

Session 9: Recreation & Wildlife

Session Moderator: Nicolisa Blatchford

Location: TBC

Date/Time: Tuesday, December 13, 1:30 pm to 3:45 pm

- [Annie Pumphrey](#) - Lessons from Kananaskis: Expert and visitor perceptions
- [Kaitlyn Gaynor](#) - The influence of recreation on animal movement in US National Parks
- [Talia Vilalta Capdevila](#) - Multiple spatial data sources improve mapping of recreation trails in eastern BC
- [Annie Loosen](#) - Who, what, when, where: Next-generation modeling to predict recreational use in eastern BC
- [Kate Field](#) - Applying risk-allocation theory to wildlife behaviour during non-consumptive ecotourism: Grizzly bear viewing in Tweedsmuir Provincial Park, Nuxalk Territory

Annie Pumphrey

University of Northern British Columbia

Lessons from Kananaskis: Expert and visitor perceptions

Abstract:

Roadside bear viewing occurs in protected areas in BC and Alberta and poses risks for both humans and wildlife. One such risk is the formation of a “bear jam”—vehicle traffic jams resulting from when drivers stop or slow down on a road to engage in bear viewing. Bear jams pose challenges including potential vehicular collisions, habituation of bears, costs in Park resources, and complex communication and outreach to Park visitors. Across BC and Alberta, data gaps exist with respect to understanding and addressing the human element of human-bear interactions. To gather visitor perceptions and experiences about roadside bear viewing, we conducted an online survey (n=380) and interviews (n=22) using the case study of Peter Lougheed Provincial Park (PLPP), Alberta. Results associated with this project provide insights into perceptions of risk, while also providing perspectives and levels of support for management strategies applicable to bear viewing management in PLPP and beyond. This research contributes visitor data to the field of human-wildlife interactions with the intention of informing a more balanced approach to bear jam management.

Contributors:

- Dr. ZoëA Meletis, University of Northern British Columbia

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[Kaitlyn Gaynor](#)

University of British Columbia

The influence of recreation on animal movement in US National Parks

Abstract:

The US National Park Service is tasked with the dual mandate of conserving wild places and wildlife within them, while providing recreation opportunities for visitors. The recent, rapid growth of visitation has raised questions about trade-offs inherent to the dual mandate, including concerns about the effects of recreation on wild animals. In spring 2020, the COVID-19 pandemic led to the temporary closure of most NPS sites, generating a unique natural experiment that allowed us to examine the effects of recreation on wildlife and tease apart impacts of human infrastructure and presence. With collaborators across NPS, state wildlife agencies, and academic institutions, we compiled GPS tracking data from 2019 and 2020 from 304 individual animals across 11 large mammal species (5 carnivores and 6 ungulates) in 17 national parks. We used Bayesian Resource Selection Functions (RSFs) to quantify the influence of recreation infrastructure on animal movement in and outside of the park closure periods. Our results suggest a diversity of responses to human infrastructure and to park closure across species, individual animals, and parks. This study contributes to our growing understanding of the complex interactions between recreation and large mammals and sheds light on mechanisms for human-wildlife coexistence in protected areas.

Contributors:

- Forest Hayes, Colorado State University
- Kezia Manlove, Utah State University
- John Benson, University of Nebraska Lincoln
- Michael Cherry, Texas A&M University
- Clinton Epps, Oregon State University
- Rob Fletcher, University of Florida
- Nathan Galloway, National Parks Service

- John Orrock, University of Wisconsin
- Justine Smith, University of California – Davis
- Paul Cross, USGS

Talia Vilalta Capdevila

Yellowstone to Yukon Conservation Initiative

Multiple spatial data sources improve mapping of recreation trails in eastern BC

Abstract:

Outdoor recreation can lead to wildlife disturbance, human-wildlife conflicts, and conflicts among user groups. Successfully mitigating these impacts is hampered by information gaps about the patterns of human use, including the spatial footprint of recreation. We mapped trails and other linear features that can be used for recreation, such as resource roads, to understand the spatial distribution of motorized and non-motorized recreation across 45,000 km² of south-eastern BC, including provincial and national protected areas. We compiled spatial recreational data from documented (management plans and maps, government recreation spatial data, recreation clubs), undocumented (e.g. OpenStreetMaps, AllTrails, BackRoad Mapbooks) and linear feature databases to categorize features by activity and data source. We mapped 28,276 km of features available for recreation: X km (27%) documented trails, X km (9%) undocumented trails, and X km (64%) linear features. Linear densities of undocumented trails and linear features were 0.16 km/km² within provincial parks, 0.12 km/km² within national parks, and 0.54 km/km² outside protected areas. These results indicate that the current documented recreation human footprint is vastly underestimated compared to the linear features and undocumented trails available for recreational use.

Contributors:

- Dr. Annie Loosen, University of Northern British Columbia and Yellowstone to Yukon Conservation Initiative
- Dr. Aerin Jacob, Nature Conservancy of Canada
- Dr. Karine Pigeon, Ministry of Lands, Water, and Resource Stewardship
- Dr. Pamela Wright, University of Northern British Columbia

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Annie Loosen

University of Northern British Columbia and Yellowstone to Yukon Conservation Initiative

Who, what, when, where: Next-generation modeling to predict recreational use in eastern BC

Abstract:

Outdoor recreation has increased in recent years, with the global COVID-19 pandemic underscoring the need for people to connect to nature. However, recreation can contribute to biodiversity loss via land use change and disturbance. As a result, land use planning and recreation management have become a priority issue for many managers but there is a significant knowledge gap in knowing where, at what intensity, and what type of recreation is occurring. In the Upper Columbia region of eastern British Columbia, a major outdoor recreation hub, we develop next-generation models to estimate human use in provincial and federal protected areas, and non-protected lands. We use five data sources that capture motorized and non-motorized recreation in winter and summer: remote trail cameras, trail counters, local recreation experts, user-created content (e.g., smartphone applications), and aerial surveys. We report preliminary results from this modeling. Next steps include developing comprehensive models of human use across seasons and activity types and functional models of disturbance of key wildlife species. The results of this research will help governments and conservation and recreation groups to identify areas of overlap with high intensity recreation and high-quality wildlife habitat that may require urgent conservation steps.

Contributors:

- Talia Vilalta Capdevila, Yellowstone to Yukon Conservation Initiative
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- Dr. Karine Pigeon, Ministry of Lands, Water, and Resource Stewardship
- Dr. Pamela Wright, University of Northern British Columbia

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- Mitacs Canada

- Parks Canada
- RBC Foundation
- The Volgenau Foundation
- Wilburforce Foundation

Kate Field

Raincoast Applied Conservation Science Lab, University of Victoria

Applying risk-allocation theory to wildlife behaviour during non-consumptive ecotourism: Grizzly bear viewing in Tweedsmuir Provincial Park, Nuxalk Territory.

Abstract:

How wildlife perceive and respond to humans are increasingly considered by managers in landscapes with complex human-wildlife interactions. We investigated how grizzly bears (*Ursus arctos horribilis*) behave across a spatial and temporal gradient of tourism along the salmon-bearing Atnarko river in Tweedsmuir Provincial Park, Nuxalk Territory, British Columbia. Genetic detection via snagged hair (n = 73 individuals in 2019; n = 55 in 2020; n = 47 in 2021) revealed that some individuals but not others were detected exclusively at ecotourism sites. Camera trap data indicated that, broadly, daily activity patterns differed among males and females with young. Specifically, we observed reduced diurnal activity in males that coincided with reduced nocturnal activity in females with young. Finally, pilot behavioural analyses at ecotourism stands and areas exposed to boat tours suggest the proportion of time spent foraging was higher for bears at a viewing platform compared with bears viewed at an unmanaged recreation area. Our work illustrates trade-offs made by bears at multiple scales and can inform evidence-based management.

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