amount and location of waste heat leaving their homes and communities as easily as clicking on their

house in Google Maps. HEAT incorporates Geomatics solutions for residential waste heat monitoring using Geographic Object-Based Image Analysis and Canadian built Thermal Airborne technology (TABI 320) to provide users with timely, in-depth, easy to use, location-specific waste-heat information; as well as opportunities to save their money and reduce their GHG emissions. We report on the (2010) HEAT Phase I pilot project which evaluates 358 residences in the Brentwood community of Calgary, Alberta, Canada. Phase II (2011) will scale to 33,000 homes; and Phase III (2012) to the entire city (300,000+ homes).

### **Session W3.7**

94

Presenter: Paul Heersink

#### **Canada's Community Map Program**

By Paul Heersink, Canadian Cartographic Corporation

Canadian Cartographics Corporation is a mapping company that produces street and road map products in the form of paper folded maps and atlases. Though much of the mapping industry has moved to using GIS as the means for producing maps, CCC continues to use graphic software such as Freehand and Illustrator. The paper will describe the process employed for updating and creating products at CCC, including research, map updating, layout and quality control.

### **Session T4.1**

Presenter: Karen Heisler

#### **Territorial Jurisdiction in Rural Regions: Informal Inclusion and Formal Exclusion in Resource Development**

By Karen Heisler, Simon Fraser University

This research explores how complex systems of territorial jurisdiction distribute rights to control and benefit from land and resources in rural regions. Institutional jurisdictions weave a tapestry of inclusivity and exclusivity, defining access to power and financial benefits from resource development. This paper uses the proposed Northwest Transmission Line in British Columbia, as a case study to analyse the inclusivity and exclusivity of regional communities in the formal environmental assessment process and the informal lobbying of the mineral development industry. Results reveal how First Nation governments and municipalities have disparate territorial rights in the negotiation of benefits with the Crown and the resource sector. First Nation communities, claiming territoriality through the treaty negotiation process, are able to assert territorial control outside of the jurisdictional structure that restricts regional districts and municipal government. Within the context of this rural region, it creates a process of inclusion and exclusion, and spheres of formal and informal control of development. For rural regions, this raises important questions about territorial jurisdiction structural barriers that inhibit the equitable participation and collaboration of First Nation and non-First Nation local governments in benefiting from resource development occurring within rural regions.

### **Session F1.4**

95

Presenter: Bharanidharan Hemachandran

#### **Developing a Roof-Shape Heat-Loss Index to Enhance Urban Energy Efficiency: A GEOBIA and Data Mining Approach**

By Bharanidharan Hemachandran, University of Calgary

This research is conducted as a part of Home Energy Assessment Technologies (HEAT) Phase I Pilot Project that evaluates 350+ homes for energy efficiency in the Brentwood community of Calgary, Canada. It aims to generate Geomatics solutions with thermal infrared imagery (TIR) to encourage urban energy efficiency. On average, Canadian buildings use 33% of Canada's total energy, of which the

majority is used in space heating. Thus, space heating provides one of the best opportunities for energy savings. Energy consumption for space heating increases with heat loss through poorly insulated attic or roof ventilation. The primary purpose of attic ventilation is to vent moisture that moves from the living envelope to the attic. As the complexity of attic and roof assemblies increases, the difficulty to construct airtight barriers also increases. Thus, it is highly likely that complex shaped roofs generate more waste heat and consume more energy than simple roof shapes. This research aims to determine relationships between home heat-loss and roof-shape parameters (i.e., number of vertices, sloping surfaces, area etc), extracted from a 30cm RGB ortho aerial-image, using a combination of a data mining techniques and Geographic Object Based Image Analysis (GEOBIA) methods. The identified relationships will be used to develop a roof-shape heat-loss index that will inform owners of their homes' waste heat potential. Municipalities could use this index to identify homes for energy retrofit programs.

### **Session W3.7**

Presenter: Rachel Herron

#### **Emotional Geographies of Aging and Care: A View from Rural Ontario**

By Rachel Herron, Mark W. Skinner, Trent University

This paper examines individuals' lived experiences of aging and caring, together, in rural and small town Canada. Informed by evolving theorizations within the geographies of care literature and emotional geography, we outline the complexity of informal care relationships and the contingency of care needs in the rural context. This paper contributes to the geographies of rural aging and rural health by investigating the vulnerability, resilience and activities of older individuals and their support networks, concurrently. Featuring a thematic analysis of interviews and focus groups with older people and their carers in Peterborough County, the findings confirm the fundamental role of family members, neighbours and friends in providing rural care, while also identifying specific meanings of care and challenges to "being there" to care as, and for, aging individuals. We argue that the emotional complexity of aging and care, in place, is central to understanding how care needs are addressed and what demands for assistance are voiced both, within care relationships, and more broadly as citizenship demands. The research raises critical questions about the capacity and limitations of informal care in the rural context by calling attention to the distinct needs of individuals and specific groups within rural communities.

### **Session W1.1**

96

Presenter: Jennifer Hird

#### **Geospatial Technology for Biodiversity Monitoring in Alberta, Canada**

By Jennifer Hird, Guillermo Castilla, Greg McDermid, University of Calgary

To answer the current need for province-wide scientific information on biological diversity in support of sustainable resource management and decision-making in Alberta, the Alberta Biodiversity Monitoring Institute (ABMI) employs a multi-scale approach integrating traditional ground-based data collection along with geospatial technologies enabling the broader capture of relevant Albertan landscape features. Aerial photography provides detailed tracking of habitats and human footprint in areas around ground sites, while satellite data sets will offer coarser, spatially-exhaustive landscape monitoring for all other areas. We present a novel, local-scale mapping approach that incorporates traditional aerial photography with current GIS data handling capabilities into a flexible and effective means of capturing landcover, landuse, and infrastructure. This is supported by a set of custom, semi-automated quality control tools and procedures that were developed to ensure consistent, reliable mapping. At a broader scale, wall-to-wall remote sensing-based mapping has been initiated to provide a central repository of up-to-date information on landscape conditions across the province that would support additional monitoring and land use planning initiatives. We showcase the integration of various geospatial tools in an innovative, province-wide biodiversity monitoring program that represents the first of its kind in

North America, and one of few such programs world-wide.

### **Session W2.7**

Presenter: Md. Mosharraf Hossain

#### **Evaluation of Thermal Influence on the Microwave Backscatter of Snow-Covered Smooth First Year**

##### **Sea Ice (FYI) Using SAR Data**

By Md. Mosharraf Hossain, John Yackel, Christopher Mark Fuller, University of Calgary

Understanding of the snow distribution over first-year sea ice (FYI) is essential for the study of climate dynamics. However, availability of scale-appropriate geophysical information is limited due to spatial and temporal heterogeneity. The ice melt processes are controlled by the physical and dielectric properties of the snow cover on FYI. Numerous studies have been conducted to apply electromagnetic interaction theory to measure vertical snow distribution over homogeneous sea ice surface. In this study, we evaluate the capability of fully-polarimetric Synthetic Aperture Radar (SAR) backscatter ( $\sigma_0$ ) to detect the change of snow distribution over FYI in early spring melt period. This study reveals a temperature variation effect over smooth FYI using in-situ geophysical measurements and RADARSAT-2 SAR data acquired during the early spring of 2009 at Hudson Bay, Churchill, Manitoba for warm ( $\sim -5^\circ\text{C}$ ) and cold ( $\sim -9^\circ\text{C}$ ) sea ice interface temperatures. We have observed that greater variation in the physical properties of snow and brine occurs in thick snow covers ( $\sim 40$  cm), when compared to thin snow cover ( $\sim 10$  cm). This study also demonstrates differences in backscatter for thick ( $\sim 3$  to  $4$  dB) and thin ( $\sim 2$  dB) snow cover subject to identical weather forcing over a 31 day period.

### **Poster Session B**

97

Presenter: Kyle Howard

#### **Provision of Ecosystem Services: Landowners' Acceptance of Market-Based Instruments**

By Kyle Howard, W. Xu, J. Bjornlund, University of Lethbridge

There are increasing demands for supplying ecosystem services (ES) to alleviate the ecological degradation of wetlands, lakes and rivers. A number of market-based instruments (MBIs), including payments for delivering ES, funding mechanisms, tax breaks, and environmental taxes, are proposed to complement regulations to manage the supply of ES worldwide. In order to ensure the effective adoption and implementation of MBIs, it is imperative that the proposed suite of MBIs be developed for specific issues in a regional context and also be accepted by those affected. Using data from a telephone survey of rural landowners in southern Alberta, this paper investigates the willingness of landowners to supply ES and how their willingness is associated with their values and attitudes toward the provision of ES through MBIs, as well as their personal and land characteristics. Landowners are grouped into common value orientations, based on economic, environmental and lifestyle value questions. The Theory of Planned Behaviour is adapted as a conceptual framework to model the influential factors for each of value orientations identified on their willingness to supply ES. This research contributes to designing locally acceptable MBI programs and helps to effectively implement such programs in delivering ES at a regional level.

### **Session F1.4**

Presenter: Carol Hunsberger

#### **Tracking International Patterns of Investment in Biofuels**

By Carol Hunsberger, Carleton University

Arguments in favour of expanding the use of liquid biofuels generally focus on the themes of climate change mitigation, rural development and energy security. But biofuels clearly also represent a lucrative business opportunity. Recent years have witnessed a surge of investment in biofuel production, particularly in the global South. In this paper I investigate the extent to which fluctuations of interest in a



particular biofuel crop – *Jatropha curcas*, an oilseed shrub – coincide with international economic and policy trends. I track public announcements of investments or land deals that have been designated for *Jatropha* projects from 2006-2010, showing how these have been distributed geographically and over time. I then compare the resulting pattern with a timeline of key events including major changes in the price of oil and the announcement of energy policies with likely implications for biofuels. I undertook this small project to contextualize primary research on the politics of development surrounding the promotion of *Jatropha* in Kenya. The results may contribute to a broader understanding of the relationships between markets, biofuel policies, and investment decisions, and hint at further questions about the unintended consequences of biofuel policies conceived in the name of environmental protection and the public interest.

### **Session W4.3**

98

Presenter: Jasmine Ing

### **Integrated Landscape Research and Graduate Environmental Education: Student Reflections**

By Jasmin Ing, Katie Morrison, Lynette Hiebert, University of Calgary

“There is a marked predominance of evidence on learning outcomes, but very little about learning processes.” –Mark Rickinson, (2001, p. 216)

This presentation is a reflection on our graduate landscape research learning process in a master’s level environmental design course. As a group of University of Calgary graduate students from diverse disciplinary backgrounds, we engaged in four progressive exercises structuring our learning process around landscape change in a social-ecological system in the Calgary region.

Traditionally, academic landscape research has used fragmented, disciplinary approaches - however, Antrop (2006) identifies a trend toward transdisciplinarity in landscape research. Challenges exist for students transitioning from a disciplinary perspective to transdisciplinary research (Tress, Tress, Fry & Antrop, 2006). To address these challenges, environmental education literature calls for “questions about learning processes and learning experiences to become a more routine part of programme evaluations and research inquiries” (Rickinson, Lundholm & Hopwood, 200, p.104).

Our learning process reflection focuses on three aspects of this project: experiential learning, transdisciplinarity, and “design thinking.” This presentation contributes student-centered perspectives to the dialogue on integrative landscape research education, extends the inquiry on experiential learning cycles through critical reflection, and contributes to the improvement of pedagogy in transdisciplinary approaches to landscape research.

### **Session T1.5**

Presenter: Michal Isaacson

### **Mobility of Elderly People: A Geographic Perspective**

By Michal Isaacson, The Hebrew University of Jerusalem

The population of the developed world is aging. Falling mortality rates, along with declining fertility, are leading to the growth of the elderly population both in absolute numbers and in terms of the percentage of society they comprise. On a national and international level, this change in the demographic composition of the developed world has many implications on the vitality and economic sustainability of our society and thus has been a subject for intensive research.

Mobility (defined as “the physical ability to move freely”) in general and specifically outdoor mobility is a prerequisite for partaking in social, commercial and cultural activity in our society today. The mobility of elderly people has been studied from the perspective of different disciplines mostly, Transportation Studies and Gerontology but has not received much attention in the Geographic literature.

This paper presents findings from research that studied the mobility of elderly people living in the Tel-Aviv (Israel) Metropolitan area using data that was collected during 28 consecutive days as part of the

SENTRA project. SENTRA is an Israeli-German project that studies the mobility of people with Alzheimer's disease and other related cognitive disorders using GPS and RFID technology.

#### **Session W4.1**

99

Presenter: Sabine Jessen

#### **Advancing a Network of Marine Protected Areas in the Canadian Arctic: An Urgent Conservation Issue**

By Sabine Jessen, Tyson Daoust, Wolfgang Haider, Canadian Parks and Wilderness Society

The establishment of marine protected areas in Canada has been a slow process, and no more so than in the Canadian Arctic. Given accelerating climate change, the interest in developing Arctic energy and mineral resources and various human stressors on the Arctic marine environment, there is a need to learn from past experiences with the few MPAs in this region, and to develop new approaches for future ones that will also meet the aspirations of Inuit communities. The context for marine conservation varies significantly between the western and eastern Arctic regions, and new MPAs in the Beaufort Sea and Davis Strait, shed light on the challenges and opportunities inherent in current social, political and institutional contexts. New sites are being contemplated in each region, including a commitment to establish a new MPA in Lancaster Sound at the eastern entrance to the fabled Northwest Passage, and the federal government is currently developing a national MPA framework to guide a bioregional MPA network in the Arctic. It is important to understand the contextual circumstances and governance arrangements in the Arctic, which will invariably determine the pace of progress and characteristics of these new sites, and has implications for how planning for MPAs and industrial uses will proceed.

#### **Session T2.2**

Presenter: Xiongbing Jin

#### **Evaluating the Traffic Impacts of Neighbourhood Designs Using Multi-Agent Models**

By Xiongbing Jin, Roger White, Memorial University of Newfoundland

Post-war suburban neighbourhoods are often criticized for promoting automobile use and leading to problems such as traffic congestion, air pollution, automobile reliance, limited transit access and reduced social interactions. Newer designs, such as the neo-traditional and fused grid designs, aim to ameliorate these problems. But neighbourhood trip and traffic patterns are the collective outcome of individual decisions. Such phenomena often cannot be adequately explained by traditional aggregated methods. With consideration of personal characteristics, preferences and feedbacks between pedestrian and automobile traffic, an agent-based trip and traffic simulation model was developed and calibrated based on data from Ottawa, Ontario. Experiments show that the neo-traditional and fused grid designs generally provide more pedestrian benefits such as fewer crossings, shorter facility-access distance, less emission exposure and more social interaction opportunities, but these benefits also depend on the implementation such as the location of pedestrian-only routes. The influences are often complex. For example, elimination of pedestrian-only routes may lead to more social opportunities, but also much higher emission exposure. The study shows the importance of complex system based study of urban and neighbourhood designs, and the promise of a meso-level approach to urban and transportation simulation that can improve planning outcomes.

#### **Poster Session A**

100

Presenter: Peter Johnson

#### **What motivates governments to collect and use VGI?: Evidence from rural development in Quebec, Canada**

By Peter Johnson, McGill University

There are strong implications for the use of VGI to revolutionize the way in which citizens are engaged

with their government, invigorating the democratic process, and encouraging greater participation in local decision-making. These factors are particularly relevant to rural communities, where emigration has reduced available human, social, and economic capital required for development, and external pressures generated by urban and suburban sprawl, reduced or absent government services, and a legacy of environmental degradation pose difficult challenges for citizens and decision-makers that wish to develop vibrant and sustainable rural communities. This is the promise of VGI for rural development - that the individual can become engaged as the producer of important geographic information, and is able to share it with others, re-routing flows of information and power, effecting policy change. This presentation describes recent work on the potential for VGI as a form of citizen participation in rural development, and the associated adoption process within multiple levels of government. Based on research conducted in rural Quebec, Canada, I trace the motivations behind the gathering and use of VGI as part of a coordinated attempt to (a) increase government transparency and public participation and (b) devolve responsibility for land use decision-making from the provincial to the municipal level. This research uncovers the specific and sometimes conflicting rationale behind government interest in VGI.

### **Session F1.6**

Presenter: Marilyne Jollineau

#### **Vineyards and Geography: A Spatial Connection**

By Marilyne Jollineau, Victoria Tasker, Brock University

The increased availability of precise and accurate geospatial information about vineyard variables that are known to influence winegrape production (such as topography and soil) allows vineyard managers to make better decisions about their vineyards. Existing studies suggest that geospatial technologies, such as global positioning systems (GPS), remote sensing, and geographic information systems (GIS), can be used to obtain information about these variables, including their spatial and temporal variability. This is significant since variability can influence winegrape quality and yield, and can ultimately impact wine quality. This study investigates the use of geospatial technologies for improved vineyard management at Stratus Vineyards in the Niagara Region of Ontario. In this study, a GPS is used to map vineyard blocks and demarcate samples vines throughout Stratus Vineyards while remote sensing is used to monitor soil moisture and vine vigour; two variables that are known to influence winegrape quality and yield. Field data are collected over two growing seasons to better understand the spatial and temporal stability of these variables. These data are subsequently integrated into a GIS where spatial analyses are used to quantify vineyard variability. Results indicate that geospatial technologies can provide vineyard managers with valuable and timely information that can be used to better inform their management decisions.

### **Session F2.5**

101

Presenter: Tomas Jonsson

#### **Cecil Hotel, Calgary**

By Tomas Jonsson, York University

The Cecil Hotel figures heavily, if counterproductively, in the development visions of the East Village in Calgary. Unlike its more venerated siblings, the King Eddy or St. Louis, narratives around the Cecil have predominantly been negative, focusing on it as a site of criminal activity, of cotangent poverty, a black hole of property value and roadblock to urban growth and development. Are there other dialogues that could be initiated around this space? Recognizing that change will have to happen, are there other futures for the Cecil, besides the proverbial parking lot?

This Is My Cecil continues a project developed through the City of Calgary's "This is my City" initiative, where artists worked in mentoring capacities with Calgarians accessing the shelter system in Calgary. Drawing from a little known historical fact that the Cecil once housed Calgary's first German language

newspaper, a series of Zine making workshops were held at the neighbouring Drop In Shelter, inviting participants to build their own narratives from –and in response- to the media narratives about the Cecil.

“This is my Cecil” uses artistic practices to provide a forum for exploring the complex and contested narratives that surround this building, and the larger developments of the East Village and Calgary.

### **Session F1.3**

Presenter: Brian Joubert

#### **Village-Level Water Management Institutions in Rural Malawi: Context and Conditions for Sustainability**

By Brian Joubert, University of Alberta

Throughout much of rural Africa the most promising approach to basic water supplies remains the provision of boreholes and hand-pumps. These projects continue to have high failure rates due primarily to inadequate maintenance and repair. Water projects often disregard local management institutions, and introduce systems of management that may be incommensurable with local institutions and social processes. Some villages, however, have successfully maintained their boreholes for long periods. They have overcome challenges that other villages have been unable to, such as inadequate parts provision, internal conflict, prohibitive costs, and ineffectual government institutions. 2010 IDRC funded field work in five Malawian villages with long lived water infrastructure found that these villages no longer followed the strict committee style organization that was introduced by aid organizations. Findings from five months of interviews, observations and surveys point to locally evolved water management institutions that highlight social capital, transparency, trust, entrepreneurship and the local promotion of beliefs that value safe water. These findings serve to inform the limited theory on collective action around common-property water resources, and the devolved management approach of basic water supplies. This knowledge becomes vital in the face of improving donor investments, water provision policy and achieving humanitarian goals.

### **Session W4.3**

102

Presenter: Rezwana Kaiser

#### **A Study on the Cause and Effect of Reducing the Natural Drainage Channels in Dhaka City**

By Rezwana Kaiser, Remote Sensing Professional

Dhaka, the capital city of Bangladesh is one of the most densely populated cities in the world. Due to the rapid increase in urban population, low lying areas and natural drainage channels are being converted to residential, commercial and industrial areas. Scarcity of natural drainage channels results in prolonged water logging and flood during rainy season. This study examines the trend of natural drainage channel reduction in the city of Dhaka. It also assesses the impact of urbanization on the reduction of natural drainage system. Landsat TM data is collected at 5 years interval (from 1989 to 2009). High resolution ALOS (AVNIR-2) image is used to validate the results from Landsat TM data. It is observed that, the area of the natural drainage channels is decreased by 84.3% during the study period and urbanization has a significant impact on the decrease of natural drainage channels. To secure sustainable living environment in the city, it is necessary to conserve the existing drainage channels and to regulate urbanization.

### **Session W1.5**

Presenter: Alan Kennedy

#### **Mackenzie Gas Project: A Cumulative Environmental Effects Case Study**

By Alan Kennedy, Imperial Oil Resources

The Mackenzie Gas Project (MGP) was required under the Canadian Environmental Assessment Act to consider the environmental effects of the project, including cumulative environmental effects that are

likely to result from the project in combination with other projects or activities that have been or will be carried out. This requirement for assessing cumulative effects was applied to biophysical impacts and, in accordance with the Mackenzie Valley Resource Management Act, also to socio-economic impacts. This presentation will provide an overview of the proposal to develop natural gas fields in the Mackenzie Delta of Canada's Northwest Territories, and the approach to cumulative environmental effects assessment. Attention will focus on the nature of the project and land uses in the regional study area, the overall approach to cumulative effects assessment, future development scenarios, and the means by which cumulative environmental effects identified for the MPG will be managed. Lessons emerging from the MGP experience for cumulative effects assessment will be discussed.

## **Session T2.2**

103

Presenter: Skye Ketilson

### **Regional Strategic Environmental Assessment Roles and Stakes in Arctic Oil and Gas Development**

By Skye Ketilson, University of Saskatchewan

Canada's Beaufort Sea-Mackenzie Delta Basin holds significant energy resource development potential. Decisions about development, however, are largely project-based and do not always provide opportunity for more efficient and more effective regional and strategic approaches to development impact assessment and management. As such, there are constant messages about the need for a more regional and strategic form of environmental assessment, practiced above the project level and focused on broader planning-based assessment as a means to sustainability assurance. The problem, however, is that there is no formal system of regional or strategic assessment (R-SEA) in northern Canada, and considerations as to what R-SEA is and what it should deliver are far from consolidated. The presentation explores stakeholder understandings and expectations about regional and strategic environmental assessment and its potential roles and opportunities in Arctic energy planning and development. Results are based on interviews with knowledgeable stakeholders in Arctic oil and gas initiatives including energy regulators, industry, and energy interest groups, including northern governments and community boards. Four key themes are identified and discussed: efficacy of the current approach environmental assessment for offshore energy development; understandings of RSEA; R-SEA benefits and risks; and opportunities and challenges to advancing R-SEA in the Beaufort region.

## **Session T1.2**

Presenter: Ahmed Khan

### **Contextualizing Fisheries Rebuilding As Wicked Problems: A Fish Chain Analysis of Northern Gulf Cod Rebuilding Options**

By Ahmed Khan, Memorial University

Northern Gulf cod fisheries in the Gulf of St. Lawrence collapsed in the early 1990s. The fish stocks are currently below conservation reference points despite several recovery efforts. This poor recovery has implications for livelihoods of fishing dependent communities, equity and social justice, and economic viability. I argue that fisheries rebuilding problems are 'wicked', meaning that rebuilding goes beyond scientific enquiry and state management to addressing inter-related livelihood concerns, procedural and distributional equity, and the question of 'rebuilding for whom'. A fish chain approach is employed as an analytical framework in understanding fisheries rebuilding challenges and governing options. Using mixed methods, data was collected and analyzed along the entire fish production chain. This included focusing on raw material supply, multispecies interactions, landings and production value, trade flows, stakeholders, socioeconomic networks, fisheries policies, and supply chain organization for rebuilding prospects. Results suggest that rebuilding could be improved through multispecies and integrated

management approaches that pay attention to by-catch and discards, stakeholder cooperation on gear use policy, stewardship incentives, livelihood transition programs, as well as power to effect change. The paper concludes with policy recommendations for institutional partnerships, bottom-up initiatives, and power-sharing arrangements, with lessons for other depleted fisheries worldwide.

#### **Session F1.4**

104

Presenter: Nader Khoshroo

#### **Evaluating Alternative Water Allocation Policies among Competing Users**

By Nader Khoshroo, Wei Xu, Henning Bjornlund, University of Lethbridge

Population and economic growth, as well as global climate changes make the efficient allocation of water resources a critical policy concern in many semiarid regions of the world. The Alberta Government has commenced major reforms in the allocation and use of water resources in response to emerging water scarcity and environmental degradation in many water resources as well as uncertainty and unpredictability of future water supply. As a result Alberta is on the cutting edge of water resource management reform in Canada.

Historically Alberta's water allocation system is based on the first-in-time-first-in-right (FITFIR) system, granting the preference to the licensees based on the seniority of their licenses. In recent years, scientists, policy makers, and water users have raised concern about whether FITFIR will continue to be the most efficient allocation system to manage increasing scarce water resources in Alberta. This paper aims to identify appropriate criteria, principles and objectives of water resource allocation to attain optimal allocation of the water resources. It also explains the existing water allocation policy in Alberta and other jurisdictions, and discusses prevailing computational water allocation modeling techniques. This knowledge will inform the ongoing debate on a new water allocation and management system in Alberta.

#### **Session W3.3**

Presenter: Connie Ko

#### **Extracting Geometric Features from Airborne Lidar for Tree Species Classification**

By Connie Ko, Rimmel K. Tarmo, Sohn Gunho, York University

We present a method of classifying tree species by extracting geometric information (lines, planes, volume) from LiDAR point data. The targeted species include white birch, maple, oak, poplar, white pine and jack pine at a study site northeast of Sault Ste Marie, Ontario, Canada. Instead of looking at the point distribution within individual tree crowns alone, we derive geometric information to provide context to the individual LiDAR tree crowns. Contextualizing information derived from geometry include the volumes and shapes of the tree crowns, the dominant direction of branches and their corresponding lengths. We derive line segments to represent branching from a modified k-means clustering to group LiDAR points within the point-cloud to identify reasonable branching structures; then Eigenvectors of the first principal component are drawn through the point clusters to produce branch representations and permit further interpretation. Volume related attributes are designed to analyze the crown shape of a single tree as a whole object (global level), rather than looking only at point distributions at a local level. We believe these contextual variables are not only important for species classification, but also have important ecological implications such as improving biomass estimates (growth and accumulation) or timber harvest (wood volume) calculations.

#### **Session T1.1**

105

Presenter: Shantel Koenig

#### **Seasonal Population Dynamics and Habitat Use for Ord's Kangaroo Rat in Southeastern Alberta**

By Shantel Koenig, University of Calgary

To gain a better understanding of population dynamics and changes in habitat use, resource selection functions based on the use-available design were used to model seasonal habitat use for Ord's kangaroo rat (*Dipodomys ordii*) across its current Alberta range. Using the "boom and bust" population dynamics that kangaroo rats exhibit in the study area, spring and summer models based on small populations and large populations respectively were compared spatially and non-spatially to determine seasonal changes in habitat use. Confirming previous thoughts and observations on habitat use in the area, the spring model more strongly reflected natural, high quality habitats, while the summer model more strongly reflected low quality, anthropogenic habitats. Possible reasons for the change in relationship between occurrence and habitat use and important implications regarding conservation and management of this endangered species are discussed.

### **Poster Session B**

Presenter: Kim Kozak

#### **Navigating Cuban Bedrooms: The Dialectic between Physical and Social Space**

By Kim Kozak, University of Saskatchewan

The navigation of domestic space requires an understanding of not only the physical layout of the home but the social relationships that define everyday domestic life. Based on fieldwork conducted in Trinidad de Cuba, this paper uses a multifaceted, or mixed methods, approach to data collection as it explores socio-spatial navigations of Cuban bedrooms. The research reveals that an "appropriate" use of space is not always easily determined within the complex organization of the home.

### **Session W1.2**

106

Presenter: Kim Kozak

#### **Dialectics of Home Spaces and Family Life in Cuba**

By Kim Kozak, University of Saskatchewan

The partitioning of the built environment is often a useful starting point for understanding the spatial organization of domestic spaces. However, the consideration of the socio-spatial dialectics of home spaces, that is the relationship between the physical configuration of the house and the social negotiation of the home, helps provide a critical approach to understanding the dynamics of everyday family and home geographies.

Based on an integrated research approach conducted during fieldwork in Trinidad de Cuba in 2009, the poster presents an examination of the physical and social organization of Cuban homes. A participatory mapping methodology was used to establish physical configuration of the home. These results were corroborated with interviews and time-space diaries to explore the dynamics of family socio-spatial relationships. Results from the research indicate that even though homes are divided into physical spaces, it is conceptual spaces that are key in the organization of domestic space.

### **Poster Session A**

Presenter: Freya Kristensen

#### **The 'Greenest City' Competition: Motivations and Influences for Urban Environmental Policy in Vancouver and Portland**

By Freya Kristensen, Simon Fraser University

In an entrepreneurial and competitive climate, cities constantly strive to distinguish themselves from their competition. An increasingly prominent strategy used by many cities is to take on the issue of sustainability, with some cities setting particularly ambitious environmental goals and priorities. This is no more evident than in the cases of Vancouver, which plans to be the world's 'greenest city' by 2020, and Portland, widely recognized to be among the top 'greenest' cities in North America. Given the enormous fiscal and other challenges currently faced by cities, this paper seeks to understand why the cities of Portland and Vancouver have made sustainability a defining feature of their policy goals. The

paper investigates how the two cities understand and define 'sustainability' and how this understanding is translated into policy, with an eye to the entrepreneurial motivations behind these policies. Drawing on the policy mobilities literature, the paper looks at how membership in sustainability-related networks influences the environmental strategies of Portland and Vancouver. In particular the paper explores how each city both shares its environmental policy successes via networks while adopting and adapting knowledge from elsewhere to augment its green city status.

### **Session T2.6**

107

Presenter: Christian Krnic

#### **An Examination of Tree Line NDVI Trends in Northern Canada Using Landsat Imagery**

By Christina Krnic, David M. Atkinson, Ryerson University

Vegetation is both an integrator and indicator of climate and ecosystem properties. There has been increasing concern over the effects of climate change on the Canadian Arctic. The most fundamental issue of this concern is how natural systems will respond to these changes.

This study examines vegetation change along the Canadian tree line using Landsat images. Within three separate study regions (north east of Great Slave Lake, NWT, 1991-2009; Lake Nejanilini, Manitoba, 1991-2003; and northern Labrador, 1986-2001) several transects were selected perpendicular to the boreal forest tundra boundary. Normalized differential vegetation index (NDVI) values were calculated and extracted along these transects for analysis. In addition to NDVI, unsupervised classifications were performed to determine vegetation patterns and to estimate the location of the tree line due to the lack of field work available. The unsupervised classifications indicate an apparent change in vegetation as bare land and mixed tundra vegetation classes were replaced by shrubs, herbaceous vegetation, and trees. The NDVI analysis showed a consistent increase in values of both the trees and other vegetation, also representing a change of vegetation along the tree line.

### **Session T3.1**

Presenter: Vincent Zubedaar Kuuire

#### **Migrant Farmers in Ghana and Challenges to Meeting Food Remittance Obligations**

By Vincent Zubedaar Kuuire, Isaac Luginaah, Godwin Arku, University of Western Ontario

Increasing environmental degradation in northern parts of Ghana in recent decades together with governmental policies from colonial periods to recent times has led to declines in the agricultural sector increasing migration rates from the area particularly the Upper West Region (UWR). The receiving areas of these migrants are generally Ghana's two biggest cities (Kumasi and Accra) and the fertile agricultural lands of the Brong Ahafo Region (BAR). A previously seasonal circular form of migration from UWR to the BAR is increasingly being replaced by permanent settlement of UWR migrant farmers in the BAR. Engaging in food crop production as their main livelihood, migrant farmers are faced with several constraints that influence their ability to send food remittances noted to be critical for ensuring food security of their dependents. In-depth interviews (n=47) and focus group discussions (n=3) with migrant farmers in the BAR and their dependents in the UWR reveal constraints within the food production process and the food remitting process. Results from analysis of interviews shows that while some of these constraints such as land conditions and access have peculiar constraints specific to the two regions, others such as road conditions are similar in both regions.

### **Session T4.7**

108

Presenter: Daniel Lamhonwah

#### **A GIS-Based Approach to Projecting Responses of Sugar Maples to Climate Change in Ontario, Canada**

By Daniel Lamhonwah, Brenda Murphy, Laura Brown, Wilfrid Laurier University

Climate change is likely to impact the distribution of Ontario's forests and stress tree species, such as



the sugar maple (*Acer saccharum*). This study used a GIS (Geographical Information Systems) Multi Criteria Decision Making approach to project where the sugar maples in Ontario will be located in the future under the low, medium and high level carbon emission scenarios available from CGCM (Canadian Global Climate Model) 3.1/T47. Data of the natural factors most important for the growth of sugar maples (seasonal temperatures, precipitation, soil type and drainage, rooting depth and slope) were incorporated into the GIS model and ranked according to how much of an influence they have in species development and health. Results from the model show that under each carbon scenario, sugar maples will migrate northward from their current range by 2100. Migration will be limited by the poor soils and steep slopes in the Canadian Shield environment of Northern Ontario. Sugar maples in Southern Ontario, especially those in the eastern and western regions will be at risk of decline by 2070. The severity of tree migration and decline are determined by the degree of change to current climate conditions caused by varying levels of carbon emissions in the atmosphere.

### **Session T3.1**

Presenter: Colin Laroque

#### **Wood Anatomy Identification in Dendroarcheology: “Don’t Touch the Wood Please”**

By Colin Laroque, James M Ehrman, André Robichaud, Mount Allison University

In some dendroarcheological studies, identifying the species of the material being investigated is a key to begin the procedure of dating the wood in question. This procedure is usually completed by sampling a piece of wood, and then identifying critical characteristics in wood anatomy in the radial, transverse and tangential planes. But what happens if you cannot destructively sample even a sliver of wood to view anatomical features under a microscope?

One method that the MAD Lab is developing is to use a high-resolution silicone impression techniques to view wood anatomy details down to 20 nm. The impression material we are using is a two component molding silicone with a high viscosity. We have conducted trials on various types of wood finishes, and surfacing characteristics and are starting to have a good idea of how to sample priceless objects where the wood cannot be touched. In this presentation, examples from standard increment cores will be used to illustrate the types of wood impressions we are able to achieve. As well, impressions from an old violin will be used to give examples from when we are not able to sample the wood in any way.

### **Session W2.6**

109

Presenter: Erin Latham

#### **The Use of Geospatial Tools and Exploratory Analysis on Two Bear Populations in the Russian Far-East**

By Erin Latham, Ivan Seryokkin, Mike Gibeau, Parks Canada

Often pilot studies are employed when little background knowledge exists in a certain subject area, and to assess the feasibility of a more elaborate and often financially-intensive project idea. A hair-capture study on Asiatic black bears and brown bears in the Russian Far-East was undertaken in the summer of 2008 to test the non-invasive sampling methodology in a unique ecosystem and under an atypical political context relative to previous studies. Geospatial tools were used to investigate species exclusion, individual capture probability, sampling bias by capture method, and population closure. Preliminary results suggest species co-habituation and seasonal variation in capture probability, as well as an ecosystem with high integrity. There was a large sex bias for both species (83% of individuals were male) and Asiatic black bears were recorded primarily through the hair-capture stations as oppose to rub trees. There were a disproportionate amount of individuals found at the extent of the study area suggesting high emigration/immigration, although violating the closed-population assumptions of the mark-recapture model. Future mark-recapture studies should employ both hair-capture methods for representation of both species, and should use caution employing topography as a natural barrier to population movement. As well, extending the sampling area to less suitable habitat may reveal a more

representative demographic analysis.

### **Session w2.7**

Presenter: Fiona Lawson

### **Examining the Spatial Accessibility of Trauma Services in Canada Using Geographic Information Systems**

By Fiona Lawson, Nadine Schuurman, Lisa Oliver, Avery Nathens, Simon Fraser University

The purpose of this research was to evaluate the potential spatial accessibility of trauma services in Canada through the examination of the spatial relationships between the population of severely injured patients and trauma centres. Severely injured patients were identified through the Hospital Morbidity Database using ICD-10 diagnoses codes and the Canadian Mortality Database using external cause of injury coding. The six-digit postal codes of the patients' residences, which were used as a proxy for the site of injury, were translated into geographic coordinates using the Statistics Canada Postal Code Conversion File. Geographic information science methods were then used to generate one hour trauma centre catchment areas and link them to the spatial distribution of severely injured patients in order to determine the proportion of severely injured patients living within one hour of a trauma centre. Several regional clusters were identified that had high numbers of severe injuries and very distant trauma centres. Access to trauma care in rural and remote regions of the country was particularly sparse or in many cases so distant as to be non-existent. The creation of strategically located trauma centres based on the findings of this study could help to improve geographic inequities in service provision.

### **Session W4.1**

110

Presenter: Mélanie LeBlanc

### **Assessing the Impacts of Urbanization and Historical Changes of the Humphreys Brook, Moncton, N.B.**

By Mélanie LeBlanc, Guillaume Fortin, Université de Moncton

Moncton, New Brunswick's largest metropolitan area (126 424 habitants), is one of the fastest-growing cities in Canada with a five years population growth of 6.5% (2001-2006). With such rapid growth, the city's landscape is quickly changing from forested and agricultural to one that is characterized by urbanization. Changes in land use have been known to have impacts on water systems and water quality. By comparing two series of aerial photographs (1970 and 2001) and six historical topographic maps dating back to 1886, this study will demonstrate the impact that urbanization has had on a small watershed in the Greater Moncton Area. The photos show that the Humphreys Brook watershed (39 km<sup>2</sup>) has doubled in residential land use from 4.92% of the watershed to 9.45%. Moreover an increase in the number and size of roads from 1.84% to 5.17% of the area means that this class of land use has almost tripled in 32 years. This study will estimate the impact that urbanization has had on Humphreys Brook by using GIS software (ArcGIS 9.2) to calculate variables such as nutrient loading, erosion, run-off, sedimentation and stream morphology.

### **Session W3.7**

Presenter: Donald Leffers

### **Building Up While Sprawling Out: The Paradox of Urban Intensification**

By Donald Leffers, York University

Urban intensification, while often promoted as a 'common sense' approach to urban sustainability, is rarely questioned critically. In this paper, I draw on empirical research conducted in Ottawa, Canada to highlight current tensions and contradictions around urban intensification. Using mainly qualitative methods, I unpack the motivations and results of provincial and municipal regulations that encourage intensification, and reveal a number of contradictions that arise in actual practice. These include continued sprawl in the National Capital region, and a proliferation of 'monster' infill projects in the

central urban area. Linked to the intensification discourse in Ottawa is a rescaling of the urban, which, especially since amalgamation in 2001, has resulted in a discursive reworking of what defines the central urban area – the 'target' for intensification. A proliferation of zoning studies, infill and redevelopment guidelines, and reclassifications of streets has accompanied this urban rescaling and purported move towards a more compact city. At the same time, an underlying growth agenda has promoted urban boundary extensions and large-scale highway building in the periphery. I conclude that intensification in Ottawa, while often perceived as inherently beneficial, has been executed in ways that contradict its intended goals.

### **Session T3.6**

111

Presenter: Donald Leffers

#### **What's Unnatural About Urban 'Nature'? Towards A Poststructural Urban Political Ecology**

By Donald Leffers, York University

In this paper, I draw on poststructural urban political ecology to unpack certain sustainability discourses and initiatives in Ottawa, Canada. Whereas much current urban political ecology takes on a historical materialist framework to investigate the ways that society regulates and transforms nature, a poststructural approach questions the very nature-culture binary at the core of these analyses, instead questioning the discursive construction of nature, particularly in terms of what counts as nature and why. In this paper I interrogate critically the discourses and practices around urban intensification in Ottawa to answer questions related to how nature is perceived and how intensification is used as a policy tool constitutive of a very particular understanding of nature. Using participant observation, indepth

semi-structured interviews, and Foucauldian discourse analysis, I carried out case study research in Old Ottawa South, a neighbourhood within Ottawa's central urban area that has experienced increasing conflict around infill and redevelopment projects in the past decade. I conclude that intensification policies and practices draw largely on nature as a resource above all else, and that nature 'counts' most when spatially removed from the urban realm and when conceptualized in abstract terms related to climate change and global environmental crises.

### **Session T2.3**

Presenter: John Lehr

#### **Polish and Ukrainian Cemeteries in Manitoba as Markers of Identity and Assimilation**

By John Lehr, Lukasz Albanski, University of Winnipeg

The rituals of death and burial are central to the cultures of most societies. They are deeply bound to notions of self-identity, ethnicity and nationality. Cemeteries are recognised as repositories of geographical, demographic and historical information embedded in headstone designs and inscriptions. This study examines the cemeteries in the mixed Polish/Ukrainian communities of Ladywood, Cooks Creek, Hadashville, and Prawda in south-eastern Manitoba. In central Europe ethnicity was a product of religious affiliation: Poles were Roman Catholic and Ukrainians either Eastern Rite Catholics or Greek Orthodox. In Canada, the choice of cemetery by the deceased's family indicated religious affiliation and hence ethnic identity. The changing language used on headstones also reflected shifting allegiances, declining fluency in the ancestral language and levels of assimilation, while the retention of certain invocations inscribed on grave markers may be interpreted as resistance to the homogeneity of modernity. The cemetery thus provides information beyond that given in more conventional documentary sources.

### **Session F2.3**

112

Presenter: Agnieszka Leszczynski

## **Privacy in the Age of New Spatial Media**

By Agnieszka Leszczynski, Sarah Elwood, University of Washington

The geoweb presents us with new objects and attendant practices that are effecting changes to privacy apparatuses, both technical and geopolitical. Using Google Street View and the Twitter GeoAPI as contrasting examples, we identify actual and anticipated privacy harms arising from these services and discuss approaches to mitigating their privacy-eroding consequences. The representational forms assumed by these online presences constitute mediums for the unprecedented public disclosure, dissemination, and reconstruction of activities-in-space, heretofore considered 'private' by virtue of being personal. The ability of the state - long the arbiter of privacy norms - to respond to these digital presences depends upon institutional cultures and extant privacy apparatuses. Google's attempts to introduce its Street View service uniformly across geographic contexts have been met with varying degrees of objection. Institutional differences between states are producing variegated geographies of attempts to regulate a non-state entity (Google) that does not allow individuals, historically the loci of privacy, to express consent. In an effort to preempt the kind of negative institutional response experienced by Google over Street View, other spatial services, such as Twitter's GeoAPI, have sought to engineer privacy provisions - such as 'opt-in' features for geotagging - into the applications themselves.

### **Session T2.1**

Presenter: David Ley

## **Gentrification in Hong Kong?**

By David Ley, University of British Columbia

Despite Hong Kong's reputation as an economically polarised global city with a wide-open housing market, the term 'gentrification' is strangely absent from the city's perennial discourse on housing prices, neighbourhood change and the state of the property market. The only exception is quite recent criticism by community organisers of the actions of the Urban Renewal Authority, a public agency empowered to prepare sites for development. But URA projects account for only a small share of neighbourhood transition processes. Far more significant is sustained high-rise redevelopment of self-owned

flats displacing older 5-6 storey tenements. This process is so pervasive, it is unremarkable and not remarked upon. It is the taken-for-granted world of a society where though political rights are underdeveloped, property rights are well understood. In this version of Asian modernity, gentrification is the unexamined norm in the housing market.

### **Session W2.4**

113

Presenter: Joseph Leydon

## **Responding to the Challenge of Geographic Illiteracy**

By Joseph Leydon, Sally Turner, University of Toronto, Mississauga

To make sense of spatial data, information and concepts strong geographic literacy skills are a prerequisite, and yet despite increasing exposure to mapping technologies student awareness of location and its geographic significance remains low. This paper reports on geographic literacy levels recorded in a first year introductory geography course at the University of Toronto Mississauga, and on the effectiveness of on-line quizzes to improve on such levels. Students completed a hard copy test at the beginning of the term, had the option of completing a series of targeted on-line quizzes over the course of the term, and then completed a second hard copy test at the end of the term. Comparison of the results of both hard copy tests indicate significant improvement in geographic literacy levels and point to the effectiveness of on-line quizzes as an educational tool.

### **Session T2.5**

Presenter: David Lieske

## **Planning for Flood ‘Catastrophe’: PPGIS as a Tool for Preparing Communities for Climate Change in SE New Brunswick**

By David Lieske, James Bomemann, Melanie Jellett, Mount Allison University

Through a combination of low elevation, extensive coastal exposure, and other factors, the Tantramar area of south east New Brunswick is vulnerable to coastal flooding. Aside from the region’s historical record of flooding in the wake of stochastic weather events, the region is exhibiting increased vulnerability to a witch’s brew of long-term threats: coastal subsidence, climate-induced sea level rise, and storm surges of increased intensity and frequency. As part of a regional collaboration to better understand the threats facing the communities (e.g., Town of Sackville), agriculture, and infrastructure (Trans-Canada Highway and CN rail-line) of this narrow land bridge linking New Brunswick and Nova Scotia, we combined statistical information, land cover maps, and LiDAR elevation data within a GIS. Our primary goal was to identify -- under different regimes of sea level rise -- the sections of dyke most vulnerable to being breached, and employ this information in a decision-support capacity to help guide regional planners in assessing the potential human, environmental, and financial impacts of dyke failure.

### **Session F2.6**

114

Presenter: Kirsten Lindquist

## **The Confines of Conservation: Establishing Fur Block Boundaries in Northern Saskatchewan**

By Kirsten Lindquist, Frank Tough, Métis Archival Project, University of Alberta

This presentation proposes to explore the boundaries of the extensive conservation block in Northern Saskatchewan. In the mid-1940s, the Northern Fur Conservation Program (NFCP) created the conservation block, which is divided into four main regional districts and about 100 subdivisions, to encourage wildlife conservation and regulate fur harvesting. Borders reflected traditional Métis and Indian harvesting and trapping areas, and were established with the respective communities in mind. Over the past fifty years, there have been district boundary modifications and subdivision merges due to changes in fur projects and policy, area development, and provincial area protection. Secondary literature, provincial maps and archival documents have been cross-referenced to identify regions and subdivisions, their place names and descriptions, and to track subsequent changes up to 2010. As the Northern Fur Conservation Block is still in effect today, it is important to understand the history and discussion surrounding boundary establishment and management.

### **Session T1.4**

Presenter: Lyndsey Lisitza

## **Mapping the Northwest Territories Métis Scrip Commissions: Cartographic and Data Challenges When Mapping “Place Of Application”**

By Lyndsey Lisitza, Frank Tough, Métis Archival Project, University of Alberta

A comprehensive map of the locations where Northwest Territories Métis scrip commissioners and other government officials took Métis scrip applications is an important piece of history that is missing from the historical geography of the Métis Nation. Previous attempts have been made to map routes of Métis scrip commissioners as they made their rounds of Western Canada taking scrip applications from Métis individuals. However, they lack completeness, having only examined official scrip commission and Canadian Government reports and correspondence—which are generally vague and incomplete—while ignoring Métis scrip application forms which add many locations to the previously mapped commission locations. The Métis Archival Project has been compiling a database of Métis scrip applications, which includes fields for place and date of application. These fields were used to fill the gaps between government reports, creating the first largely comprehensive Métis scrip commission map. This

presentation discusses the various primary sources examined to discover the places and dates of scrip application and the sources and challenges encountered when attempting to narrow down geographical coordinates of historical locations as well as the mapping techniques employed to bring the final commission map together.

#### **Session T2.4**

115

Presenter: Lucia Lo

#### **The Economic Experiences of Immigrants in a Mid-size City – Kelowna, B.C.**

By Lucia Lo, Carlos Teixeira, York University

With immigration projected to account for all population and labour force growth in Canada by 2031 (Statistics Canada 2006), second- and third-tier cities are facing pressure to attract immigrants to counter population aging trends and boost economic productivity. A challenge is how to retain and integrate the newcomers. How immigrants in these cities are doing today may offer a glimpse into the future directions these cities should be going in terms of attracting and retaining immigrants. Since we know little about the economic experiences and well-being of immigrants in these cities, we use a case study of Kelowna to gain some insights. A retirement community facing huge labour shortage, Kelowna has been active in recruiting skilled labour and small- and medium-size businesses (EDC 2008). In this paper, we compare the experiences of immigrants to the Canadian-born in both the paid employment and self-employment sectors with data from the 2006 Census and a survey of immigrant and nonimmigrant

entrepreneurs in Kelowna. Analysis indicates that in general immigrants perform less well than the Canadian-born in the Kelowna labour market. Immigrants face less economic opportunities. Immigrant entrepreneurs experience more barriers in establishing and sustaining their businesses. These findings suggest some policy plans.

#### **Session W4.2**

Presenter: Brian Luckman

#### **Dating First Nation “Brush Structures” in Kluane National Park and Reserve**

By Brian Luckman, Emma Reid, Lori Dueck, University of Western Ontario

Brush structures are the remains of traditional housing used by the Southern Tutchone people in the forests of the South West Yukon. They consist of frameworks of wooden poles, usually ca 10-25cm diameter cut from the trunks of local spruce trees and provided temporary shelter for families or small itinerant groups of people. Normally they are either an open two- or three-sided rectangular structure of low walls up to 1m high or a conical “teepee” type structure, often partially supported by a living or dead tree. Maximum diameters or widths are approximately 5-10m and the poles may occur as erect or collapsed forms. The wood is unfashioned and occasionally has bark present.

Five groups of structures (approximately 12 sites) were examined on the alluvial fan of Vulcan Creek, a tributary of the Slims River (A’ay Chu) in Kluane National Park and Reserve. The project goals were to determine the feasibility of dating these structures using local reference spruce chronologies and to place the structures in an historical sequence. The most recent, outermost ring of the constituent poles was considered as an estimate of the date of construction. Together with dates from cut stumps and a culturally modified tree the structures were found to date between 1862 and 1887, slightly predating the arrival of the first European travelers in this area. Several structures used a surprising amount of older wood with outer dates extending back into the 1600s and 1700s, suggesting either re-use of materials or selective use of deadwood in construction. A ringwidth chronology dating back to 1333 was developed from materials sampled at these sites.

#### **Session W2.6**

116

Presenter: Ka Yan Luk

## **Community-based Vulnerability Assessment of Rural Communities in Southern Saskatchewan**

By Ka Yan Luk, University of Waterloo

Water resources in Canada are of major environmental, social and economic value. It is expected that climate change will be accompanied by more intense competition for water supply in water-stressed agricultural areas such as the southern Prairies. Beyond physical impacts, drought can be seen as a socio-economic and political problem which ultimately has implications for community-level vulnerability to climate change. This paper presents empirical vulnerability case studies focused on the exposure-sensitivity and adaptive capacity of Coronach and Gravelbourg in southern Saskatchewan. The result illustrates the fact that farmers or ranchers are not merely passive victims of drought. They also take an active role in shaping the environment around them; thus, affecting their own vulnerability to drought. Therefore, by understanding the causal linkages of the coupled social-environment system, a more comprehensive understanding of community vulnerability is achievable and informed decisions can be made based on this thorough understanding of local condition. In the second part of this paper, the potential of adaptive integrated water resource management (water soft path) is evaluated in order to increase community adaptive capacity to water shortages in light of climate change.

### **Session T4.4**

Presenter: Katherine MacDonald

#### **Meeting Extinction - Caribbean Indigenous Narratives**

By Katherine MacDonald, York University

Colonial imaginaries, translated to narrative discourse, initially constructed the Indigenous binary of the Caribbean, of the cannibal Carib and the noble Arawak. However, colonial discourses soon shifted the narrative to a discourse of absence, reported as extinction, often with political, geographical, or economic motivations. Recent ethnographic conversations with Guyanese Caribs reveal that communities are scornfully aware of these colonial myths, and are confronting and challenging these ongoing discursive constructions. Through a greater understanding of the original constructions of the Carib and the Arawak, and the consequent implications for future Indigenous imaginaries, the discursive shift from 'Other' to 'absent' is exposed, and an empirical shift towards modern resistance and resurgence is offered instead. By claiming and owning the knowledge, and thus the power within their communities, Caribbean Indigenous peoples now engage with their own, emerging, transculturated identities, reversing the narrative patterns of erasure and extinction, escaping the Orientalist pattern, and re-engaging with history in an equal relationship.

### **Session T3.4**

117

Presenter: Shayne MacDonald

#### **Classifying Burned Areas in a Mixed-Grass Prairie Ecosystem Using a Decision Tree Classification**

By Shayne MacDonald, Joe Piwowar, University of Regina

In Grasslands National Park, located in Southern Saskatchewan, wildfires have been traditionally suppressed because of their tendency to destroy property and resources. Wildfire suppression can have detrimental effects on the ecology of a region; therefore prescribed burning has been enforced within the park. In order to better understand how natural fires act in this ecosystem it is important for researchers to understand a wildfire's regime. Landsat TM and ETM+ imagery was used to try and extract wildfire information from the region which spans the length of the available image archive (1986-2009). Four different indices derived from the spectral channels of the TM/ETM+ data were used in the analysis. By using reference images important fire characteristics were obtained and manipulated in order to extract this data. Using a Decision Tree Classification it was shown that there is considerable variability in the characteristics of multiple fires as well as the surrounding vegetation. Agricultural crop

land surrounding the park created the highest level of confusion within the classification results. Significant commission errors within the classification showed that the fire information from reference fires cannot be interpreted to represent other fires within this region.

### **Session W1.7**

Presenter: Ian MacLachlan

#### **Global Meat Consumption Trends and Western Australia's Livestock Export Trade**

By Ian MacLachlan, University of Lethbridge

The logistic inefficiencies of long-range livestock shipments were identified by Philip Armour at the dawn of industrial scale meat packing in the United States. At a global scale, however, livestock continues to be traded in significant numbers over considerable distances: within the European Union and NAFTA regions by truck, and from Australasia by ship to Asian destinations ranging from Indonesia to the Middle East. Rising demand for livestock on the hoof, most notably in the world's halal meat markets is contributing to a structural change in the structure of Australasian meat and livestock exports. Sheep in the case of Western Australia and cattle in the case of the Northern Territory are being exported live in a resumption of a marine-based trade not seen since the late nineteenth century. Australia's livestock trade is growing increasingly conspicuous and politically contentious due both to its employment impacts in rural areas as well as animal welfare concerns. Australian trade data are used to chart recent developments in the origins and destinations of this trade, the particular animal types most commonly traded, and the potential for a return to significant grain exports which might displace livestock.

### **Session F2.5**

118

Presenter: Virginia MacLaren

#### **Paying for Waste: Extended Producer Responsibility and Management Fees**

By Virginia MacLaren, University of Toronto

Planning for waste management in Canada has switched focus from planning for disposal in landfills to planning for diversion from landfills. One of the most important policy tools for achieving diversion is extended producer responsibility (EPR), which makes producers responsible for end-of-life management of their products. EPR policies are becoming widespread in Canada and around the world, but despite their popularity, there are still many unknowns about the overall effectiveness of different designs for implementing EPR. One key issue is the visibility of fees paid by the consumer on products that are subject to EPR policy. Using a combination of media analysis and key informant interviews, this paper examines the rationale for, consumer acceptance of and overall impact of visible versus invisible fees. The research encompasses fees in all Canadian provinces on a range of products from beverage containers to electronic waste. The findings suggest that the impact of fees varies depending on the amount of the fee relative to the price of a product and on consumer education programs. The research also identifies an important gap in the EPR literature, namely the lack of empirical studies on the impact of fees on consumer purchasing behaviour.

### **Session W4.3**

Presenter: Claire Major

#### **"Unpredictable Influx" And Other Challenges of Being an In-School Settlement**

**Practitioner in Fort**

**McMurray, AB**

By Claire Major, York University

This paper is an exploration into the specific challenges of in-school settlement in Fort McMurray, Alberta. Drawing upon the experiences of two practitioners and their work with a school board, we look at the ways in which federally identified settlement practices are inconsistent with the geography, socioeconomics, and transience of newcomers in Fort McMurray. The neoliberal state's downsizing of responsibility to the scale of the local is both a positive and a negative: on one hand, the practitioner is



able to appreciate the uniqueness of where she practices but on the other, the specifics of sociospatial disruption in a boomtown make that task in need of interventions that mightn't be required elsewhere.

#### **Session T4.2**

119

Presenter: Claire Major

#### **House Rich, Food Poor, Boom Town: Rescaling Social Reproduction in Fort McMurray, Alberta**

By Claire Major, York University

In this paper I rescale social reproduction from activities occurring within the household to activities taking place at the scale of the city. Fort McMurray is a relevant place to rescale social reproduction because of the nature of work, unique living situations (renting a room in a house is very common), the clear delineation of the city (it is not part of a larger urban region), and the complications of accessing land for necessary infrastructure (given that land is held by the province and already leased to oil companies). I seek to address how the scale and materiality of the urban is crucial to conceptualizing social reproduction as the intersection of relations of production and consumption in a contemporary boom town.

#### **Session T4.2**

Presenter: Christopher Malcolm

#### **Fishing For Improvement: Recent Changes In, And Future Chances For, Sport Fishing in the British Virgin Islands**

By Christopher Malcolm, John C. Everitt, Brandon University

In an era of expanding marine tourism, and in an area purported to host some of the best sport fishing waters in the Caribbean, one would think that commercial sport fishing in the British Virgin Islands (BVI) would be a successful, booming industry. On the contrary, however, commercial sport fishing in the BVI has declined over the past two decades, even though tourist arrivals and tourism in general have increased. We interviewed key informants in the sport fishing industry on Tortola and Virgin Gorda to establish a framework upon which to investigate the declining sport fishing trend in the BVI. All informants indicated that fishing is still a successful enterprise in the BVI. However, it appears that convergence of a shift in focus from land-based to cruise ship tourism by the BVI government, a rise in gas prices, temporary tourism declines following 9/11 and the recent world economic crisis, coupled with the distance to preferred fishing grounds and environmental changes, may have contributed to the decline.

#### **Session F1.5**

120

Presenter: Christopher Malcolm

#### **Identification And Assessment Of Northern Pike Spawning Sites In South Lake, Riding Mountain**

##### **National Park, Using Micro-VHF Tele**

By Kendelle Fawcett, Christopher Malcolm, Tim Sallows, Brandon University

We examined spawning habitat selection by northern pike (*Esox lucius*) in Clear and South Lakes, Riding Mountain National Park, Manitoba. Clear Lake is a 29.22 km<sup>2</sup> mesotrophic lake, while South Lake is a 2.03 km<sup>2</sup>, eutrophic lake. The two lakes are separated by a sand barrier bar which is often breached during the spring melt, providing a temporary corridor between the lakes. In order to identify spawning site locations we inserted micro-transmitters into the oviduct of n=19 female pike, in late March, 2010, with the intention that they would be expelled during spawning. Each fish was also fitted with an external VHF transmitter. Fish were tracked throughout April to determine where each microtransmitter was deposited. Fifteen of nineteen micro-transmitters were located, all in South Lake. In

May we sampled for eggs at five of the transmitter deposition sites and five random sites. Eggs (n=137) were found at 4 of 5 transmitter sites and 1 out of 5 random sites (n=3). Habitat analysis was also conducted. Descriptive habitat analysis indicated that transmitter sites differed from random sites in depth, type of vegetation, and proximity to reed beds. South Lake is an important spawning area and most likely an important nursery.

#### **Session W4.6**

Presenter: Tatenda Mambo

#### **Development Impacts of Nurse Migration: From Zimbabwe to the UK**

By Tatenda Mambo

This study looks at the phenomenon of brain drain migration in the health sector. While many studies on the medical brain drain from Sub Saharan Africa have focused on medical doctors, this study looks at the migration experience of nurses who currently work in the UK and have emigrated from Zimbabwe. Methods used in conducting this study include semi structured interviews, a survey questionnaire and statistical analysis of secondary data. An overall trend present within the immigration of medical professionals is that much of the movement results in the countries of the global periphery acting as the source countries of immigration with global core countries as destinations. Under the premise that growth of human capital is vital to the development of the semi-periphery and periphery, brain drain is a major hurdle to attainment of a critical mass of human capital and the eventual development of these regions. Conversely, others argue that a countries loss of human capital can result in net benefits for the source country. The resulting brain gain/brain circulation can be instrumental in spurring development. This study argues that Zimbabwe is facing a brain drain and is poorly positioned to see benefits from the human capital that lies abroad, negating arguments relating to brain gain/circulation.

#### **Session T1.7**

121

Presenter: Tatenda Mambo

#### **Challenges in the Field**

By Tatenda Mambo, University of Calgary

Challenges in the field are par for the course. The design of a project is hard to execute as intended; very quickly one finds that many things can come to bare that were never thought about. Whether its research in the global core or periphery unexpected challenges can up. While doing research for a project looking at nurse migration in Zimbabwe and the UK multiple adjustments had to be made while in the field. My experiences in Zimbabwe definitely presented more challenging situations. Beyond the difficulties pertaining directly to the research project other difficulties of simply getting by in Zimbabwe made things harder, especially considering the economic situation. The political climate in the country at the time also created a sense of insecurity which made people- particularly those in governmentreluctant to talk to. Multiple times requests for interviews were met with the run around. The difficulties in the UK pertained more to bureaucratic problems that had to do with red tape. Whether it's the core or the periphery, research design and execution never link up.

#### **Session W4.4**

Presenter: Uri Marantz

#### **Canadian Food Aid and Foreign Assistance: Cause or Effect of Foreign Policy?**

By Uri Marantz, University of Windsor

The Arab-Israeli and Palestinian-Israeli conflicts are highly sensitive political footballs which are thrown back and forth in domestic Canadian politics at all levels of government (municipal, provincial, national). The purpose of this study is to determine what connection, if any, exists between Canadian food aid and foreign assistance to Palestinian refugees and organizations on the one hand and Canada's foreign policy and diplomatic position vis-à-vis the Palestinian-Israeli conflict on the other. Canada's geopolitical

position and role is integral for understanding how Canada's food aid industry originated and has developed over time in the service of Canadian development and aid priorities, especially with regards to the Palestinians.

The method involves gathering statistical figures, policy papers and other measures of Canada's food aid and foreign assistance programs to the Palestinians. By contextualizing statistical data with a historical narrative, the focus of this study is to detect any patterns linking Canadian food aid and foreign assistance to Canada's foreign policy orientation. The objective is to measure the degree of change in Canada's Arab-Israeli foreign policies caused by other changes in Canadian food aid policy. The tentative conclusion suggests that, *ceteris paribus*, more Canadian assistance to Palestinian institutions yields more pro-Palestinian foreign policies.

### **Session T1.7**

122

Presenter: Tina Marten

#### **The Neoliberalization of the Urban Built Environment in Kelowna, BC**

By Tina Marten, University of British Columbia, Okanagan

This paper examines the neoliberalization of the urban built environment in downtown Kelowna, British Columbia. Drawing from empirical investigations of the City's key planning documents of the 1990s and early 2000s, I analyze how the city's downtown was to be transformed and redeveloped with neoliberal urban redevelopment strategies. The greater downtown was to be rejuvenated and densified with themed areas and select highrise developments, whereas the heart of the downtown was to be reconfigured with an ambitious Comprehensive Development Zone, which proposed a metamorphosis of a four block area with 13 highrises. A careful examination of the City's planning documents reveals how special interest groups have worked to create the necessary political and economic climate for these urban redevelopments, in effect steering and propelling the process of neoliberalization, and the subsequent urban transformations.

### **Session T4.6**

Presenter: Alex Martin

#### **'We Will Survive This By Focusing On Our Core Competencies': The Recent Recession And Local Development In BC's Northern Interior**

By Alex Martin, University of Northern British Columbia

Economic restructuring of British Columbia's forestry sector, stimulated by the recession in the 1980s, has challenged the viability of many forest-dependent communities. As companies and the state search for flexibility, communities are confronted with different policies that have reduced obligations and increased vulnerability. The recent recession highlighted the need for local development initiatives and economic diversification, while curbing communities' abilities to undertake such efforts. Further, each community's ability to adjust to restructuring is shaped by characteristics of place and local histories. This paper found these factors have reinforced local commitments to resource dependence and economic specialization as local residents struggle to find fixes to crises in forestry. These findings suggest that in order to promote stable rural economies, government needs to adopt a strong vision of regional development supported by strategic investment. Findings are based on fieldwork conducted in Houston, Mackenzie, and Quesnel.

### **Session T3.2**

123

Presenter: Jeff Masuda

#### **Where Everyone Is, Sort Of, 'Me and Mine': Scaling Up Discourses of Risk for Health Equity Intervention in the Urban Environment**

By Jeff Masuda, University of Manitoba

In this presentation, I report on the results of a three-year research project that aimed to build a road map for the mobilization of community knowledge into system-level action on health inequities in the urban environment. The project took place in Vancouver, Toronto, and Winnipeg involving a total of 49 community researchers who were trained in a photography-mediated neighbourhood assessment protocol aimed at uncovering environmental determinants of health inequity. Research teams set out to compare observable environmental health risks between neighbourhoods that were selected on the basis of relative socioeconomic deprivation. A wide range of health risks that varied by neighbourhood were observed, including differences in the use of private and public spaces and amenities including sanitation services, housing, parks and gardens, the arts, and community services. More crucially, the comparative process allowed researchers to articulate at least five ways that these health risks represented manifestations of more deeply rooted system level inequities. In follow up knowledge translation workshops held in each city, these common themes provided a fertile ground for discussions among diverse stakeholders from community, policy, and academic sectors. These discussions led to the emergence of nine key recommendations designed to shift the basis of environmental health risk discourse away from focalized interventions within derelict inner cities to a more coordinated mobilization for health equity at the city scale.

### **Session F2.2**

Presenter: Robert McCalla

#### **Connecting Canada and Brazil**

By Robert McCalla, Saint Mary's University

In 2009 Canadian exports to Brazil equaled \$1.6 billion; imports from Brazil equaled \$2.6 Billion. Principal exports in value terms were dry bulk materials (coal, potash) and processed/manufactured goods (machinery, transport and communications equipment); principal imports were dry bulks (aluminum oxides, cane sugar, coffee) and processed/manufactured goods (food and drink, and a myriad of other goods). Regionally, in Canada the source regions for exports are Central Canada and the Prairies; similarly imports are destined primarily to Central Canada. For the most part commodities are shipped by sea in either bulk carriers or increasingly in container ships. But how exactly do goods go between Canada and the Brazil? This paper will look at answering that question for containerized goods. Although ports in Atlantic Canada are closer to Brazil than competing ones along the American east coast, much of the trade passes through these latter ports. Why? The answer lies mainly in the decisions by shipping lines to serve Canada through America ports and rely on multimodal land connections to get the goods to/from inland Canadian destinations/origins. The paper gives substance to the shipping and multimodal links and the competitive position Atlantic Canada ports are in vis a vis American competitors in Canada Brazil trade.

### **Session F2.3**

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Presenter: Tyler McCreary

#### **From Resource to Yinta: Retheorizing the Ecopolitics of Unceded Land in a Settler State**

By Tyler McCreary, York University

Exploring a contested proposal to develop coal bed methane in northwest BC, this paper highlights the complex political and cultural terrain that configures the meanings of ecologies and economic development. While local settlers and First Nations had overlapping concerns about the impact of coal bed methane seepage into water systems, they constellated their concerns through distinct cultural and political registers. While the sanctity of private property was central to local settlers, First Nations centred their yinta (unceded traditional territories) in opposing the proposal. Locals questioned the introduction of ecological threats for the benefit of distant companies, and the government's neglect of community concerns in creating a climate conducive to investment. But this contest involved more than

simple, if significant, questions of distributional or procedural justice. First Nations inscribed competing territorialities to the state through linkages to local settlers, as well as environmentalists. In local protests, First Nations traditional crests and songs symbolized their claims to their territories. Following the contours of capital investment to Calgary and serving the company with an order to cease and desist their activities, First Nations hereditary chiefs asserted broader geographies of responsibility. Stretching their responsibilities to defend their lands, First Nations operationalized competing jurisdictional claims to those of the province. Beyond challenging governing representations of the environment, they called into question the underlying system of structures and practices, norms and laws, language and symbols that constituted nature as an object of knowledge per se.

### **Session T2.3**

Presenter: Greg McDermid

#### **Changes in Grizzly Bear Habitat due to Human Disturbance in the Rocky Mountain Foothills of Alberta from 1985 to 2005**

By A. Ram, G. McDermid, J. Linke, S. Nielsen, J. Cranston, University of Calgary

Landscape change studies are often necessary to effectively assess wildlife habitat and monitor changes through time. In the Rocky Mountain foothills of Alberta, Canada, human disturbances such as forestry have increased dramatically over the past 30 years, and exert a profound effect on landscape structure. This region also provides valuable habitat to grizzly bears (*Ursus arctos*) whose population is in decline, and may be adversely affected by the rate and pattern of landscape change. The goal of this research was to explore the spatial-temporal changes in habitat quality of grizzly bears based on human-caused disturbances in west-central Alberta from 1985 to 2005 using imagery from the Landsat archive. Habitat quality was measured by combining occurrence and risk models to determine five habitat-states. Results indicated that the proportion of secondary habitats declined by 17% while primary and secondary sinks increased (104% and 203%, respectively). An analysis of watersheds within the study area was also provided, indicating the most relevant watersheds for conservation measures within westcentral

Alberta. The watersheds in most need of mitigation measures were Upper Erith River (UER), McLeod River 4 (MCL4), Pembina River (PEM), Gregg River (GRE), Upper Pembina River (UPE), and Upper McLeod River (UMC). The watersheds in most need of protection measures were Chungo Creek (CHU), Blackstone Creek (BLA), Cardinal River (CAR), and Upper McLeod River (UMC). Understanding how

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human-caused disturbances have changed the landscape over a wide time span and how this has affected habitat quality will aid in conservation management of grizzly bears.

### **Session T3.1**

Presenter: Tara McGee

#### **Potential Hazard Warning Responses by On-Campus University Students**

By Tara McGee, G. Gow, University of Alberta

Universities and colleges across Canada are currently in the early stages of developing and implementing new emergency alerting systems designed to warn campus community members. In this study, we examined how undergraduate students living in an on-campus residence at the University of Alberta may respond to a warning issued by the University via cell phone. We found that students' responses would be influenced by the nature of SMS messaging, characteristics of universities, and their accommodation on campus.

### **Session F1.2**

Presenter: Jennifer Ann McGetrick

#### **Disaster Risk Reduction in Developing Countries**

By Jennifer McGetrick, University of Alberta

Natural hazards are increasing on an annual basis, especially in vulnerable regions. In 2005, the Hyogo Framework, a global agreement to collectively address the economic and humanitarian repercussions of disasters, was overwhelmingly endorsed by 168 United Nations (UN) member states. Since then, the UN's International Strategy for Disaster Reduction (ISDR), established in 2000, has promoted a shift of paradigm in disaster management, from providing disaster relief to promoting disaster risk reduction. The ISDR coordinates a flexible system of "National Platforms", which are structured by countries' existing priorities and institutions. In poor regions, disaster risk reduction is an empowering policy which sponsors local knowledge to motivate development on the community scale. Populations gain resilience at the aggregate level by employing innovative technologies such as remote sensing and geographic information systems, and redistributive economic programs, such as micro-loaning and micro-insurance. The poster surveys the Hyogo Framework policy of disaster risk reduction in developing countries as well as the implementation of "National Platforms". It was completed as part of a University of Alberta Roger S. Smith Undergraduate Researcher Award in the Department of Earth and Atmospheric Science. The author studies Human Geography and Economics as an undergraduate, and hopes to study Global Health in graduate school.

### **Poster Session A**

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Presenter: Rod McGinn

### **Facies and Deposits on Stagnating Glacial Ice, Glacial Lake Proven Basin, Riding Mountain Uplands, Manitoba, Canada**

By Rod McGinn, Brandon University

The Glacial Lake Proven basin covers an area of approximately 340 km<sup>2</sup> on the Riding Mountain Uplands in Manitoba, Canada. This paper reviews the sedimentary facies exposed in stratigraphic sections, sand and gravel extraction pits, shallow borrow pits and from a "GeoProbe" coring project in the Glacial Lake Proven basin.

Glacial Lake Proven began as a shallow supraglacial "River Lake" formed in a transition zone between stagnating ice on the Eastern Riding Mountain Uplands and the Assiniboine Lobe to the southwest. The eastern ridge of the "Horod Moraine" was deposited at the northwestern extension of this transition zone and stratigraphic sections in the deposit indicate that this feature is an ice marginal ridge, characterized by stratified and unstratified sands and gravels, large till inclusions and slump features. Four sub-stages in the history of the glacial lake have been identified. The Incipient Supraglacial Lake Sub-Stage is characterized by a supraglacial lacustrine complex that consists of alternating layers of sands and silt-clay. The Supraglacial Lake Sub-Stage is represented in the Rolling River section by a thick sequence of supraglacial lacustrine bottomsets consisting of sand and silt rhythmites. A terminoglacial lacustrine facies represent a major sub-stage in the lake history and the general stratigraphic sequence of facies exposed in GeoProbe cores suggests that water levels in terminoglacial Lake Proven fluctuated periodically. A melting ice facies (ablation till) is exposed in other areas of the lake plain and a fluvial facies to the north (a sandur plain) is associated with a later ice marginal position. The final sub-stage, the Terminoglacial Lake Sub-Stage draining through the Lower Rolling River Outlet is represented by a sequence of lake-margin deposits, characterized by regular lamination of the finer sand and silt, evidence of coarse intercalations and material supplied by mass movement or wash-off, and numerous dropstones.

### **Poster Session B**

Presenter: Rod McGinn

### **Critical Erosion Velocity for Natural Shale Gravels: An Empirical Study**

By Rod McGinn, E.L. Blais, Brandon University

The objective of this study is to compare critical erosion velocity power function models ( $V^* = cD^n$ )

derived for gravel size bed material (spheroids with a relative density equal to 2.65), to one derived for naturally occurring shale bed material which is atypical in shape and relative density. The relative density of the shale was found to be 1.80. On the basis of the mean triaxial dimensions the shale gravels can be described as discoid, platy and/or bladed. The flume used in this study was 11.5m long, 30.7cm wide, with a maximum depth of 30.0cm. Seven bed samples were prepared and categorized according to mean particle size (D). A known discharge (Q) was passed through the flume and flow depth (d) gradually decreased until velocities were sufficient to initiate particle movement. Critical erosion

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velocity ( $V_{mc}$ ) was operationally defined as the mean cross-sectional velocity ( $Q/AX$ ) causing sufficient particle motion such that the bed packing arrangement failed and the bed became mobile.

The result of each run was plotted. A curvilinear relationship between critical erosion velocity ( $V_{mc}$ ) and grain size (D) was noted. Data were subsequently transformed to logarithms and the least squares regression line calculated to be  $V_{mc} = 0.293D^{0.5}$ .

In natural shale gravels the compensating effects of low relative density and atypical shape result in a critical erosion velocity function similar to those produced by similar experimental studies.

### **Session W1.5**

Presenter: Janelle McLaughlin

#### **Conditions of Establishment of an Invasive Species (*Ciona Intestinalis*): A Comparative Study of Two Subwatersheds, PEI, Canada**

By Janelle McLaughlin, D. Bourque, G. Fortin, Université de Moncton

Aquatic invasive species have been an increasing problem worldwide. Prince Edward Island has seen the introduction of many invasive species over the past years. Among these are several species of tunicates, which have had not only important ecological impacts but also economic impacts on the shellfish aquaculture industry. Shortly after their introduction into new areas, similar to the Brudenell-Montague rivers, tunicate populations exploded to extremely high levels.

The aim of this research is to understand the non-establishment of tunicates in Orwell Bay, despite multiple introductions into the aquatic ecosystem. This study is based on a comparative approach between the two previously mentioned subwatersheds.

The physical characteristics of the two subwatersheds were analysed using ArcGIS software. Several parameters were studied such as: watershed structure (topography, bathymetry and so on), hydrological patterns (water flows and water quality), land use (agricultural, forestry, residential, etc.), meteorological data (mainly air and water temperatures and precipitations). Comparisons of these variables reveal key differences between the subwatersheds which help to elucidate what are the environmental conditions for non-establishment of aquatic invasive tunicates in Prince Edward Island. Results will be discussed.

### **Poster Session B**

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Presenter: Dylann McLean

#### **Festive Fogs the Spectacle(s): Urban Campus Culture and the U Clown Collective**

By Dylann McLean, York University

Studies of urban geography generally hold up the 'spectacle' as a marker of hegemonic culture expressed in the daily rhythms of urban life. Concomitantly, the radical potential of the spectacular festival is celebrated as a means to challenge ingrained power structures, rhythms, and uses of space. Rousseau contrasts the society of spectacle in which citizens take on the role of a hushed audience, passively watching as parades pass in from them, with the society of the fête, in which citizens are actively engaged in the making of their world. In the society of the fête, spaces are created through inter-subjective encounters. Our university campuses and the spaces surrounding them are not immune

to many of the currents of spectacle-based society (e.g., choreographed spaces, consumerism, infiltration by mass communication). In particular, campus spaces are choreographed in such a way that the rhythms and uses of space become ingrained overtime. Using Rousseau's concepts of spectacle and fête this paper considers the activities of the U Clown Collective—a loosely affiliated group of professional clowns with no specific politics who engage in public clowning on or near university campuses in the Toronto area— as a temporal 'fog' or transformation of spectacle-infused urban campus spaces and cultures.

### **Session F1.3**

Presenter: Heather McLean

#### **Don Blanche: Resisting Competitive Culture Planning Trends**

By Heather McLean, York University

For the past two years, artists, musicians, writers, theorists, researchers, scientists and trades people have gathered at Don Blanche, a new arts festival founded by a few artists frustrated with the growing emphasis on the planning of blockbuster festivals like Toronto's Nuit Blanche and Luminato. These events, the founders argue, put pressure on artists to produce large-scale, marketable and fully articulated artworks for a massive public with little financial compensation. This paper focuses in on a few subversive Don Blanche interventions that poked fun at the labour inequalities perpetuated by these competitive culture-planning trends. I explain how these arts practices nurtured convivial, relational interactions that positioned culture as a "public good" as opposed to strategies for grooming cities with neo-liberal "cultural renaissance" events. I also argue that Don Blanche provides a critical space that opposes this strain of competitive culture planning that frames artistic practices as spectacles to consume and compete with, promotes cultural spectatorship, and devalues the work of lowerprofile,

grassroots cultural organizations and artists. In contrast, these Don Blanche examples of whimsical, collectively conceived and created projects are sites of resistance where the performance, reiteration and naturalization of spectacularized creativity, and the unfair labour practices that support them, are exposed and troubled.

### **Session F1.3**

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Presenter: Andrew McLellan

#### **The Role of Place Promotion and Urban Image in Cities' Development and Marketing of Rapid Mass Transit (Rmt) Systems**

By Andrew McLellan, Damian Collins, University of Alberta

Cities have often competed for industry, investment and people, but with the transition to an entrepreneurial style of urban governance, the tools, methods and measurements of success in this competition are changing. For many cities, it is a stated goal to move up in the 'urban hierarchy' and this is often associated with increasing economic prosperity and power. With entrepreneurial urban governance, the improvement or development of rapid mass transit (RMT) systems is becoming a priority for a number of cities throughout the world. A comparative study of Edmonton, Canada and Auckland, New Zealand was conducted to determine motivations for the contemporary development and marketing of RMT. Primarily through key informant interviews in each city, it was found that while RMT development is carried out with a focus on tangible local benefits, the underlying motivator that results in political and financial support is the urban image benefits associated with having a strong RMT system. In addition, municipal decision makers are very conscious of the ability to use RMT as a place promotion tool to attract not only economic development, but also a 'creative class' of citizens that will help increase their success in regional or global scale interurban competition.

### **Session T4.6**



Presenter: Esther McNairnay

### **The Lived Experience of Aging in Edmonton's Suburban Neighbourhoods**

By Esther McNairnay, Theresa Garvin, University of Alberta

Canadians choose overwhelmingly to age in the community, with suburban environments becoming an increasingly common place to age. Proximity of services, access to public transportation, and low street connectivity can create challenges for some older adults in suburban neighbourhoods. These are compounded by issues in winter cities, including risk of falls, darkness and increased isolation. The purpose of this phenomenological study is to explore the lived experience of those choosing to age in Edmonton's newer suburban neighbourhoods, despite these barriers. The process through which older adults choose to age in suburban neighbourhoods and how they envision their future there provide further insight into the experience of suburban aging. Preliminary results will be presented.

#### **Session W3.2**

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Presenter: Barbara McNicol

### **Recreation Landscapes in Canmore: Permanent and Non Permanent Attribute Preferences**

By Barbara McNicol, Mount Royal University

Amenity tourism migration studies suggest that there are important amenity attributes that motivate second home migration. In 2006 a survey was implemented seeking information about second home owners in Canmore, Alberta (McNicol and Sasges 2008). This Town of Canmore Second Home Owner Survey asked questions about the importance of recreational amenities to residential second home owners. A previous survey of permanent residents by HarGroup Management Consulting Limited (Pavelka 2004) used the same recreation-based questions to evaluate solely permanent residents, the data results of which were eventually incorporated into the Town of Canmore Recreation Master Plan. These two studies have provided data for comparison about recreational amenities between both 1) permanent and second home owners in Canmore and 2) the three main second home markets of Canadian, American and United Kingdom respondents targeted in the The Town of Canmore Second Home Owner Survey. Study results indicate that permanent residents have some different requirements than second home owners for recreational preferences and opportunities in the Town of Canmore. At the same time, domestic amenity tourism markets have some different recreational wants and needs than international amenity tourism markets. Key to this examination are the recreational opportunities available in and around the Town of Canmore which are representative of attractive Canadian Rocky Mountain landscapes.

#### **Session F1.5**

Presenter: Kenneth Mensah

### **Residential Patterns and Gender Relations in Urban Domestic Water Supply**

By Kenneth Mensah, University of Guelph

Water provides a good arena where gender relations are unraveled in most cities of the developing world, including Ghana. Generally, females shoulder greater responsibilities for domestic water supply, both in terms of actual water fetching as well as financial inputs for access, often with repercussions for women's productive activities and their health. In Ghana, this imagery is often peculiar to specific residential patterns i.e. neolocal and family housing patterns where the "family" comprises males and females living together at the same residence. This raises two questions. First, "what are the gender relations surrounding domestic water supply in duolocal residential patterns where men live in separate residences from their spouses. Second, how does gender manifest itself among single or unmarried males vis-à-vis water supply in different residential settings?" The paper uses a case study approach, exploring these questions among the Gas of Ghana known for duolocal residential practices. The results show that when it comes to domestic water supply for married men arrangements as well as single men

under different residential arrangements, it is a little more complicated than the popular view?

### **Session T3.7**

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Presenter: Byron Miller

#### **Politics, Process, and Path Dependency: The Transition to a More Sustainable City in Groningen, the Netherlands**

By Byron Miller, Justin Beaumont, University of Calgary

Despite widespread agreement on the need for more sustainable cities and the proliferation of supporting policies at a variety of governmental scales, very few cities have undergone major transitions toward greater sustainability. Groningen, the Netherlands, is a rare exception to this generalisation. A heavily automobile-oriented city as recently as the 1970s, Groningen underwent a major transition, beginning in the mid 1970s, to become what is today widely recognized as one of the most bicycle-oriented,

and sustainable, cities in Europe. Groningen's transition required overcoming path dependency in both politics and the built environment. The transformation of these two distinct but mutually modifying realms was essential to Groningen's transition, but not in ways that could have been predicted from the outset. A variety of social and political struggles rooted in class relations, urban restructuring, quality of life, changing political structures, and a few seemingly minor but galvanizing events, led to a series of changes that moved Groningen from its very conventional automobile-centric development path to a path that generally drives the city toward becoming ever more sustainable. By studying cases of successful sustainability transitions we can begin to understand sustainability transitions' social and political prerequisites, and their variability.

### **Session T2.6**

Presenter: Paul Mkandawire

#### **Orphan Status and Sexual Risk-Taking among Adolescents in Northern Malawi**

By Paul Mkandawire, Isaac Luginaah, Jamie Baxter,

An emerging theme in the literature on the AIDS epidemic especially in Sub-Saharan Africa is whether orphans themselves are more vulnerable to HIV infection than non-orphans. Even of greater concern is the possible gendered nature of this vulnerability given that girls may be doubly disadvantaged by virtue of simultaneously being female and orphaned. In this study, mixed methods are used to elucidate variations in vulnerability to HIV/AIDS infection among orphans and non-orphans. Data from a survey conducted among adolescents in Mzuzu City in Northern Malawi are considered in light of additional data from in-depth interviews and focus group discussions with youth and other community members. Findings of the study show that although adolescent boy and girl orphans were generally more likely to engage in more risky sexual behaviour than non-orphan counterparts, this risk was higher among female orphans than among male orphans. The study explores the mediating role of place in gendering the risk of HIV/AIDS among orphans in the context of livelihoods in Northern Malawi. Policy implications are also examined.

### **Session T4.7**

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Presenter: Byron Moldofsky

#### **Mapping Patterns from the 1911 Canadian Century Research Infrastructure Microdata: Households and Languages In 1911**

By Byron Moldofsky, University of Toronto

The Canadian Century Research Infrastructure Project created a microdata sample database of individual census records for the 1911 to 1951 censuses. These data have been geographically

referenced to a reconstructed GIS framework for each of these census years. This allows the geographic selection and aggregation of sample data, enabling their mapping and analysis. Preliminary results from two such analyses for 1911 will be presented here: a typology of household composition and its variation across the country, and a classification of primary languages spoken focusing specifically on areas of highly bilingual population. Neither were possible before the creation of the CCRI databases. The historical GIS files for all years and the microdata for 1911 are now being distributed for public use; the microdata for 1921-1951 are available through Statistics Canada Research Data Centres.

#### **Session T4.1**

Presenter: Bernard Momer

#### **Developing Cultural Indicators to Inform the Planning Process**

By Bernard Momer, University of British Columbia Okanagan

Whether touted as the tool that will attract new investments or guide sustainable planning, culture and creativity has entered the lexicon of municipal governments. This new way of thinking about culture and creativity is producing a new logic of municipal governance in which both the stakes and stakeholders are considered. Consequently, there is a need to frame culture in a way that can be directly useful to the urban planning process, especially in small and medium-sized Canadian cities where research is lacking. This paper highlights the results of a research project undertaken in Kelowna, British Columbia, where a framework based on social, economic and cultural capitals was used to develop and measure cultural indicators to inform the planning process.

#### **Session W3.2**

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Presenter: Brian Moorman

#### **Scientific Spinoff Cooperative Field Research Contributions to Local Development**

By Brian Moorman, University of Calgary

While pursuing unrelated scientific research in a number of different developing regions it has become apparent that contributions can be made to local development through a cooperative approach to scientific investigation. Over the past twenty years while planning and undertaking scientific field research in remote regions of the world, it was identified that even with minimal contact with the local population there was always an impact of our presence. Through communication with local community members and attempting to understand of the local situation, benefits for both the research project and the community were achieved. Often our research is externally driven (e.g. global climate change impact or regional resource development research) but is situated at a specific location on the Earth (e.g. on the ground studying the retreat of a glacier not just examining the extent of the ozone hole from a satellite). As such, even our presence getting to, and being at, the study site - no matter how remote - has some kind of impact on local communities (amplified by the smallness of the community - in a town of a few hundred everyone knows when a plane arrives). Unlike research involving public participation, where local people help identify the needs and scientific objectives and may be directly involved in collecting the data, cooperative field research involves a much more limited interaction between the researchers and the local community. However, through communication and sensitivity to the local situation, the most can be made of limited overlap of interests or spinoffs from the research. A series of case studies from the Arctic, Arabia and Africa are utilized to demonstrate how local communities are impacted and can benefit by non-local researchers coming to investigate in the area. While the amount of local interest in the research varied from considerable to not at all, benefits for the local population were always identified as a result of our presence while limiting negative impacts.

#### **Session W4.4**

Presenter: Jason Morris-Jung

#### **Reconstituting Society as a Political Force: The Case of the Vietnamese Bauxite Mining Controversy**

By Jason Morris-Jung, ESPM, University of California, Berkeley

Participation in environmental or any other kind of activism in Vietnam is complicated by its authoritarian political structure and limited tolerance for dissent against the Vietnamese Communist Party. Yet, in early 2009, initial concerns raised by a small network of Vietnamese scientists and activists over the social and environmental impacts of bauxite mining exploded into a national controversy that generated one of the most significant affronts to the single-party state since national independence. This paper will examine how campaigners were able to engage the Vietnamese citizenry in influencing a national policy decision by re-imagining and reconstituting national society, or “the social” in the neogramscian

language of Ernesto Laclau and Chantalle Mouffe. I argue that campaigners reconstituted the “social” by (1) rearticulating environmental problems as segments of a socio-environmental complex, (2) re-imagining the qualitative aspects of the national space, and (3) reinterpreting the legacy of the Vietnamese revolution. This research is based on two years of field work in Vietnam, studying and observing the people, organizations and processes that provoked the Vietnamese bauxite controversy.

### **Session W3.5**

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Presenter: Phil Mount

#### **Searching For Sustainability: Three Years inside a Local Biodiesel Cooperative**

By Phil Mount, University of Guelph

Everpure Biodiesel Cooperative formed in the spring of 2008, with the vision of creating a sustainable, local biodiesel closed loop process, from production to consumption. The cooperative would engage local farmers to produce the oilseeds that would then be pressed into food grade vegetable oil, and used by local restaurants in their fryers. The used (‘waste’) vegetable oil would then return to the cooperative, to be processed into biodiesel, and used as a diesel substitute by all members – including farmers, to produce the next oilseed.

As an engaged participant from the first public meeting, and a board member for three years, I have had an intimate experience of the expectations and frustrations, surprises and reversals, conflict, commitment – and even cooperation – that this search for a sustainable model has generated. The most poignant moments have produced lessons about the delicate politics of the governance of small groups. However, since the cooperative is not an academic exercise, but an active enterprise, the idea of the communication of such intimate details has always been a source of personal disquiet. While we have committed – as academics – to foster learning, or even co-learning through participation, how do we decide which experiences should become ‘teachable moments’?

### **Session W4.3**

Presenter: Phil Mount

#### **The Problems of Scale in Local Food Systems: Lessons from Local Beef Groups in Ontario and Ireland**

By Phil Mount, John Smithers, University of Guelph

Struggling ‘family’ scale commodity farmers have been searching for alternatives to produce a viable model for themselves and their successors. Pessimism for the prospects of the next generation is especially high among beef farmers, for whom the market effects of BSE have magnified a general decline. Yet for some beef farmers, that same crisis – and the support generated among consumers – helped both push and pull them into local food, often combining forces to brand and sell beef within their region.

However, scale of operations may influence how such groups interpret, adopt and communicate the basic tenets of local food. As a result, these groups may produce an unfamiliar version of local food that evokes cynicism, skepticism or confusion, and struggles to capture potential added value. Through an analysis of local beef groups operating at various geographic scales, production volumes and food chain

complexities in both Ontario and Ireland, this research asks how scale interacts with the philosophies and mechanisms behind each group's organization and identity, to influence group decision-making and legitimacy. Three case studies show how scale of group operations influences choices that shape group governance, the perception of barriers and solutions, the ability to adapt and, ultimately, group viability.

### **Session F2.5**

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Presenter: Chris Moxham

#### **From Post development to Micro-Management: The Discourse and Reality of Development through**

#### **Basic Ecclesial Communities, Philippines**

By Chris Moxham, University of Calgary

The smallest unit of the Philippine Catholic Church is the Basic Ecclesial Community (BEC), a group of families who come together for worship, bible study and reflection on their social circumstances. In many dioceses BECs are encouraged to move beyond mere reflection and act as agents of change, organizing cooperatively for meaningful and peaceful development. A significant corpus of literature has developed around the concept, and it emphasizes the power of small groups to affect change, and the power of a national network of BECs.

In many respects the discourse of development through BECs resembles an ideal postdevelopment scenario but, as numerous commentators have explained, postdevelopment is unachievable due to a myriad of structural/material constraints placed upon any group. In the Philippines the material reality of poverty and powerlessness stands in the way of most BECs that seek development.

One field season was spent in the Diocese of San Carlos, known nationally for its vigorous development thrust. The ideal picture framed by the literature on BECs is measured against the reality of development in the rural countryside. Initial conclusions demonstrate a micro-managed series of programs orchestrated at the Diocese-level, and little semblance of self-sustainable grassroots development at the BEC level.

### **Session T2.7**

Presenter: Shawn Mueller

#### **Information Design: Cartography without the Map**

By Shawn Mueller, Mount Royal University

Historically, the best examples of information design have come from cartography. The works of Minard, Bertin and McHarg feature prominently in its foundational texts. And yet this nascent discipline has much to offer map makers in terms of an innovative approach to data display. This presentation will discuss the development of the discipline of Information Design, examine how it has utilized the tenets of cartography to define its principles, and suggest how cartographers can, in turn, incorporate these principles in developing and transmitting our craft to the next generation of cartographers.

### **Session T4.1**

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Presenter: Shawn Mueller

#### **Deep Ontological Visualization Environments (DOVE): Beyond Metadata for Geovisualization**

By Shawn Mueller, Mount Royal University

Geographic information systems are on the verge of becoming passe. The data we collect to populate its records and information matrices is highly contingent upon the manner in which that data is collected. However, simply recording the particulars of geographic information data sets for the purposes of geovisualization is insufficient in the modern era. Geographers and spatial analytics experts must be explicit in revealing fundamental assumptions, ideological rubrics and procedural contexts in which the data was collected. In short, we must go beyond metadata into descriptive ontologies

surrounding our data gathering and visualization efforts. Since geographic information is inherently multidimensional, so too must be our mode of its explanation. This poster explores visual means by which such deep ontological reasoning may be brought before the eye as a matter of forensic concern.

### **Poster session A**

Presenter: Amy Mui

### **Using GIS to Measure Habitat Fragmentation for Blanding's Turtle in a Southern Ontario Wetland Complex**

By Amy Mui, Yuhong He, Bob Johnson, Brennan Caverhill, University of Toronto & Curatorial Department, Toronto Zoo

Geographic Information Systems can provide a powerful tool for the conservation of natural habitats and the organisms that depend on them. The rapid pace of urban and agricultural development has led to increased habitat fragmentation leading to consequences for wildlife populations that are not fully understood. Using a GIS, effective mesh size was calculated as a measure of fragmentation within a southern Ontario study site containing a wetland complex known to support populations of the threatened Blanding's turtle (*Emydoidea blandingii*). A combination of aerial photographs and road networks was compared temporally to examine the level of fragmentation that has occurred in the area since the mid-1900's. Effective mesh size is given through a patch size that expresses the probability of two points being connected in a pre-defined fragmented landscape. When compared with the natural home range of the Blanding's turtle, this effective mesh size can provide quantitative insight into the barriers experienced by these animals as they attempt to access remaining suitable habitat. Combined with knowledge of species habitat preferences, this tool can be used to aid in identifying priority areas for conservation and restoration.

### **Session T1.1**

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Presenter: Beverley Mullings

### **Women and the Jamaica Drug Lords**

By Beverley Mullings, Queen's University

In May 2010, the city of Kingston was placed under a state of emergency as the Jamaican police and military launched an operation aimed at taking Christopher 'Dudus' Coke, an alleged Drug Lord, into custody for subsequent extradition to face trial in the United States of America. The operation to capture resulted in a bloody standoff between members of the Tivoli Gardens community who vowed to defend the alleged kingpin with their lives as the armed forces launched their hunt for him. Most visible in the standoff was the prominent role played by women, many of whom vowed to protect Dudus even with their lives. The bid to apprehend Dudus, opened up important questions about contradictions of urban neoliberalism, and in particular, the gendered nature of the economic and physical violence and insecurity associated with state efforts to make the logic of the market become the guiding principle upon which cities function. This paper explores the gendered geographies behind women's willingness to defend Dudus and explores how political and economic violence continues to constrain and manipulate women's right to the city

### **Session T1.3**

Presenter: Aelita Neimanis

### **(Health) Justice for All: Creating a Tool for Environmental Justice with an Ecological Integrity Lens to Improve Well-Being**

By Aelita Neimanis, Heather Castledon, Daniel Rainham, Dalhousie University

Ecosystem health is known to greatly affect human health. Yet a systematic review completed in April 2010 suggests that in the context of environmental justice - a framework used to help improve health

outcomes - little attention is being paid to the concept of ecological integrity. To address this gap and to acknowledge ecological integrity as a determinant of health (human and non-human), we have created an analytic tool with an ecological integrity lens. Analytic tools, especially those with a special lens, help to illuminate new perspectives on problems. The ecological integrity tool uses indicators from the built and natural environment to determine the condition of a given ecosystem. Applied to cases of environmental injustice, the tool can be used to detect a compromise in ecological integrity, existing or foreseeable. The goal of the analytic process is to help plan for the inclusion of ecological integrity concepts in proposed development projects. It can also aid with the identification and remediation of existing environmental adversities already affecting marginalized populations. The tool is specifically designed for application at a variety of scales and by a variety of actors.

### **Session T3.3**

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Presenter: Nicolas Thai Nguyen

#### **Impact of Band-Ratio Enhanced SAR Image for Sea Ice Types Discrimination**

By Nicolas Thai Nguyen, Environment Canada - Canadian Ice Service

Differentiating between Arctic sea ice types during the summer break-up and the fall freeze-up using SAR images is a complex task. Microwave signatures respond quickly to the meteorologically induced melt and freeze cycles of snow and ice surfaces. Consequently, the near-surface physical properties of different sea ice types are sufficiently alike that their backscattering characteristics are almost identical. As Canada's leading source of ice information, the Canadian Ice Service has been investigating the potential of image transformation using a band-ratio of RADARSAT-2 dual-polarization (HH-HV) image products to improve the identification of different Arctic sea ice types. Colour composite images, based on HH, HV, and HV/HH ratio, were generated and evaluated for their potential in discriminating thin sea ice, first-year sea ice, multi-year sea ice, and open water in the Western Canadian Arctic.

### **Poster Session B**

Presenter: Bram Noble

#### **Advancing Environmental Assessment in Canada's Arctic Energy Environment: Opportunities, Challenges, Research Directions**

By Bram Noble, Alec Aitken, University of Saskatchewan

This is a moderated panel discussion based on the special session "Arctic Energy Development: Impacts, Management, and Perspectives." The focus will be on key issues and themes emerging from session participant presentations, with particular attention to emerging research priorities for Arctic energy, enduring concerns, and opportunities and needs to move forward. Panellists will include members from the oil and gas industry, regulators, environmental non-government organizations, and academia.

### **Session T2.2**

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Presenter: Bram Noble

#### **Cumulative Effects Assessment for River Systems: Bringing Science into Practice**

By Bram Noble, Nicole Seitz, Cherie Westbrook, Robert Patrick, University of Saskatchewan

This presentation examines the current state of environmental assessment practice and cumulative effects assessment (CEA) science, the key issues and challenges inherent to each, and the types of CEA science needed to improve current practice for watershed CEA. Watershed CEA examines the interactions between landscape changes that accumulate over time and space and river system response, and examines the outcomes of these interactions under different futures of growth and development in the watershed. The problem is that current CEA for river systems is proving to be ineffective due, in large part, to the disconnect between CEA science and environmental assessment practice. We highlight this disconnect by discussing contradictions in current CEA thinking, challenges in

quantifying cumulative interactions, including spatiotemporal scale issues, multiple hydrologic and ecological pathways, and lack of predictive analysis. Individually, both the science and the practice of CEA fall considerably short of effectively assessing and managing cumulative effects to watersheds and river systems, and a more integrated approach to CEA is needed. We conclude by addressing the challenges inherent to CEA with the intent of providing scientists with ways to help improve CEA of river systems.

### **Session W2.3**

Presenter: Godfrey Nowlan

#### **Geoparks: An Exciting New Reality in Canada**

By Godfrey Nowlan, Geological Survey of Canada

The Global Geoparks Network, supported by UNESCO, has been established over the last decade with 77 members in 24 countries. Based on a concept developed in China and Europe, geoparks are communitydriven

and focus on preservation of geoheritage and cultural heritage related to human interactions with the Earth, as well as education based on the heritage recognized in the area. A geopark is underpinned by sustainable development, based on geotourism, that provides job creation and economic development. A geopark is a defined area with a number of protected and/or interpreted sites that collectively represent a small portion of the area. Local businesses are encouraged to join the geopark, providing educational and recreational opportunities under the unifying geopark brand. The businesses must adhere to guidelines developed for the geopark and the geopark must pass inspection every four years. This exciting new concept became a reality for the first time in Canada in 2010 with the establishment of Stonehammer Global Geopark in southern New Brunswick, a geopark that celebrates one billion years of stories. Stonehammer provides recreational and educational activities for local residents and for the hundreds of thousands of tourists who come to the Saint John area each year.

### **Session w4.5**

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Presenter: Service Opare

#### **Geography in School Curriculum**

By Service Opare, University of Calgary

Geography as a space based, field oriented discipline with strong theoretical foundations must be taught using approaches that encourage greater interactions between students and professors, and also ensure enhanced opportunities for visual appreciation of geographical phenomena. The objective of this paper is to present two key approaches that enhance geographical teaching and learning: the establishment of an active learning/teaching environment and use of unique experiential teaching methodologies. Active learning settings proposed in the paper include spatial arrangements in lecture rooms such as horse shoe seating and interview seating that minimize spatial distance and thereby promote greater interactions between students, and between them and the professor. Unique experiential teaching methods such as 'Three Pile Sorting Cards' 'Story with a Gap' and 'Two Circles' are visual based and therefore encourage stimulated analysis of spatial aspects of phenomena, critical thinking and building student self-confidence for effective articulation of opinions. These promote better teaching and learning in Geography. The paper discusses how the use of these strategies brings out the multifaceted nature of geographical phenomena, and enables students to visualize how spatial related situational factors are linked with theoretical perceptions that guide geographical thought and also contribute during teaching which enhances their analytical abilities.

### **Session T2.5**

Presenter: Jennifer Organ

#### **Community Freezers Supporting Food Security: Perspectives from Residents of Nain, Nunatsiavut**



By Jennifer Organ, Chris Furgal, Heather Castledon, Tom Sheldon (Nunatsiavut Government),  
Dalhousie University

Political, economic, and environmental changes at the global scale are challenging the quality, availability, and accessibility of food at the local scale. These changes are challenging household food security in Canadian Inuit communities. Participation in the wage economy, costs associated with hunting, and changes in environmental factors have, for example, posed particular challenges for some Inuit to access wild foods. Community freezers are a response measure that many Canadian Inuit communities have adopted to increase support for wild food accessibility to residents throughout the year.

A case study was recently undertaken in Nain, Nunatsiavut to understand how the Nain community freezer influences access to wild foods for current users, and what key factors community freezer management should consider to address current and anticipated future impacts of environmental change on wild food access. In July 2010, initial meetings took place in Nain to discuss project interests with the community. Data were collected in November and December of 2010 through semi-structured interviews, focus groups, participant observation, and document collection and review. This paper presents results from this community-based project, conducted in cooperation with the Nunatsiavut Government, offering recommendations on factors to consider in future community freezer management in this and other regions experiencing similar environmental changes.

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This project is being funded by the Network Centres of Excellence (ArcticNet), and the Nasivvik Centre for Inuit Health and Changing Environments.

### **Session T3.4**

Presenter: Evans Ouko

#### **Decentralizing Development: A Myth or a Reality in the Management of the Commons in Kenya**

By Evans Ouko

The political act whereby a central government formally cedes powers to actors and institutions at lower levels in a political-administrative and territorial hierarchy is termed decentralization. In my research, decentralization involved the devolvement of responsibility to local community institutions for managing adjacent state forests in a participatory forest management regime. Kenya has increasingly adopted decentralization in managing its commons. It was assumed that community-based decentralized institutions would lead to greater empowerment, efficiency and more equitable outcomes. The closer proximity of such institutions to the targeted population was expected to shorten decision-making times and make them more adaptive to the characteristics of place. Before my fieldwork, the assumption was that, however small the gains, all members of the local communities would have benefitted from the decentralization process and its resultant institutions as theoretically predicted. But in my research – with decentralization as my guiding theory – I quickly discovered that decentralization resulted in both winners and losers, and in some cases intensified the bureaucratic complexities. Historical processes, social and ecological characteristics of place were found to act in complex and unexpected ways that made the outcomes of the decentralization process unpredictable. Eventually I had to incorporate other theoretical constructs such as complexity theory and the Institutional Analysis and Development (IAD) Framework in order to better explain my findings.

### **Session T2.7**

Presenter: Evans Ouko

#### **Finding a Balance between Vested Interests and Realities While Analyzing the Outcomes of a**

#### **Collaborative Environmental Project**

By Evans Ouko, University of Calgary

I adopted participant interviews as an important component of my multi-scalar mixed methods research. My main objective was to examine the processes and outcomes of environmental projects which aimed at improving local livelihoods. Before embarking into the field, I believed I had to overcome three major challenges in order to avoid the prospect of unwilling participants and distorted opinions:

1. Mainly poor participants unwilling to sacrifice their time for interviews;

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2. Gender complications – women particularly from conservative Muslim communities would be reluctant to participate in the interview; and

3. General tendency by participants to protect their own interests at all levels of a project.

My presumptions about inevitable rebuffs from unwilling stakeholders were quickly dispelled. To my pleasant surprise, I found more than willing participants at all levels of the project. There was always the suspicion that many participants were motivated by the hope that my findings would be of direct benefit to them. In analyzing my data, I have to be acutely aware of these vested interests in order to reach more balanced conclusions. I am giving more weight to my corroborating research methods including participant observations and written records in addition to the interviews.

#### **Session W4.4**

Presenter: Raul Pacheco-Vega

#### **What Can We Learn About Watershed Management from River Basin Councils and Organizations in Mexico**

By Raul Pacheco-Vega, CIATEC (Mexico), University of British Columbia

Integrated watershed management (and integrated water resources management, IWRM) have been predominant paradigms in the English-language literature on water governance, policy and management. Drawing lessons from Northern countries, nations in the South have sought to implement IWRM as an allegedly positive innovation in search of sustainable water management. Drawing on my experiences and field research analyzing water governance within the Lerma-Chapala river basin (2004- to date) and an in-depth meta-examination of various scholars' writings examining river basin case studies in other regions in Mexico, I probe the hypothesis that lesson-drawing and policy transfer (Rose 1993, Marsh and Dolowitz 1996, Dolowitz and Marsh 2000, Bennett 1992) may not be an ideal approach to policy learning in Southern countries. I argue that the institutional arrangements within Mexican watersheds (with extremely complex cross-jurisdictional structures) don't respond well to a forceful implementation of IWRM paradigms. I call for an exploration of localized, region-specific approaches to watershed management that incorporate local knowledge in the country of study instead of attempting emulation-based policy transfer from countries where IWRM is popular.

#### **Session W1.3**

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Presenter: Robert Patrick

#### **Institutional Requirements to Support Watershed Cumulative Effects Assessment and Monitoring in the South Saskatchewan Watershed**

By Robert Patrick, Poomima Sheelanere, Bram Noble, University of Saskatchewan

Cumulative effects assessment and monitoring (CEAM) has been characterized as containing two essential components: scientific input, which provides the necessary technical and physical science to do CEAM; and institutional requirements, which provides the management and organizational framework to support and implement CEAM. While significant contributions continue to be made on the science side of CEAM, less attention has been directed toward understanding the institutional requirements necessary to support CEAM. In this presentation we report the findings of recent research undertaken in the South Saskatchewan Watershed (SSW), a multi-jurisdictional watershed experiencing deleterious

impacts from numerous cumulative effects. The objective of the research was to identify, if possible, those institutional requirements most necessary to advance CEAM at the watershed scale. Document review and over 25 key informant interviews from across the watershed involving multiple actors produced a list of institutional requirements, or “requisites”, necessary for the advancement of watershed scale CEAM in the SSW. These requisites include the presence of a lead agency, stakeholder collaboration, coordination and management of data, enabling legislations, and more. The validity of these requisites has been confirmed in other Canadian watersheds as part of a larger CEAM project.

### **Session W2.3**

Presenter: Linda Peake

#### **Rethinking Feminist Interventions into the Urban**

By Linda Peake, Martina Rieker, York University

Feminist urban studies tend to be strongly divided between those who study issues pertaining to cities in the global south and those who focus their attention on the urban global north. In this respect the field has mimicked that of urban studies, which has developed a deep tendency to characterise cities of the global north as crucibles of modernism, and hence sites for engagement with critical theory, rendering cities in the global south as objects in need of development, representations of which emphasise poverty, culture, and tradition and their populations as lacking or passive. A retheorising of feminist imaginaries of cities in the global south and north, that brings into dialogue, across analytical and geographical divides, these two fields of study is urgently needed. Such a potentially productive engagement can map out a feminist agenda to better understand the contemporary urban and its various subjectivities across their relational connectivities of gender, race, class, and sexuality. Developing new socio-spatial imaginaries to epistemologically unsettle the modernist and developmentalist modalities of thought that underlie the current binary framing of global north and south studies by urban feminists necessitates investigating historical and current understandings of the relationships between gendered subjectivities and the urban.

### **Session T1.3**

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Presenter: Cesar Perez-Valdivia

#### **A Tree-Ring Reconstruction of the Flow of the Athabasca River**

By Cesar Perez-Valdivia, Jessica Vanstone, Dave Sauchyn, Ben O’Reilly, Brian Luckman, Emma Watson, University of Regina

Increasing demand for surface water in the Athabasca River Basin is related mostly to the extraction and processing of oil sands in northeastern Alberta. This consumptive water use assumes a reliable supply as determined from recorded flows. These gauge records extend back to 1914, but they are discontinuous with major gaps. A longer and continuous record of streamflow inferred from tree rings is likely to reveal hydrological droughts of greater severity and/or duration than in the gauge record and significant hydrologic variability at inter- to multi-decadal scales. We present a reconstruction of the annual flow of the Athabasca River based on an extensive network of tree-ring chronologies. These tree-ring data, from western and northern Alberta, were collected by the authors in recent years. This high-resolution record of the paleohydrology of the past several centuries can inform management and industrial use of surface water in the Athabasca River Basin. We examine how this record of the long-term hydrologic variability and extremes compares to the measured flows and how it compares to other streamflow reconstructions from the western interior.

### **Session W2.6**

Presenter: Liliana Perez

#### **Integration of Swarming Intelligence and GIS: Forestsimpb Modeling Approach for Mountain Pine Beetle Infestation**

By Liliana Perez, Suzanne Dragicevic, Simon Fraser University

For more than two decades extensive outbreaks of mountain pine beetle (MPB) have been occurring within the province of British Columbia, Canada. As a result, more than 13 million hectares of lodgepole pine tree has been devastated. Different components such as forest age, size and type of susceptible trees, as well as insect population levels regulate these outbreaks. They are all acting together at local scale of individual trees and over time producing complex spatial patterns of tree mortality at larger scales. The collective behaviour and interactions of MPB and the infestation process is complex and thus difficult to capture with classical mathematical and statistical approaches. The objective of this research is to develop and implement ForestSimMPB, an agent-based model (ABM) that integrates geographic information systems (GIS) and swarming intelligence (SI) to simulate the MPB aggregation behaviour and mass attacks on host trees. The tree and local landscape scales are taken in consideration. The obtained simulation outcomes demonstrate that the model represent realistically the aggregation behaviour of MPB and their collectively attacks on lodgepole pines resulting into dead trees infestations patterns. The developed ForestSimMPB model can assist the effective forest management strategies to prevent and control MPB outbreaks.

### **Session T1.1**

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Presenter: Evelyn Peters

#### **“They just get together and hang out.” First Nations Appropriation of Urban Space in Saskatoon, Saskatchewan, Canada.**

By Evelyn Peters, University of Winnipeg

In the context of concern about the ways that processes of neo-liberalism and globalization have increasingly excluded urban residents from decision-making about urban space, many researchers have turned to Lefebvre's (1996) writing on the 'right to the city' to elaborate potential for increased urban democracy. Purcell (2002) argued that the 'right to the city' included the right to appropriate, defined as "the right of inhabitants to physically access, occupy, and use urban space...it is also the right to produce space so that it meets the needs of inhabitants." Noting Lefebvre's class bias in his conceptualization of the right to the city, researchers have called for other perspectives to construct a more complete view of urban democracy, as framed by the concept of the right to the city (Fenster, 2005, Purcell 2002). The politics of space and identity for some groups living in the city is "also a politics constituted by a broader history and geography of colonial inheritances, imperialist presents and postcolonial possibilities" (Jacobs 1996,2). The impact of colonial practices on individuals' right to the city has not been emphasized in geographic research on this issue. This paper explores how First Nations people in Saskatoon, Saskatchewan, Canada, perceived the production of urban space in terms of their abilities to use it to express their identities and cultures. Their perspectives highlight the challenges they face in appropriating urban space to construct an inclusive urban Indigenous citizenship.

### **Session F1.3**

Presenter: Mike Peters

#### **Opportunities and Challenges for the Oil and Gas Industry in Northern Canada**

By Mike Peters, Canadian association of Petroleum Producers

This presentation will provide an overview of current industry activities in northern Canada. It will also address some of the challenges experienced by industry, and some of the opportunities to address these challenges, including priorities for research.

### **Session T1.2**

Presenter: Kyle Peterson

#### **Gentrification Revisited: Struggling with an Expanding Beast in Suburban Calgary**

By Kyle Peterson, University of Calgary

The adoption of human-scaled development strategies are glazing over the socio-spatial struggles associated with gentrification with a sweetened progressive rhetoric. This smokescreen must be  
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critically maneuvered so that the consequences of gentrification can be presented. The city of Calgary recently approved a corridor redevelopment plan that will implement human-scaled urban development in the greater Forest Lawn area (GFLA). These suburban Calgary neighbourhoods have had a history of neglect and unfair stigmatization, but with the combination of a continually expanding city and gentrification in neighbouring spaces, gentrification can now spread through the GFLA. By incorporating quantitative data, this research has highlighted trends associated with gentrification in the GFLA, but it is with the use of in-depth semi-structured interviews with affected residents that this research has uncovered the realities of process. Although the corridor redevelopment plan appears to be progressive and community-minded with its strictly urban design focus, the structures associated with it have been exclusionary and serve to lubricate the gentrification process. By uncovering the contingent causal mechanisms of suburban gentrification in its initial stages and focusing on the struggles the potentially displaced population endure in gentrifying space, this research provides a new critical perspective on the process.

### **Session T3.6**

Presenter: Kara Pitman

#### **Creating a Multi-century Tree-Ring Record in the Bella Coola area, British Columbia**

By Kara Pitman, Dan Smith, University of Victoria

Glacial recession and downwasting throughout Pacific North America has exposed land surfaces covered until recently by Holocene glacial advances. In the British Columbia Coast Mountains many of these forefields contain the remains of forests overwhelmed and buried by at least five temporally-distinct periods of expansion. While floating tree-ring chronologies have been developed at sites with extensive subfossil deposits, despite spatially extensive sampling in only a few instances have these chronologies been cross-dated to living tree-ring chronologies. Radiocarbon dates assigned to the floating chronologies suggest that hundreds of years of missing tree-ring data may exist between the different floating chronologies. The intent of the research was to collect subfossil wood samples from high elevation lakes in the central British Columbia Coast Mountains. The expectation was that the remains of trees found on the bottoms of these lakes would contain tree-ring series extending further back in time than those contained within nearby living trees. In the summer of 2010, scuba divers extracted submerged logs from M Gurr and Blue Jay lakes in the Clayton Fall Conservancy in the Bella Coola area. Floating chronologies from the submerged logs were created and cross-dated to living tree-ring chronologies with the intent of creating a supra-long chronology useful for providing a multi-millennial perspective on regional climate dynamics.

### **Session W2.6**

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Presenter: Paul Plummer

#### **Socio-economic Wellbeing in Small Western Australian Resource Towns: An Empirical Analysis**

By Paul Plummer, M. Lawrie, M. Tonts, University of Calgary

Understanding the links between resource dependence and socio-economic wellbeing has long been a subject of interest amongst geographers in North America. By contrast, relatively few Australian studies exist on this topic. This is despite the significant role of resource industries in shaping Australia's economic and social geography. Where research has been undertaken it tends to focus on the experience of a single town or region. This paper presents a cross-sectional analysis of socio-economic performance across 33 small resource dependent towns in Western Australia. We design and test a number of empirical models that are hypothesised to account for the variability in socio-economic

performance across different resource industry contexts. The results of the analysis suggest that socioeconomic

wellbeing in these towns is highly variable, and contingent on a range of factors including the nature of the particular commodity, company structure, and location.

#### **Session T4.2**

Presenter: Greg Poelzer

#### **Arctic Sovereignty, Nation-Building, and the Canadian North in the 21st Century**

By Greg Poelzer, University of Saskatchewan

For generations, the Arctic struggled to find its way onto national and international agendas. The region seemed little more than a frozen wasteland, home to few Indigenous peoples and without much economic or strategic justification. Arctic realities have shifted dramatically. Diplomatic struggles over boundaries and resources, the challenge of understanding and responding to climate change, rapid shifts in Northern navigations have accelerated debate about the region's present and future.

Longstanding

debates about Indigenous rights, regional autonomy and the socio-economic conditions of long-term residents remain, but a growing list of international questions and challenges are much larger than in the past. Only a decade ago, regional concerns dominated discussion of the future of the Arctic; in 2010 and beyond, the Arctic's role as an international zone of contention will dominate military planning, inter-government relations, environmental management and resource development. A major reason for this new role is the increasing global demand for secure petroleum resources coupled with increasing potential accessibility to Arctic energy reserves, estimated by some observers to constitute nearly one-quarter of the world's remaining undeveloped petroleum reserves. This presentation outlines the key challenges confronting Canada in the Arctic and discusses policy options for Canada to meet these challenges.

#### **Session T1.2**

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Presenter: Marc Pons

#### **Modelling Climate Change Impacts and Adaptation Strategies for Winter Tourism in the Pyrenees Region**

By Marc Pons, Barbara Sureda, Marti Rosas, Eric Jover, Peter A. Johnson, McGill University

Climate Change has turned mountain regions into especially vulnerable areas. Dramatic changes in snowfall and shifts in biodiversity amount and distribution are some examples that highlight the remarkable sensitivity of mountain ecosystems. Moreover, in many mountain economies, snow plays a key role being the resource on which one of its main income sources and the driving force of local development relies, that is winter tourism.

In recent years many studies have analyzed the impacts of climate change on the ski industry in regions such as the European Alps, Ontario, Quebec, US north east, Japan, and Australia. However, there is a lack of studies focused on the Pyrenees region. Although knowledge of physical and environmental impacts has been significantly improved, knowledge about socioeconomic impacts remains fuzzy. This is because of complex, inter-linked relationships that exist in these regions.

Within this context, the main goal of this study is to analyze, by means of a geo-referenced Agent Based Model, the potential reduction of the season length of some selected Pyrenean Ski resorts due to climate change and the potential adaptation behaviors and strategies both from the ski industry and the ski users.

The present study will contribute to achieve a better understanding of climate change effects as well as better insight about the environmental and economical costs of current and potential adaptations strategies such as Snowmaking. Therefore the resulting model is expected to become a Planning

Support tool involving and assisted by different stakeholders that could help them in the decisionmaking process about designing and developing appropriate sustainable adaptation strategies to climate variability.

#### **Session T4.4**

Presenter: Geraldine Pratt

#### **Unsettling Urbanism and Migrant Domestic Workers**

By Geraldine Pratt, University of British Columbia

I place the narrative that the Philippine Women Centre and I have developed about Filipina migrant domestic workers, a narrative of exploitation and maternal loss, in relation to other feminist narratives, emanating from the global south (if not from theorists of the global south), which question the bleak picture that we present. These narratives are much more in line with the new urbanism described by theorists such as Amin and Thrift. They evince the same willingness to conceive of categories, whether it be the city or the family, as a process rather than a static or territorialized thing. They put more emphasis on the potentials of mobile networks of intensities that travel along and between humans and various other non-humans, objects and technologies. Rather than presuming the authenticity and

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significance of face-to-face proximity, they pose social relatedness, including kinship relations, as an open question, to entertain the possibility of new forms and cultures of intimacy and presence, and new forms and cultures of urban life. I consider what comes from placing these different narratives in tension with each other.

#### **Session T1.3**

Presenter: Amy Procter

#### **De-Normalization In Action: The Spatial Regulation Of Smoking Within University Campus Environments**

By Amy Proctor, Damian Collins, University of Alberta

From the 1970s, smoking has been increasingly viewed in geographical terms, due to the recognition that smokers risk not only their own health, but also that of those near them. Subsequently, both the geographical extent of and cultural attitudes towards cigarette smoking and environmental tobacco smoke (ETS) have changed dramatically. The de-normalization of smoking and the extension of spatial restrictions on smoking are congruous and complementary. Post-secondary campuses represent unique settings in which to analyze these shifts, as campus policies are able to target an important and “captive” audience of young people. This in-depth study of three Canadian universities (Dalhousie, Lakehead, and Alberta) describes the social and spatial smoking-related changes that have occurred from 1970-2010, and explores why institutional responses to the issue of smoking and ETS on campus have varied. Smoking policy decision-making involves considerations of health, personal freedoms, institutional image, and moral obligations, as well as concerns about policy enforcement and institutional connections to the tobacco industry. Data from archival research and 32 key stakeholder interviews illustrates the different ways in which ETS exposure is considered and managed, and highlights the intrinsically contextual nature of this health risk and the attempts undertaken to eliminate it.

#### **Session T4.4**

Presenter: Cameron Proctor

#### **Mapping of European Frog-bit (*Hydrocharis morsus-ranae*) using Quickbird Imagery**

By Cameron Proctor, Vincent Robinson, Yuhong He, University of Toronto

The free floating macrophyte European Frog-bit (*Hydrocharis morsus-ranae*) is a prolific reproducer that has become dominant in southwestern Ontario and is the sixth highest priority invading species in Ontario. However, studies of European Frog-bit’s ecological impacts have been hindered by the expense

of traditional field sampling and the difficulty mapping spatially heterogeneous macrophyte communities over large spatial scales. Remote sensing is the only approach that can provide synoptic mapping of the spatiotemporal dynamics of aquatic systems for fine scale species level identification. This study compared support vector machines and fuzzy k-means classification techniques for efficacy  
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differentiating European Frog-bit from background aquatic and shoreline species along a slow moving stretch of the South Nation River near Spencerville, Ontario. Utilizing Quickbird multispectral imagery at a spatial resolution of 2.4 meters, classification results revealed that European Frog-bit could be distinguished spectrally from other common aquatic species including the native Fragrant Water Lily and Yellow Water Lily with over 80% accuracy. Improvements in large-area quantification of European Frogbit

biomass using remote sensing techniques may assist in determining whether die offs of fish, invertebrates and other aquatic organisms are due to hypoxic conditions caused by European Frog-bit blooms.

### **Session W1.7**

Presenter: Jim Proctor

#### **Political Ecology and Cosmopolitan Ecologies in Oregon**

By Jim Proctor, Lewis & Clark College

Culture is too often understood as a separable realm of ideas; no wonder it has not been prominent in political ecology, given the field's common emphasis on material relations of power underlying naturesociety

relations. The dichotomy is, however, false, as broad notions such as meaningful practice and practical consciousness suggest. In this paper I empirically define culture, following Bruno Latour's nature-society theory of associations, as meaningful relations with a wide range of objects, and propose that it may be measured similar to the multiple correspondence analysis of cultural practice championed by another French theorist, Pierre Bourdieu. This approach to defining and measuring culture is then considered in the context of environmental conflict between rural and urban Oregonians, who deploy power over natural resource decisions in quite different ways and invoke rather different forms of cultural practice as justification. In spite of these differences, both urban and rural Oregonians situate their exercise of power in relatively limited, provincial meaningful relations with objects. Could these power disputes over natural resources in Oregon be in part resolved via larger, more plural cultural imaginations, what I will call cosmopolitan ecologies? I will explore this possibility via upcoming research, and consider implications elsewhere.

### **Session T2.3**

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Presenter: Nicole Puckett

#### **Building Bridges to the Future: Citizen Science at Banff National Park – A Focus on Volunteer**

##### **Motivations and Youth Engagement**

By Nicole Puckett, Lauren Peters, Mark Loewen, University of Calgary

The Banff citizen science volunteer program was created to increase the number of meaningful opportunities for individuals to engage within Banff National Park, and to provide opportunities for residents to gain a greater understanding of the Park ecosystem while assisting in research and monitoring. Banff citizen scientists partner with conservation staff to assist in research and monitoring, and to answer scientific questions. Understanding the Banff citizen scientist experience and the motivations of the volunteers is integral to maintaining the volunteer base and in attracting new volunteers. This case study examines the volunteer experience through a series of interviews with volunteers and park staff and through participant observation. Several emergent themes of volunteer



motivation are identified: contribution of personal skills; sense of accomplishment; attachment to place; stewardship; personal enjoyment; learning; and environmental citizenship. A secondary focus of this research is to gain an understanding of how youth can be involved in citizen science. Several opportunities for youth involvement in citizen science are identified from interviews, including creating links to school curriculum and targeted outreach to the service sector in Banff. Insights gained from the research are used to develop a list of recommendations for a “Made in Banff” citizen science strategy.

### **Session F1.6**

Presenter: Michael Quinn

#### **Cowboys & Carnivores: A Survey of Ranchers in the Waterton Biosphere Reserve, Alberta**

By Michael Quinn, Shelley Alexander, University of Calgary

The relationships between people and large carnivores are complex and vary in relation to regional geography. Conflicts that arise from the interaction of wildlife and private landowners, especially with respect to depredation of livestock by large carnivores, are a topic of international concern. This issue is particularly significant in regions surrounding protected areas where permeable boundaries allow for the free movement of animals across public and private domains. Understanding the interactions between human and wildlife in complex social ecological systems is essential to addressing long-term sustainability and resilience. We conducted a survey of landowners within 20 km of the Waterton Lakes National Park boundary (Waterton Biosphere Reserve) to: identify the issues of most importance to study area residents pertaining to large carnivores and their management, explore attitudes and values towards large carnivores and their management, identify perceptions of carnivore population trends in the study area, and collect information on the incidence and location of carnivore interaction with people and livestock. The presentation will focus on the value orientations of the respondents, responses to specific wildlife management scenarios and suggestions for future management, including changes to the existing compensation program.

### **Session W2.5**

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Presenter: Khan Rahaman

#### **Environmental Condition and Pedestrian Accidents in Ontario**

By Khan Rahaman, Jean Andrey, Derrick Hambly, Wilfrid Laurier University

Traffic collisions remain the leading cause of premature death in most developed nations.

Vehiclepedestrian

crashes are of particular concern for a variety of reasons—they are the leading cause of traffic injuries in some developing nations, they lead to a disproportionate number of serious injuries in all nations, and they are of particular concern in urban areas as more active transportation options are being promoted in order to achieve more liveable communities and sustainable transportation systems. In Canada, vehicle-pedestrian crashes account for 11 percent of all road user fatalities; from 2003-2007, almost 55,000 pedestrian involvements in vehicle collisions were reported across the Province of Ontario. The current study examines vehicle-pedestrian crash patterns using these data, which were obtained from Transport Canada’s National Collision Database. As found in previous studies, several personal characteristics and environmental conditions appear to be related to pedestrian crashes. Particular attention is paid to environmental conditions including daylight-darkness and inclement weather.

### **Session T4.6**

Presenter: Khan Rahaman

#### **Comparing the Local Level Climate Change Adaptation Strategies in Europe and Canada**

By Khan Rahaman, Kevin S. Hanna, Wilfrid Laurier University

The task of adapting cities to the impacts of climate change is of great importance—urban areas are

hotspots of high risk given their concentrations of population and infrastructure; their key roles for larger economic, political and social processes; and their inherent instabilities and vulnerabilities. There are significant achievements of adaptation policies and at the same time there are evidences of shortcomings. This paper tries to explore the present local government urban planning approaches whether these include climate change adaptation policies in European and Canadian cities. Several issues are being considered to assess the situation in terms of: a) local knowledge and awareness among the citizens, b) characteristics of existing policies and measures of local government bodies, c) conflicts among different policies in different sectors and d) limits of the adaptation strategies. To compare these situations among different municipalities, secondary sources of data will be collected through researching international journal articles, local municipality plans as well as reports published by international organizations. Finally, the paper will emphasize the major important issues and recommend the strengths of local government initiatives to adapt the possible climate change impacts in studied countries.

#### **Session T4.4**

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Presenter: Mir Mustafizur Rahman

#### **Normalizing the Effects of Local Microclimatic and Temporal Variability in Thermal Airborne Imagery**

By Mir Mustafizur Rahman, Geoff Hay, University of Calgary

Thermal infrared (TIR) remote sensing provides unique temperature-related imagery that is traditionally used in urban environments for residential heat loss mapping, urban heat island analysis, and land cover classifications. An important limitation of TIR imagery is the influence of local microclimatic variability (i.e., wind, precipitation and humidity) on sensor observations. That is, when the same scene components (i.e., roads, buildings, etc) are exposed to varying microclimate conditions, and observed through TIR sensors, they exhibit different thermal states (i.e., temperatures). In the case of airborne TIR imagery, the ambient sensed temperature also naturally changes during, and between flight line acquisitions.

This results in mosaiced images with different temperatures for the same scene components, making detailed analysis non-trivial.

In an effort to minimize these effects, we describe the Thermal Urban Road Normalization (TURN) algorithm that is based on the idea of 'pseudo invariant features', such as road material (i.e., gravel, concrete, tar) which is expected to be at constant temperature over the scene. Any variation observed in the road temperature throughout the scene is assumed to be the effect of local climate and/or time variation of data acquisition. Our model calculates road temperature variations and adjusts the temperature of the entire image accordingly. The model is evaluated on a (two) flight-line mosaic of TABI-320 (Thermal Airborne Broadband Imager) data acquired over 358 residences in the Brentwood community of Calgary, Alberta, Canada.

#### **Session W3.7**

Presenter: Daryl Randa

#### **Rethinking the Design of Back Alleys**

By Daryl Randa, University of Alberta

Back alleys and mews represent an abundance of space that most people may not think about as an intricate part of the city fabric. As alleys are typically only used for back alley services and parking, they often become spaces that are lost to everyday pedestrians, city planners, architects and designers, and the property owners adjacent to them. In light of this problem, many cities throughout North America have become interested in turning these images of blight into something that is useful to their city. The city of Edmonton, Alberta, is one city that is commencing a pilot project to revitalize one alleyway in its city core. The main objective of this research focuses on what design elements need to be taken out of

the alleyway and what design elements need to be added in order to redevelop an alleyway that will produce social, cultural and economic benefits. This means focusing on issues such as safety, social cohesion, placemaking, and aesthetic enhancement. The methodology for this research comes from academic journals, literature, online blogs and media outlets in order to reveal how other cities are addressing this issue with their own projects. This data is then compared to Edmonton's situation in order to suggest what the possibilities are for their alleyway project.

### **Poster Session A**

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Presenter: David Ray

### **The Regional Structure of Employment Growth in Western Canada: A Regional Typology based on an advanced Shift-Share Analysis.**

By David Ray, R. Lamarche, S. Biffignandi, Carleton University

Canada's employment growth, 2001-2006, masked large regional variations. Such disparities have been a major policy concern since the Barlow Report (1940) which introduced shift-share analysis and identified industry-mix as the principle determinant of regional disparities. This paper uses multifactor partitioning (MFP), an advanced shift-share methodology, to extract the region, industry-mix and net interaction effects on regional employment growth in Canada and examines the results for Western Canada. All three effects are important. However, it is the region effect, not industry-mix, which most affects employment growth. Indeed, no region with a low region effect exceeded the national employment growth rate. But some regions with a very good industry-mix failed to reach the national growth rate because of their poor region effect. The MFP results are mapped and used to allocate the economic regions of Western Canada to the Biffignandi regional typology. Seven main regional types are identified. The Calgary-Edmonton corridor excelled on all growth components: its growth rates were among the highest employment in the country. At the other extreme, some peripheral areas lagged on all three components and experienced employment decline. The paper concludes with some policy implications for each regional type.

### **Session T3.2**

Presenter: Maureen Reed

### **Biosphere Reserves as Learning Sites for Sustainability: The Debate about Representativeness in the Canadian Network**

By Maureen Reed, University of Saskatchewan

Since their inception, biosphere reserves have been touted as "living laboratories" that can help scientists, managers, and local communities better understand how to achieve sustainability. Established under a Man and the Biosphere (MAB) program of UNESCO, biosphere reserves are described as "representative" sites wherein relevant environmental change can be monitored, relevant policies or practices can be 'tested', and lessons learned can inform policy and practice. It is surprising, then, that what is meant by "representative" is highly variable. A review of policy documents from MAB and interviews of key participants in the Canada-MAB program suggest different interpretations have been applied in Canada. For example, "representative" has been defined in terms of biogeographical representation or as representative of environmental problems to be resolved. And in still other cases, being "representative" is no longer a criterion for learning about or advancing the aims of sustainability. This discussion is germane today as the number of biosphere reserves in Canada is growing rapidly, although the rationale for their establishment is not consistent. This paper traces the history of "representativeness", suggests implications of different interpretations, and considers what lessons can be learned from biosphere reserves if this key issue is not resolved.

### **Session W4.5**

Presenter: Emily Reid-Musson

### **Dormitory Spaces and the Re-Domestication of Migrant Workers**

By Emily Reid-Musson, J. Adam Perry, University of Toronto

This paper investigates the globalizing phenomenon of domesticating both male and female migrant workers either in the home space of their employer or in housing provided and controlled by employers. Scholars who study globalization, labour and migration have documented and theorized these patterns (including Pratt, Basok, McLaughlin and Ngai), exploring various facets of migrant workers' everyday lives and struggles in employer-provided and employer-controlled housing. However, no studies to date provide cross-comparative theorizations of such housing geographies. Our paper therefore intends, firstly, to provide an overview of literature on contemporary geographies of migrant housing which 'domesticate' in the way described above. Secondly, we provide portraits of three primary sites which exemplify 'domesticated' migrant housing geographies: 1) China's post-socialist 'dormitory labour regime' (Ngai, 2007); 2) Canada's Canadian Live-In Caregiver Program (Pratt, 2004); and 3) Canada's Seasonal Agricultural Worker Program (through our own research). Our primary questions are theoretical: what forces (agents, organizations, and institutions) are involved in the production of housing that domesticates migrant labour? What similarities and differences exist between our three case study sites and those identified in the broader literature? We ultimately present a feminist lens through which to theorize our findings, as both a carceral and domesticating space.

### **Session W3.2**

Presenter: Tim Reiffenstein

### **Between Convenience and Authenticity: Anime Fansubs, New Geographies of Media Consumption and the Challenge to Copyright**

By Tim Reiffenstein, Mount Allison University

New forms of consumer-driven digital media distribution have turned pop cultural content from almost every corner of the earth into global ubiquities. This situation puts considerable strain on the effectiveness of international copyright regulations. Most problematic from a geographical and legal standpoint are forms of consumption in which the displacement of the cultural product involves modification. Specifically how should we treat cases in which consumers translate, thereby adding new value and meaning to media in ways that make it legible to peers in their own linguistic and legal setting? The purpose of this paper is to address this question by reporting on a project that examined the consumption of fan-subtitled Japanese anime by youth in Atlantic Canada. Through a survey and follow-up interviews the author explores how the Maritime anime fan community's patterns of consumption are shaped by their peripheral geographic setting, their attitudes towards copyright regulations and their appreciation of the Japanese context which produced the original. Its findings highlight the tensions between the motivations for convenience and authenticity amongst youth in the digital age. It also offers some policy recommendations for Japan as that country seeks to bolster exports of its contents industries.

### **Session W2.4**

Presenter: Steven Roberts

### **Shape Metrics for Analysing Landscape Feature Boundaries**

By Steven Roberts, Wilfrid Laurier University

Shape statistical methods offer the promise of stochastic models, and rigorous statistical analysis, of the boundaries of landscape features. Previous research by the author explored the use of Bookstein coordinates and Procrustean shape metrics to apply shape statistical ideas to the problem of boundary representation. Although these ideas turned out to be useful in another context for GPS derived time

series data, these approaches have limitations such as no canonical dimension for the metric and a requirement for meaningful landmark identification, which are not easily broached in the context of modelling boundaries of landscape features. A more recently introduced shape metric based on a parameterized representation of polygonal curves elegantly avoids both of these limitations. This paper describes research that tests this metric on an ecological land use polygon data set. We report the results and describe one key open issue regarding the application of this methodology.

### **Session F1.1**

Presenter: Colin Robertson

#### **Evaluating Ecologically Constrained Spatial Weights Matrices in Hotspot Analysis**

By Colin Robertson, Trisalyn Nelson, Wilfrid Laurier University

Spatial analysis usually requires the definition of a spatial neighbourhood typically defined based on distance, nearest neighbours, or contiguity. These definitions of spatial neighbourhoods are often inappropriate in ecology where natural physical barriers create heterogeneity in spatial relationships. We use terrain data to constrain spatial neighbourhoods based on ecological criteria. Local measures of spatial association are used to evaluate our approach using a case study on data from an epidemic mountain pine beetle infestation in British Columbia, Canada. Preliminary results of hotspots detected from constrained and unconstrained spatial neighbourhoods indicate that when spatial neighbourhoods are large, constraining neighbours markedly changes the location of hot spots. This research takes advantage of recent developments in tools for creating and modifying spatial neighbourhoods. The results provide empirical evidence that spatially adaptive neighbourhoods based on ecological prior information generate important insights over what would be detected using a uniform representation of spatial relationships. As spatial analysis results are highly dependent on spatial weighting, ecologically informed weights matrices are an important step towards more refined and informative local spatial analysis.

### **Session F1.1**

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Presenter: Julie Robertson

#### **Mapping the Flow of Craft Beer in Southern Ontario**

By Julie Robertson, Hersch Jacobs, Rachel Dodds, Richard Wade, Ryerson University

Large scale commercial brewers dominate the marketplace in Ontario, but the industry has seen rapid growth in recent years of artisanal firms that both target and stimulate demand for a wider choice of beverages. Distinct taste profiles are often achieved through the use of local ingredients and traditional methods that minimize environmental consequences of production, distribution and waste disposal. This paper examines the changing landscape of consumption that reflects the appearance of 41 craft breweries across Ontario by digitally mapping their individual beer sheds to illustrate the beer landscape. In addition, questionnaire surveys of participants in craft beer events measure their perception of the product and provide insight into their motivations and behaviour. A questionnaire survey administered to brewers examines trade areas, brewing styles, and sustainability practices of the breweries.

### **Session F2.5**

Presenter: Reuben Rose-Redwood

#### **The Making of the 'Salish Sea'**

By Reuben Rose-Redwood, Brian Tucker, University of Victoria

It is widely acknowledged that the naming of places is one of the primary ways in which people ascribe symbolic meaning to geographic spaces. The current study examines the performative dimensions of toponymic inscription, focusing particularly on the recent designation of the waters along the Pacific Northwest coast of North America as the 'Salish Sea.' This case study clearly illustrates the role that

naming plays in the performative 'rescaling' of geographic space by reimagining as a 'transnational' water body what had previously been viewed as three 'local' waterways. This new toponym is arguably one of the most significant changes to the world geographic map in the past decade and may have implications for environmental management along the U.S./Canada border in the future. Given the transnational significance of designating the 'Salish Sea,' there is a pressing need to better understand the social, political, and economic dimensions of rescaling the waters of the Pacific Northwest coast. Drawing upon a series of more than 40 interviews conducted over the past year, we shall present the preliminary results from our analysis of the 'Salish Sea' designation, emphasizing the importance of narrative and storytelling as a significant aspect of the performative production of toponymic spaces.

### **Session F2.3**

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Presenter: Dave Rossiter

#### **Producing Imperial Wilderness: Resources and Recreation on Vancouver, BC's North Shore**

By Dave Rossiter, Western Washington University

For many, visitors and residents alike, Vancouver, British Columbia's geographical identity is defined by the wall of mountains that rise sharply out of the waters of Burrard Inlet directly to the north of the city. Forming an imposing landscape, what has come to be called the North Shore lends the city a stunning natural backdrop. For more than a century, however, the place 'where nature lives' (in the words of tourism officials) has also been a place where British Columbians have lived, worked, and played (and, First Nations have been in the area much longer). From this observation arises an important question: how have the very human geographies that have marked the North Shore for over a century been constructed such that a regional identity centered upon nature could come to dominate present-day geographical imaginations? By tracing the activities, values, and ideologies of late-nineteenth and earlytwentieth century settlers who ventured into the mountainous North Shore landscape to hunt, climb, and survey, this presentation identifies the cultural origins and logics of colonial constructions of wilderness space in the region.

### **Session F1.5**

Presenter: Martin Russenberger

#### **Public Values and Attitudes towards Irrigation Water Transfers in Alberta's South Saskatchewan River Basin**

By Martin Russenberger, Henning Bjornlund, Wei Xu, University of Lethbridge

There is an increasing need, in southern Alberta, to reallocate water to meet growing urban and environmental demands and adapt to uncertain future water supply in the face of climate change. Since irrigation accounts for 72% of the water allocated in the SSRB, it is inevitable that reallocation will move water out of agriculture. Public reaction to previous water allocation transfers has been mixed, with opposition based on a wide variety of perceived impacts, ranging from economic to environmental and social.

Although the majority of tax revenues that might be used to ameliorate such effects of water reallocation come from large urban centres, non-farm dwellers in more rural areas have significant policy influence due to disproportionate representation in the provincial legislature. As a result, the differing perceptions of non-irrigators along the urban to rural spectrum toward water reallocation policy are of great interest to policy makers. In particular, the values and attitudes that shape people's perceptions of reallocating water from agriculture to other uses has been theorized to be related to their social and physical separation from agriculture. This paper explores this issue based on findings from extensive surveys of non-irrigators in Calgary and Strathmore.

### **Session W3.3**

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Presenter: Christine Saull

#### **Into “The Land of the Singing Tires”: Aboriginal Stories Of Transition from Nature-Rich and Rural-Remote, To City, Places**

By Christine Saull, Rob Innes, University of Saskatchewan

Much of the literature on Aboriginal relationships with nature describes a rich, highly knowledgeable, pragmatic and spiritual engagement with the beings of the land, especially in more traditional and ruralremote

communities. This deep engagement also informs many individual and community patterns of relationship, well-being and identity, even today with increasing urbanization. A series of in-depth conversations with First Nations and Métis Saskatoon residents with prior rich connections to the land revealed a variety of responses to urban living. A focus on their past and present relationships with nature unearthed the magnitude of the transition faced by some participants, their resilience, and strategies for keeping the richness and wealth of their experiences on the land (and with their communities) alive. This accomplishment may go unnoticed among urban-raised, non-Aboriginal residents who lack awareness of what is absent from city environments and of other patterns of living. Narrative inquiry and auto-ethnography shed light on the unacknowledged learning, strengths, and skills of Aboriginal participants who moved to cities from rural-remote places. Participants shared their insights, strategies for success, suggestions for change, and stories.

#### **Session T1.4**

Presenter: Jeremy Schmidt

#### **Reporting On the States of Things, Such As Alberta's Watersheds**

By Jeremy Schmidt, University of Western Ontario

Recent changes to water governance in Alberta may be described vis-à-vis the design and implementation of its 2003 Water for Life strategy. In the period since the strategy's formal adoption (2003) and subsequent renewal (2008), watershed planning and advisory councils (WPACs) have been struck for eleven watershed regions in the province. These WPACs share two common tasks: the creation of “state of the basin reports” and the development of an integrated management plan. This presentation reports on semi-structured interviews conducted with WPAC members regarding state of the basin reports. Generally speaking, WPACs base their reporting on available scientific data. Interestingly, however, the specific institutional histories of particular WPACs, the processes of choosing criteria and the conditions of funding contracts all affect decisions regarding what to report on. This presentation explores how these factors introduce different normative elements into reporting and, potentially, into what sorts of policies may be considered appropriate for subsequent decision making. It contrasts how construing the ‘state of things’ differs from determining states of affairs. It considers the Alberta case an instance of the former, and remarks on the difference this has for ordering the tasks of governance under Alberta's new water management design.

#### **Session W1.3**

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Presenter: Nadine Schuurman

#### **A Spatial Protocol for Determining Lifetime Exposure to Ultraviolet B**

By Nadine Schuurman, Ofer Amram, Helen Tremlett, Simon Fraser University

Multiple sclerosis (MS) is a chronic, inflammatory demyelinating disease of the central nervous system for which the etiology is not yet understood. Multiple risk factors may be involved including autoimmunity and environmental factors in genetically susceptible individuals. Vitamin D levels – measured by ultraviolet B exposure – have been suspected as correlates with onset and severity of MS.

Early research reported that the frequency of MS was greater between 45 and 64 degrees latitude. This paper introduces a method to calculate UV-B exposure for patients at critical points as well as cumulative exposure over the course of their life history. Definite MS patients with 4 Caucasian grandparents were selected by linking the University of British Columbia (UBC) MS Clinic's database with the UBC Family History Database. UV data were obtained using the NASA Total Ozone Mapping Spectrometer data set. Annual UV surfaces were created for each year for which data were available. Correct UV values were then assigned to each patient based on year and location. Results indicate that cumulative UV exposures for individual patients differ significantly from estimated values based on latitude. This protocol is the basis for accurate testing of the pervasive hypothesis that UV-B exposure is related to prevalence of MS.

#### **Session W4.1**

Presenter: Adam Shamchuk

#### **Walkability and Aging in Edmonton**

By Adam Shamchuk, University of Alberta

It is well known that a large demographic cohort (the Baby Boomers) is entering retirement age. As the proportion of older citizens in Canada increases, there is a need to develop cities that take into account the conditions conducive to ensuring senior mobility. Winter cities, such as Edmonton, have additional challenges in providing accessible sidewalks and neighborhoods to seniors because of the accumulation of snow and ice over the winter months. The purpose of this poster presentation is to examine the problem of walkability in general and more specifically in the context of Edmonton as a post-industrial winter city. A three-fold approach to research has been devised in order to determine what kind of policies and street designs will be most suitable to Edmonton. The three-fold approach used is: first, the examination of best practices and existing literature on the topic. Second, an evaluation of conditions in several Edmonton neighborhoods as they relate to seniors mobility and walkable street design. And third, informal interviews with seniors and city planning staff.

#### **Poster Session A**

161

Presenter: Laura Shillington

#### **Sensory Engagements with the City: Emotions, Gender and Everyday Life in Mumbai and Managua**

By Laura Shillington, Shilpa Phadke, Concordia University

The senses are everywhere and mediate the relationship between individuals and society, body and mind, idea and object. As such, sensations are fundamental to our experience of reality (Bull et. al. 2006). Sensual experiences are place specific, gendered, aged, classed, abled/disabled, racialised, and temporal. Recent work in emotional and affectual geographies has attempted to theorise how the senses inform our experiences, understandings and relationships to different spaces, including cities. However, such theories are rooted primarily in lived realities of the global north and rarely reflect the diverse sensual experiences in the global south. This paper looks at some of the ways one might explore the gendered and classed city of the global south through our senses. We are interested in understanding what gendered sensations, emotions and feelings mean for imagining a more just engagement with the urban. Through a comparative analysis of Mumbai and Managua, we examine how sense shapes everyday negotiations of public and private spaces in these cities. We ask, first, how sensations, as culturally, historically and spatially constructed, take on multiple forms? And, second, what these sensations tell us about women's access to the city, their mobilities, and their abilities to produce liveable and just spaces?

#### **Session T1.3**

Presenter: Andrew Shmuelly

#### **Situating Canada's "Fourth City": The Challenge of Calgary, Alberta**



By Andrew Shmueli, University of British Columbia

Over the past decade, dramatic shifts in the global economy have led to unprecedented levels of prosperity and urban growth in Calgary: Alberta's largest (and most affluent) municipality. Between 2001 and 2006, Calgary became the second-fastest growing metropolitan area in all of Canada, while its inhabitants have enjoyed the highest after-tax median income levels of any city in the country. At the same time, Calgary's urban evolution remains marred by significant structural contradictions: from a marked rise in social polarization, to an alarming climb in the criminalization of poverty.

Given how remarkable Calgary's position has become as of late in the Canadian urban system, the academic literature surrounding it remains noticeably thin. Whereas Toronto, Montreal and Vancouver are returned to and reexamined, again and again, with respect to such timely topics as urban restructuring, gentrification, immigration, governance and the politics of scale, Calgary has been the primary focus of relatively few urban geographic studies. Accordingly, this brief, exploratory paper will highlight a variety of the issues and processes that have been identified by those scholars who have attempted to reckon with Calgary's complexities and challenges, before moving on to offer some potential avenues for further inquiry.

### **Session T3.6**

162

Presenter: Julia Siemer

#### **The Dasymetric Method for Mapping Population**

By Julia Siemer, University of Regina

This poster introduces basic concepts, methods and ideas of the dasymetric method. Today's society relies upon maps as a common and effective way of communication. Population distribution and density are frequently displayed phenomena. Currently, the choropleth method is most commonly applied to map population. This method displays statistical data as densities for enumeration units and is most appropriate for phenomena that occur equally throughout a region (e.g., tax rates). However, its application to phenomena whose real distribution is not reflected by the boundaries of administrative areas (e.g., population) is inadequate.

A less established method avoiding these problems is the dasymetric method. This method is visualizing statistical surfaces displaying phenomena and variables varying continuously over space. Cartographers discovered a relationship between the occurrence of population and additional, so-called ancillary data. Dasymetric mapping is the method used to define this logical relationship between ancillary data and census population data. Irregularities such as peak values and local variations are shown on dasymetric maps. The dasymetric method has not been standardized yet. A generally accepted valid relationship between ancillary data and a statistical surface still is to be defined. Thus, research focuses on the definition of methods that precisely redistribute census data to exclusively populated areas and determine their population density.

### **Session F1.1**

Presenter: Dragos Simandan

#### **Process, Event, and Attribute: Information Preservation across Ontological Categories**

By Dragos Simandan, Brock University

My purpose in this presentation is to elaborate a user-friendly framework that articulates in an orderly and rigorous fashion the multiple meanings of information-tracking in geography. In particular, I am interested in specifying the fine-grain logic by which information in the geographical landscape is preserved across ontological categories, through time. To this end, (1) I introduce a number of crucial distinctions from contemporary metaphysics and (2) highlight the importance of the relationship between the informational content of an attribute of a given geographical entity and the processes or events that explain the coming into being of that particular attribute. Throughout the presentation, I illustrate my theoretical points with examples from an assortment of subdisciplines of geography.

### **Session W3.5**

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Presenter: Dragos Simandan

#### **Rethinking the Structure of the Subjective Experience of Place**

By Dragos Simandan, Brock University

The paper revisits extant geographical conceptualisations of place and of the relationship between self and place in order to align our discipline's understanding of place with current developments in cognitive science and psychology. More specifically, I describe, explain, and illustrate specific mechanisms by which our subjective experience of place is being structured. The key conceptual move enabling this surprising level of detail consists in decomposing the umbrella term "memory" and analysing in a systematic manner the multiple memory systems through which we encode the mark that a given place has had on us.

### **Session F2.3**

Presenter: John Sinclair

#### **Mediation in Environmental Assessment in Canada: Unfulfilled Promise?**

By John Sinclair, University of Manitoba

Most EA processes in Canada either specifically provide for mediation as an option or implicitly allow for it. In spite of this, the actual use of mediation and other forms of alternative dispute resolution (ADR) has been almost non-existent in Canadian EA. There is an emerging view, however, that mediation could be applied usefully at points of the process when there is conflict among parties. The purpose of this paper is to consider how mediation has been used to date, and whether it has a role to play in improving the effectiveness, efficiency and fairness of EA. This is accomplished through consideration of the use of mediation in recent years and the results of interviews with twenty EA practitioners. Findings show that mediation has been mainly used in the EA context in the province of Quebec. However, most respondents felt that there is potential for the use of mediation to strengthen EA. Based on our findings we conclude by outlining three potential ways mediation could be used in EA: as a tool within a traditional EA process to mediate contentious issues; as a process replacement for a procedural requirement; and as a way to find an interim solution to a policy gap identified through an project EA.

### **Session F1.4**

164

Presenter: Sarah Skett

#### **Tourist? Volunteer? Either Way, Outsider**

By Sarah Skett, University of Calgary

As researchers conducting field work in a developing country, more often than not, we are assumed to be either a tourist or a volunteer. This can incite countless barriers with access to research sites, but also the quality of research obtained and participant participation. Field work in the Yasawa Islands, Fiji, and Mukono District, Uganda presented such challenges as a researcher. These include participant knowledge of the research, communication breakdowns between participants and key informants, cultural barriers, financial expectations, contributions to (and the demise of) project sites, former experiences in host countries, and even sudden termination and death of key informants. Regardless of your intentions and field work the researcher remains an outsider and knowing your limitations and overcoming others are what demonstrate true research and coping abilities in the field. However, it must also be observed that in the instance of Fiji it was beneficial to be a tourist, allowing me access; as with the case of Uganda, being a former volunteer allowed me to better adapt to the circumstances at hand. So where some see limitations others see access.

### **Session W4.4**

Presenter: Sarah Skett

#### **The Disconnect Between Universal Primary Education (UPE) and Access in Rural Uganda**

By Sarah Skett, University of Calgary

The second Millennium Development Goal (MDG) is Universal Primary Education (UPE) for all children of school-going age. Uganda was one of the first African countries to offer UPE in 1997 with attendance rates of 97% today. However, simply constructing a school and having pupils inside does not mean that they are receiving an education, nor are they the “recipients of development”. In rural Uganda, where government schools are available under UPE, many parents – even the poorest – seek alternatives and send their children to private or NGO run schools. In particular the quality of teachers, of resources available, and the relevancy of curriculum are of interest in the rural context. In fact, the quality of government schools is so poor that community leaders have taken it upon themselves to provide education in many areas; others see this opportunity to make education their business. The disconnect between development theories/strategies and development realities will be explored in four rural communities in Mukono District, Uganda. Furthermore, it will explore the relationship between geographical location and opportunities for accessing development initiatives in a way which forces researchers to rethink the relevance of development approaches to development.

### **Session T2.7**

165

Presenter: Olav Slaymaker

#### **Is Climate The Most Important Driver Of Landscape Change?**

By Olav Slaymaker, University of British Columbia

There are four drivers of landscape change, namely relief, hydroclimate, sea level and human activity. In paleoenvironmental reconstruction it is often assumed that climate is the most important driver of change. In the presence of low relief, stable continental landscapes and in the absence of human disturbance, such an assumption is perhaps viable. But in attempting to predict landscape change over the next few decades the case can be made that climate, and especially temperature, is the least important of the drivers. We make the case that relief; sea level and running water (the 'hydro' part of hydroclimate) greatly exceed the importance of temperature in changing extra-polar landscapes. Moreover, human activity in the form of land use and land cover has become the single most important driver of landscape change globally. Polar landscapes are notable exceptions to this generalization as phase changes in the cryosphere are of such overriding importance.

### **Session W3.6**

Presenter: Scott Slocombe

#### **Structures of Regional Land Use Planning in Canada: Lessons for Governance and Implementation**

By Scott Slocombe, Wilfred Laurier University

There is a long history of land use planning in regional, rural and wilderness contexts in western and northern Canada – albeit scattered in space and time. These comprehensive regional land use planning (CRLUP) initiatives have had diverse origins and pursued many purposes, particularly at regional and comprehensive scales, including land and water conservation, sustainability, development, and multiple use management. Most recently CRLUP initiatives have had particular challenges in balancing development and sustainability, multiple resource use demands, and old and new landowners interests. Many forms of planning process and product have been tried in this quest, from the quite local, to rural, to special planning bodies and commissions, to regional and municipal partnerships, and arms-length agencies. This paper, as the first stage of a larger project on governance and regional-scale conservation and sustainability, reviews the structures and experiments, some of the resulting lessons, and the current context of growing issues with process and power in newer planning frameworks in BC, Alberta, and Yukon. Lessons address the challenges, methods, and facilitative conditions for successful implementation, effectiveness, and public support.

### **Session T3.2**

Presenter: Alan Smart

### **Extralegality in Hong Kong and China**

By Alan Smart, University of Calgary

Extralegality includes three domains: the illegal, the informal, and the not-yet-(il)legal, the latter involving issues that have not yet been decided by a legal system. This paper explores the general concept by building on empirical research that I have done on uncertain property rights, illegal housing and corruption. Comparison between Hong Kong and China allows consideration of the distinct trajectories by which things become illegal or formally legal. Hernando de Soto has had considerable policy impact by arguing that the poor in emerging economies can be helped best by giving them full legal rights in informally held property. Empirical research on illegal housing in the two societies raises questions about this claim and suggests that the poor can benefit from fuzzy property rights. Corruption is the second key issue, which requires careful consideration of the ambivalent nature of many exchanges, particularly when a gift becomes a bribe. Again the comparison furthers analysis: Hong Kong can be seen as having “tamed” the Chinese practice of guanxi by constraining it to (mostly) legal networking with considerable success in reducing corruption. Whether this trajectory will develop in China as well remains to be seen.

### **Session W3.4**

Presenter: Amanda Solmes

### **Exploring Ecological Citizenship in Kluane Region, Yukon**

By Amanda Solmes, Wilfrid Laurier University

To better comprehend how to move towards a more sustainable society, we must sidestep from the current discussion about new technology and “sustainable development” and reflect on the core of the matter. It has been formally recognized that humans are one species in a system of many and cannot be separated from nature; however, we have yet to redesign our value systems or ways of living to reflect this acknowledgement. To bring these fundamentals to light, I recommend that we begin with a discussion around the notion of “ecological citizenship” and reflect on what this approach could have to offer in terms of shifting the paradigm of ecological values. Since ecological citizenship is a place-based understanding that examines the relationship between individuals and their ecosystem, it is important to reposition these ideas from their current state – rooted in political theory – and examine them in the context of their application to individual places. This discussion is grounded in lessons learned from a wilderness-based case study in South-western Yukon that demonstrates how ecological citizenship has been embodied in the region and identifies reasons for what has encouraged its transformation to take place over time.

### **Session W2.5**

Presenter: Emmanuel Songsore

### **Community Opposition to Wind Energy Development in Ontario**

By Emmanuel Songsore, University of Western Ontario

The Province of Ontario has one of the most acute jurisdictions in the developed world for supporting and promoting renewable energy development. Legislatively, the Green Energy and Green Economy Act, 2009 is aimed at making Ontario a global leader in renewable energy development. Wind energy in particular represents one of the integral and controversial parts of these commitments. Several new installations have been built or announced and yet community opposition grows. Using a media content analysis of national and regional newspapers within the province of Ontario, this research documents and analyzes the concerns motivating community resistance and/or support for wind energy in Ontario.

### **Session T3.3**

Presenter: Harry Spaling

## **Does HIV/AIDS Affect Sustainable Resource Management? Case Studies of Artisanal Fisheries on Lake Victoria, Kenya**

By Harry Spaling, Sheila Omom, John Sinclair, King's University College

This research investigated how HIV/AIDS affected the artisanal fishery on Lake Victoria, Kenya where HIV/AIDS related illnesses and mortality are high compared to other fishing communities. Using a qualitative approach, perceptions of 50 fishers from two local artisanal fishing communities, Kaswanga and Kolunga on Rusinga Island were collected. Findings showed that the type of fishery played a role in increasing the fishing communities' vulnerability to HIV/AIDS. For example, a government-imposed seasonal ban placed on Omena (or smelt-type) fishing for conservation purposes, mainly affecting the Kolunga fishing community, decreased food security and income sources, which further aggravated their existing poverty and made them more susceptible and vulnerable to HIV/AIDS. The Kaswanga fishing community was slightly less vulnerable to HIV/AIDS because it had access to the two export fish species (Nile Perch and Tilapia) which generated better returns and somewhat better livelihoods. However, HIV/AIDS-affected fishers in Kaswanga revised their fishing strategy by fishing the near-shore (which requires less labour) where export species are less prevalent and other species of lesser value were exploited to compensate for the decline in income. The results further underscore that emerging issues such as sex-for-fish, sex-for-customer, and a perceived tilapia-aphrodisiac phenomenon all contribute to fishing communities' susceptibility and vulnerability to HIV/AIDS, and changing management of the artisanal fishery

### **Session T4.7**

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Presenter: Ben Spigel

## **Canadian Entrepreneurship and Regional Culture: A Bourdieusian Perspective**

By Ben Spigel, University of Toronto

Entrepreneurship is a key element in regional development. Previous research points to the importance of a regional entrepreneurial culture in the creation of successful entrepreneurial environments, However, we have a limited understanding of how these entrepreneurial cultures are produced and how they affect the decisions of entrepreneurs and financiers. Furthermore, economic geography lacks a rigorous way of studying the role of culture in economic activities. Bourdieu's theory of field and habitus offer a useful and precise framework for studying entrepreneurial cultures. In order to be successful, entrepreneurs must understand the regional entrepreneurial field: the "rules of the game" for starting and running a small business. Using case studies of high-tech entrepreneurship in two Canadian cities, I examine how entrepreneurial cultures are created and reproduced by the actions of successful entrepreneurs and institutions. Entrepreneurs not only react to the field's "rules," but they also play an active part in reconstructing the field. Successes are observed by others and imitated and failures are noted and avoided.

### **Session T4.3**

Presenter: Allison Squires

## **Summary of an Approach for Watershed Scale Aquatic Cumulative Effects Assessment**

By Allison Squires, Monique G Dubé, University of Saskatchewan

It has been recognized that there is a need to shift from local, project scale CEA to broader, landscape or regional scale assessments to accurately assess cumulative effects. Assessing cumulative effects at the watershed scale is necessary because of the increasing pressures placed on aquatic ecosystems and the need to identify the bigger picture issues of developments that will often be lost when conducting narrower scale assessments. Alberta is currently experiencing significant economic growth as well as increasing awareness of water dependencies. In particular, there has been an increasing level of industrial (forestry/pulp and paper, coal mining, oil, natural gas and oil sands mining), urban and other

land-use related development (agriculture, tourism, wildlife trapping, and hunting) within the Athabasca River Basin. As a result, novel approaches addressing cumulative effects over broad temporal and spatial scales in these aquatic ecosystems are required. The goal of this research is to develop a quantitative approach to assess and characterize the cumulative effects of man-made stressors on indicators of aquatic health for the Athabasca River Basin in Northern Alberta.

### **Session W2.3**

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Presenter: Colette Starheim

#### **Investigating the Paleohydroclimate of West Central British Columbia Using a Multi-Species Tree-Ring Network**

By Colette Starheim, Dan J. Smith, Terry Prowse, University of Victoria

Fluctuations in large-scale ocean and atmospheric climate patterns have considerable influence on meteorological conditions and river discharge dynamics throughout British Columbia. As low-frequency oscillations are characteristic of several important climate forcings affecting this region including the Pacific Decadal Oscillation and the Pacific North America pattern, it is necessary to understand both the short and long-term behavior of regional hydroclimatic regimes to fully assess the natural dynamics of these systems. Detailed hydroclimate research is typically limited to the past century by the short length of most instrumental records in British Columbia. Annually-resolved tree ring-width and ring density measurements provide an opportunity to extend instrumental records and gain insight into the character of regional paleohydroclimate variations. Using a regional, multi-species network of tree chronologies, we establish long-term proxy records of hydroclimatic variability in west central British Columbia. Possible connections with synoptic climate forcings and solar insolation are discussed.

### **Session W1.6**

Presenter: Luke Struckman

#### **Popular American Geopolitics and the 'Arab Spring'**

By Luke Struckman, Carleton University

The events of September 11th, 2001, the continued occupations of Iraq and Afghanistan, and the Global War on Terror have placed the Arab/Muslim worlds at the center of American popular geopolitical imaginations. Although the geographies of the Arab/Muslim worlds are marked more by diversity than commonalities, popular American perceptions of these regions continue to frame them in simple geopolitical terms, like 'arcs of crises' or 'spaces of insecurity'. The recent uprisings in Tunisia, Egypt, Yemen and Jordan - unimaginable only a short time ago – represent some of the most significant political shifts in contemporary times. These protests are reactions to mass discontent with the political and economic status quo. However, some portrayals of these protests in the American media have begun to underplay the general sentiments underlying these protests and are using this opportunity to reaffirm the simplified geopolitical perceptions of the Arab/Muslim worlds as spaces of crisis and insecurity. These perceptions are highly relevant because they help to rationalize continued American diplomatic and military intervention in the Arab and Muslim worlds. The aim of this research is to make preliminary steps in understanding how the events of the 'Arab Spring' have been used to re-affirm popular American geopolitical imaginations.

### **Session W1.4**

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Presenter: Tristan Sturm

#### **God's Just Gaza War: American Christian Zionist Landscape Pilgrimage and the Justification for Palestinian Expulsion**

By Tristan Sturm, University of British Columbia

Beginning after the evacuation of the Gush Katif settlement of the Gaza Strip and intensifying with the 2008-2009 Gaza War, the border town of Sderot and its surrounding landscape became, for American Christian Zionists, a pilgrimage landscape and therefore a religious site as it was performed as an event portending the apocalypse. This Gazan landscape became a constitutive practice of religious and a hybrid American-Israeli national identity. Folding into this identity construction was the performance of their distanced gaze which translated into a vision of dominance of terror and territory. Watching the war from pilgrimage landscapes overlooking the Gaza Strip, American Christian Zionists attempted to discursively dispossess the Gazans of their land through the colonial practice of terra nullius in four ways: 1) by denying the Palestinians' ability to reason, 2) by denying that "Palestinians" existed as a legitimate national identity, 3) by arguing that Palestinians historically had no state and therefore no sovereignty over the land, 4) by a religiously sanctioned inevitability and harbinger of worse wars to come as God's wrath grows and the world teeters on the apocalypse. Gaza was therefore interpreted as God's land and the demise of the Palestinians of Gaza was made inevitable.

#### **Session W1.4**

Presenter: Carmelle Sullivan

#### **Education in Transition: Integrating Cultural and Academic Development in Nunavut High Schools**

By Carmelle Sullivan, Gita Laidler, Carleton University

The current shift in Nunavut high school education is to integrate more culturally appropriate learning while preparing students for their post-graduation goals. These important modifications are occurring at a time when Inuit society is also experiencing a period of flux and transition, presenting challenges for curriculum development and student development educationally and culturally. The Inuit Qaujimagatuqangit (IQ) principles are the foundation for the development of the curriculum seeking to integrate IQ and Western science. Working with Attagoyuk High School in Pangnirtung, Nunavut provided an important opportunity to investigate these issues in relation to how culturally appropriate learning manifests in classroom activities, an annual spring camp program, teacher roles, and expectations of students. I participated in the annual spring camp and facilitated 26 interviews and focus groups with students and educators at the high school. From these experiences I will share the results of my Master's research, including:

1) the distinctions and shared perspectives among the differing groups of participants on the current education transition in Nunavut;

2) the opportunities and challenges in developing an education system which integrates Inuit and Western approaches to learning;

3) the importance of place in fostering these new approaches to teaching and learning; and,  
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4) the potential effects of this educational transition in fostering student confidence, cultural identity, and success.

#### **Session T1.5**

Presenter: Robert Summerby-Murray

#### **Traditional Folk Culture Meets Modern Insulation: Geographies of Vernacular 'Banking' In Small-Town New Brunswick**

By Robert Summerby-Murray, Dalhousie University

The annual ritual of insulating older house foundations with local environmental materials demonstrates important tensions and contradictions in the ways in which traditional practices of folk culture intersect with modern building materials. On the one hand, these tensions are played out in the choice of insulating materials themselves (ranging from traditional spruce boughs to leaf-filled plastic garbage bags); on the other, the presence of traditional insulation materials around modern well-insulated

houses suggests that the practice has even more significance as a marker of continuity, tradition, and connection to past agricultural and primary industry employment and family geography. The resulting landscapes reflect a disjointed mix of the traditional and the modern, to the extent that the original function of 'banking' with traditional materials is subsumed within a contemporary discourse of postmodernity

and heritage. This paper analyzes the geography of vernacular 'banking' in Sackville, New Brunswick, interpreting insulation materials in relation to housing age and type. Field surveys and photography are supplemented with interview material. The study concludes that vernacular banking fulfills practical needs as well as being an example of the imprint of a heritage discourse on the contemporary built environment.

### **Session W2.2**

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Presenter: Andra Syvanen

### **Wemindji Cree Observations and Interpretations of Climate Change: Assessing Vulnerability and Adaptability in the Sub-Arctic**

By Andra Syvanen, Concordia University

The resilience of indigenous communities inhabiting northern regions of Canada is being challenged by rapid and unprecedented climatic change. The objectives of this research are threefold: first, to highlight how one particular community, the Cree Nation of Wemindji, James Bay, Québec, observe and interpret climate change; second, to demonstrate the adaptive capacity they possess to overcome increasing vulnerability and how their strategy of establishing culturally-appropriate protected areas facilitates coping with change, and; third, to illustrate how their particular experience may inform other northern settings. This research speaks to the importance of recognizing indigenous knowledge as a valuable perspective on climatic change in northern regions, in addition to highlighting the importance of determining the current and future vulnerabilities of northern indigenous groups. It also calls attention to the potential of protected areas as an adaptive strategy in the face of climate change. The research makes use of the Community Adaptation and Vulnerability in Arctic Regions (CAVIAR) framework, which has only been applied in Arctic settings to date. Therefore, the research also demonstrates the applicability of this framework in non-Arctic settings, which has the potential to enhance our understanding of indigenous experiences of climate change across Canada's north.

### **Session T4.4**

Presenter: Chui-Ling Tam

### **Communication as Negotiative Space**

By Chui-Ling Tam, University of Calgary

Currently popular bottom-up approaches to resource development and environmental management are perceived to bring together diverse and disparate actors who can articulate – or help policymakers to articulate – some common cause and course of action. Associated institutional arrangements and procedures are designed to facilitate participation as a deliberative, public and likely scheduled process in which participants come to the table to communicate their ideas, whether collegially or combatively. In this paper, communication spaces outside these deliberative environments are explored. Drawing from research among marine and coastal communities in Indonesia, communication is explored as a messy, socially produced space of interaction in which the wider contexts for environmental resource conflict and negotiation are formed. Thus imagined, communication space is a space of exchange of recombinant social capital drawn from the diverse abilities, strategies and priorities of actors. Such an interpretation advances perspectives of community-based development and management regimes to take into account the daily interactions that frame the context of participation. It is through both haphazard and deliberative communicative exchange that actors can collectively create a negotiative



space to consider and contest resource development and environmental management.

### **Session W3.5**

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Presenter: Alina Tanasescu

#### **Secondary Suites: An Examination of State Toleration of Illegal Housing in Calgary**

By Alina Tanasescu, Alan Smart, University of Calgary

Despite the lack of systemic examination of the contemporary extent and various manifestations of informal housing in Canadian cities, there is consistent evidence that it does occur, what more, it is tolerated by governments. This paper will attempt to examine the persistence of illegal housing in Calgary to provide insights into the processes that give rise to and motivate state toleration of illegal housing. Specifically, it will explore the recent developments towards incremental legalization of secondary suites (most commonly found in the form of basement suites). Through this case study, the paper will also explore the complex interactions between the state agents, illegal housing operators, tenants, and communities to comment on the ways in which illegality is contested, reinforced, and even ignored by the various actors involved.

### **Session W1.2**

Presenter: Ren Thomas

#### **The use of Qualitative Methods in Studies of Immigrants' Housing Patterns**

By Ren Thomas, University of British Columbia

Canadian researchers have used traditionally used quantitative methods to study the housing patterns of immigrants and ethnocultural groups. These methods, like the index of segregation, index of dissimilarity, and factor analysis, mainly use large datasets like the Census and aggregate definitions of ethnocultural groups (such as "South Asian" or "African"). While these studies have provided us muchneeded

research on widespread housing patterns and trends in Canadian cities, they do not provide much insight into issues such as housing discrimination, social and political integration of immigrants, or the process of finding housing or choosing residential locations. In the past decade, mixed-methods studies integrating qualitative methods (primarily interviewing and focus groups) have emerged as a sub-field of housing research. The research questions in these studies focus more on social integration rather than simple economic success or traditional markers of integration, such as homeownership. These methods have been instrumental in showing the very different paths that immigrants from different ethnocultural groups go through (disaggregation of the "norm"). Interviewing and focus groups have provided insights into the complex social and cultural factors that impact housing and neighbourhood choice. The researcher-participant distance is also decreased, since data collection through a qualitative method is needed, rather than using secondary data like the Census. This process may offer more opportunities for municipal planners in community development and participatory planning.

### **Session T1.6**

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Presenter: Frank Tough

#### **Métis Archival Sources and Cartography**

BY Frank Tough, Kathleen Dimmer, Leanna Parker, University of Alberta

Archival Documents such as Manitoba Affidavits, the 1901 Census, Métis Scrip Applications, and Scrip registers have provided Métis occupancy, mobility, and tenure data useful for cartography. Specifically Manitoba Affidavits include information about place of birth, residence, family, occupation, and language, the 1901 Census provides heritage and residence, Métis Scrip applications provide place of birth, place of residence, and place of application. Scrip registers provide geographic locations of paper trails in the bureaucratic scrip process as well as the ultimate ownership of lands and moneys promised.

Place names are one of the obstacles inherent to this data. Researchers have had to pay close attention to discerning the locations of historical place names found in archival documents as locations can have multiple variations in spelling, have been written in languages other than English, have shared names (ie. abundance of Swan Lakes), and change through time. Another obstacle, are data gaps that occur in a document series because different government officials had collected the data or different forms were used. The presentation will go into further detail as to the history of these documents, the data they contain, and what are the benefits and limitations for representing such data cartographically.

#### **Session T1.4**

Presenter: Ivan Townshend

#### **Perceived Resiliency and Community Cohesion in Wildfire Communities**

Ivan Townshend, J. Kulig, W. Reimer, D. Edge, N. Lightfoot, University of Lethbridge

Disaster research emphasizes the role that resiliency plays in post-disaster recovery. Resiliency itself is a multi-faceted concept, and has been linked to a wide range of social factors such as cohesion or sense of community. Yet there remains confusion in the field: resilience is sometimes conflated with cohesion, or cohesion treated as a co-requisite, or intervening factor. Resiliency is not easily measured, and perceived resiliency may differ from actual resiliency. We present results from a study of resiliency among individuals in two communities evacuated as a result of wildfires. We present an 11-item instrument to measure Perceived Resiliency (PR), and discuss three distinctive subscales (dimensions) of the PR scale: Leadership and Empowerment; Community Engagement; and Adverse Geography. We examine the relationship between resiliency (and its subscales) and community cohesion as measured by Buckner's Index of Cohesion, which includes subscales of Psychological Sense of Community (PSOC); Neighbourhood Attraction; and Neighbouring. Findings show that both perceived resiliency and cohesion are multidimensional constructs that are generally distinctive, with only a small share of perceived resiliency accounted for by cohesion. More detailed analysis shows that this is due to the association between one aspect of resiliency (Community Engagement) and one aspect of cohesion (PSOC). Researchers interested in geographical differences in resiliency or even resiliency potential need to seek explanations beyond cohesion, although a focus on selected subscales of resiliency and of cohesion does provide partial insight into some aspects of resiliency.

#### **Session F1.2**

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Presenter: Romila Verma

#### **The Impacts of Households and Small Businesses on the Sources of Drinking Water**

By Romila Verma, Carolyn Webb, Brock University

Ontario's Clean Water Act (CWA) 2006, mandates that every Ontario community should safeguard their sources of drinking water. Based on the principles of multi-barrier approach, the source protection plan should be watershed-based, collaborative, locally driven and based on sound science. To this end, an effective public education and outreach has to be undertaken to provide information about the source protection plan. While a great deal of public education and outreach related has already been undertaken, much of it has targeted agricultural and rural communities and large businesses. Relatively less work has been done to reach smaller businesses and residential households, particularly those in urban settings. This paper examines the role of residents and small businesses in impacting and remediation of their local sources of water in the city of Burlington, which falls under the Halton-Hamilton watershed. It also details the specific best management practices to prevent contamination in intake or well protection zones. These plans address activities and land uses around municipal wells and intakes to protect existing and future sources of drinking water.

#### **Session W3.3**

Presenter: Gilles Viaud

#### **The Small City Quality of Place Reporting System and Toolkit**

By Gilles Viaud, Thompson Rivers University

This poster introduces the framework and the architecture of a quality of place reporting system and toolkit designed and adapted to respond to the distinctive but generally overlooked needs, limitations and diverse range of experiences and conditions faced by Canada's small cities and towns. Quality of place indicators are designed to provide aggregate, objective measures of the factors in a location that either play a part in the preservation and the enhancement of the quality of life in a population, or that do contribute to its deterioration. The objective of the toolkit is to provide small municipalities with scale dependent, context specific and harmonized sets of benchmark indicators from which to structure the assessment of quality of place. Indicators are used by municipalities to assess their needs, establish future priorities, influence public policies, attract public and private investments, gage the quality of the services and infrastructures cities and regional municipalities provide to their residents, and the quality of the economic, social, cultural, and natural environment in which they live. Following a brief overview of the theoretical and practical considerations that support the development of such an indicator system for small cities, the guiding principles and implementation guidelines that are at the heart of the proposed quality of place system are presented. The discussion concludes with the presentation of the first draft of the reporting system.

### **Poster Session A**

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Presenter: Silvia Vilches

### **From Classroom to Practice: Using Service Learning to Model Qualitative Methods in the Field**

By Silvia Vilches, Penny Gurstein, University of British Columbia

Using a practice model to teach research methods seems counter-intuitive given that the discussion of methodology and design can be theoretically dense. However, in the complexity of planning environments, various players and audiences may have different levels of knowledge and literacy in regards to qualitative methods and the timelines can be short. Community-based partnerships may therefore offer particular value for preparing future planners. In 2010, the School of Community and Regional Planning at UBC entered a very successful community-based partnership with the Office for Access and Disability Services. The partnership was able to demonstrate, in real time, the challenges of timing, conducting recruitment and collecting data, providing feedback to "the client", and completing reporting. Additionally, working in small groups helped bridge the skill and knowledge difference that is part of the interdisciplinary make-up of planning student cohorts; and in doing so, modelled successful communication in the context of research knowledge differences. I argue this project highlighted four particularly valuable outcomes of teaching qualitative research methodology for future planners: methodology literacy for interpretation of purported research findings; skills in research design and data collection when working as consultants; working in interdisciplinary environments, and choosing theoretical frames for contextualizing results.

### **Session T1.6**

Presenter: Leela Viswanathan

### **Understanding the Planning Studio as a Core Component of Professional Planning Education: Lessons from the Front Lines**

By Leela Viswanathan, Graham Whitelaw, John Meligrana, Queen's University

The studio course is often the capstone course in graduate planning education. The course is characterized by collaborative work among students, professors/instructors, and community members who act as clients and coaches. Drawing from our empirical research involving focus groups with different studio course participants engaged in land use, environmental and social planning, we examine the mechanics and outcomes of studio-based learning according to several factors. These factors

include, course structure, student skills, and policy outcomes. We show that the perceptions of each participant group in studio courses (i.e., professors, students, community clients) while similar in some ways diverge in other ways. While many participants agree on the central role of studio courses in planning education, there are differing viewpoints on the relevant importance of the studio course's project outcomes, or its policy impacts, on clients and associated communities. We present our findings and offer recommendations regarding the role of the studio course relative to other types of learning in planning pedagogy, as well as the impact of such courses on the Canadian planning profession and the community-at-large.

### **Session T1.5**

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Presenter: Blake Byron Walker

#### **An Analytical Framework for Evaluating Participatory Initiatives on the Geospatial Web**

By Blake Byron Walker, Claus Rinner, Ryerson University

The recent explosion of Web 2.0 technologies is changing the nature of public participation by engaging target users with increasing affordability, efficiency, and usability. Integration of these technologies with map-based interfaces produces what is termed the Participatory Geoweb. In this paper, we propose an analytical framework to evaluate projects on the Participatory Geoweb. The '3E Framework' deconstructs a project into three key phases: engagement of the target users; empowerment of the target users; and enactment of the participatory contributions in decision making structures. The analysis is based on a series of 13 evaluation questions to assist in the examination of the three phases, which are contextualised within three conceptual spaces: the provider and public realms, and the interaction space between them. The framework is applied to two author-led participatory projects on the Geoweb. We show that the 3E Framework helps to deconstruct the case study applications and isolate their strengths and weaknesses with respect to participant engagement and empowerment, and the enactment of participation results.

### **Session T2.1**

Presenter: Ryan Walker

#### **Kensington-Cedar Cottage Neighborhood: Cultivating Ethnic Diversity**

By Ryan Walker, Yvonne Prusak, University of Saskatchewan

Comprehensive community planning is a holistic planning model that involves community members in the process of planning and implementation, and ultimately determining the future direction of their community. It is becoming more prominent within First Nations across Canada and in particular, 11 First Nations communities in Saskatchewan have recently participated in a comprehensive community-based planning pilot project funded by Indian and Northern Affairs Canada. It is timely to reflect upon the planning process to determine any promising factors or areas for improvement coming out of the Saskatchewan pilot project. The research drew data from interviews to gather the reflections of First Nations, Tribal Councils, planners, and government representatives about the current state of comprehensive community planning in Saskatchewan First Nations and what, if any, changes need to be implemented.

### **Session T3.4**

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Presenter: Wen-Cheng Wang

#### **Evolutionary Cross-Strait Economic Spaces between Taiwan and Mainland China**

By Wen-Cheng Wang, Simon Fraser University

The regional development in the cross-Strait economies between Taiwan and Mainland China, in an extent, illustrates a paradox. On the one hand, the integration between the cross-straits economic spaces manifests discontinuous and insufficient. The divide and unevenness of regional development, on the other hand, reveal deteriorating between the northern and southern regions of Taiwan, particularly

after signing the Economic Cooperation Framework Agreement between Taiwan and Mainland China. Pertaining the theory of evolutionary economic geography on path and space dependence, this study attempts to examine the issues of regions evolving between the cross-Strait and the internal Taiwan. The study presents arguments that are necessary for further integration between the cross-Strait economic spaces, and in the face of the internal regions the policy makers have to encounter the issues of worsening uneven geographical development in terms of conflict between the northern and southern regions and their classes that matter to the evolution of economic spaces in Taiwan.

#### **Session W2.4**

Presenter: John Warkentin

#### **Regional Identity of Southern Alberta**

By John Warkentin, York University

I will argue that continental spatial factors, potent over the so-called “long nineteenth century”, have been critical in creating the popular geographical image of Southern Alberta. As so often in establishing Canadian regional identities, strong contending east-west and north-south forces were at work. These forces helped define the limits of the region and were instrumental in creating its geographical character. Narratives of major defining characteristics of a region are important in identifying geographical consciousness and identity. In Southern Alberta a sense of sharedness through involvement in similar experiences from the 1780s to the 1910s, produced elements of such a consciousness that are still strongly evident today. Strategic factors include: two great rivers, metropolitan corridors, First Nations people and the fur trade, resource calamity, impact of the international boundary, forces from the U.S. and Eastern Canada, the CPR, migration, new resource activities, spectacle.

#### **Session T3.2**

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Presenter: Roger Wheate

#### **Mapping Glacier Retreat in the Western Cordillera**

By Roger Wheate, University of Northern British Columbia

Federal and provincial topographic mapping in Canada are challenged by its vast area, and in western Canada maps and datasets can be outdated by several decades. Provincial mapping was completed in both Alberta and British Columbia from aerial photography in the 1980s and is now up to 30 years old. The intervening time period has coincided with multiple warmest years on record, and glaciers have retreated upslope in the order of 20 metres per year with corresponding ice elevation downwasting. These changes are not represented on our topographic maps, while they exceed the minimum identifiable resolution at both 1:50,000 and 1:20,000 map scales.

The Western Canadian Cryospheric Network, funded by the Canadian Foundation for Climate and Atmospheric Sciences from 2006-2010, has assembled a broad range of maps, aerial photographs, satellite images and digital elevation data to examine glacier change from ~1900 to present. This presentation will illustrate some of the cartographic and visualization techniques used to show the changes between four or more temporal glacier extents, and ice thickness loss through digital elevation models. These include image overlay maps, isarithmic intervals, shaded relief sequences and 3D perspectives.

#### **Session F2.1**

Presenter: Ken Whitehead

#### **The Use of Non-Conventional Photogrammetric Techniques for Glacier Studies**

Ken Whitehead, Brian Moorman, Department of Geography, University of Calgary

This paper describes the application of two non-conventional photogrammetric techniques for glacier studies. The first uses ground-based time-lapse photography to monitor the horizontal and vertical motion of a series of targets on the glacier surface. By carrying out feature tracking on a regular basis, it

is possible to build up a detailed picture of the temporal surface dynamics of the glacier throughout the year. The second application involves carrying out small-scale UAV surveys of the glacier terminus. While similar in principle to traditional aerial surveys, UAV surveys are much more flexible. They can be carried out on demand, with multiple flights being possible over the course of a single field season, at a relatively low cost. Provided that suitable ground control is available, the orthophotos and surface height models produced from such surveys typically have a much higher resolution and spatial accuracy than is obtainable from standard aerial surveys. By using these two techniques together, it is possible to build up a detailed picture of the spatial and temporal changes occurring across the entire glacier.

### **Session F2.1**

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Presenter: Donna Williams

#### **Atlas of Canada Moving Forward**

By Donna Williams, Natural Resources Canada, Atlas of Canada

The Atlas of Canada as it exists online today was originally launched in 2002. Since then it has evolved but we are still working from the original concepts. The main focus for delivery was a single online application which, over time, evolved into three. These include a Map Server interactive mapping application for thematic maps, a separate viewer for topographic maps and a raster viewer for the previous Atlas editions. Maps were presented with many layers and interactive options. The textual components and other components were linked.

A new era of online mapping activity, applications and user expectations has arrived. It is time for the Atlas of Canada and other forms of mapping in government such as geological mapping and topographic mapping to take advantage of the wide variety of options available. We have been exploring KML format and using Google Earth to provide more dynamic and varied maps. Flash mapping has evolved to a point where it provides highly usable and engaging maps. However, proprietary software such as ESRI's ArcGIS and publication mechanisms are better suited for some of our purposes. During the last year, the Atlas has been evaluating new mapping technologies while planning to marry current user needs and expectations to its evolving mandate of mapping and maintaining and disseminating mapping information.

### **Session T4.1**

Presenter: Lisa Willott

#### **Social Support for Cuban Small Farmers**

Lisa Willott, University of Victoria

Cuba has been widely recognized as a leader in sustainable farming. From the ashes of economic crisis, small scale farms and inner city agriculture have been augmenting a frugal rationed diet with fresh locally grown foods. This small masters research project questioned how farmers felt supported in their efforts towards agroecology. This case study from 2009, spanned the urban area of Havana and three semi-rural areas: San Jose de las Lajas in the province of Havana, Quemado de Guines in the province of Villa Clara, and Vinales in the province of Pinar del Rio. Semi structured interviews with 31 farmers and agriculturists were held to better understand farming methods used on small scale farms and social support available. A photo elicitation project added a further qualitative dimension to women's experiences in Cuban farming. The findings from this case study showed that friends family and neighbors provide invaluable daily support and that government through cooperatives and other formal organizations, and particularly community based academic institutional support, provided farmers with otherwise inaccessible resources to pursue agroecology. Organizational involvement with farmers and interaction amongst farmers and their families, led to a developing an intentional ethic to pursue agroecology.

### **Session F2.5**

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Presenter: Kathi Wilson

### **Physical Activity among Female Adolescents: An Examination of Shared and Ethno-Cultural Barriers**

By Kathi Wilson, Lisa Limarzi, John Dwyer, Brenda Callaghan, Leslie Croskery, University of Toronto Mississauga

Research has shown that female adolescents have lower levels of physical activity than male adolescents. To understand the factors that shape inactivity, this research focused on identifying barriers to physical activity among female inactive adolescents (aged 13-17 years) living in Mississauga, Ontario. A series of 10 focus groups sessions were held with Indian (n=42) and Polish (n=45) inactive female adolescents. The focus group questions were designed to identify barriers to physical activity common to Indian and Polish female adolescents but also culturally-specific barriers. The results of the focus groups revealed three shared barriers – time constraints (e.g., school), lack of self-confidence, and inaccessibility - economic (e.g., cost) and geographic (e.g., too far to travel). In addition, the results also showed culturally-specific barriers to physical activity. Among Polish participants, these barriers related to cultural commitments, whereas Indian participants identified concerns over skin exposure, traditional gender roles, and discrimination as key barriers that prevent them from being physically active. Female adolescents face a number of barriers that contribute to declines in physical activity. Recommendations will be disseminated to local community partners to provide evidence that will inform policies and programs related to increasing rates of physical activity in the City of Mississauga.

#### **Session W2.1**

Presenter: Duncan Wlodarczak

### **Canadian Urbanism: What Causes This Unique Form Of City Building?**

By Duncan Wlodarczak, Simon Fraser University

Canadian cities have both similarities and differences with their American and European counterparts and this has created a unique Canadian urban experience. This paper argues why Canada has experienced this unique form of urbanism, and that while similar, it is separate than the urbanism we may find in America or Europe. This is largely due to the culture and relationships behind Canadian city building. Building on work previously done on Canadian uniqueness as applied to the city, such as Goldberg and Mercer's 'The Myth of the North American City', the paper argues that there are distinct features about Canadian city building. Moreover, it argues that these are important to understand as we move forward and look for policy options to solve the new urban issues of the future. To do this, I use a wide array of research around features of Canadian urbanism, such as metropolitan governance, the Canadian urban planning tradition, and federal-provincial-municipal relations in Canada, to name a few. I argue that not only does Canada have a distinct form of urbanism but that it's most important feature of uniqueness is the relationships and interactions between federal, provincial, and municipal governments.

#### **Session T2.6**

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Presenter: Kelly Ka Lei Wong

### **Predicting Suitable Habitats for Four Endangered Orchid Species in Southern Ontario Using GIS**

By Kelly Ka Lei Wong, Olesya Rutkay, Jack Phelan, Mahdy Sadraddini and Melisa Kommala, University of Toronto

Orchid populations in Southern Ontario are threatened by habitat modifications. This research project aims to identify sites in need of protection and potential new sites for maintenance and rejuvenation for four endangered or threatened orchid species using GIS. Qualitative habitat modeling was applied in this study with soil (drainage and texture), land cover (vegetation), and landform (slope) as input parameters for the model with schematic rating of suitability. Suitable habitats were identified, and satellite imagery

were obtained for further validation. Our results show numerous areas in southern Ontario that are suitable for each of the orchid species. Further analysis of the suitable sites indicates that there are a number of areas where the suitability of the orchids overlaps, making these sites highly efficient for conservation activities.

### **Session W1.7**

Presenter: Lisa Wood

#### **An Intra-Annual Reconstruction of Climate in Northern Interior BC Using Tree Ring Width, Density and Cell Wall Thickness Proxies**

By Lisa wood, Dan Smith, University of Victoria/University of North British Columbia

The study was carried out to document historical climate trends in northern BC using tree ring proxies. The intent was to establish a protocol for reconstructing intra-annual climate patterns with standard tree ring-width measurements, as well as wood density and fibre properties. Interior spruce (*Picea glauca x engelmannii*) and Douglas-fir (*Pseudotsuga menziesii*) were sampled at six different sites in northern interior BC. All samples were analyzed using standard dendrochronology methods. In addition to measuring tree ring-widths, density and fibre values were collected using an ITRAX direct-scanning densitometer and a SilviScan system. Annually resolved chronologies were developed from ring width (RW), maximum density (MXD), mean density (MD), minimum density (MND), maximum cell wall thickness (XCWT), and minimum microfibril angle (NMFA) values. Using historical climate data from meteorological stations in Smithers and Fort St. James, BC, June and average July-August mean temperatures were reconstructed using spruce RW and MXD chronologies. May-September total precipitation was reconstructed using Douglas-fir RW, MND, and XCWT chronologies. Multivariate and single variate reconstructions contributed towards an intra-annual reconstruction of climate variables, and postulations were made regarding the tree physiological processes which enabled trees to reflect sensitivities to distinct climate variables at different times through the growing season.

### **Session W1.6**

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Presenter: Clarence Woudsma

#### **Flows in the City: Perspectives on Planning and Logistics**

By Clarence Woudsma, University of Waterloo

Community goals often include a mixture of elements directed at creating healthy places where people and the environment come first. Goals may also speak to the health of the economy, including a transportation system that provides for the flow of people and goods. Yet, goods movement is often at odds with the goals of healthy and vibrant places. How do hybrid cars and long combination vehicles (LCVs) share the road? How do cities integrate increasing density, mixed use, active transportation, and transit oriented development with the fundamental needs to transport the material flows that sustain the city? The goal of this paper is to explore this question through a critical review of recent developments on the Canadian scene. The policy assessment provided looks at National, Provincial and Municipal scale examples related to infrastructure funding, transportation operations, and development policy. This paper also reviews recent research into issues related to logistics land use development, using Ontario as a case study. Certainly the findings suggest that our understanding of logistics and more broadly, goods movement in the city, is improving. However, a series of challenges are presented as a step towards a more effective consideration of material flows in city planning.

### **Session T2.6**

Presenter: Wanli Wu

#### **Soil Geography and Its Implementation on Ecological Integrity of the Arctic Tundra Ecosystem in Aulavik National Park**



By Wanli Wu, Linh Nguyen, Parks Canada

Systemic soil and permafrost surveys were conducted in summer 2010 with purposes of gathering baseline information and understanding ecological processes and functions of the high arctic tundra ecosystem in Aulavik National Park on Banks Island, Northwest Territory. This fieldwork filled some blank areas of the soil survey in the Northwest Territory region. Soil properties, land cover, landscape patterns, and vegetation communities in 11 tundra long-term monitoring sites were surveyed, with 27 soil profiles described based on our first-hand field tests and observations of soil morphology. Laboratory soil test results were analyzed to examine soil pH, texture, moisture content, bulk density, total Carbon and organic Carbon, available Nitrogen, Phosphorus, and Potassium, cation exchange capacity, etc. Biological processes such as vegetation change, and liming nets within the studied sites were also studied. The active layer thickness of the study areas was investigated systematically to determine the soil classification and impact of climate change to permafrost conditions in the areas. This poster provides an overview of the research results and an illustration on how these soil characteristics and processes may be implemented in analyzing ecological processes of the high arctic tundra ecosystem and ecological management of Aulavik National Park.

### **Poster Session B**

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Presenter: Nicole Wunderlich

### **Impact of Seeding With Non-Native Grasses on Patterns of Tundra Vegetation Recovery 30 Years after Industrial Disturbance**

By Nicole Wunderlich, Jill Johnstone, University of Saskatchewan

Oil and gas exploration conducted in the 1970's left behind a legacy of abandoned drilling-mud sumps in the Mackenzie River delta. Drilling-mud sumps are mounds of disturbed tundra that contain frozen drilling-wastes. One to two years after the wells were decommissioned some of the sites were seeded with non-native grass species and fertilized to test whether these treatments could accelerate vegetation recovery and prevent erosion. Thirty years after decommissioning, we returned to examine the long-term impact of the post-disturbance seeding treatments on patterns of vegetation recovery. Plant community composition and environmental data were collected at 12 sump sites (6 seeded and 6 unseeded) during the summer of 2008. Multivariate analyses showed that seeded sumps did not significantly differ from those left for natural recovery. However, non-native grasses *Festuca rubra* and *Poa pratensis* were found on both seeded and unseeded sumps. The undisturbed surrounding tundra seems to be resistant to the spread of these non-native grasses. However, the potential for spread and invasion of non-natives may increase with climate warming and increasing anthropogenic disturbance. The results of this study are critical for making informed management decisions about the rehabilitation of industrial disturbances in the Arctic.

### **Session T2.2**

Presenter: Kejian Xu

### **Geoheritage and Geoparks in China**

By Kejian Xu, Michael Campbell, University of Manitoba

Geoparks, as an innovation for the protection of natural and geological heritage, play an important role in the development of many parks and protected areas. As defined by UNESCO, "a Geopark is an area with a geological heritage of significance, with a coherent and strong management structure and where a sustainable economic development strategy is in place . . . geological heritage and geological knowledge is shared with the broad public and linked with broader aspects of the natural and cultural environment, which are often closely related or determined to geology and landscape."

China, with its vast territory and complex geological & geomorphic features, has received the designation of Global Geopark supported by UNESCO for twenty-four areas of outstanding geological

heritage, and is the world's leading country.

The aim of this paper is to present a comprehensive overview of geoparks in China, and to provide insights for possible creation of a geopark in Alberta, Canada. This paper reviews the establishment and development of geoparks in China, evaluates goals, values, impacts and conservation effectiveness in management of the geoparks. Therefore, establishing a geopark in Alberta may stimulate the creation of innovative local enterprises, new job opportunities, and generate new resources of revenue stemming from geotourism.

#### **Session W4.5**

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Presenter: Wei Xu

#### **Market Transition, Labor Market Transformation, and Geographies of Inequality: A Case of Fujian**

By Wei Xu, University of Lethbridge

Inequality has always been a major concern of general public in any society. The heightened social and economic polarization represents a potential source of social and political instability. Eliminating excessive poverty, reducing income inequality, and promoting social and economic justice are some of the primary goals of public policy in a nation. The causal relationship between economic growth, economic freedom, and inequality has been a long-lasting debate in many disciplines of social science. Market Transition Theories stemming from investigating the effects of market transition from a socialistic redistributive system have added another dimension to the theoretical understanding of changing social inequality in the contemporary world. This study attempts to provide an understanding of geographies of transformed social inequality and the spatiality of social stratification is shaped by the transition of redistributive economy to a socialist market economy. Fujian province, China is selected for the empirical investigation and data is drawn from a recent migrant survey and 2005 sample census. The study contributes to the debate on the theorization of causal relationship underlining social and economic inequality from a geographical perspective.

#### **Session W3.4**

Presenter: Lotfollah Yazdani

#### **La Culture Du Coton En Iran et Son Rôle Dans l'Économie Nationale**

By Lotfollah Yazdani, Islamic Azad University

Le coton a été cultivé dès les temps anciens jusqu' à present en Iran .

Depuis 80 ans les variétés du coton American a été cultivé en Iran , et le taux de production en a été environ 2% du coton mondial et le taux de l'exportation de cette recolte a été 1% de l'exportation mondiale.

Mais malheureusement aujourd'hui la superficie cultivée de cette re'colte , a extrêmement diminuée et l'Iran est devenu un pays l'importateur du coton.

La quantité de la production du coton en 1996 a été environ 541000 tonnes , laquelle a diminuée aujourd'hui à 90000 tonnes.

En raison de l'augmentation des frais de la production du coton en Iran , et aussi la crise economique mondiale , le prix du coton raffiné a diminué de 1.8\$ à 1. 2 \$ american et pour ce la , la superfucie cultivée du coton et sa production a diminué , et l'Iran a été obligé d'en importer plus de 55000 tonnes pour sa consommation interieure l'année dernière.

Pour atteindre l'autosuffisance de la production du coton et en diminuer l'importation et donc l'augmentation de l'occupation humaine , il est besoin d'une aide gouvernamentale aux cultivateurs et acheter la production paysanière à un prix garanti .

En ce moment dans les grands pays producteur de coton , comme l'inde , les Etas – unis , le Pakistan et la Chine , les cultivateurs bénéficient de l'aide gouvernamentale , et pour cultiver un kilo-gramme du coton , le gouvernemente aide 0.10 \$ à 0.60 \$ aux cultivateurs.

Dans ces conditions en Iran , il n'ya pas non seulement l'aide gouvernementale , même l'achat de la production paysanniere du coton est difficile.

### **Session F2.5**

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Presenter: Ian Yeboah

#### **Geography of Flooding in Urban West Africa: Accra**

By Ian Yeboah, Miami University

A perennial feature of West African cities is flooding they experience after torrential rains. Cities such as Lagos and Accra have to deal with the physical destruction and human toll of floods after rains, on an annual basis. The literature on urban flooding suggests that physical geographical features such as elevation of land and land use changes that results in an increase in impervious surfaces in cities explain urban flooding. Yet, experience from West Africa indicates that apart from physical geographical changes, management of human activities contributes significantly to urban floods. This paper uses GIS techniques to argue that in the case of Accra, Ghana, management of urban garbage, number and size of drains, population increases and, maintenance of drains are just as important in explaining urban flooding. The paper maps out places that flood and relates locational attributes of these places to their physical geography and prevailing management practices. Planning implications of these findings conclude the paper.

### **Session T3.7**

Presenter: Rita Yembilah

#### **Researcher Positionality as a Tool for Access and Managing “Image Problems”**

By Rita Yembilah, University of Calgary

Field research is hard, doing it in unfamiliar terrain is harder still. So how does a researcher navigate unfamiliar terrain with an “image problem”? I conducted fieldwork among the Frafra of northeastern Ghana and Fulani herders who migrated to northeastern Ghana from Burkina Faso as semi-nomadic cattle herders. My aim was to understand their livelihoods, resource use practices and conflict management within the milieu of local dissent about Fulani settlement in the area. I had an image problem because of two statuses:

- I am Frafra, which makes me an outsider to the Fulani community
- I have a family tie which, if known, could hinder access to the herder community or generate a circus around expelling the herders.

I worried about how my statuses could affect the research, so I went afield thinking about:

1. How to manage my identity
2. How to access the Fulani community (known for aloofness and privacy)
3. How not to have my intentions misconstrued by both groups
4. How to stay on track with the research aims and objectives.

I will share how conscious researcher positionality is invaluable for managing “image problems”, overcoming bottlenecks and proceeding to a successful field season.

### **Session W4.4**

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Presenter: Rita Yembilah

#### **The Theory and the Practice: Sustainable Livelihoods in Tallensi East, Ghana**

By Rita Yembilah, University of Calgary

The sustainable livelihoods approach has gained ground as a strategy for improving the livelihoods of poor people the world over. It is viewed as a means to help poor people meet their needs and develop a capacity to meet those needs continually. This is the mindset I carried into Tallensi East researching livelihoods, livelihood profitability and sustainability. The reality called for pause regarding the sustainable livelihoods approach in some settings.

Tallensi East is remote; its inhabitants are dependent on agriculture and forest products for their livelihoods. This research was conducted to ascertain the range and significance of their livelihood options to find the ways in which their livelihoods could be improved as per the unofficial slogan of the sustainable livelihoods approach: building on the wealth of the poor.

The research found that these poor had little wealth and viewed their livelihood as a quest for food and not an opportunity to build on their “wealth”. For others, recurrent vulnerabilities derailed chances of a sustainable livelihood even if they knew how to make one. There is a dearth of transforming structures to turn opportunities into desirable outcomes. This raises questions about the relevance of location to livelihoods and the applicability of the approach in a context such as this without becoming paternalistic. I offer some thoughts on how practitioners could meet the tenets of the livelihoods approach without building a dependency on external support just because there is little to begin with in the first place.

### **Session T2.7**

Presenter: Li Yu

#### **Escaping the Neon Glamour: Return Migrant in China**

By Li Yu, Wei Xu, University of Lethbridge

Since the onset of reforms in the late 1970s, rural-urban migration across regions has gradually grown and become a momentous force promoting China’s economic growth and urban development. The sheer scale of internal labor migration has attracted major scholarly attention and caused widespread concerns over various emerging issues of temporal migrants in urban China. However, the theoretical and empirical literature on migration has paid little attention to the fact that many migrants return to their home origins after spending a number of years in the host cities. In fact, there were three significant upsurges of return migrants in China since 1980, and the scale of return migration has expanded tremendously in the last decade due to the sheer number of rural migrants. What are the differences in demographic characterizers between return migrants and those who remain? What are the factors driving returnees to go back home? What are potential effects of return migrants on place of origin and host cities? This article attempts to address these questions based on a survey of about 3,000 migrants in Fujian province. The findings of this study contribute to a better understanding of the nature and process of internal labor migration in China.

### **Session W3.4**

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Presenter: Mariama Zaami

#### **Gendered Strategies among Northern Migrants in Accra: A Case Study of Madina**

By Mariama Zaami, University of Western Ontario

The concept of social networking relates to the means by which people migrate and assimilate into a new society. An individual could either use a ‘strong’ social tie which stems from blood relations or a ‘weak’ social tie which includes acquaintances, friends, ethnic group members and class mates to fully assimilate him or herself into a new location. Using the concept of Social Network Theory, this paper seeks to examine a) the gender differences in economic opportunities and constraints of Northern migrants in the informal economy in Madina, Ghana and b) the gender differences in type and extent of social and economic support from social networks cultivated by migrants. This study uses a mixed method approach which involves the use of qualitative and quantitative techniques. In-depth interviews were conducted among a sample population of 58 respondents (37 women and 21 men) who migrated from Northern Ghana to Southern Ghana (Madina). Three themes emerged from the analysis: First, although economic reasons appears to be the main reason why both men and women migrate, for women, ethnic conflicts in Northern Ghana and for men the quest for experience are the second leading reasons why they migrate to the South. Second, ethnicity plays a major role in the integration and assimilation of migrants into their new community. Finally, inasmuch as strong social ties facilitate

migration, it is weak social ties that usually provide long term support for new migrants in finding jobs and accommodations upon arrival. The study concludes that knowing how these social networks shape gender strategies before, during and after migration is important for effective government policy interventions in bridging the North-South poverty gap.

#### **Session T4.7**

Presenter: Amber Zary

#### **Grassroots Participation in Watershed Planning: An Examination of the Effectiveness of Alberta's Local**

#### **Watershed Stewardship Group**

By Amber Zary, University of Lethbridge

In 2003, the Alberta government released its newest framework for water management planning called Water for Life. With this policy, the Alberta government adopted an approach to watershed management encompassing three different types of groups – Local Watershed Stewardship Groups (LWSGs); Watershed Planning and Advisory Councils (WPACs); and the Alberta Water Council. The framework for the partnerships established by the Alberta government provides clear roles, implementation strategies, and success indicators for each group.

To date there has been little evaluation of the Water for Life strategy generally and no specific assessment of the role and activities of the LWSGs in Alberta. This paper examines the functionality of the Local Watershed Stewardship Groups in relation to the success indicators provided in the Province of Alberta's "Water for Life: Enabling Partnerships: A Framework in Support of Water for Life: Alberta's Strategy for Sustainability" framework. Based on data collected through surveys and in-depth interviews, it becomes possible to build a profile on the LWSGs; understand the extent to which LWSGs have been able to meet the success indicators; and learn from the LWSGs what factors have contributed to their success or failure.

#### **Session W1.3**