ALBERTA CHAPTER *of* THE WILDLIFE SOCIETY

# WORKING TOGETHER:
## SCIENCE & MANAGEMENT

**Banff, Alberta**

February 26 - March 1, 2026

Photo: Lacey Hebert

# PROGRAM

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# CONFERENCE AT A GLANCE

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| Thursday, February 26 | 1900 – 2100: Southern Alberta Grizzly Bears: Challenges & Coexistence from the Mountains to the Prairies with Dr. Andrea Morehouse.<br>Location: Rose and Crown (202 Banff Ave.) |
| Friday, February 27 | 0800 – 1530: Canmore Cave Tours Field Trip & Meet Ups<br>1330 – 1700: Workshops<br>1630 – 2000: Networking Events<br>1700 – 1800: ACTWS Annual General Meeting<br>1900 – 2200: Mixer (light appetizers will be provided & cash bar) |
| Saturday, February 28 | 0800 – 0805: Opening Remarks<br>0805 – 0850: Keynote Speaker, Dr. Evelyn Merrill, *How can we bridge research, management, and policy in Alberta?*<br>0900 – 1030: Science & Management Panel Discussion<br>1030 – 1100: Coffee Break (snacks will be provided)<br>1100 – 1235: Concurrent Presentations<br>1235 – 1400: Lunch (provided in dining room)<br>1400 – 1550: Concurrent Presentations<br>1550 – 1800: Free Time<br>1730 – 1830: Poster Session<br>1830 – 2330: Banquet, Student Scholarships, Professional Awards, Auction, and Live Music by Motown 6 |
| Sunday, March 1 | 0900 – 0955: Concurrent Presentations<br>0955 – 1030: Coffee Break (snacks will be provided)<br>1030 – 1200: Species Reporting Session<br>1200 – 1215: Student Presentation Awards & Closing Remarks |

# PUBLIC TALK

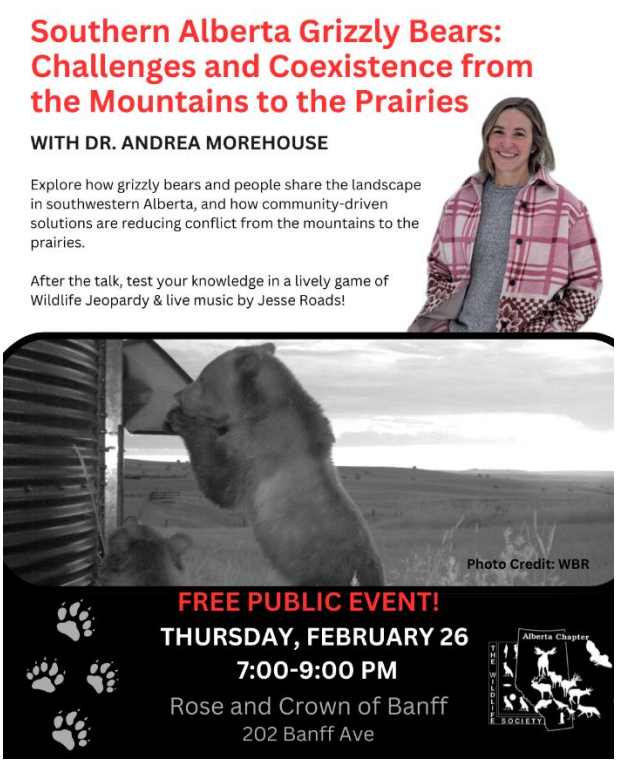
**When:** Thursday, February 26th, 7:00 – 9:00 pm. Be sure to arrive early to grab a good seat!

**Where:** Rose and Crown (202 Banff Ave).

Stay after for Wildlife Jeopardy and live music by Jesse Roads.

**Cost:** Free!

**Title:** Southern Alberta Grizzly Bears: Challenges and Coexistence from the Mountains to the Prairies




**Abstract:** Southwestern Alberta is where the mountains meet the prairies. Here, there is a significant overlap between grizzly bear home ranges and rural communities. Public lands in southwestern Alberta are limited and insufficient in spatial extent to support the high density of grizzly bears that live here. Consequently, private lands are an important component of grizzly bear habitat in this region. Southwestern Alberta has been a provincial hotspot of human-bear conflicts; it is also a region of the province where grizzly bears now exist well outside of provincial bear management area (BMA) boundaries. The primary conflicts with grizzly bears include depredation of livestock, damage to stored crops, and access to a variety of attractants including dead livestock. Human safety is also a community concern. These challenges are not unique to southwestern Alberta. However, the farmers and ranchers within this region have repeatedly demonstrated their willingness to find ways to share the landscape with large carnivores and have worked together with other partners to form a community-driven response to human-bear conflicts. Positively, the Waterton Biosphere Region's Carnivores and Communities Program (CACP) has been working in the area since 2009 and has become a North American leader for community-led attractant management projects that help bears and people share the landscape. The CACP has four main on-the-ground components to their work including cost-shared attractant management projects,

deadstock removal, bear safety workshops, and capacity building and outreach. In my presentation, I will discuss what we know about bears and other large carnivores in the area, the challenges associated with living with grizzly bears, the development of the community-based landowner-driven CACP, the implementation of the CACP's conflict mitigation strategies, and an evaluation of the program's effectiveness - including a discussion of both ecological and social factors.

Biosketch: Andrea Morehouse is an independent scientist who works on a variety of conservation and management issues related to carnivores in multi-use landscapes. She moved to Alberta in 2007 and completed both an M.Sc. and Ph.D. in ecology at the University of Alberta. Through her research, she strives to effectively engage scientists, managers, and community members to develop and implement scientifically sound and socially workable wildlife conservation and management strategies. She works with the Waterton Biosphere Region as the Science Lead of their Carnivores and Communities Program. She is a 2017 Wilburforce Fellow in Conservation Science; serves on the IUCN Bear Specialist Group's North American Bear Expert Team; is a past president of the Alberta Chapter of The Wildlife Society and a past board member of the Canadian Section of The Wildlife Society; and is active in other professional organizations. She lives in the Pincher Creek area with her husband and three boys.

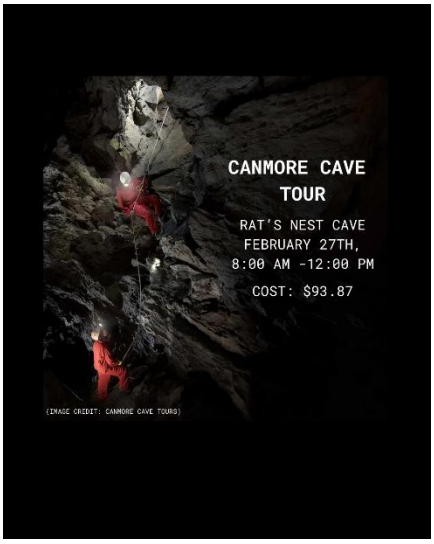
# FIELD TRIP & MEET UPS

1. Canmore Cave Tours

**When:** Friday, February 27, 8:00 am – 12:30 pm
**Where:** Canmore Cave Tour Office (129 Bow Meadows Crescent, Canmore)
**Duration:** ~4.5 hours. Time in cave: ~2.5 hours.
**Difficulty:** Moderate
**Conditions:** Cool, dark, and muddy — all safety gear is provided by the guides
**Cost:** $93.87

Purchase your tickets here.

Join us for an unforgettable underground adventure with **Canmore Cave Tours' Explorer Tour**. This guided experience takes you deep into a natural limestone cave system, where you'll learn about cave formation, geology, and local history while navigating narrow passages, chambers, and unique underground features. Learn more here.




This is an **active, hands-on experience** that involves some crawling, climbing, and uneven terrain. No previous caving experience is required, but participants should be comfortable with confined spaces and moderate physical activity.

**What to Bring:**

- Sturdy hiking boots or shoes you don't mind getting dirty
- Warm layers (the cave stays cool year-round)
- Gloves (optional but helpful)
- Water bottle

2. Ice Fishing Meet Up

**When:** Friday, February 27, 10:00 am – 3:00 pm (drop-in event)
**Where:** Spray Lakes Reservoir (https://maps.app.goo.gl/chFdCLLe1AmvyhXF9). The exact location and meeting details will be shared closer to the event date, once ice conditions are confirmed.
**Cost:** Free

Join us for a relaxed ice fishing meet-up at Spray Lakes Reservoir, a classic winter experience in the Canadian Rockies. This is a great opportunity to try ice fishing for the first time or simply enjoy time outdoors with fellow conference attendees. We will be fishing for Whitefish and Lake Trout.


This is a free event, and all equipment will be provided, including ice augers, rods, bait, and safety gear. No prior ice fishing experience is required—just dress warmly and come ready to enjoy the day.

What to Bring:
- Very warm winter clothing (layers, insulated jacket)
- Winter boots suitable for standing on ice
- Hat and gloves
- Sunglasses (helpful on bright winter days)
- Snacks and water
- Own fishing gear (if you have it, otherwise it will be provided)
- Mug for a hot beverage

This is a casual, social meet-up with plenty of time to chat, learn, and enjoy the winter landscape.

Sign Up Here.

**Please note that this event is limited to 30 participants. Attendance will be offered on a first-come, first-served basis. Submitting this form does not guarantee registration; we will notify you to confirm.**

3. Johnston Canyon Hiking Meet Up

**When:** Friday, February 27, 8:30 am
**Where:** Meet at the Johnston Canyon Trailhead parking lot at 8:30 AM, near the main information boards and washrooms.
**Distance**: ~5.4 km round trip (to Upper Falls)
**Time:** ~2–3 hours at a relaxed, social pace
**Difficulty**: Easy to moderate
**Conditions:** Icy in sections — ice cleats/microspikes are strongly recommended


Sign Up Here.

Join us for a winter hike through Johnston Canyon, one of Banff National Park's most iconic and accessible trails. The route follows a well-maintained path through a narrow limestone canyon, passing waterfalls that are especially beautiful when frozen.

We'll hike to the Upper Falls, with the option to turn around earlier at the Lower Falls depending on comfort level and conditions. The trail is relatively gentle, but can be icy in winter, particularly on bridges and stairs.

**What to Bring:**

- Ice cleats or microspikes
- Warm winter boots with good traction
- Weather-appropriate layers (hat, gloves, insulated jacket)
- Water and snacks
- Trekking poles (optional but helpful on icy sections)

This is a popular trail, so expect other visitors. We'll keep a relaxed pace and regroup as needed to keep it social and enjoyable.

4. Fire Meet Up

**When:** Friday, February 27, 12:30 pm
**Where:** Cascade Ponds, Banff National Park. The exact location and fire pit details will be emailed to participants on the day of the event.


Sign Up Here.

Wind down and reconnect with fellow conference attendees at a relaxed fire meet-up at Cascade Ponds in Banff. This informal gathering is a chance to socialize, network, and enjoy the winter scenery—no agenda, no pressure.

Feel free to drop in anytime after 12:30 PM and stay as long as you like. Whether you're coming straight from another activity or just looking for a cozy spot to chat and warm up, this is an easy, flexible meet-up.

What to Bring:

- Warm winter clothing (hat, gloves, insulated layers)
- Snacks to enjoy by the fire (optional)
- A camp chair if you'd like (optional)

# WORKSHOPS

1. An Introduction to Camera Trap Data Exploration and Analysis

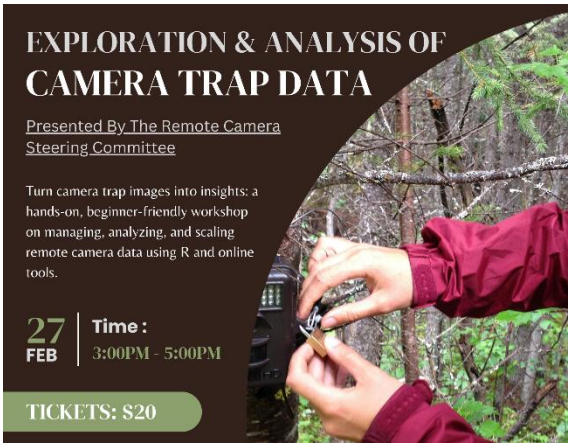
Facilitated by the Remote Camera Steering Committee

**When:** Friday, February 27th, 3:00 – 5:00 pm

**Where:** Summit Room

**Cost:** $20

Register Here.




The use of remote cameras for ecological monitoring is expanding rapidly, creating exciting opportunities for collaboration and data integration across projects. However, scaling up these efforts and applying standardized analytical methods can be challenging. This interactive workshop will equip participants with practical tools and strategies to manage, analyze, and share insight from camera trap data. We will gently introduce and practice basic concepts in scripting with R, as well as explore online resources that can help generate insights from camera trap datasets, such as WildCAM's Camera Trap Data Exploration Tool Shiny App. This workshop will be directed towards novice camera trap data analysts, with optional hands-on time for each participant to work with and ask questions about their own camera trap data. Following data analysis instruction, we will discuss remote camera data integration, scaling up to answer large-scale questions, and data sharing.

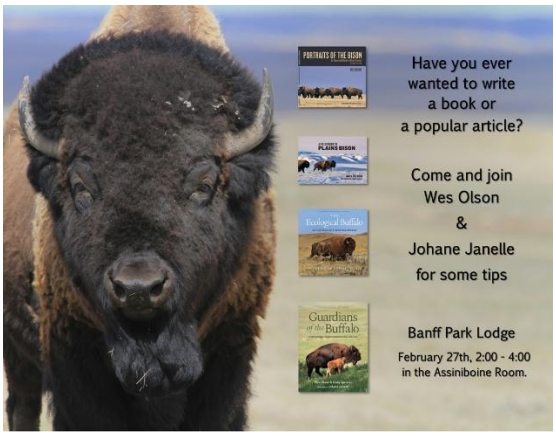
**Presenters:**

Marcus Becker, MSc & Natasha Crosland, MSc

Marcus Becker is a Statistical Ecologist with the Alberta Biodiversity Monitoring Institute (ABMI), specializing in the use and modeling of data from large-scale camera trap datasets. Marcus has designed and worked with camera trap data from studies on wildlife species across Alberta, collaborating with a variety of industry, community, and academic partners. Natasha Crosland is an Applied Science Coordinator with the ABMI, and supports large mammal research programs focused on caribou recovery and bison monitoring in northern Alberta. Her work involves coordinating large-scale data collection, drawing on extensive experience with remote sensors to support applied wildlife

monitoring. She collaborates with governments, industry, researchers, and Indigenous partners on projects that involve caribou habitat restoration, wildlife monitoring, and land management objectives. She holds a master's degree from the University of Alberta, where she used autonomous recording units to study how industrial activity affects amphibians in northeastern Alberta.

2. Have you ever wanted to write a book or a popular article?




Facilitated by Wes Olson & Johane Janelle

**When:** Friday, February 27th, 2:00 – 4:00 pm

**Where:** Assiniboine room

Cost: $20

Register Here.

This workshop is an introduction to writing books, and popular articles, combined with how to integrate photography into them.

Between them Wes Olson and Johane Janelle have written and illustrated four books about bison and here they share the knowledge they've gained in the process.

### How to begin?

Many new authors sit and stare at a blank computer screen, struggling to figure out how to get started on their book. They wonder how to put their thoughts and ideas to paper in a coherent, yet captivating way.

### The first half of the workshop (45 minutes) will be provided by Wes Olson

Wes will help attendees learn:

How to plan the layout and structure of your book in a way that is logically organized, so you can easily keep track of the contents.

Suggestions will be provided for surviving the editorial process through finding a publisher or self-publishing your book.

This will include developing a file system for your tables and figures for each chapter of your book.

### The second half of the workshop (45 minutes) will be provided by Johane Janelle

And finally, Johane will touch on conservation photography, including

How she manages to take quality, powerful images that are worth a thousand words,

How documenting and collaborating with scientists, NGOs, and organizations helps bring to light better ways for people to connect, understand and care about our environment and have a visually stunning and informative book.

This is not a workshop about how to use the settings on your camera. Johane will share with you how she learned to blend nature photography and conservation photography.

There will then be a Q&A session for about 30 minutes after each presentation.

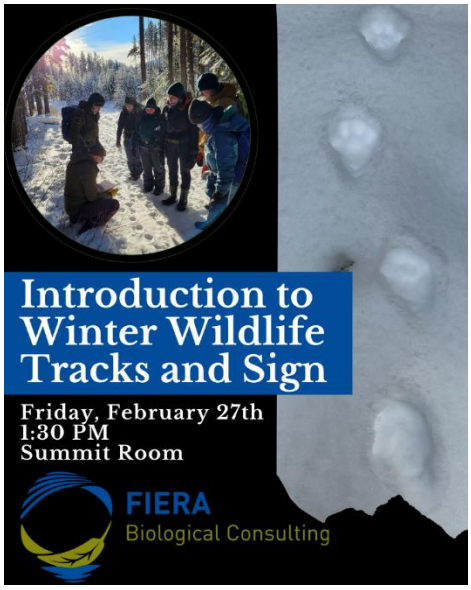
3. Introduction to Winter Wildlife Tracks and Sign – Classroom and Field Sessions Available

Facilitated by Fiera Biological

**When:** Friday, February 27th, 1:30 – 5:00 pm (Classroom & Field); 1:30 – 2:30 pm (Classroom Only)

**Where:** Summit Room

**Register Here for Classroom & Field. Cost**: $55




**Register Here for Classroom Only. Cost:** $20. Please note that this is for the 1-hour classroom session only. This registration does not include the field component. If the field session is full, and you're interested in completing the field session in Edmonton on Saturday, March 7th from 9-11 AM, please sign-up here (max 10 participants).Join Fiera Biological's Shari Clare and Joseph Litke for this dynamic workshop opportunity where you will learn to identify the tracks and sign of wildlife in snow. Whether you are a seasoned wildlife tracking veteran or new to the art and science of tracking, there is something for everyone to learn in this workshop that will include a combination of classroom and field practice. Everyone who attends will receive a Record of Completion to document their training time, which will be sent to participants by email after the conference. Optional printed materials will be available for an additional fee.

**Classroom session** – This one-hour session will be aimed at introducing participants to the key features to look for when identifying track-makers. Learn to avoid common pitfalls in track identification by practicing a multi-factor identification process.

**Field-based workshop session** – Immediately following the classroom session, participants will explore a natural area within Banff National Park and will review the lessons learned during the classroom session in a hands-on, practical way. In this two-hour field session, participants will learn and practice seeing features within tracks and track patterns that

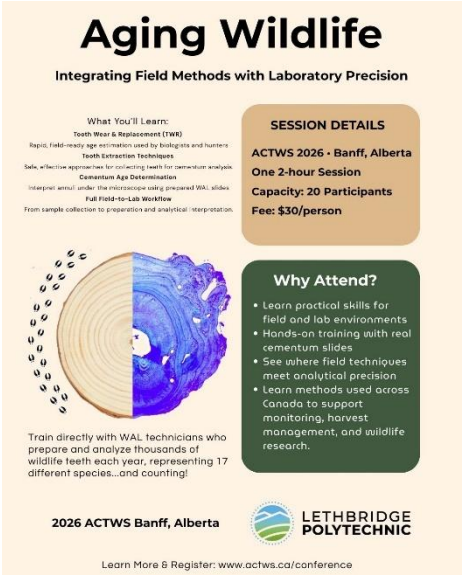
lead to confident species identifications. The species, trail-types, and sign diversity covered will depend on what we find in nature on the day of the workshop, but the knowledge gained by participants will be enhanced and expanded through the questions and resulting discussions that occur throughout the session. Please note that the field portion will require driving to the location.

### Bios of the Presenters

Shari and Joseph are co-founders of Fiera Biological and Senior Biologists, each with over 25 years of experience working across western Canada. The time they have spent exploring wild places, both professionally and recreationally, has cultivated a deep respect and enthusiastic knowledge of wildlife and their habitats. They each hold high-level certifications in wildlife Track & Sign from Tracker Certification North America and have used tracking throughout their careers to monitor and assess wildlife. Over the past decade, they have shared their expertise widely, leading and assisting in tracking workshops and courses that have reached hundreds of wildlife professionals and outdoor enthusiasts across Alberta, Saskatchewan, British Columbia, and Montana. They are especially grateful for opportunities to share their knowledge with other wildlife professionals who use tracking for research and conservation purposes.

4. Aging Wildlife: Integrating Field Methods with Laboratory Precision

Facilitated by the Wildlife Analytics Lab, Lethbridge Polytechnic




**When:** Friday, February 27th, 2:00 – 4:00 pm;

**Where:** Castle Room

**Cost**: $30

Register Here.

**Workshop Description:**

Join the team from Lethbridge Polytechnic's Wildlife Analytics Lab (WAL) for a hands-on workshop designed to build practical skills in wildlife age estimation—from the field to the laboratory. Now in its third year at ACTWS, this session offers an engaging blend of field-ready techniques and professional lab methods used across Canada.

**Participants will learn to:**

1. Estimate age using tooth wear and replacement (TWR)—a rapid, field-based technique widely used by biologists and hunters to gather coarse age data.

2. Extract teeth safely and effectively for cementum analysis, using the tools and approaches applied in professional wildlife programs.

3. Interpret cementum annuli through guided microscope work using prepared slides brought from the WAL.

4. Understand the full workflow linking field sampling, tooth preparation, and analytical interpretation.

Ideal for researchers, managers, consultants, students, and anyone who works with age data, this workshop provides the rare opportunity to train directly with a technical team who analyze thousands of wildlife teeth every year across 17 species and counting.

Come experience how cementum analysis enhances accuracy beyond traditional field methods— and how age data contribute to population monitoring, harvest management, and broader wildlife research.

# ANNUAL GENERAL MEETING

ACTWS Annual General Meeting

**When:** Friday, February 27th, 5:00 – 6:00 pm

**Where:** Assiniboine Room

Join us for an engaging discussion on the ACTWS activities over the past year and discover exciting plans for the upcoming year. We encourage all members to attend and actively participate in shaping the future of our organizations. Your insights and contributions are essential as we reflect on our achievements and set the course for the year ahead.

Please review the 2025 AGM minutes here.

# MIXER

**When:** Friday, February 27th, 7:30 – 10:00 pm

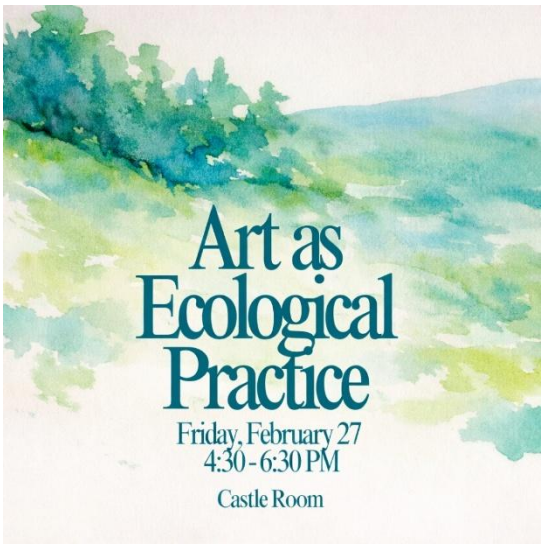
Join us for an evening of networking at our Wildlife Mixer! This event is a perfect opportunity for professionals in the wildlife field to come together, share experiences, and catch up with colleagues. Whether you're a seasoned expert or just starting in the field, connect with like-minded individuals, exchange insights, and build valuable connections. Enjoy a relaxed atmosphere, good conversation, and perhaps discover new collaborations. Don't miss this chance to mingle with fellow wildlife enthusiasts in a welcoming and enjoyable setting!

Light appetizers will be provided, and a cash bar will be available.

# NETWORKING EVENTS

All networking events are free, but registration is required.

1. Art as Ecological Practice




Facilitated by the ACTWS Equity, Diversity, & Inclusion Committee. Funding for this free event was provided by the Government of Alberta Ethnocultural Grant.

**When:** Friday, February 27th, 4:30 – 6:30 pm;
**Where:** Castle Room

Register Here.

This guided, low-pressure watercolour session offers students and professionals space to explore how research, management, and communication connect in their work or studies. Aligned with the conference theme Linking Research and Management, the session centers visual communication as a way to translate complex ecological ideas beyond words by asking: **"If you couldn't use words, how would you show the connection between research, management, and people in your field of work or study?"**

This session offers an inclusive alternative to outdoor excursions for all. Participants will leave with a personal conference memento and a fresh perspective on the role of visual communication in conservation and management.

No prior art experience required. All materials provided.

**Activity Breakdown:** A guided, low-pressure watercolour session that gives students and professionals space to reflect on their work and how it's communicated to others.

**Why Art?** Visuals are powerful tools for stakeholder engagement — they convey complexity, values, and emotion in ways text and data alone often can't.

**How it Connects:** Linking Research and Management happens largely through people and stakeholders. This session focuses on visual communication as a real, practical bridge between research, management, and public understanding.

What Participants Do:

- Participants will be asked to respond to the prompt "If you couldn't use words, how would you show the connection between research, management, and people in your field of work or study?"
- The prompt invites participants to visually communicate how research and management connect in their own experience, allowing for both literal and abstract interpretations.

Accessibility & EDI:

- Inclusive of different communication styles, experience levels, and ways of processing.
- Instruction will be provided via auditory, physical, and visual cues to help folks get comfortable with watercolour basics.
- Open room layout with multiple tables will allow for low-stakes networking throughout the event, or for folks to work independently.

Takeaway for Participants:

- A personal conference memento tied to the ACTWS theme.
- Space to process their own experience in the field or at the conference.
- A renewed awareness of how visual communication supports real-world conservation and management.
- Something they can return to later as a reminder of why and how their work matters.

2. Speed Networking Event


Facilitated by the ACTWS Education, Information, and Outreach Committee

**When:** Friday, February 27th, 6:30 – 8:00 pm;
**Where:** Summit Room

Register Here.

Join us for a Speed Networking Event designed to connect students and early-career professionals with experienced mentors working across wildlife, conservation, research, and environmental fields.

Participants will rotate in small groups through short conversations with multiple mentors, giving you the opportunity to: ask career and education questions, learn about different career paths, and build professional connections.

# KEYNOTE SPEAKER

## How can we bridge research, management and policy in Alberta?

Presented by Dr. Evelyn Merrill

**When:** Saturday, February 28th, 8:05 – 8:50 am; **Where:** Banquet Room

Effective natural resource stewardship depends on coherent relationships between research, management, and policy. Yet despite shared goals, these sectors often operate within parallel systems that limit knowledge flow, hinder adaptive decision-making, and weaken outcomes.

This talk outlines the core barriers that maintain these divides and presents solutions for bridging the gaps between them. Drawing on Alberta case studies and emerging models, I highlight how "minding the gap" shifts us from a one-directional transfer of science to inclusive, sustained partnerships that work toward producing meaningful outcomes.

## Presenter Bio:

Dr. Evelyn "Evie" Merrill is a Professor Emerita in the Department of Biological Sciences at the University of Alberta. She completed her PhD in Wildlife Resources at the University of Washington and holds an MSc from the University of Idaho.Her research spans more than five decades focusing on ungulate ecology, including nutritional foraging, plant–herbivore–predator interactions, and the effects of landscape change on wildlife populations. More recently, she has applied spatial modeling approaches to better understand the spread and transmission of chronic wasting disease across varied landscapes.

Dr. Merrill has been widely recognized for her contributions to wildlife science. She has received major awards from both scientific and natural resource groups recognizing her research on elk, wolves, and chronic wasting disease, and for her long-standing service to the profession. She served as the first female Editor-in-Chief of The Journal of Wildlife Management, is a Fellow of The Wildlife Society, and a member of the Science Advisory Panel of the Office of the Chief Scientist in EPA. She has held leadership roles as President of both the Alberta Chapter and the Canadian Section of TWS, and is now the President-elect of The Wildlife Society.Her career exemplifies the 2026 ACTWS Conference theme, Working Together: Science and Management, through her longstanding commitment to bridging rigorous science with practical, on-the-ground wildlife management by bringing together researchers, managers, and policy makers to apply ecological knowledge in meaningful, actionable ways.

# SCIENCE & MANAGEMENT PLENARY

**When:** Saturday, February 28th, 9:00 – 10:30 am

**Where:** Banquet Room

Presentations:

1. Nikki Copeland presents: *Wings, Wires and Collaboration: The Evolution of Avian Protection Plans in Canada.*

**Abstract:** Effective wildlife management in industrial settings requires collaboration between science, government, and industry. This presentation explores the development of Canada's first Avian Protection Plan (APP) at AltaLink, an initiative that has since become a national standard for electric utilities. We'll examine the process of translating science into operational practice, securing buy-in from management and operational teams, and demonstrating how environmental programs such as APPs can enhance company performance. The APP's success highlights the power of partnerships and the critical role of science in shaping practical, scalable solutions for wildlife protection.

**Bio:** Nikki Copeland is a Senior Environmental Advisor with AltaLink and currently serves as President of the Alberta Society of Professional Biologists (ASPB). With over two decades of experience in environmental science and wildlife biology, Nikki has dedicated much of her career to understanding and mitigating avian interactions with electrical infrastructure. She led the development and implementation of Canada's first Avian Protection Plan and continues to champion innovative approaches to wildlife management and environmental stewardship. Nikki is passionate about fostering collaboration within the professional biology community and sharing practical solutions that balance ecological integrity with operational needs.

NIKKI COPELAND

2. Matt Besko presents: *"Trust Me, I'm a Biologist……" Statutory Decision Making for Wildlife Management and Allocation – How Government integrates Science into the Complex World of Competing Interests for Regulation and Policy*

In Canada, Governments are tasked with the stewardship, allocation and management of wildlife and fisheries as in-trust resources for the broader Public. Alberta Regulators and Statutory Decision Makers are required to make difficult choices on 'wicked problems" with legal, ecological, social and economic consequences. Science in of itself is not a decision-making process or entity; rather, it is a fundamental element of process describing cause, correlation, risk, consequence and outcome of a change or decision to a system within a

defined confidence interval. We often assume that science is a tool to describe the effects of a decision on the ecological variables of interest, but it may also be applied as a method to describe the outcome and dynamics of economic and social variables. It is then important to apply science judiciously to constructs and consequences of decisions, and most importantly as a tool rather than an answer itself, while also describing social, spiritual, economic, cultural and political factors which influence desired outcomes. The question then becomes that of evaluating and comparing risks to conservation versus risks to other variables of interest, and weighing the consequences of decisions relating to issues such as the sustainability of caribou populations versus the obligation to conserve moose populations for Indigenous use.

MATT BESKO

Bio: Matt Besko is the Executive Director of the Hunting and Fishing Branch within the Lands Operations Division in Alberta Forestry and Parks. He is tasked with the management, regulations and policies affecting wildlife and fisheries allocation and use, trapping, aquaculture, licenses and permits, as well as managing carnivores and human-wildlife co-existence. Matt has spent over 30 years working as wildlife, fisheries and habitat manager and biologist in 3 Provinces, and has a background in Forest Ecosystem Management, species-at-risk recovery, land-use planning, and the management and allocation of fish and game species. Matt's professional interests are related to the philosophy of wildlife and fisheries use, the history of hunting and angling, policy development for natural resource management, and the ecological science of wildlife allocation and management. Matt enjoys hunting, fishing, reading, cooking, writing about wildlife, public speaking, all types of immature slapstick humour, and eating. Especially eating. Then eating some more followed by eating.

3. Danah Duke presents: *Reconnecting the Rockies Alberta: Bridging Science and Management for Wildlife Connectivity*

Abstract: The Miistakis Institute applies a collaborative, solutions-oriented approach to conservation research that bridges the gap between science and on-the-ground management. Our work focuses on developing and applying practical, policy-relevant tools that help decision-makers, communities, and industry partners balance ecological integrity with human needs. The Reconnecting the Rockies – Alberta project exemplifies this approach. Centered in southwestern Alberta, this collaborative initiative is improving wildlife movement and ecological connectivity in one of the province's most critical and fragmented landscapes. Working alongside Alberta Environment and Protected Areas, Miistakis, together with Nature Conservancy Canada and Biodiversity Pathways, is supporting the design and evaluation of an ambitious wildlife collision reduction system along Highway 3—one of Alberta's busiest wildlife-vehicle conflict zones. Using remote cameras and GPS

collaring of grizzly bears, elk, deer, we are monitoring pre- and post-construction wildlife movement to refine mitigation design and inform management decisions. Beyond infrastructure, the project integrates corridor mapping, policy development, and public engagement to advance connectivity conservation across the region. Together, these efforts demonstrate how applied conservation science can inform management, shape policy, and deliver tangible benefits for both people and wildlife.

DANAH DUKE

Bio: Danah Duke is the Executive Director of the Miistakis Institute, where she leads an interdisciplinary team dedicated to advancing applied conservation research and translating science into practical solutions for land and resource management. With over two decades of experience in conservation science, Danah has built a career focused on bridging the gap between research and real-world decision-making. Under her leadership, Miistakis has become a trusted partner to governments, NGOs, and communities seeking evidence-based strategies to address complex environmental challenges. Her work emphasizes collaboration, co-creation, and the integration of scientific knowledge into policy and planning to improve outcomes for both people and nature. Danah's expertise spans ecological connectivity, wildlife movement, landscape conservation, human–wildlife coexistence and citizen science. Danah holds a M.Sc. in Environmental Biology and Ecology from the University of Alberta.Dr.

4. Gordon Stenhouse presents: Applied Grizzly Bear Research to Inform and Support Conservation and Management in Alberta (1999-2023)

Abstract: This presentation will focus on the achievements of, and challenges faced by the fRI Grizzly Bear Program over two decades of applied research in Alberta. Discussion of the evolution of the research questions within the program and the data needs of government management agencies fused to direct this long-term research program which resulted in a unique challenge for the research team. The important partnerships that were formed to support the program, and their evolution over the course of the research effort, will be shared along with the challenges that these presented. A summary of how the research findings affected current grizzly bear management, and the status of this species, in Alberta and how the tools that were developed and distributed as a key outcome of the program, are still in use today.

Bio: Gordon is a retired research scientist and the former leader of the Foothills Research Institute Grizzly Bear Research Program in Hinton, Alberta. This research program began in 1998 and ran for 23 years with over 180 published scientific papers from the research team working on this program. This program helped to support 52 graduate students from 6 different Canadian Universities and gathered $29 million from a variety of sources to support what has been the largest and most comprehensive grizzly bear research program

in Alberta's history. Gordon and his team was recently awarded an Alberta ASTECH award for team achievements and innovation for their decades of work on grizzly bears. Gordon was on secondment from the Alberta provincial government for a 23-year period while running the fRI grizzly bear program and was also an adjunct professor at the Western College of Veterinary Medicine at the University of Saskatchewan. He is also the past chairman of the Alberta Grizzly Bear Recovery Team and is currently an executive council member with the International Association for Bear Research and Management. Gordon has studied both polar and grizzly bears for 39 years ….now more than half of his life. He now works as a private consultant on bear projects in a variety of locations in Canada.

GORDON STENHOUSE

# SPECIES REPORTING SESSION

**When:** Sunday, March 1st, 10:30 am – 12:00 pm

**Where:** Banquet Room

This session is designed as a "species report card" for Alberta, providing concise updates on current management and conservation actions for selected species and the efficacy of those actions. Through short presentations and audience engagement, we'll explore important topics related to caribou, trout, and furbearers, and discuss priorities and paths forward.

Presentations:

1. Kirby Smith presents: *Woodland Caribou Conservation in Alberta: A review of the Alberta Government's Performance in 2025*

**Abstract:** There are 15 woodland caribou populations inhabiting provincial lands within Alberta. Trend information is monitored for each population by tracking the survival of 10 – 61 radio collared adult females and comparing it to female calf recruitment on an annual basis to calculate the rate of increase (lambda). Additionally, fecal DNA population estimates have been conducted on 11/15 populations since 2012. Wolf control is ongoing in 9 of these woodland caribou ranges. In October 2020, the Government of Alberta (GOA) and the Government of Canada (GOC) signed the Agreement for the Conservation and Recovery of the Woodland Caribou in Alberta to facilitate woodland caribou recovery in Alberta ("Section 11" Agreement under the Federal Species at Risk Act). The Agreement stipulated that the GOA would develop 11 Sub-Regional Plans which would address habitat needs for all woodland caribou populations inhabiting provincial lands by 2025. One of the main goals of each plan was to demonstrate how the GOA would manage the range of each woodland caribou population to achieve a minimum of 65% undisturbed habitat and when that would be realized. By January 1, 2026, the GOA has completed 3 of the 11 plans and then revised 2 of these plans by amalgamating them with an adjacent population and releasing the new plans for public review in late December 2025. Neither the finalized Upper Smoky Sub-Regional Plan nor the previously finalized and now revised Cold Lake (now amalgamated with Wandering River) or the Bistcho Sub-Regional Plans (now amalgamated with Chinchaga) contain any quantifiable metrics or reasonable strategies to achieve woodland caribou conservation within the next 100 years. Woodland caribou conservation in Alberta has reached an all-time low as the GOA has failed to address the terms of reference of their Section 11 Agreement with the Government of Canada and the commitments listed in Alberta's Cabinet approved woodland caribou policy.

**Bio**: Kirby Smitch is a retired wildlife biologist who worked 35 years for the Government of Alberta in west central Alberta. He holds a BSc and MSc, both from the University of Alberta. Since his retirement in 2010 he has worked as a consulting biologist primarily on

woodland caribou and bighorn sheep. Kirby is a member of the ACTWS Conservation Affairs Committee and represents the chapter on woodland caribou conservation issues. He and his wife Katherine, live on land west of Edson along with their 2 golden retrievers, horses and mules. Kirby enjoys playing bass in a cover band in his spare time.

2. Lorne Fitch presents: *Native Trout: Up the Creek Because They've Been Sold Down the River?*

Abstract: The presence, abundance, and distribution of native trout species are indicators, an ecological report card on how we manage the watersheds in which they exist. Every native trout species in Alberta is a species of concern or a species at risk. Populations have shrunk, some have disappeared, and recovery efforts are attempting to stem the negative tide. This presentation, from the Conservation Affairs Committee of the ACTWS, outlines some basic trout ecology, some historical biological benchmarks to ponder, and a summary of issues related to declines in trout populations. A review is made of some bright lights in recovery efforts, as well as instances of where the lights went out for some populations. This is a pivotal moment for native trout and their future status is not a cheery one.

Bio: Lorne Fitch has been a biologist for over 50 years, working on many issues related to use of land and water. Lorne is a professional biologist, a retired provincial Fish and Wildlife biologist, was one of the co-founders of the stewardship initiative Cows and Fish, and a former Adjunct Professor with the University of Calgary. Lethbridge is home, where he pens books, articles, and essays on issues related to Alberta's landscape and critters. Books include Streams of Consequence, Travels Up the Creek, and Conservation Confidential.

3. Robert Anderson presents: *Beyond the Ledger: Can Trapper Logbooks Strengthen Furbearer Monitoring and Research?*

Abstract: Fur harvest records dating back to the 1600s represent some of the earliest written wildlife monitoring data in North America. Variation in harvest levels over time has been used to track long-term changes in population size and distribution, as well as shorter-term population cycles. While records based solely on harvest have provided valuable insights in the absence of other information, their utility in a modern context is increasingly limited, as factors unrelated to population abundance—such as fur prices, access constraints, and competing time demands—can significantly influence total harvest. To enhance monitoring capacity, Alberta Conservation Association was asked by the Alberta Trappers Association and Government of Alberta to assist with the development of a standardized logbook program that documents both harvest and trapper effort across registered traplines. Since 2018, participating trappers have voluntarily submitted annual records, initially for marten and later expanding to include lynx, fisher, otter, wolverine, and wolf. These detailed submissions enable calculation of catch-per-unit-effort (CPUE) and other indicators useful for assessing harvest sustainability. Using marten, wolverine, and

lynx data as case studies, I will evaluate the strengths of this data collection method, discuss limitations and opportunities for improvement, and explore the potential for trapper-generated data to contribute to broader ecological research. To date, the logbook program has proven effective at capturing basic trapping effort and harvest data, providing CPUE metrics for detecting coarse population trends for some species and geographic regions. However, improvements can still be made in terms of increasing sample sizes and data precision.

**Bio:** Robert Anderson lives with his family in Crowsnest Pass. He is currently the Manager of Alberta Conservation Association's Land Program, but he maintains his interest and activity in furbearer research and monitoring. He attended his first ACTWS conference in Hinton as an undergraduate student in 1995, where Kirby Smith's unique personality left an indelible impression on an aspiring biologist.

# SATURDAY AM SCHEDULE

| | | | |
|---|---|---|---|
| **8:00-8:05** | Opening Remarks | | |
| **8:05-8:50** | Keynote Speaker, Dr. Evelyn Merrill, *How can we bridge research, management, and policy in Alberta?* | | |
| **9:00-10:30** | Science & Management Panel Discussion | | |
| **10:30-11:00** | **Break (coffee & snacks will be provided)** | | |
| **Time** | **Assiniboine** | **Castle** | **Summit** |
| | **Policy, Partnerships & Practice** | **Behaviour** | **Habitat Use** |
| **11:00-11:15** | Justifying Conservation Action: Communicating "Why You Should Care" **Erin Gilbert & Natalia Porro (Wilder Institute)** | Bridging the gap: Wildlife use of beaver dams **Glynnis Hood (University of Alberta)** | Seasonal patterns in movement, habitat use, and parturition of invasive wild pigs (Sus scrofa) in Saskatchewan, Canada **Hannah Bordin (University of Alberta)** |
| **11:15-11:30** | Behind the Scenes of Conservation: Translating Management Priorities into Operational Action **Alexandra Windsor (Wilder Institute)** | The Effects of Wildfire and Subsequent Salvage Logging on Insectivorous Bat Activity in Alberta's Boreal Forest **Autumn Kirk (University of Alberta)** | Denning Coyotes Select Fine Scale Habitat Characteristics that Promote Den Stability in a Protected Area **Juno Montgomery (UofA, St. Clair lab)** |
| **11:30-11:45** | Advancing Science and Management Through Collaboration: Resources for Remote Camera Users **Anne Hubbs (Environment & Protected Areas)** | Investigating temporal patterns in black-capped chickadees (Poecile atricapillus) foraging behaviour in response to increased perceived predation risk **Nathan Hobbs (University of Alberta)** | Is it a mixedwood? Spatially-explicit responses to gradients in habitat structure and composition in three boreal bird species **Leonard Patterson (University of Alberta)** |
| **11:45-12:00** | Pangolins, people and protection: Community insights on Temminck's pangolin (Smutsia temminckii) in the Ruaha-Rungwa ecosystem, Tanzania **Courtney Hughes (Tanzania Research and** | The Plasticity Paradox: Climate-Driven Phenological Mismatch and Behavioral Divergence in Northern Rockies Elk **Tara Meyer (University of Montana)** | Where do Egyptian Vultures roost? Habitat selection and population status of the species in central-western Nepal. **Milan Baral (University of Lethbridge)** |

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|---|---|---|---|
| | **Conservation Organization)** | | |
| **Time** | **Assiniboine** | **Castle** | **Summit** |
| | **Policy, Partnerships & Practice** | **Genetics** | **Habitat Use** |
| **12:00-12:15** | Bridging the research-implementation gap: 20 years of a toolkit to inform grizzly bear conservation, management, and industry operation decision-making in Alberta **Dario Fernandez-Bellon (fRI Research)** | Population Genetic Structure of the Black Oystercatcher (Haematopus bachmani) Across North America **Anisha Neupane (University of Lethbridge)** | The first five years: what have we learned from oil sands monitoring of mammals? **Jason Fisher (University of Victoria)** |
| | | | **Wildlife Health & Disease** |
| **12:15-12:30** | Advancing Ecological Research and Wildlife Management Through Indigenous Knowledge: The Ronald Lake Bison Herd Monitoring Program **Darren Epperson (Ecologix Solutions)** | Leveraging genomics to improve captive breeding outcomes in woodland caribou (Rangifer tarandus caribou) **Samuel Deakin (University of Calgary)** | Gut microbiome composition, function and diversity in endangered wild caribou in western Canada **Charlotte Bourbon (Ph.D Candidate/ Faculty of Veterinary Medicine, University of Calgary)** |
| **12:30-12:35** | Making Conservation Messages Stick **Natalia Porro (Wilder Institute)** | Archived Scales as a Source of DNA to Support Conservation and Fisheries Management **Joshua Miller (MacEwan University)** | Where Risk Enters the Fence: Mapping Disease Movement Pathways in Bison **Avy Lamb (Lethbridge Polytechnic)** |
| **12:35 - 14:00** | **Lunch provided in dining room** | | |

Read presenter abstracts in Appendix A.

# SATURDAY PM SCHEDULE

| TIME | Assiniboine | Castle | Summit |
|---|---|---|---|
| | **Policy, Partnerships & Practice** | **Distribution** | **Wildlife Health & Disease** |
| **14:00-14:15** | Science, Management and Law: species at risk laws and implications for science and management<br>**Jason Unger (Environmental Law Centre (Alberta) Society)** | Understanding White-Tailed Deer Range Expansion in the Columbia Mountains<br>**Megan Petersohn (University of British Columbia)** | Parasitic Infection Leads to Increased Predator Induced Mortality in a Large Herbivore Population<br>**Connor Meyer (University of Montana)** |
| **14:15-14:30** | Delta Waterfowl's University Hunting Program – Bringing the North American Model of Wildlife Conservation to Campus<br>**Joel Brice (Delta Waterfowl)** | Anthropogenic disturbance and winter severity interact to drive white-tailed deer occurrence in Alberta<br>**Andrew Barnas (University of Victoria)** | Probiotic intervention for mitigating white-nose syndrome in Alberta bat populations<br>**Lisa Wilkinson (Alberta Environment and Protected Areas)** |
| | | **Human-Wildlife Interactions** | |
| **14:30-14:45** | Science in action: Examples and perspectives from a science-focused non-profit organization<br>**Julie Heinrichs (Computational Ecology Group Inc.)** | Fireguards and vegetation management support human wildlife coexistence in the Bow Valley around Canmore, Alberta<br>**John Paczkowski (Alberta Forestry and Parks)** | Meningeal worm, Parelaphostrongylus tenuis, a new invasive threat to free-ranging ungulates in Alberta, and beyond.<br>**Margo Pybus (Alberta Fish and Wildlife Stewardship)** |
| **14:45-15:00** | Moving Recreation Ecology Research into Management<br>**Nikki Heim (Yellowstone to Yukon Conservation Initiative)** | Sex- and age- segregation shapes the responses of mountain sheep to selective hunting<br>**Julien Gullo (University of Alberta)** | Histological changes in liver and kidneys of small Indian mongoose (Urva auropunctatus) chronically exposed to environmental chromium in Wild<br>**Shaista andleeb (PMAS-Arid Agriculture University, Pakistan)** |
| | | | |
| **15:00-15:15** | Visible Science-Management Leadership: Building Trust Through Equitable Communication<br>**Sheena Yap Chan** | Spatiotemporal influence of dominant grizzly bears on subordinate bears in Kananaskis Country, Alberta: evidence for the human shield hypothesis across intra- and interspecific interactions | Structured Decision-Making for Chronic Wasting Disease Management<br>**Julianne Herrick (University of Alberta)** |

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|---|---|---|---|
| | | **Kayla Doucette (University of Alberta)** | |
| **TIME** | **Assiniboine** | **Castle** | **Summit** |
| | **Population Declines** | **Human-Wildlife Interactions** | **Population Ecology** |
| **15:15-15:30** | Remote sensing and passive acoustic monitoring predict declining occupancy over time by Yellow Rails in northern Alberta, Canada. **Lionel Leston (University of Alberta Department of Biological Sciences)** | Reconnecting the Rockies: Alberta- Highway Mitigation for Wildlife in the Crowsnest Pass **Maria Didkowsky (Government of Alberta)** | Population Dynamics of Bighorn Sheep on the Luscar and Gregg River Mines **Beth MacCallum (Bighorn Wildlife Technologies Ltd.)** |
| **15:30-15:45** | Franklin's ground squirrel decline in Alberta **Jessica Haines (MacEwan University)** | **15:30-15:35** Reviewing Four Decades of Bear-Human Interactions in Kananaskis Country, Alberta **Sean Konkolics**<br>**15:35-15:40** Moving towards full implementation of Target 4: exploring the role of zoos in urban species conservation in support of the Global Biodiversity Framework **Catherine Shier (Edmonton Valley Zoo, City of Edmonton)**<br>**15:40-15:45** Spatial and Temporal Effects of Aversive Conditioning on Grizzly Bears in Human-dominated Landscapes **Leif Hvenegaard (University of Alberta)** | Managing moose to conserve caribou: Estimating the influence of timber harvest on moose populations within caribou range **Craig DeMars (Wildlife Science Centre, Biodiversity Pathways)** |
| **15:45-15:50** | | **15:45-15:50** Beavers in Stormwater Ponds: An Adaptive Management Approach **Robert Mitchell (Associated Environmental Consultants)** | |
| **17:30-18:30** | Poster Session (Black Bear Room) | | |
| **18:30-23:00** | Banquet, Student Scholarships, Professional Awards, Auction, & Live Music by Motown 6 | | |

Read presenter abstracts in Appendix B.

# SUNDAY SCHEDULE

| Time | Assiniboine | Castle | Summit |
|---|---|---|---|
| | **Conservation** | **Anthropogenic Impacts** | **Population Ecology** |
| **9:00-9:15** | Are we out of the woods yet? Integrating Mechanistic Indicators into Conservation Monitoring<br>**Melanie Dickie (Wildlife Science Centre, Biodiversity Pathways/ABMI)** | Cumulative effects of habitat quality and early reproductive investment on fitness in declining tree swallows (Tachycineta bicolor) in Central Alberta<br>**Ivana Schoepf (University of Alberta)** | The Impact of Wildfire (2015, 2023, and 2025) on Bald Eagles on Besnard Lake, Saskatchewan<br>**Elston Dzus (Independent Ecologist)** |
| | **Nutrition** | | |
| **9:15-9:30** | Diet overlap and potential for competition between reintroduced bison and elk and bighorn sheep<br>**Jonathan Farr (University of Montana)** | 20 Years in the Boreal: A systematic literature review of boreal mammal ecology in response to industrialization<br>**Sarah E. Daman (University of Victoria)** | Long-term Owl Surveys in Alberta, Canada, What Have We Learned<br>**Lisa Takats Priestley (STRIX Ecological Consulting)** |
| **9:30-9:45** | Protein powered bears: diet, environmental, and density effects on growth and size of British Columbia grizzly bears<br>**Kelly Forrester (University of Alberta)** | Environmental noise as a key driver of biodiversity patterns in the Central Parkland's largest urban center<br>**Martin Hinojosa (University of Alberta)** | Twenty-five years of ecological and management insights from the Ya Ha Tinda elk long-term study<br>**Mark Hebblewhite (University of Montana)** |
| | | **Behaviour** | |
| **9:45-9:50** | Assessing the Dietary Composition of Franklin's Ground Squirrels Using Non-invasive Metabarcoding<br>**Daylen Towers (MacEwan University)** | Observation of predatory infanticide by a solitary female brown bear<br>**Camille Jodouin (University of Alberta)** | |
| **9:50-9:55** | | Franklin's Gull (Larus pipixcan) massively feeding on water fleas (Moina sp.) at Cooking Lake, Alberta<br>**Norbert Nguyen (University of Alberta)** | |
| **9:55-10:30** | **Break (coffee & snacks will be provided)** | | |
| **10:30-12:00** | Species Reporting Session | | |
| **12:00-12:15** | Student Presentation Awards & Closing Remarks | | |

Read presenter abstracts in Appendix C.

# POSTER SESSION

**When:** Saturday, February 28th from 1730-1830.

**Where:** Black Bear Room

1. Outcomes of Community-Based Forest Management for Biodiversity Conservation in Northwest Ethiopia
   **Kassie Tesfaye Mengie, University of Pecs**

2. Stizostedion is the Valid Generic Name for Walleye, Sauger, and Eurasian Pikeperch
   **John Bruner, University of Alberta**

3. How urban barriers affect population genetic structure of northern house wren Troglodytes aedon in Alberta?
   **Milan Baral, University of Lethbridge**

4. Supporting Wildlife Monitoring and Management with Automated Acoustic Detection
   **Sunny Tseng, University of Northern British Columbia**

5. The AMF Scoop: Commercial vs. Native Arbuscular Mycorrhizal Fungi in Rough Fescue Under Controlled Conditions
   **Rosa Martinez Lozano, Lethbridge Polytechnic**

6. Influence of Programming on Nature Engagement in Youth
   **Megan Amstutz, Lethbridge Polytechnic**

7. Leveraging AI for Big Data Insights in Wildlife Management: Enhancing Hunter Contributions to Conservation
   **Everett Hanna, Lethbridge Polytechnic**

8. To Pee or Not to Pee: A Qualitative Study on Bathroom Access and Belonging in Wildlife Fieldwork
   **Everett Hanna, Lethbridge Polytechnic**

9. Bison, Burns, and Bogs: An Introduction to Assessing Post-Disturbance Impacts on Boreal Mammal Movement.
   **Erin Blythe, Applied Conservation and Macro Ecology (ACME) Lab - University of Victoria**

10. An assessment of avian window-strikes and strike deterrents in an urban area
    **Billie Bilodeau, MacEwan University, Nature Alberta**

11. Does Understory Protection Increase Persistence of Sensitive Songbirds?
    **Isabelle Lebeuf-Taylor, University of Alberta**

12. The Cost of Sharing: Effects of Parasite-Mediated Competition on Flying Squirrel Reproduction
    **Meagan Stager, Trent University**

13. Life underwater: molecular detection of amphibians using nanopore technology in Alberta
    **Colin Pattison, Environmental DNA Research Lab at the Southern Alberta Institute of Technology (SAIT)**

14. Ring-Necked Pheasant Stocking Effects on Breeding Bird Populations in Southeastern Alberta
    **Dani Nadeau, University of Alberta**

15. Tracking an Invisible Threat: Using eDNA to Detect Whirling Disease in the Kananaskis River.
    **Emma Gasser, Southern Alberta Institute of Technology**

16. Does time under human care effect burrowing owl diet composition post-release?
    **Lacey Hébert, Wilder Institute/ Calgary Zoo**

17. Best Management Practices for Mycoplasma ovipneumoniae control in Rocky Mountain Bighorn Sheep
    **Gillian Power, University of Alberta**

18. Bayesian Approaches to Wildlife Monitoring in Alberta's Oilsands: Making the Most of What We Know
    **Emily Herdman, InnoTech Alberta**

19. Habitat Associations with Coyote Activity and Fence Crossing Patterns at Elk Island National Park, Alberta, Canada
    Michaela Regimbald, MacEwan Univeristy

20. Benefits and Limitations of Selected Automated Detection Tools for Processing Large Bioacoustic Data Sets.
    Kasper Sanders, Red Deer Polytechnic

21. Restoring Woodland Caribou Habitat in Alberta
    Sarah Kristoff, Alberta Biodiversity Monitoring Institute

22. Spatial, Genetic, and Livestock-Associated Drivers of Gut Microbiome Variation in Rocky Mountain Bighorn Sheep
    Jasmine Veitch, University of Calgary

23. Spider Webs as Natural Bio-filters for Environmental DNA Monitoring of Large Mammals in Alberta
    Nuttakan Chimpanid and Tzu-yun Hsueh, eDNA Research Lab at Southern Alberta Institute of Technology (SAIT)

24. Uncovering the Diet of Columbian Fishers (Pekania pennanti): A Comparative Analysis of Physical Sorting and DNA Metabarcoding
    Ali Waterhouse, Thompson Rivers University

25. Understanding Urban Moose (Alces alces) Occurrence and Temporal Behavior in Red Deer, Alberta using Remote Cameras
    Eric Wolstenholme-Schmidt, Red Deer Polytechnic

26. Boar on the Radar: Detecting Pathogens in Alberta Wild Populations
    Oshin Ley Garcia, University of Calgary

27. Working Together for Wild Sheep: Using Citizen Science to Guide Mountain Ungulate Conservation in Southwestern Alberta
    Peter White, Government of Alberta - Fish and Wildlife Stewardship

28. Black Bear (Urus Americanus) Daybed Model: Insights into Habitat use and Daybed Selection in the Beaver Hills Biosphere.

Meghan Mackenzie & Taylor Eaton, Red Deer Polytechnic

29. Identifying the diet of Franklin's ground squirrel (Poliocitellus franklinii) using macrofossil analysis
    Tristin Tanton, MacEwan University

30. Incidence of Kleptoparasitism Observed for an Individual Black Bear (Ursus americanus) in the Beaver Hills Biosphere, Alberta
    Charlotte Cutts, Red Deer Polytechnic

31. Comparing the efficiency of two non-invasive hair sampling techniques for black bears (Ursus americanus) in Elk Island National Park, Alberta.
    Julia Tchir, Red Deer Polytechnic

32. A dive into Sexual Dimorphism, and the Diet of the Interior British Columbia Fisher (Pekania pennanti)
    Maya Saharchuk, Thompson Rivers University

33. Monitoring Invasive Aquatic Species Using Environmental DNA in the Kananaskis Region
    Jarrett Lynn, Southern Alberta Institute of Technology (SAIT)

34. Estimating the crop-raiding risk by African Elephants in Real-time
    Cassander Engelen, Elephants Alive

35. Phone-based Lidar scanning as a method of obtaining Black Bear (Ursus americanus) den volume and dimensions in the Beaver Hills Biosphere.
    Jules Fetaz, Red Deer Polytechnic

36. Wildlife Monitoring and Dark Skies in an Urban Protected Area
    Sara Jordan-McLachlan, Weaselhead/Glenmore Park Preservation Society

Read presenter abstracts in Appendix D.

# APPENDIX A: SATURDAY AM

## Session 1A – Assiniboine Room

### Policy, Partnerships & Practice

**11:00-11:15:** Justifying Conservation Action: Communicating "Why You Should Care"

**Erin Gilbert & Natalia Porro, Wilder Institute**

**Abstract:** Effective conservation initiatives and environmental management depend not only on rigorous science, but on the ability to communicate purpose and impact to others. Whether engaging with landowners, researchers, managers, government, funders, or the public, conservation professionals are often asked to answer a key question: *Why should this matter to me?* Yet, even strong, evidence-based work can fail to inform decision-making when the reasoning behind conservation actions is not translated into narratives that resonate with external audiences. Drawing on communication practices used at the Wilder Institute, we will introduce an eight-category justification framework that supports clear and relatable messaging for conservation initiatives of varying sizes and resource capacities. The framework highlights; - Distinctiveness of the conservation target, - Ecosystem services & interconnectedness, - Conservation program or research approach, - Credibility and expertise, - Strategic alignment and policy relevance, - Community relevance and benefits, - Consequences of inaction and, - Emotional and value-based appeal. We will demonstrate how this adaptable approach can be applied using a Wilder Institute conservation species, illustrating one way to weave scientific rationale into a cohesive narrative that supports understanding, collaboration, and decision-making. Aligned with this year's conference theme of bridging the gap between science and management, this knowledge sharing session aims to offer a practical communication tool that researchers, consultants, and conservation practitioners alike can use to ensure that management needs, research goals and outputs, and stakeholder engagement are connected through clear and compelling justification.

**Biosketch:** Erin Gilbert, B.Sc., and Natalia Porro, B.Sc., are Conservation Interns at Wilder Institute with combined fourteen years of experience in research, government, environmental consulting, science communication, and applied conservation across Canada. Throughout their careers, they've refined their communication skills with the public, professionals, and stakeholders in conservation and environmental management.

**11:15-11:30:** Behind the Scenes of Conservation: Translating Management Priorities into Operational Action

**Alexandra Windsor, Wilder Institute**

**Abstract:** Conservation research and management depend not only on strong science and partnerships, but on the often-unseen logistical and operational systems that allow this work to happen safely, efficiently, and at scale. This presentation focuses on the essential role of conservation operations in translating high-level management priorities into practical, on-the-ground action. Using case studies from ongoing conservation programs at the Wilder Institute

Calgary Zoo, I illustrate how behind-the-scenes functions, logistical planning, health and safety processes, equipment and resource management, partnership coordination, and operational decision-making, form the backbone of effective conservation delivery. These examples highlight how operational teams work across researchers, managers, Indigenous knowledge holders, and external partners to align timelines, manage risk, and adapt to changing field conditions, ensuring that conservation objectives remain achievable in practice. Importantly, this talk and honest and reflective approach, sharing not only what has worked well, but also where operational processes have required refinement, adaptation, or re-thinking. By examining both successes and challenges, this presentation aims to demonstrate how strong operational support is not static, but iterative and responsive to the realities of conservation work. By centering conservation operations as a critical component of program success, this talk offers practical insights for researchers, managers, and practitioners seeking to strengthen the implementation and sustainability of conservation initiatives.
Biosketch: Alexandra Windsor is the Coordination Logistics Manager at the Wilder Institute Calgary Zoo, leading logistical and field support for Canadian and international conservation programs. She holds a BSc in Marine Biology (Memorial University), an MSc in Zoology (University of Western Australia), and a PhD (University of Manitoba), with 20 years' experience in zoos, conservation, and science communication, and a passion for wildlife and bridging conservation research with public awareness.

11:30-11:45: Advancing Science and Management Through Collaboration: Resources for Remote Camera Users

Anne Hubbs, Environment and Protected Areas

Abstract: Remote cameras are now a cornerstone of wildlife research and management, yet inconsistent study design, metadata standards, and analytical approaches can limit data integration and inference across projects. The Alberta Remote Camera Steering Committee (RCSC) was established to address these challenges by fostering cross-agency and cross-jurisdictional collaboration to advance best practices, shared tools, and coordinated data management for remote camera studies in Alberta and western Canada. We describe the goals and activities of the RCSC, including its collaboration with British Columbia partners through the wildCAM initiative. Through engagement of a multidisciplinary community of practice, the RCSC has developed shared resources that support consistent study design, standardized metadata collection, and robust analytical workflows. Key deliverables to date include a free online study-design decision-support tool, remote camera survey guidelines, metadata standards, and analytical resources supporting occupancy and density estimation approaches. Collectively, these efforts can improve methodological consistency, reduced duplication of effort, and enhanced opportunities for data integration and stronger inference across large spatial scales. We conclude by outlining proposed RCSC priorities for 2026-27, including networking and expert panel sessions, summaries of key topics and lessons learned, and additional tool development. Conference participants will be invited to contribute directly to the upcoming workplan. This initiative demonstrates how science and management can work together to strengthen wildlife monitoring capacity and support evidence-based decision-making.

**Biosketch:** Anne has over 20 years with the Alberta government, serving as Senior Area Wildlife Biologist, Big Game Specialist, and currently Provincial Wildlife Science Specialist with Environment and Protected Areas. She collaborates with managers and researchers on innovative wildlife monitoring and conservation, and co-chairs the Alberta Remote Camera Steering Committee.

**11:45-12:00:** Pangolins, people and protection: Community insights on Temminck's pangolin (Smutsia temminckii) in the Ruaha-Rungwa ecosystem, Tanzania

**Courtney Hughes, Tanzania Research and Conservation Organization**

**Coauthors:** Michael Kimaro, Camille Warbington, Charles Mgeni, Fenrick Msigaw, Hillary Mrosso, Elisante Kimambo, Nyemo Chilagane, Simon Chidodo, George Bunyata, Joseph Kangile, Rose Kicheleri

**Abstract:** Across their global range, all eight pangolin species face severe threats from illegal trafficking and habitat loss; this includes Tanzania's Temminck's pangolin (Smutsia temminckii). Across the Ruaha-Rungwa landscape, we engaged with 22 communities to document their local knowledge, attitudes and cultural uses of pangolins, as well as illegal trade of pangolins and their derivative products. We found most respondents incorrectly identified pangolins, though women and members from the Nyamwezi ethnic group showed higher correct identification rates overall. Attitudes were positive across participants, with many indicating interest in learning more about pangolins; however, the majority indicated that pangolins should be used for traditional rituals, medicine and ornaments. Community members most often encountered pangolins opportunistically on village lands outside Ruaha National Park, typically in locations associated with livelihood activities such as firewood collection and livestock grazing. Nearly half of the participants reported a decline in pangolin observations over the past five years. Illegal trade of pangolins included communications and relationships between hunters and buyers, from local networks to international destinations. Our research demonstrates that engaging local communities can provide much needed data on Temmincks' pangolins, including local cultural values and uses, population information, and threat identification. We recommend that culturally-relevant, collaborative conservation programs rooted in the positive values for the species be developed, and includes programming that supports human wellbeing. It is our hope that these efforts can create a powerful alliance between people and pangolins, rooted in respect, science, and stewardship.

**Biosketch:** Courtney is a conservation scientist specializing in human-wildlife coexistence and community collaboration. She has worked on Alberta's grizzly bear recovery, co-led projects in Namibia, Cameroon, and Zimbabwe, and lectured at Oxford University's WildCRU. She co-founded Tanzania Research and Conservation Organization, and focuses on pangolin conservation and human-elephant conflict.

**12:00-12:15:** Bridging the research-implementation gap: 20 years of a toolkit to inform grizzly bear conservation, management, and industry operation decision-making in Alberta

**Dario Fernandez-Bellon, fRI Research**

**Coauthors:** Julie Duval, Cam McClelland, Karen Graham, Gordon Stenhouse

**Abstract:** Decision-making is a crucial, but challenging element of effective conservation. Evidence-based decision-support tools have been proposed as an approach to efficiently translate research

findings into practice, but published assessments of their use are limited. Grizzly Bear Tools (GBTools), is a toolkit developed to aid decision-making on grizzly bear Ursus arctos populations and their habitats in Alberta by wildlife managers, industry resource managers, and government policymakers. Here we review the GBTools suite, present case studies, and discuss learnings from 20 years of their development and implementation. GBTools includes GIS-based tools that allow users to (i) map attributes relevant to bear ecology and survival (e.g., RSF, trophic resources, mortality risk, denning habitats), (ii) simulate development scenarios to compare and quantify their effects on these attributes, and (iii) identify lower impact scenarios and actions to reduce or mitigate these effects. GBTools also includes non-GIS tools such as genetic data repositories used to inform monitoring studies and wildlife management decisions. Since their development, GBTools have been used to regulate and manage anthropogenic threats in grizzly bear habitats, to design forest management plans, to inform mining operation calendars, and for wildlife management actions, among other uses. We also discuss the challenges faced since the toolkit's first release. These serve to underscore that bridging the research-implementation gap with decision-support tools requires collaborative approaches to develop tools that address real-world problems, buy-in and long-term commitment from the different stakeholders involved, continued support for tool maintenance and user training, and efficient communication between tool developers, users, and regulators.
Biosketch: Dario leads the grizzly bear research at fRI, with a focus on applied outputs that can inform the conservation and management of the species and its habitats.

12:15-12:30: Advancing Ecological Research and Wildlife Management Through Indigenous Knowledge: The Ronald Lake Bison Herd Monitoring Program
Darren Epperson, Ecologix Solutions
Coauthors: Sebastián Buitrago Gutiérrez, Garrett Rawleigh
Abstract: Research programs integrating Indigenous Knowledge (IK) with western science deepen our understanding of ecological systems and contribute to innovative conservation efforts. This approach leverages the strengths of both traditions: the western scientific methods of rigorous testing to gather precise data, and generational, place-based experiential knowledge of Indigenous communities. We present findings from a long-term, Indigenous led and community guided program that monitors the ecology and behaviour of the Ronald Lake Buffalo Herd (RLBH), a culturally significant and ecologically vital wood bison population in northeastern Alberta. These bison, disease free and genetically distinct, are critical to the biodiversity and ecological integrity of the area's delta ecosystem, especially given their proximity to industrial oil-sands development. In the first three years of our 30-year study, collaboration has revealed the herd's broader habitat utilization than previously detected and highlighted watersheds beyond the original study area that influence the herd's forage locations. Furthermore, our integrated approach has identified emerging threats to the herd and their habitats, including the presence of invasive species, which may go undetected by scientific methods that are narrowly focused or limited in scope. Guided by community input and priorities, our work demonstrates how equitable knowledge integration enhances species and habitat monitoring, informs adaptive management, and fosters resilient conservation strategies. Our presentation will share key findings and highlight the benefits of

collaborative research for future ecological stewardship. We invite conference participants to consider how blending Indigenous Knowledge and western science can transform ecological research and wildlife management for inclusive, sustainable outcomes
**Biosketch:** Darren Epperson, founder and Director of Ecologix Solutions Inc. (Edmonton, Alberta), is an expert in Social-Ecological Systems theory (SES), wildlife ecology, land-use policy, and adaptive governance. He leads innovative land management research, shapes ecologically focused policies, and integrates Indigenous Knowledge for culturally respectful conservation and wildlife management.

**12:30-12:35:** Making Conservation Messages Stick
**Natalia Porro, Wilder Institute**
**Coauthors:** Erin Gilbert
**Abstract:** Effective wildlife conservation relies on strong science-but also on our ability to explain why it matters. Whether we're talking with landowners, managers, researchers, funders, or the public, conservation decisions often hinge on how clearly we communicate purpose, relevance, and impact. Even robust, evidence-based work can fall flat when its rationale isn't translated into messages that resonate with the people who need to act on it. In this speed talk, I'll share a practical justification framework used at the Wilder Institute to help conservation teams craft clear, relatable messaging for projects of any scale. The framework highlights three essentials: credibility grounded in evidence, personal relevance, and values-based appeal. Using a Wilder Institute conservation species as an example, I'll show how scientific reasoning can be woven into a concise narrative that strengthens understanding, collaboration, and decision-making. In line with this year's theme of bridging science and management, this talk offers a simple, adaptable communication tool that researchers, consultants, and practitioners can use to better connect management needs, research outputs, and stakeholder engagement through compelling justification.
**Biosketch:** Natalia Porro, B.Sc., is a Conservation Intern at Wilder Institute, bringing six years of experience in research, government, science communication & education, and applied conservation. Throughout her career, she has refined her communication skills within public, professional, academic, and stakeholder contexts to build connections and foster mutual understanding.

## Session 1B – Castle Room

### Behaviour

**11:00-11:15:** Bridging the gap: Wildlife use of beaver dams
**Glynnis Hood, University of Alberta**
**Coauthors:** Cherie J. Westbrook
**Abstract:** As unique habitat features, beaver dams provide travel corridors, loafing sites, and foraging areas for a variety of other species. To examine the role of beaver dams in the spatial and temporal distribution of wildlife over a five-year period, we installed cameras on beaver dams in the

Beaver Hills Biosphere Reserve in east-central Alberta, Canada and at Sibbald Fen in Kananaskis Country, Alberta. This study includes data from almost 50 camera sites, with >260 deployments representing each time a camera card was downloaded and reset. Using Timelapse Image Analyzer software, we attributed the data and identified whether animals were on the dam, in the water, on land, or, when present, on nearby beaver lodges within view. Cameras captured well over 150,000 images that recorded >57 species during >46,000 camera hours. There were more species found on beaver dams in the fen; however, when standardized for sampling effort, there was no difference. Species richness increased with dam length. Approximately 19% of the species were shared between the Beaver Hills and Sibbald Fen. Use of dams, regardless of geographic region, did not differ, with travelling, eating, and resting being the dominant activities. Wildlife use of beaver dams is rarely studied; however, our data suggest that beaver dams play an important role in ecological connectivity and have an understudied influence on temporal and spatial interactions among species.

Biosketch: Glynnis Hood is a Professor Emerita at the University of Alberta. Her research investigates the interface between semi-aquatic mammals and their freshwater habitats.

11:15-11:30: The Effects of Wildfire and Subsequent Salvage Logging on Insectivorous Bat Activity in Alberta's Boreal Forest

Autumn Kirk, University of Alberta

Coauthors: Laureen Echiverri, Eric Neilson, Matina Kalcounis-Rueppell and Erin Bayne

Abstract: Wildfire is a natural and ecologically important disturbance in Alberta's boreal forest. However, recent shifts towards more frequent and severe wildfires pose increasing challenges for forest management and wildlife, such as bats. Wildfires alter forest structure in various ways. They can increase canopy and understory openness, create biological legacies, and increase forest-edge habitat. Salvage logging, frequently implemented to recover damaged timber, can compound disturbance effects by further altering the forest through the removal of biological legacies. These changes to forest structure are particularly relevant to bats, which rely on forests for roosting, foraging, and drinking, and often exhibit species-specific responses. We evaluated how wildfire and subsequent salvage logging affect nightly bat activity at 54 sites in Fox Creek, Alberta, sampled in the summer of 2024-2025. Sites were classified as burned, salvage-logged, or controls. Bat activity (echolocation passes per night) was analyzed using negative binomial mixed models with site as a random effect, and results were divided into acoustic guilds. Low-frequency bats (<35 kHz) exhibited higher activity in burned and salvage-logged sites, reflecting a preference for open foraging space, while high-frequency bats (>35 kHz) showed reduced activity in salvage-logged sites compared to burned and control sites. By characterizing responses within acoustic guilds, our findings support forest management practices that integrate post-disturbance recovery with wildlife conservation, a consideration of growing importance as wildfire activity intensifies throughout Canada's boreal region. These results suggest that incorporating guild-specific responses into salvage planning could help mitigate impacts on high-frequency species while maintaining habitat for low-frequency species.

**Biosketch:** Autumn Kirk is an MSc student in Ecology at the University of Alberta. Her thesis research examines how wildfire and salvage logging influence bat activity in Alberta's boreal forest, using acoustic monitoring to inform forest management and bat conservation.

**11:30-11:45:** Investigating temporal patterns in black-capped chickadees (Poecile atricapillus) foraging behaviour in response to increased perceived predation risk

**Nathan Hobbs, University of Alberta**
**Coauthors:** Kimberley Mathot

**Abstract:** A common behavioural trade-off in prey involves balancing responses to both predation and starvation risk, as too much investment into mitigating one risk comes at the expense of the other. One example of this trade-off involves deciding when to engage in high intensity foraging: theoretical modelling predicts a morning peak in foraging intensity to mitigate starvation risk, whereas an end-of-day peak in foraging intensity is predicted to mitigate predation risk. Wintering songbirds are a useful study species for investigating predation-starvation trade-offs, as predation and starvation risk are naturally heightened in winter, and tracking songbird foraging behavior is relatively simple. However, most studies on trade-off theory in songbirds do not involve direct manipulations of predation risk. We exposed 78 individually marked black-capped chickadees (hereafter; chickadees) to predator calls and mobbing calls over one winter month to manipulate perceived predation risk. For each day, we recorded when each chickadee first visited a feeder, when they last visited a feeder, the length of the feeding day, and their total number of feeder visits for that day. We also quantified diurnal patterns of feeder visitation as a function of our treatments. Foraging behavior in the control and predator treatments were similar after multiple days of exposure to noise, implying that antipredator behavior is not feasible long term. However, chickadees still concentrated their feeding effort to the second half of the day in both treatments. These results highlight the temporal plasticity of foraging behavior as a response to heightened perceived predation risk.

**Biosketch:** I am in my second year of a MSc in Ecology degree, where I study black-capped chickadee foraging behaviour. Previously, I have published research as a first author to the journal Biology Letters. I will be graduating this Spring, and am looking for employment opportunities.

**11:45-12:00:** The Plasticity Paradox: Climate-Driven Phenological Mismatch and Behavioral Divergence in Northern Rockies Elk

**Tara Meyer, University of Montana**
**Coauthors:** Jonathan Farr, Benjamin Larue, Evelyn Merrill, Mark Hebblewhite

**Abstract:** Behavioral plasticity is often assumed to buffer wildlife against climate change. However, integrating 24 years of collaborative monitoring (2002-2024) of the Ya Ha Tinda elk population in Alberta, we demonstrate that flexibility can become a liability when environmental cues decouple from resources. We paired long-term GPS telemetry with remote sensing to identify a "phenological trap" driven by divergent landscape trends: start of spring growth on the winter range is delaying while the eastern summer range is advancing. Eastern migrants rely on winter range productivity thresholds to initiate migration. Consequently, their migratory timing is decoupled from summer range advancement due to a mechanical delay in winter range conditions even as their summer

resource target advances, resulting in a rapid collapse in migratory synchrony. Conversely, western migrants, likely constrained by high-elevation snowpack, maintained more fixed scheduling. While adult females appeared to shield their body condition from nutritional deficits, the fitness costs of this phenological mismatch shifted to neonates, evidenced by a marginally significant decline in summer calf survival. For managers, these findings highlight that generalized regional climate trends are insufficient for conservation planning. Effective management of large herbivores and their habitat requires mapping specific, divergent rates of change in phenology across migratory networks to identify which behavioral tactics are navigating the changing landscape and which are falling into maladaptive traps.

**Biosketch:** Dr. Tara Meyer is a conservation ecologist at the University of Montana. Her research integrates 24 years of data to explore climate-driven phenological mismatch. With over a decade of prior leadership experience in state agencies and NGOs, she specializes in bridging rigorous science with on-the-ground adaptive management.

## Genetics

**12:00-12:15:** Population Genetic Structure of the Black Oystercatcher (Haematopus bachmani) Across North America

**Anisha Neupane, University of Lethbridge**

**Coauthors:** Mark Hipfner, Theresa M. Burg

**Abstract:** Studying population genetic structure enables us to evaluate genetic variation, gene flow, and population differentiation. It also helps us better understand evolution and develop conservation strategies. The black oystercatcher (Haematopus bachmani) is a resident bird, with partial migratory behavior, found in the North Pacific Coast, yet knowledge of its wintering grounds, migration routes, and connectivity remains limited. This study explores the genetic diversity and population structure of black oystercatcher across their breeding range in North America using genomic sequencing. Bayesian clustering and principal coordinates analyses were used to identify patterns of differentiation in 107 samples from Alaska, British Columbia, and the Pacific Northwest. Population structure and differentiation analyses with PCoA and pairwise FST indicated moderate to high connectivity and gene flow among most sampled populations, with some subtle north-south structuring. The moderate isolation-by-distance further supports this pattern, implying that gene flow decreases with increasing geographical distance. The least cost corridor analyses provided complementary spatial context, by identifying pathways as corridors for dispersal and highlighting potential isolation among distant island populations. Furthermore, the redundancy analysis supported isolation by distance and weak association between genetic variation and environmental variables such as temperature and topography driving the differentiation. However, environmental effects explained only a small fraction of total genetic variance, suggesting that processes such as isolation-by-distance and strong breeding site fidelity play more substantial roles in shaping genetic patterns.

**Biosketch:** I am Anisha Neupane, a graduate student in the Department of Biological Sciences at the University of Lethbridge. My research in Burg's Lab focuses on population genetics and

connectivity of black oystercatcher across North America, using reduced-representation genomic data to understand gene flow, structure, and evolutionary processes.

12:15-12:30: Leveraging genomics to improve captive breeding outcomes in woodland caribou (Rangifer tarandus caribou)

Samuel Deakin, University of Calgary
Coauthors: Lalenia Neufeld, Madeline Trottier, Jocelyn Poissant

Abstract: Throughout North America, anthropogenic actions, primarily habitat loss and alteration, have resulted in significant declines in woodland caribou. Among their conservation units, Southern Mountain caribou are considered the most at risk. The Jasper-Banff Local Population Unit, spanning two national parks, was historically home to four herds; today, only two remain. Although current ecological conditions in Jasper National Park favour caribou persistence, the extremely low population sizes make natural recovery unlikely. As a result, Jasper National Park is implementing a captive-breeding-assisted recovery program for its herds. Incorporating genomics into captive breeding can substantially improve conservation outcomes. Traditionally, breeding decisions assume that: (a) all wild-caught "founder" individuals are unrelated, and (b) related individuals share predictable proportions of their genomes. However, when sourcing multiple unknown animals from the wild, there is a substantial risk that individuals are closely related, and real-world inheritance patterns often deviate from theoretical expectations. These uncertainties can hinder efforts to avoid inbreeding or maintain genetic diversity. Here, we present the framework and preliminary results of a genomic, simulation-based approach designed to optimise breeding-pair selection and maximise genetic diversity in both the captive population and the herds that will be supplemented. This work is being implemented at the newly established caribou breeding centre in Jasper and provides a template for genomically informed conservation breeding in other at-risk wildlife populations.

Biosketch: Post-doctoral researcher at the University of Calgary, with a focus on conservation genetics. Specifically the application of molecular methods to the conservation and recovery of at risk species.

12:30-12:35: Archived Scales as a Source of DNA to Support Conservation and Fisheries Management

Joshua Miller, MacEwan University
Coauthors: Morgan Warawa

Abstract: While most genetic studies focus on contemporary populations, analyzing historical genetic diversity can provide important context for recognizing declines in genetic diversity and understanding long-term patterns of gene flow and population structure. In fish, archived biological materials, such as scales, represent a promising yet underutilized source of historical DNA (hDNA) that is non-invasive, offering both practical and ethical advantages for studying diversity, but comes with technical challenges. This study tested an optimized protocol to recover hDNA from archived Arctic Grayling (Thymallus arcticus) scales collected in northern Saskatchewan, an under-sampled region of the species range. These samples had been collected during the 1980s and stored at ambient conditions. Using this optimized protocol, hDNA was recovered from 87 archived samples,

and produced 19 mtDNA sequences. Haplotype analysis revealed two haplotypes separated by three mutations, with most individuals sharing one haplotype. This pattern is consistent with previous reports of low genetic diversity in contemporary Saskatchewan Arctic Grayling populations. These findings highlight the utility of the described protocol for analyzing archived scale collections to inform population genetics and fisheries management of Arctic grayling. More broadly, the protocol developed here demonstrates that, with appropriate modifications, degraded historical samples can yield reliable genetic data, supporting conservation efforts through a better understanding of past genetic diversity.

**Biosketch:** Josh Miller is a professor at MacEwan University in Edmonton specializing in conservation genetics and genomics. My goals are to use genetic information coupled with traditional ecology to form the basis of holistic management strategies that preserve long-term health of populations.

## Session 1C – Summit Room

### Habitat Use

**11:00-11:15:** Seasonal patterns in movement, habitat use, and parturition of invasive wild pigs (Sus scrofa) in Saskatchewan, Canada

**Hannah Bordin, University of Alberta**

**Coauthors:** Ryan Brook, Mark Boyce

**Abstract:** In seasonal environments, individuals adjust movement and habitat use to balance changing energetic demands and ecological pressures. Large, sustained changes may reflect seasonal responses to resource availability and environmental conditions, whereas small shifts may reflect short-term responses to predator avoidance, mating, parturition, or neonatal care. Wild boar (Sus scrofa) are among the most widespread invasive mammals globally, with success driven largely by behavioural plasticity and high reproductive capacity. Expanding populations cause significant agricultural and ecological damage and act as reservoirs for pathogens threatening livestock, wildlife, and humans. Although wild boar have been established in the United States for centuries, they are relatively new to Canada. As a result, the ecology of wild pigs in northern, seasonal environments remains understudied. We aimed to (1) characterize seasonal changes in movement rate for wild pigs in Saskatchewan, Canada; (2) define sex-specific ecologically relevant seasons, including parturition, using changes in movement rate; and (3) determine sex-specific habitat selection across these periods. Both sexes exhibited nonlinear changes in movement rate across the year, resulting in the delineation of two ecologically meaningful seasons, low- and high-movement seasons, and a parturition peak in the spring for females. Across seasons, both sexes consistently avoided grasslands and selected for proximity to water and broadleaf forest, though the strength varied by season. Wetland use exhibited the most pronounced seasonal shift, with both sexes preferring proximity in the low movement season, and avoidance in other seasons. Females selected proximity to crops in all seasons, while males consistently avoided them.

**Biosketch:** Hannah is an M.Sc. student in the Boyce Lab at the University of Alberta.

11:15-11:30: Denning Coyotes Select Fine Scale Habitat Characteristics that Promote Den Stability in a Protected Area

Juno Montgomery, UofA, St. Clair lab
Coauthors: Sage Raymond, Colleen C. St. Clair

Abstract: Coyotes (Canis latrans) are common mesocarnivores that occupy various environments across North America, including urban areas. Range expansion has occurred due to a lack of predators, increased food availability, and behavioural flexibility, resulting in increased overlap and conflict with humans. Because dens are associated with human-wildlife conflict, predicting their locations could support more proactive management in overlapping areas. This study examined third- and fourth-order habitat characteristics of 42 coyote dens in Elk Island National Park, a protected natural area in central Alberta, Canada. Using resource selection functions, we evaluated three hypotheses: that coyotes selected dens based on (1) physical den suitability, (2) security from predators, people, or dogs, and (3) access to food and water resources. Coyotes exhibited strong, fourth-order selection for dens with cohesive, inorganic soils and steep slopes that promote structural integrity and drainage. Structural supports such as roots and abandoned but persisting beaver (Castor canadensis) infrastructure were common. We found limited evidence of selection for features that promoted security, contrasting with other studies that found security to be an important predictor of den sites. We found no evidence for selection based on local resource availability. Our findings indicate that fine-scale habitat features related to den stability are the primary drivers of den site selection in wild coyotes in this ecosystem, and suggest that den selection is flexible and context-dependent in response to local environmental pressures.

Biosketch: BSc student at the University of Alberta and research assistant analyzing coyote trail-camera data, with growing skills in GIS and R, interested in applying spatial tools to wildlife conservation and field-based research across western Canadian ecosystems.

11:30-11:45: Is it a mixedwood? Spatially-explicit responses to gradients in habitat structure and composition in three boreal bird species

Leonard Patterson, University of Alberta
Coauthors: Brendan Casey, and Erin Bayne

Abstract: Conventional definitions of boreal mixedwood forests are based solely on tree species composition, consider species composition at a relatively coarse grain, and do not explicitly address spatial scale. Such definitions may oversimplify the habitat complexity perceived by birds, potentially biasing past attempts to identify mixedwood habitat associations. To address this knowledge gap, we used a spatially-explicit approach to understand how three boreal bird species respond to continuous gradients in deciduous-coniferous composition, the spatial arrangement of coniferous trees, and forest age within mixedwood forests in Alberta, Canada. We used a boosted regression tree model to assess the influence of these habitat characteristics across multiple spatial extents (150 m, 500 m, 1000 m) and grain sizes (5 m² and 30 m²) on bird relative abundance. Spatial configuration was the strongest predictor for all three species. Black-throated green and bay-breasted warbler responded most strongly to fine-grain, local (150 m) configuration, with abundance peaking in intimately mixed stands. Tennessee Warbler responded most strongly to

configuration at the broadest extent (1000 m), also favoring intimate mixtures. The proportion of conifer and forest age consistently emerged as the second and third most important predictors, respectively. Predicted abundance on synthetic landscapes showed consistently higher abundance (≈ 4-10 times higher) in intimate vs. segregated mixedwoods. Our results demonstrate that species- and scale-explicit mixedwood definitions that include spatial configuration better capture avian habitat use than composition alone. Preserving or restoring intimate mixtures of coniferous and deciduous species at fine spatial scales may be particularly beneficial for our focal species.
**Biosketch:** Leonard Patterson is a M.Sc. student in the Bayne Lab at the University of Alberta. His research explores how forest composition, structure, and management shape bird communities in boreal mixedwood forests. Leonard combines landscape ecology, bioacoustics, and remote sensing to better understand bird-habitat relationships and support sustainable forest management.

**11:45-12:00:** Where do Egyptian Vultures roost? Habitat selection and population status of the species in central-western Nepal.
**Milan Baral, University of Lethbridge**
**Coauthors:** Anisha Neupane, Tulsi R Subedi
**Abstract:** Egyptian Vultures (Neophron percnopterus), the smallest vulture species in the Indian subcontinent, frequently roost communally and congregate in large numbers near anthropogenic food sources and human settlements. Roosting sites are important habitats for understanding threats to vultures, and high-quality roosts can support survival and strengthen social interactions among individuals, yet they remain poorly studied in South Asia where conservation attention is typically focused on nesting areas. We investigated 30 roosting sites used by Egyptian Vultures in Kaski district, Nepal, from 2018-2024, including 20 cliff roosts and 10 roosting clusters comprising 96 trees. Using generalized linear models and a set of 22 cliff variables and 28 tree variables, we identified environmental and anthropogenic factors associated with roost-site selection. We also assessed annual population patterns where counts averaged 435 vultures per year (n = 7 yr, range = 372-512), with the largest congregations historically occurring at Dovilla before shifting to Lameaahal in the most recent year. Roosting on cliffs was best explained by cliff height and distance to human settlements. For tree roosts, important predictors included height of the first branch, canopy cover, number of surrounding trees, distance to anthropogenic food source, and distance to human settlements. Our findings highlight the significance of roosts near human settlements and food sources for sustaining this endangered species. We recommend that conservation practitioners prioritize protection and monitoring of high-use roosts, particularly those near anthropogenic resource sites, to support the long-term persistence of Egyptian Vultures in the mid-hills of Nepal.
**Biosketch:** Milan Baral is a Master of Science candidate in Biological Sciences (molecular ecology) at the University of Lethbridge. His research focuses on avian ecology and conservation genomics, with particular emphasis on how species respond to environmental pressures across human-modified landscapes. Prior to his graduate studies, he contributed to several raptor conservation initiatives in Nepal, including projects on raptor migration monitoring, threat assessment, breeding biology, feeding ecology, and movement ecology. His work on Egyptian Vultures examines roosting habitat selection and population status in central-western Nepal to inform evidence-based

conservation strategies. Milan's broader academic interests include population genetics, urban ecology, and the application of field-based data to wildlife management and conservation planning.

12:00-12:15: The first five years: what have we learned from oil sands monitoring of mammals?
Jason Fisher, University of Victoria
Abstract: The joint Alberta-Canada Oil Sands Monitoring is tasked with understanding how petro development affects Alberta's hydrological, atmospheric, and biological systems. The Terrestrial Biological Monitoring (TBM) program - which focusses on birds, mammals, and vegetation communities -was redeveloped in 2020 using an innovative design targeting multiple spatial scales. In this first five years, what we have we learned about mammals? I summarize multiple research papers and latest evidence, based on camera-trap data across several boreal landscapes. We focussed on the roles of natural features, anthropogenic features, predators, competitors, and their interactions in shaping mammals' responses, using a variety of generalised linear modelling-based approaches. Converging lines of evidence reveal the effects of disturbance on mammals are outsized compared to the area impacted. Habitat loss is not the only issue: habitat shape counts for much. Trophic interactions among mammals are also implicated, as expected under the disturbance-mediated apparent competition hypothesis. However, this is only one story for a trio of species. The relationship between mammals and disturbance is not consistent across the Oil Sands Region but instead varies predictably under the resource complementation hypothesis. Effects from altered competition, combined with continental-scale "tidal forces" of climate and neonative expansion, are also at play. In summary, a complexity of interacting effects appears to be shaping the response of boreal mammals to petro and other development, and the first five years has only scratched the surface of the spatial complexity, with temporal complexity yet to be unveiled.
Biosketch: Jason T Fisher started researching Alberta's boreal mammals in 1996 and with few breaks keeps at it. Since 2019 he has led UVIC's Applied Conservation Macro Ecology (ACME) lab, which researches mammals from the arctic ocean to the US border. Jason has over 90 peer-reviewed publications and was President of the Alberta and BC TWS chapters. In 2026 Jason was appointed by the Minister of ECCC as the Co-Chair of COSEWIC's Terrestrial Mammals Specialist Subcommittee.

## Wildlife Health & Disease

12:15-12:30: Gut microbiome composition, function and diversity in endangered wild caribou in western Canada
Charlotte Bourbon, Ph.D Candidate/ Faculty of Veterinary Medicine, University of Calgary
Coauthors: Mason. R. Stothart, Margaret. M. Hughes, Agnes Pelletier, Jean Polfus, Helen Schwantje, Caeley Thacker, Marco Musiani, Jocelyn Poissant
Abstract: Understanding the gut microbiome (GM) of endangered wild populations is critical for conservation, providing insights into host health and adaptive capacity. We investigated ecological and evolutionary drivers shaping the GM of 184 endangered caribou (Rangifer tarandus) across 21 British Columbia herds using shotgun sequencing. Our objectives were to: 1) identify a core GM; 2) determine primary drivers of GM composition and structure; 3) characterize functional metabolic

profiles and assess functional redundancy; 4) evaluate population size, inbreeding, and latitude effects on GM diversity; and 5) assess bacterial pathogen prevalence. We observed a core GM, dominated by fiber-degrading Bacillota and Bacteroidota, and methanogenic Archaea, reflecting adaptations for foregut fermentation. GM composition was primarily shaped by ecotype and temporal patterns, with hierarchical clustering showing a clear north-south segregation. Taxonomic shifts strongly correlated with functional metabolic pathway variations, highlighting metabolic specializations (amino acid metabolism, detoxification, methanogenesis) and indicating functional redundancy across ecotypes. Northern Mountain herds exhibited significantly higher GM diversity, positively correlated with census size and latitude; genetic distance explained more GM compositional dissimilarity than geographic distance, suggesting host genetics are key drivers. We detected widespread putative bacterial pathogens (Francisella tularensis, Yersinia enterocolitica, potential Mycobacterium tuberculosis complex sequences) with herd-specific prevalence. These findings provide a vital baseline for caribou GM, highlight complex ecological and evolutionary drivers, and offer crucial tools for integrating microbiome studies into conservation management.
Biosketch: Charlotte Bourbon is a PhD candidate in conservation genomics at the University of Calgary. Her research focuses on genetic diversity, inbreeding, and pathogen dynamics in endangered woodland caribou, combining population genomics and microbiome approaches to inform wildlife conservation and management.

12:30-12:35: Where Risk Enters the Fence: Mapping Disease Movement Pathways in Bison
Avy Lamb, Lethbridge Polytechnic
Abstract: The American bison (Bison bison) is a keystone species whose conservation in Alberta depends on proactive management of infectious disease risk. Although bison in Elk Island National Park (EINP) are currently free of brucellosis (Brucella abortus) and bovine tuberculosis (Mycobacterium bovis), the potential introduction of these pathogens poses significant ecological and biosecurity concerns. This study evaluates spatial and temporal patterns of potential disease introduction risk using multi-year historical GPS collar data from Plains and Wood Bison in EINP. A GIS-based, spatially explicit framework is used to examine how bison movement intersects with anthropogenic and ecological interfaces, including fence lines, roads, water sources, land cover, and human-use areas. Kernel density estimation and step-selection functions were applied to identify seasonal congregation areas and landscape features associated with elevated exposure potential. These were used to develop composite risk surfaces to map high-risk zones. This prevention-focused approach provides insight into landscape-level pathways of disease introduction and supports proactive surveillance and management in fenced, disease-free wildlife systems.
Biosketch: With roots in central Alberta, Avy Lamb, an undergraduate at Lethbridge Polytechnic, grew up with the privilege of exploring Treaty 6 territory. She is passionate about hands on research and experiential learning, dedicated to advancing knowledge in her field while engaging meaningfully with her academic and local communities.

# APPENDIX B: SATURDAY PM

## Session 2A – Assiniboine Room

### Policy, Partnerships & Practice

**14:00-14:15:** Science, Management and Law: species at risk laws and implications for science and management

**Jason Unger, Environmental Law Centre (Alberta) Society**

**Abstract:** Alberta's and Canada's laws are foundational to management of public resources that make up ecosystems. From species at risk to broader biodiversity, management is, at once, enabled and constrained by our laws. This talk will highlight the intersection of laws with management and science, highlighting the challenges and opportunities that exist to have science and management better serve ecosystems.

This talk will focus on setting out the nuance of legal standards and the science that support them drive management decisions, which in turn, are foundational to conservation.

**Biosketch:** Jason Unger is the Executive Director and General Counsel of the Environmental Law Centre (ELC), an Alberta based charity focused on legal education and law reform. Jason's practice has focused on issues of water law, legal tools for conservation on private lands, environmental assessment law, species at risk and pollution prevention.

**14:15-14:30:** Delta Waterfowl's University Hunting Program - Bringing the North American Model of Wildlife Conservation to Campus

**Joel Brice, Delta Waterfowl**

**Abstract:** Delta Waterfowl recognizes a significant challenge for the future of wetland and wildlife conservation: most wildlife management students-the next generation of decision-makers-have little or no exposure to hunting or its role in North American wildlife management. This lack of experience often leads to professionals entering the field without fully understanding the ecological, economic, and cultural importance of hunting. Hunting is not only a time-honored tradition but also a cornerstone of wildlife conservation. Through license fees, excise taxes, and related contributions, hunters provide funding for habitat protection and species management across North America. These resources benefit countless species beyond game animals. For this reason, whether or not one chooses to hunt personally, supporting hunting as a conservation tool is essential for sustaining wildlife populations and the habitats they depend on. To address this knowledge gap, Delta launched the University Hunting Program in August 2017. This initiative integrates hunting education into wildlife courses, offering students hands-on experience by completing the key components of hunter safety and firearm certification, shooting skills training, a mentored hunt at a quality location, and a post-hunt meal and discussion Since its inception, Delta has identified more

than 540 candidate schools for participation, and this past season, the program surpassed 140 active schools-a milestone that reflects growing recognition of hunting's role in conservation.
Biosketch: Joel Brice is Chief Conservation Officer for Delta Waterfowl, where he oversees all aspects of waterfowl and hunter recruitment programming. A native of west-central Wisconsin, Joel's lifelong passion for hunting and the outdoors led him to earn a B.S. in Wildlife Management from the University of Wisconsin-Stevens Point and an M.S. in Wildlife Biology from the University of North Dakota. Before joining Delta in 2001, Joel conducted private wildlife research across the Midwest and Great Plains and later worked for the Northern Prairie Wildlife Research Center in Jamestown, ND. With nearly three decades of experience, Joel brings a unique perspective on blending science-based management with practical conservation solutions.

14:30-14:45: Science in action: Examples and perspectives from a science-focused non-profit organization
Julie Heinrichs, Computational Ecology Group Inc.
Abstract: There is no single formula for producing science that makes a real-world difference. Rather, actionable science can emerge through multiple modes of collaboration-from consultation to full co production-and each can succeed when projects are intentional about being useful. In this presentation, we outline our organization's key tenets for engaging in actionable science with partners and illustrate them through recent project examples. We highlight projects that span species-at-risk management in Alberta (sage-grouse population modeling), landscape conservation across international borders (sagebrush ecosystem modeling), and species recovery planning (martens, owls) in complicated contexts (e.g., mixed ownership, military bases). Across these examples, we show how starting with the decision rather than the dataset or method provides a foundation for relevance. Co producing questions and approaches with managers often strengthens alignment, but even lighter-touch consultation can improve usability when time or resources are limited. Iteration and the openness to share works-in-progress can make a big difference: sharing preliminary maps, models, or challenges early creates opportunities for feedback that sharpen both scientific rigor and practical utility. Deliverables that fit into existing management workflows, such as concise summaries, spatial tools, or risk matrices, tend to be more valued by managers than traditional academic outputs. Communicating uncertainty in ways that inform decisions rather than obscure them has been aided by scenario-based modelling to address uncertainty and explore trade-offs. Lastly, we suggest that the strongest actionable science outcomes are grounded in openness between managers and scientists and the ability to adapt to new information, ideas, and ways of working.
Biosketch: Julie Heinrichs is Executive Director and Chief Scientist at Computational Ecology Group Inc. (CEG), a non-profit advancing actionable science. Her work spans universities, agencies, industry, and NGOs. She specializes in landscape ecology and conservation biology, developing landscape and population forecast models to inform management of species and habitats at risk.

14:45-15:00: Moving Recreation Ecology Research into Management
Nikki Heim, Yellowstone to Yukon Conservation Initiative
Coauthors: Affiliated colleagues: Nadine Raynolds, Brynn McLellan

**Abstract:** Recreational opportunities are increasingly sought out world-wide as a high-valued, nature-based economy. Alongside, a growing body of research in recreation ecology has shown us that outdoor recreation has the potential to severely impact wildlife and habitat. The need to manage outdoor recreation responsibly and as an industrial-scale land-use activity has been echoed by wildlife experts and concerned communities alike. Some indigenous communities, including the Ktunaxa Nation Council Society, have long expressed such concerns and were recently one of the first to include outdoor recreation in a cumulative effects study. This study was able to utilize existing research findings to model the impacts of outdoor recreation for two species: grizzly bear and wolverine. However, our collective understanding of the realized and long-term extent of disturbance for many wildlife remains limited. Understanding how and when people are recreating has also been a challenge. In recent years, the Yellowstone to Yukon begun to dig into the challenges in recreational ecology to elevate the best sources of recreational data. Meanwhile, provincial-level recreational guidelines and community-level recreational trail plans are being drafted. As the interest in outdoor recreation pulses ahead, it is critical that the science keeps up and is done with an applied-management lens – knowing what questions we still need to ask.
**Biosketch:** Nikki Heim is a Wildlife Ecologist and Manager with the Yellowstone to Yukon Conservation. For over 20 years, Nikki has focused on research and management to promote human-wildlife coexistence. Applying science to management is a critical part of her role to improve science-informed decision making that better conditions for wildlife.

**15:00-15:15:** Visible Science-Management Leadership: Building Trust Through Equitable Communication

**Sheena Yap Chan, The Tao of Self-Confidence**

**Abstract:** Wildlife conservation thrives when science and management work hand in hand-but partnerships often falter because communication, power dynamics, and trust are invisible barriers. This session introduces the VISIBLE™ Framework (Voice, Identity, Spotlight, Inner Work, Belief, Leverage, Elevation) to equip researchers, managers, and Indigenous Knowledge holders to lead with clarity, transparency, and equity. Through case studies of successful collaborations in habitat restoration, species recovery, and co-management, participants will explore how visible leadership fosters stakeholder alignment, inclusive decision-making, and stronger conservation outcomes. Attendees will leave with actionable strategies to amplify under-heard perspectives, present findings accessibly, and embed visibility practices in cross-sector wildlife work-turning collaboration into lasting impact. 🆓 Learning Objectives By session end, participants will be able to: 1. Apply the VISIBLE™ Framework in bridging science-management communication and relationships. 2. Develop strategies to increase trust and inclusion across partners (community, Indigenous, government). 3. Embed visibility practices in project design to ensure research is usable, actionable, and equitable.
**Biosketch:** Sheena Yap Chan is a Wall Street Journal and Publishers Weekly bestselling author, keynote speaker, strategist, and award-winning podcaster recognized for her work in elevating women's leadership and self-confidence through the power of media and visibility. She is the founder of the Confidence Through Visibility movement and host of The Tao of Self-Confidence podcast, ranked in the top 0.5% globally with over 1.3 million downloads and 800+ interviews

featuring celebrities, CEOs, and cultural icons. Her debut book, The Tao of Self-Confidence, was named one of the top 20 best self-confidence books of all time by Book Authority, while her latest release, Bridging the Confidence Gap, is a bold call to reimagine leadership by making visibility and self-trust core competencies. Through her signature VISIBLE Framework, Sheena delivers transformational keynotes and corporate programs that help organizations bridge the confidence gap, retain diverse talent, and build cultures where women are seen, heard, and respected. Her work has been featured on NBC News, FOX, MindValley, and The Manila Times, and she has spoken for global brands including NASA, Live Nation, and UKG. Sheena believes that confidence is something we can build-and that visibility creates the impact we wish to see in the world.

## Population Declines

**15:15-15:30:** Remote sensing and passive acoustic monitoring predict declining occupancy over time by Yellow Rails in northern Alberta, Canada.

**Lionel Leston, University of Alberta Department of Biological Sciences**
**Coauthors:** Elly Knight, Erin Bayne

**Abstract:** Remotely sensed data can be used to monitor and develop species distribution models for wildlife that are difficult to detect and/or live in relatively inaccessible habitats; however, there are many options for remote sensing products available, including raw satellite indices and derived or classified products. The choice of product is critical for wetland species, which rely on environmental features that can be difficult to classify and that vary from year to year. We used acoustic recordings collected between 2013 - 2023 with autonomous recording units to model occupancy, colonization, and persistence of an obligate, declining wetland species, Yellow Rail (Coturnicops novaeboracensis), in boreal wetlands in northern Alberta, Canada. We compared how well an existing habitat suitability layer developed for this species predicted occupancy at 136 sites from 2015 - 2021, then how well different kinds of remotely sensed data types (raw vs. derived, yearly vs. static) predicted Yellow Rail occupancy at 115 sites from 2016 - 2021. Yellow Rail occupancy was adequately predicted by the habitat suitability layer (annual AUC = 0.63 - 0.79; however, a combination of yearly and static remote sensing indices and derived metrics performed better at predicting yearly Yellow Rail occupancy (annual AUC = 0.75 - 0.83). Higher-ranking sites for Yellow Rails had higher values for predictors of higher occupancy like wetness index and grass cover and lower values for predictors of lower occupancy like moisture index and vegetation seasonality. Thus, remote sensing may be used to predict long-term, changing habitat suitability and quality for species in wetlands.

**Biosketch:** I develop species distribution models for understanding how boreal birds respond to land cover, human footprint, revegetation/reclamation/regeneration of footprint, and climate change. Ultimately, I hope to apply these models to conservation and land use planning for wildlife.

**15:30-15:45:** Franklin's ground squirrel decline in Alberta

**Jessica Haines, MacEwan University**

**Coauthors:** Erin E. Arnason, Kristen Brothwell, Julia A. Hebert, Cora Kaplan, Tyberia Karpetz, David A. McFadyen, Zayden Medina Munoz, Saydi Pitcher, Tristin Tanton, Diana Tirlea, Daylen Towers, Stephanie Weizenbach, Joshua M. Miller

**Abstract:** Franklin's ground squirrels were once widespread in parkland and southern boreal forest in Alberta, but they are disappearing from large portions of their range and may be at risk of extirpation. Despite this decline, they are considered data deficient in the province and, thus, are not protected. They are difficult to detect because they inhabit bushy habitats with a dense understory. In this presentation, I will discuss the effectiveness of trail cameras, citizen science, and autonomous recording units (ARUs) for detecting this species. I will use our data collection to compare this species' historical range to its current range. I will conclude by discussing some of the possible causes of decline impacting this species.

**Biosketch:** Jessica Haines is an assistant professor at MacEwan University. She enjoys teaching about ecology, evolution, and conservation biology and is currently working on Franklin's ground squirrel conservation in Alberta. In her spare time, she likes to be outdoors exploring nature, usually accompanied by her Labrador retrievers.

## Session 2B – Castle Room

### Distribution

**14:00-14:15:** Understanding White-Tailed Deer Range Expansion in the Columbia Mountains

**Megan Petersohn (University of British Columbia)**

**Coauthors:** Rob Serrouya, Colin Bergeron, Stan Boutin, Adam Christian, and Tal Avgar

**Abstract:** British Columbia is at a crossroads. Climate change, industrial expansion, and landscape change are reshaping ecosystems. One of the most concerning developments is the rapid yet poorly understood expansion of sekʷtúps (white-tailed deer; hereafter WTD) into the Columbia Mountains, a region historically lacking WTD due to harsh winters and dense old-growth forests. These adaptable animals are now moving into high-value conservation areas, threatening community structure and endangering species like selcwéycen (Southern Mountain Caribou), which rely on intact, low-predator ecosystems. If uninhibited, WTD expansion could disrupt predator-prey dynamics, accelerate the spread of Chronic Wasting Disease, increase vehicle collisions, and suppress forest regeneration, thereby impacting native species and humans. We present results from a long-term collaborative project aimed at identifying ecological drivers of WTD distribution and abundance. Using over 200 trail cameras across ~7,000 km², spanning broad gradients of elevation, timber harvest, and predator reduction, we evaluated WTD occurrence across space and time. WTD detection rates were highest in structurally heterogeneous forests, positively associated with roads and human activity, and negatively associated with predator detection rates, especially those for wolverines and lynx. We also observed increased detection rates from 2019 to 2024, consistent with early indicators of expansion. This project highlights emerging ecological shifts in BC's mountainous interior and offers decision-makers new tools to anticipate and mitigate the impacts of WTD proliferation in a changing climate. Our findings serve as early indicators of future expansion hotspots, with important implications for caribou recovery, disease surveillance, and habitat management in BC's rapidly changing interior.

**Biosketch:** Megan Petersohn is an MSc Biology student at UBC Okanagan studying predator-prey dynamics and white-tailed deer ecology. She has a decade of experience researching carnivores and cervids across North America using diverse field methods and applied, partnership-driven conservation to inform wildlife management.

**14:15-14:30:** Anthropogenic disturbance and winter severity interact to drive white-tailed deer occurrence in Alberta

**Andrew Barnas, University of Victoria**
**Coauthors:** Marissa Dyck, Aidan Brushett, Megan Braun, Sarah Daman, Jason Fisher

**Abstract:** White-tailed deer populations have expanded into the Alberta boreal forest, having cascading effects on the large mammal community. The distribution of white-tailed deer is influenced by anthropogenic disturbance providing extra forage opportunities, but may be hindered by severe winters which reduce deer survival. However, little work has examined how these opposing mechanisms interact, and how different disturbance types and measures of winter severity influence deer occurrence. We used four years of Oil Sands Monitoring program camera data (n = 430, 2021-2024) to analyze white-tailed deer occurrence in relation to linear and polygonal disturbances, long-term average snow accumulation and annual snow anomalies, while accounting for natural landcover variables, predator activity, and site latitude. Specifically, we examine 1) identifying the best predictors of white-tailed deer occurrence between linear and polygonal disturbances, 2) how linear and polygonal disturbances interact with long-term and short-term measures of winter snow, and 3) how these factors influence white-tailed deer demographic classes differently. Linear feature models were the most competitive for all demographic classes (males, lone females, and females with young), but relative support varied among classes. For all three demographic classes, we found evidence of strong interactions between disturbance types and winter snow conditions, although the specific disturbances and snow variables varied among groups. Each demographic class showed evidence of preference for higher disturbance areas in milder snow conditions. Concordantly, we suggest future climate projections of milder winters, combined with continued landscape alteration, will act synergistically to promote white-tailed deer persistence and expansion in Alberta's boreal forest.

**Biosketch:** Dr. Andrew Barnas is a Senior Research Associate in the Applied Conservation Macro Ecology Laboratory at the University of Victoria. His research focuses on impacts of oil sands development on the large mammal community in Alberta's boreal forest.

## Human-Wildlife Interactions

**14:30-14:45:** Fireguards and vegetation management support human wildlife coexistence in the Bow Valley around Canmore, Alberta

**John Paczkowski, Alberta Forestry and Parks**
**Coauthors:** Sean Konkolics

**Abstract:** Wildfire risk and the subsequent mitigation efforts present a valuable opportunity to enhance wildlife habitat in the Bow Valley around Canmore, Alberta. Increasing forest stand age in the region has resulted in decreasing wildlife habitat quality, especially for bears and ungulates.

Continued human population growth and diminishing wildlife habitat availability have contributed to increasing human wildlife conflict within the Town of Canmore. A series of landscape-level fireguards are currently being constructed around the perimeter of Canmore using a combination of mechanical harvesting and hand thinning of forested areas. Beyond their role in fuel reduction, these fireguards provide opportunities to open up the forest canopy, increase forage availability, and create wildlife habitat away from human development. In this presentation we discuss some of the key considerations for planning vegetation management projects to balance wildfire mitigation with improved conditions for wildlife and how this will have long term implication for human wildlife conflicts in the area. We explore how thoughtful design of fireguards and fuel treatments can support long-term habitat improvement and reduce human wildlife conflict in this highly used mountain landscape.

**Biosketch:** I am currently the Human Wildlife Coexistence Team Lead with Alberta Forestry and Parks, based out of Canmore. I am also a long-time member of the ACTWS and look forward to meeting friends, both old and new, at the conference.

**14:45-15:00:** Sex- and age- segregation shapes the responses of mountain sheep to selective hunting

**Julien Gullo, University of Alberta**

**Coauthors:** Bill Jex, Mark Boyce, Colleen Cassady St Clair

**Abstract:** Prey species sometimes respond to human hunting by altering movement and habitat use, which may vary among sex and age classes in relation to the degree of predation risk animals perceive. Stone's sheep (Ovis dalli stonei) are likely to exhibit varied responses to human hunters because only older males are targeted in hunts. We studied potential differences in responses within the first month of hunting season by three age and sex classes in a hunted population in the Spatsizi Plateau Wilderness Provincial Park, BC, by measuring movement rates and habitat selection of GPS-collared animals divided among ewe-like sheep (ewes and rams ≤2 years old), immature rams (3-6 years old), and mature rams (7-10 years old) during month-long periods before hunting began (July) and during the first month of the hunting season (August) over two years (2024-2025). We used spatial utilization distributions and first passage time to assess movement, and Resource Selection Functions to measure changes in habitat selection. During the hunting period in both years, mature rams exhibited smaller home ranges, reduced transient movements, and increased selection for rugged terrain with low vegetation productivity. Immature rams showed similar but weaker responses during the hunting season, while ewe-like sheep exhibited small changes in movement and no observed change in habitat selection. These changes in movement and habitat selection, particularly for mature rams, are consistent with theory that predicts reduced movement to prey that encounter slow-moving but highly lethal predators. If these responses are sustained or increased over years, they may reduce encounter rates between sheep and hunters, and the body condition of rams.

**Biosketch:** Julien Gullo is a recent graduate of the University of Alberta's Department of Biological Sciences master's program. He has a diverse background in biological monitoring and research and is looking for new opportunities to apply his skills and energy. You can reach him at gullo@ualberta.ca.

15:00-15:15: Spatiotemporal influence of dominant grizzly bears on subordinate bears in Kananaskis Country, Alberta: evidence for the human shield hypothesis across intra- and interspecific interactions

Kayla Doucette, University of Alberta
Coauthors: John Paczkowski, Colleen Cassady St. Clair

Abstract: The human shield hypothesis suggests that vulnerable species and individuals use human presence as refuge from predators, but this behavioural tactic may oppose the efficacy of management actions that are intended to make animals fearful of people, including aversive conditioning. Aversive conditioning is a management tool that uses repeated negative stimuli to teach animals to associate humans with stressful experiences and thus avoid human-use areas. We hypothesized that subordinate bears use human presence as a shield from dominant bears, which include larger bears for grizzly bears (Ursus arctos horribilis) and all grizzly bears for black bears (U. americanus), and predicted reduced responses to aversive conditioning for subordinate individuals when and where they were in spatial and temporal proximity to dominant individuals in Kananaskis Country, Alberta. We analyzed time-stamped GPS data for black and grizzly bears collected via observation by Kananaskis wildlife technicians and GPS collars. We defined a series of space-time cubes where grizzly bears occurred within 500-1000 meters and 30-120 minutes of a black bear location. Black bear reactivity to aversive conditioning efforts were scored as resistant, low, or high. Black bears were up to 18% less reactive to aversive stimuli when a grizzly bear was nearby relative to when grizzly bears were absent. These results suggest that black bears are more fearful of grizzly bears than humans exerting aversive stimuli and reveal the need for context-dependent uses of aversive conditioning that maintains the security of individuals from conspecifics while minimizing potential conflict with people.

Biosketch: Kayla is a graduate student at the University of Alberta in the St. Clair lab. She studies grizzly bear behaviour and human-wildlife coexistence in Kananaskis Country.

15:15-15:30: Reconnecting the Rockies: Alberta- Highway Mitigation for Wildlife in the Crowsnest Pass

Maria Didkowsky, Government of Alberta
Coauthors: Clayton Lamb, Erin Miller, Peter White, Tracy Lee

Abstract: Wildlife-vehicle collisions (WVC) along Alberta's Highway 3 pose persistent risks to motorists and remain a major source of mortality for many large mammals such as elk, deer, moose, bighorn sheep, and carnivores. Reconnecting the Rockies: Alberta (RTR:AB), a multi-agency science team, collects and analyses wildlife information that supports Alberta Transportation and Economic Corridors (TEC) in designing and adaptively managing an effective wildlife mitigation system. With an unprecedented commitment to build multiple wildlife crossing structures along highway 3, RTR: AB has developed a monitoring program using GPS collars and remote wildlife cameras to collect before, during, and post construction wildlife data to inform wildlife needs and barrier effects of the highway to ensure the best mitigation system possible. Historic GPS telemetry data were integrated with newly deployed bighorn sheep (2022-2026), elk, mule deer, and grizzly bear collars (2024-2025 others), roadkill records (2017-2024), and step-selection analyses to identify movement pathways, evaluate the highway's barrier effect, and

assess mitigation zones. While species differ in their interactions with the highway and within species, their behaviour differs between areas along the highway, purpose-built wildlife structures, retrofitted bridges, and exclusion fencing align well with empirical wildlife movement patterns and offer the opportunity to substantially reduce WVCs while restoring ecological connectivity across this nationally important corridor.

**Biosketch:** Maria is a Senior Wildlife Biologist for the Government of Alberta and a member of Reconnecting the Rockies: Alberta. Maria leads a team of incredible wildlife biologists that work across Southwest Alberta completing population assessments, wildlife referrals, disease management, habitat enhancement planning, and ecological connectivity research.

**15:30-15:35:** Reviewing Four Decades of Bear-Human Interactions in Kananaskis Country, Alberta

**Sean Konkolics, Alberta Forestry and Parks**

**Coauthors:** John Paczkowski

**Abstract:** Grizzly bears (Ursus arctos) and black bears (Ursus americanus) in Alberta's Kananaskis Region face increasing pressure from expanding human recreation, yet comprehensive interaction reporting remains fragmented across multiple jurisdictions. Grizzly bears, listed as Threatened in Alberta, and black bears are subject to intensive management due to public safety considerations and the potential for human-caused population impacts. Here, we have begun compiling and standardizing bear-human interaction records from Alberta Fish and Wildlife, Kananaskis Emergency Services, and Alberta Conservation Officer databases spanning 1983-2025. Data harmonization required substantial manual processing and resulted in a consolidated dataset of 10,148 reported interactions. Interaction reporting increased approximately 10-fold over the past decade, predominantly driven by low-severity interactions and sightings. Preliminary results suggest medium and high-severity incidents are not significantly increasing over time. Bear management-removals remained temporally consistent except during isolated peak years, with black bears comprising the majority of removals. These interim findings suggest that increased reporting reflects improved detection and reporting mechanisms rather than a rise in negative interactions. This work demonstrates the value of integrated reporting systems and supports the need for continued collaboration to define targeted management approaches that maintain public safety while limiting unnecessary bear mortality.

**Biosketch:** Dedicated wildlife biologist focused on promoting human-wildlife coexistence through innovative research, community collaboration, and practical conservation initiatives. Interested in population dynamics and movements of large mammals in the Canadian Rockies.

**15:35-15:40:** Moving towards full implementation of Target 4: exploring the role of zoos in urban species conservation in support of the Global Biodiversity Framework

**Catherine Shier, Edmonton Valley Zoo, City of Edmonton**

**Abstract:** Since the adoption of the Kunming-Montreal Global Biodiversity Framework (GBF) in December 2022, the Zoo community has been abuzz with the inclusion of the role of ex situ conservation - finally bringing it into the spotlight on par with field based conservation work. More rarely quoted though is the equally important continuation of Target 4 that states the goal of "effectively manag[ing] human-wildlife interactions to minimize human-wildlife conflict for

coexistence." With two-thirds of the human global population projected to live in cities by 2050, many of the most personally impactful human-wildlife interactions will occur close to home for the majority of us. This is particularly true here in Alberta which already has one of the most urbanized populations in the world at 81%. This high proportion makes it imperative that Alberta based conservation organizations invest in urban biodiversity conservation to provide all citizens, not just the 19% living in rural areas, with the opportunity to enjoy and experience native biodiversity close to home. To that end, Canada's only Zoo located within the Central Parkland - arguably Alberta's most threatened natural subregion - is working to incorporate urban wildlife conservation initiatives into its Conservation Program. Partnering with other Zoos, academic partners, and the naturalist community, the Edmonton Valley Zoo is continuing to look for partners who also want to protect the Central Parkland's native biodiversity and work together to achieve full implementation of GBF Target 4.
**Biosketch:** Catherine Shier (P. Biol.) works to conserve the Central Parkland's wildlife and wild places through her various roles with the City of Edmonton. Catherine has a M.Sc. in Environmental Biology and Ecology (UA) and between 2012-2022 led the City's ecological mapping, wildlife passage and biodiversity monitoring work as a Principal Ecological Planner. In August 2022 Catherine became the City's first Conservation Coordinator where she is working to expand upon local and international wildlife conservation work being led by the Edmonton Valley Zoo.

**15:40-15:45:** Spatial and Temporal Effects of Aversive Conditioning on Grizzly Bears in Human-dominated Landscapes
**Leif Hvenegaard, University of Alberta**
**Coauthors:** Peter Thompson, John Paczkowski, Colleen Cassady St. Clair
**Abstract:** Human-wildlife conflict is increasing in protected areas, particularly where nearby urbanization leads to high levels of human visitation. Conflicts with carnivores and risks to human safety are especially challenging to manage for grizzly bears (Ursus arctos horribilis) in Kananaskis Country, where both human visitation and bear density are high. Conflict is avoided via an innovative aversive conditioning (AC) program in which technicians use negative stimuli (e.g., sounds, projectiles, pursuits) to teach bears to be wary of people in designated areas with high levels of human use. AC clearly causes bears to immediately retreat from technicians, but there has been no study of its effects on longer term space use by bears. Our research measures spatial and temporal responses of grizzly bears to AC over the past 20 years in Kananaskis Country. We used 2 hour fix rates from GPS collars and AC event records to determine (a) whether bears are less likely to occur in human-use areas following the use of aversive conditioning and (b) whether they occur farther from centroids of human use after the use of conditioning. Preliminary results suggest that AC does not influence patterns of space use on the scale of a few hours. Subsequent work will determine how movement and habitat selection changes over longer time periods. This information will allow wildlife managers in Kananaskis Country and other jurisdictions to refine AC protocols to limit human-bear conflict and promote human-bear coexistence.
**Biosketch:** Leif is a master's student studying grizzly bear behaviour and movement in relation to human-wildlife conflict in the St. Clair lab at the University of Alberta. Outside of school, Leif has worked as a wildlife technician and adventure tourism guide leading hiking and whitewater canoeing and rafting trips.

**15:45-15:50:** Beavers in Stormwater Ponds: An Adaptive Management Approach
**Robert Mitchell, Associated Environmental Consultants**
**Coauthors:** Sarina Loots, Stephanie Findlay

**Abstract:** North American beavers (Castor canadensis) are prevalent throughout the City of Calgary. They occasionally make their homes in City stormwater infrastructure, such as stormwater ponds. These ponds need regular maintenance (sediment removal) to maintain capacity; this construction can result in disturbing active beaver lodges (conflict scenario). To address this issue, we collaborated with a variety of stakeholders and interest groups to develop adaptive management options for beavers lodging in stormwater ponds. One option that was selected for a trial in 2025 is as follows: rapidly dewater the pond in mid- to late summer, encouraging beavers to self-relocate with enough time to establish a new lodge and winter cache nearby. A secondary aim was to complete construction by early fall to give beavers the option to return to the pond. In 2025 we implemented this method ahead of maintenance in a pond with an active lodge. Camera traps, citizen science, and field surveys, were used to assess beaver activity before, during, and after pond maintenance. Beavers began building a new lodge at a nearby pond at the beginning of construction, and our monitoring documented interesting behaviours throughout construction. Due to unusually low levels of precipitation in late summer and early fall, the stormwater pond levels restore in the timeframe expected, but beavers appeared to be well established at the new pond before winter. Lessons learned from this case-study will be applied to future management for beavers in stormwater infrastructure.
**Biosketch:** Robert Mitchell, M.Sc., BIT, is wildlife biologist-in-training at Associated with a background in urban wildlife behaviour.

## Session 2C – Summit Room

### Wildlife Health & Disease

**14:00-14:15**: Parasitic Infection Leads to Increased Predator Induced Mortality in a Large Herbivore Population

**Connor Meyer (University of Montana) (Topic)**
**Coauthors:** Evelyn Merrill, Angela Luis, Brenna Cassidy, Jonathan Farr, Jesse Whittington, Mark Hebblewhite

**Abstract:** The complex dynamics between predators, parasites, and parasite hosts are a crucial part to understanding ecological systems. Some parasites indirectly reduce animal survival through altering host behavior. This is common in trophically transmitted parasites that require an intermediate host to be consumed by their definitive host (e.g., predation). Predators may be able to reduce parasitism within the host population directly through selectively preying on disease individuals. In this study we explored the complex dynamics between predators, including wolves (Canis lupus), cougars (Puma concolor) and grizzly bears (Ursus arctos horribilis), their prey (i.e., elk [Cervus canadensis]) and the protozoan parasite Toxoplasma gondii, which is capable of altering host behavior. We found that elk infected with T. gondii exhibited risky behavior including increased distance to nearest neighbors and decreased group size. We used proportional hazard models, while accounting for age and migratory tactic, to estimate that infected elk had a mortality hazard rate that was over 6.5 (95% BCI 2.49 – 16.6) times greater than uninfected elk. We estimated that infected elk had a 12% lower average annual survival probability (83%, 95% BCI: 69-97%) than uninfected elk (95%, 95% BCI 87-100%). We used cumulative incidence functions to estimate that T. gondii positive individuals were significantly more likely than uninfected elk to be

killed by predators than other causes. Our research represents the first study of its kind to quantify the reduction in animal survival caused by behavioral manipulation of T. gondii and represents an important empirical example of predators keeping the herds healthy.
**Biosketch:** I am a PhD candidate interested in the interacting aspects of animal ecology, including predator-prey dynamics, disease and parasitism, and animal behavior. I want to understand the role of individual decision making in affecting population demography.

**14:15-14:30:** Probiotic intervention for mitigating white-nose syndrome in Alberta bat populations
**Lisa Wilkinson, Alberta Environment and Protected Areas**
**Coauthors:** Cory Olson
**Abstract:** White-nose syndrome, a devastating fungal disease that has killed millions of bats throughout North America, was detected in Alberta in 2024. The disease is caused by a fungus that can grow in caves where bats hibernate. Recent research has found that some naturally occurring bacteria (i.e. probiotic) can inhibit the causative fungus. In 2025, Alberta began applying a probiotic to bat houses at two study sites in southeastern Alberta. The local bat population has declined by at least 80% at one of the study sites. Ideally, the beneficial bacteria will get incorporated into the bat wing microbiome and reduce the risk of fungal infection when bats return to hibernation sites. Updates on bat populations and fungal spread will be provided, and plans for 2026 will be discussed, including population monitoring, disease surveillance, and expansion of the probiotic treatment.
**Biosketch:** I am a Senior Species at Risk Biologist and Provincial Bat Specialist. I oversee management of several species at risk and focus most of my time on monitoring and conserving Alberta's bat populations.

**14:30-14:45:** Meningeal worm, Parelaphostrongylus tenuis, a new invasive threat to free-ranging ungulates in Alberta, and beyond.
**Margo Pybus, Alberta Fish and Wildlife Stewardship**
**Coauthors:** Owen Slater, Dayna Goldsmith, Steven Andriashek and Troy Hegel, Richard Gerhold, Andreanne Morency
**Abstract:** Alberta first raised concerns about P. tenuis in 1987 with a ban on importation of live cervids that could potentially transfer this nematode into the province. We have been on the lookout ever since. Fast-forward to June 2024 when a young caribou with neurologic clinical signs was reported in the vicinity of Cold Lake, Alberta. Over the next few months four additional caribou and one moose from the same general area were reported with similar clinical signs or were found dead. Histopathology revealed suspect migratory tracts within the brains of the five caribou and nematode larvae within the brain of the moose. PCR and sequencing confirmed the diagnosis of P. tenuis in all six cases. Meningeal worm coevolved in white-tailed deer and causes few, if any, problems. However, in other cervids as well as domestic sheep, goats, llamas, and alpacas, infection often is fatal. Risk assessment conducted in 1996 indicated that once present, meningeal worm would likely sustain a population and spread westward through the boreal forest fringe, do an end-run around the prairies, and eventually move into the foothills and beyond. Over coming decades, this parasite is expected to bring relatively slow incremental ecological change at a

landscape level. Fish and Wildlife Stewardship, in conjunction with the Canadian Wildlife Health Cooperative and Alberta Agriculture & Irrigation, has stepped up surveillance and public awareness to determine the extent of current P. tenuis occurrence in northeast Alberta as the basis for evaluating possible management options in the province.
Biosketch: As Provincial Wildlife Disease Specialist (Fish and Wildlife) and Adjunct Professor (Univ of Alberta), Margo has province-wide responsibility to plan, organize, deliver, and evaluate wildlife disease-related resource management programs, and to inform municipal, provincial, and national policy initiatives associated with wildlife parasites and diseases and their role in the management of wild populations in Alberta

14:45-15:00: Histological changes in liver and kidneys of small Indian mongoose (Urva auropunctatus) chronically exposed to environmental chromium in Wild
Shaista Andleeb, PMAS-Arid Agriculture University, Pakistan
Coauthors: Tariq Mahmood
Abstract: Chromium is extensively used in industrial processes and is among the most prevalent heavy metal pollutants in the environment. Effluents from the tannery industry release chromium that poses serious risks to surrounding ecosystems and living organisms. Despite its widespread occurrence, studies on chromium toxicity in wild animals remain limited. Laboratory-based experiments provide partial insights; however, the true histopathological impacts of environmental contaminants can only be assessed through investigations of species naturally inhabiting polluted ecosystems. Therefore, this study aimed to evaluate the histological effects of chronic environmental chromium exposure on vital organs-liver and kidney-of the small Indian mongoose (Urva auropunctatus) residing near a leather tanning industrial area. Live mongooses (N = 36) were captured monthly over 12 months from the vicinity of a tannery industry. Liver and kidney tissues were collected for chromium accumulation analysis and histological examination. Morphometric parameters and organosomatic indices were also assessed. The exposed animals exhibited significantly elevated chromium levels in both liver and kidney tissues, accompanied by reduced body weight and decreased liver and kidney weights. Histological examination showed marked pathological alterations. Liver tissues exhibited hepatocyte vacuolization and shrinkage, nuclear pyknosis, and enlarged sinusoidal spaces. Kidney sections showed hypertrophy of renal tubular epithelial cells, vacuolization, reduced tubular lumen, inter-renal cell atrophy, glomerular contraction within Bowman's capsules, and necrosis of hematopoietic tissues. These findings indicate that chronic chromium exposure disrupts liver and kidney histopathology, potentially impairing excretion, metabolic regulation, and stress homeostasis, thereby posing a long-term threat to animal health and population sustainability.
Biosketch: Dr. Shaista Andleeb holds a PhD in Environmental Toxicology and Wildlife Ecology from PMAS-Arid Agriculture University, Pakistan. Her research focuses on ecotoxicants, particularly chromium and microplastics, assessing their sub-lethal impacts on aquatic and terrestrial ecosystems using robust experimental design and data analysis in R.

15:00-15:15: Structured Decision-Making for Chronic Wasting Disease Management
Julianne Herrick, University of Alberta

**Coauthors:** Dr. Evelyn Merrill, Dr. Wiktor Adamowicz, and Dr. Owain Barton, Dr. Anne Hubbs, Dr. Margo Pybus, Dr. Angela Fuller
**Abstract:** Traditional decision-making by government agencies frequently overlooks the perspectives of communities and stakeholders, despite evidence that inclusive processes foster trust and lead to more acceptable solutions. We applied a structured decision making (SDM) process to support chronic wasting disease (CWD) management for free-ranging mule deer in Alberta and assessed how participation in the SDM process influenced non-government stakeholders' views on CWD management. We conducted 4 SDM workshops and follow-up virtual meetings with representatives from hunting, conservation, municipal, cervid industry, and government groups. Changes to stakeholder's risk perception and management strategy support were evaluated using pre- and post-workshop surveys. Stakeholders generally agreed on objectives that were focused on deer population health, disease spillover to other cervids, importance of caribou herd protection, and hunter satisfaction, but differed in the weight they assigned to each. We evaluated outcomes of different harvest scenarios using an integrated population model incorporating CWD transmission and GIS-based risk assessment on caribou herd ranges to assess the consequences of management actions. We report on key changes in the participants' attitudes about CWD management from pre- to post-SDM participation, and how trade-offs among proposed actions and uncertainty in consequences led to a limited set of well-supported management recommendations. We conclude by highlighting the value of inclusive, transparent processes for building support and improving decisions in CWD management.
**Biosketch:** Julie is pursuing her master's degree at the University of Alberta in the Biological Sciences department in collaboration with the Resource Economics and Environmental Sociology department. She received her bachelor's degree from Montana State University and has extensive experience in the field researching disease, behavior, and habitat selection. Her research goals are focused on wildlife disease management, public engagement, and scientific communication.

## Population Ecology

**15:15-15:30:** Population Dynamics of Bighorn Sheep on the Luscar and Gregg River Mines
**Beth MacCallum, Bighorn Wildlife Technologies Ltd.**
**Abstract:** Reclamation of the Luscar and Gregg River coal mines in west-central Alberta has focused primarily on wildlife habitat. These mines are high elevation mines located in the subalpine zone and have been voluntarily colonized by endemic wildlife including bighorn sheep and their predators. Annual ground surveys conducted since the mid 1980s have tracked the response of wildlife to on-going reclamation in real time and facilitates reclamation planning for wildlife. This paper plots the population change of bighorn sheep over time and discusses factors affecting population dynamics including newly available habitat, interspecies competition, predation, capture for translocation, and weather.
**Biosketch:** Beth MacCallum is a wildlife biologist specializing in wildlife inventory and research with respect to environmental impact assessment, and reclamation planning for wildlife in west-central

Alberta. She has a BSc from Queen's University and a Master of Environmental Design from the University of Calgary.

15:30-15:45: Managing moose to conserve caribou: Estimating the influence of timber harvest on moose populations within caribou range

Craig DeMars, Wildlife Science Centre, Biodiversity Pathways
Coauthors: Melanie Dickie, Tom Habib, Marcus Becker, Stan Boutin, Rob Serrouya

Abstract: Population declines of woodland caribou are widely attributed to disturbance-mediated apparent competition (DMAC), a multi-trophic process whereby disturbances increase forage availability for moose and deer, causing their populations to increase as well as those of their generalist predators, which incidentally predate caribou at unsustainable rates. The strength of DMAC is dictated by the amount of forage produced post-disturbance and subsequent magnitude of increase in ungulate and predator populations, yet such relationships are rarely quantified. Here, we developed a novel approach to estimate the effects of timber harvest on moose populations using remotely-sensed data and publicly available estimates of moose density. Using Enhanced Vegetation Index (EVI) data to index forage availability, we modeled the effects of EVI and land cover on moose density across 51 wildlife management units in northern Alberta from 2002-2024. A three-variable model including EVI explained 86% of the variation in moose density. We applied this model to three boreal caribou ranges to estimate the number of additional moose supported by timber harvest and to infer consequent increases in wolf density. Cutblocks supported moose densities 1.6-2.3 times higher than pre-harvest levels, with the magnitude of increase in moose abundance varying by harvest extent, productivity, and time since harvest. Despite measurable increases in moose abundance, predicted increases in wolf density attributable to cutblocks were modest (<1 wolf/1000 km²). Our results demonstrate that remotely-sensed forage indices can effectively quantify disturbance-driven changes in ungulate populations and provide a scalable framework for evaluating the strength of DMAC across caribou ranges.

Biosketch: For the past decade, Craig has been a research ecologist with the Alberta Biodiversity Monitoring Institute and Biodiversity Pathways. His research has focused on all aspects of caribou ecology, including habitat selection, predator-prey dynamics, and developing guidelines to effectively monitor habitat restoration.

# APPENDIX C: SUNDAY AM

## Session 3A – Assiniboine Room

### Conservation

**9:00-9:15:** Are we out of the woods yet? Integrating Mechanistic Indicators into Conservation Monitoring

**Melanie Dickie (Wildlife Science Centre, Biodiversity Pathways/ABMI)**

**Coauthors:** Craig DeMars, Sarah Kristoff, Robert Serrouya

**Abstract**: Effective conservation of species at risk depends on identifying the mechanisms that link anthropogenic stressors to demographic responses, and targeting these pathways through management and monitoring. For woodland caribou (Rangifer tarandus caribou), a Threatened species in Canada, population declines are driven by the interaction of habitat alteration and climate change, which together elevate predation through changes in predator and prey behavior and abundances. Addressing these declines therefore requires habitat indicators that are explicitly linked to the pathways connecting disturbance to predation, rather than relying on coarse measures of habitat loss alone. Drawing on long-term research and monitoring, we synthesize evidence describing how linear features, forest harvesting, and other disturbances alter vegetation structure, predator–prey dynamics, and ultimately caribou survival and recruitment. We use this synthesis to inform two applied objectives. First, we developed a caribou habitat tracking program that measures net habitat change by integrating disturbance inventories with remote sensing data and indicators that capture habitat recovery and functional change through time. Second, we use these same indicators to guide the evaluation of habitat restoration effectiveness. By linking management actions to the mechanisms of decline, and embedding those mechanisms in our monitoring systems, we can improve our ability to evaluate conservation outcomes and adapt strategies over time.

**Biosketch:** Dr. Melanie Dickie works closely with multi-stakeholder groups to design and implement collaborative landscape-level mensurative experiments. Melanie is interested in understanding the mechanisms in which human habitat-alteration and climate interact to influence the predator and prey community related to caribou declines in western Canada.

### Nutrition

**9:15-9:30:** Diet overlap and potential for competition between reintroduced bison and elk and bighorn sheep

**Jonathan Farr, University of Montana**

**Coauthors:** Bethan Littleford-Colquhoun, Dillon Watt, Birch Gano, Anna Jackson, Tyler Kartzinel, Mark Hebblewhite

**Abstract:** The recovery or reintroduction of ecologically important species seeks to restore vacant ecological niches, but overlap with existing species may lead to competition for limited resources. Quantifying dietary niches of restored populations is therefore critical for predicting competition and informing management. In 2017, plains bison were reintroduced to the remote backcountry of Banff National Park, where they now co-occur with several ecologically and culturally important large

herbivores. Using dietary DNA metabarcoding, we compared bison diets with those of bighorn sheep, elk, and deer, and assessed the roles of morphology and seasonality in diet partitioning. Functional feeding mode explained dietary differences better than body size. Seasonality strongly influenced diet overlap, with the greatest convergence occurring in spring, when species fed on newly emergent forbs and grasses, and in winter, when forage was most limited. Overall, bison dietary niches were distinct yet included many shared food items, suggesting that competition, particularly in winter, may arise in the future. These results highlight the importance of seasonality in shaping dietary niches and provide insight into coexistence dynamics among reassembling large herbivore communities.

**Biosketch:** Jonathan Farr is a Canadian PhD student studying ungulate coexistence dynamics in the Canadian Rockies. His research aims to unveil how bison habitat selection and diets differ from those of other ungulates, and how these differences relate to population dynamics of different species.

**9:30-9:45:** Protein powered bears: diet, environmental, and density effects on growth and size of British Columbia grizzly bears

**Kelly Forrester, University of Alberta**

**Coauthors:** Jonathan Van Elslander, Garth Mowat, Andrew Derocher

**Abstract:** Individual growth, shaped by environmental conditions and resources, has long-term consequences for survival and reproductive success. We evaluated how diet, environmental conditions, and density influence somatic growth using a 48-year dataset of ~18,000 human-killed grizzly bear (Ursus arctos) skull measurements across British Columbia. Skull length and width, both proxies for body size, were modelled using a von Bertalanffy growth function within non-linear Bayesian frameworks. Dietary meat proportions were assigned using stable isotope analysis for a subset of individuals (n = 1,574) and predictive diet maps for the remaining (n = 16,382), both producing comparable results. Dietary meat had the strongest positive effect on growth, followed by season length. Surprisingly, bears born in more recent years, in periods of higher density, exhibited slower growth rates but achieved larger asymptotic sizes. Under maximal growth conditions (~90% meat-based diets, long growing seasons, and recent birth years), males reached 95% of asymptotic skull length (t95) at similar ages but were 7.2 cm (21.7%) longer than those under limiting conditions (~0% meat-based diets, short growing seasons, and earlier birth years). Females reached t95 one year earlier and were 7.7 cm (25.9%) longer. For skull width, males reached t95 at similar ages and were 3.6 cm (17.3%) wider, while females reached t95 1.4 years earlier and were 3.9 cm (22.9%) wider. Terrestrial meat had a stronger influence on skull growth than salmon or kokanee. Our results demonstrate how dietary, environmental, and density-related processes shape somatic growth, with implications for habitat conservation targeting key food resources.

**Biosketch:** Kelly is a second-year PhD student at the University of Alberta, researching long-term shifts in grizzly bear diet and habitat use, as well as large mammal life-history and population ecology. Through forestry, an MSc, and internships, he has extensive field experience in wildlife monitoring across Canada, Australia, and Africa.

**9:45-9:50:** Assessing the Dietary Composition of Franklin's Ground Squirrels Using Non-invasive Metabarcoding

**Daylen Towers, MacEwan University**
**Coauthors:** Daylen Towers, Jessica A. Haines, Julia A. Hebert, Tristin Tanton, David A. McFadyen, Benjamin C. T. Bourrie, Diana Tirlea, Stephanie Weizenbach, Joshua M. Miller

**Abstract:** Franklin's ground squirrels (Poliocitellus franklinii; FGS) primarily inhabit parkland and southern boreal habitats that are shaped by habitat fragmentation and land-use change. Naturalists in the province have noted that this species' range seems to be declining, and in response we are working to better understand the habitat needs of FGS to help inform targeted conservation efforts in the future. As part of this project, we used metabarcoding to identify the plant-based diet of FGS using non-invasive fecal samples. Fecal samples were collected from 33 free-ranging individuals at Wabamun Lake Provincial Park in 2024. Plant DNA was amplified using four barcoding regions, sequenced on the Oxford Nanopore MinION platform, and taxonomic assignments were generated using custom bioinformatic workflows incorporating regionally curated reference databases. Dietary composition was compared across barcode markers and throughout the season to evaluate marker performance and to assess temporal patterns in plant consumption. Preliminary results indicate that FGS consume a diverse range of grasses, forbs and woody plants. Multilocus metabarcoding improved detection of plant taxa relative to any single-marker approach, highlighting the importance of marker choice when interpreting metabarcoding data. These findings provide baseline information on plant resource use by FGS and establish a methodological framework for integrating non-invasive dietary data into future assessments of habitat quality, landscape change, and wildlife management decision-making.

**Biosketch:** Daylen Towers is an undergraduate honours student in wildlife biology with interests in small mammal ecology and molecular ecology. His research applies non-invasive DNA metabarcoding to investigate the plant-based diet of Franklin's ground squirrels, integrating field sampling and bioinformatic analysis to address ecological questions relevant to wildlife management.

## Session 3B – Castle Room

### Anthropogenic Impacts

**9:00-9:15:** Cumulative effects of habitat quality and early reproductive investment on fitness in declining tree swallows (Tachycineta bicolor) in Central Alberta

**Ivana Schoepf (University of Alberta)**
**Coauthors:** Jinxuan Cui

**Abstract:** In the Anthropocene, increasingly larger areas of natural habitats are converted to agriculture. In North America, avian aerial insectivores are among the most rapidly declining bird guilds occupying these habitats. The reasons for their decline are not fully understood, but deteriorating habitat quality on their breeding grounds is often cited as a main contributor of this continued decrease. Here, we present the result of a study we conducted on the cumulative effects of habitat quality and early maternal investment on fitness in tree swallows (Tachycineta bicolor) breeding in Central Alberta. To understand whether the link between early maternal investment and habitat quality would predict fitness, we collected data on incubation behaviour and fledging

success of tree swallows nesting at two sites differing in their habitat quality: one site located in a natural area and a second site located in an agricultural area. Our results show that tree swallows fledged fewer nestlings when mums spent longer away from their nests, but only when nesting in agricultural habitats (natural: $z = 1.20$, $p = 0.23$; agricultural: $z = -2.55$, $p = 0.01$), supporting the idea that habitat quality and early reproductive investment significantly interact to impact fitness in tree swallows, leading to potential broader long-term cumulative effects impacting this population.
**Biosketch:** I am an assistant professor of biology at the University of Alberta Augustana Campus, where I research how organisms respond to challenges. My work focuses on host-parasite interactions, the wildlife trade, and extreme weather events (esp. wildfires). I am a field biologist and work with wild birds and mammals.

**9:15-9:30:** 20 Years in the Boreal: A systematic literature review of boreal mammal ecology in response to industrialization

**Sarah E. Daman, University of Victoria**
**Coauthors:** Andrew F. Barnas, Jason T. Fisher

**Abstract:** Conservation relies on relevant and reliable research questions, methods, and outcomes to understand how change may be influencing species success on the landscape. In regions such as the Boreal forest of North America where industrialization and the human footprint are changing the landscape at unprecedented rates, a comprehensive understanding of current knowledge is key to determining paths forward in research and in conservation. Through a systematic literature review of 157 peer-reviewed papers from 2005-2025, we addressed the question: How are mammals responding to the industrialization (i.e., logging and oil industries) throughout the boreal forest in North America? We identified an increased understanding of the complexity in boreal mammal ecology with ecological responses not only dependent on the disturbance (i.e., oil or logging and specific feature type) but also species specific. Over 30 species were included in this review with a large focus on large charismatic species (i.e., moose, caribou, and wolves), but over 20 additional species were lacking from the literature entirely including bison, many bat species, and smaller mammals such as porcupines. Conservation of a single species is most effective when the complexity of the complete ecological network is understood. Currently, there remain large gaps in our understanding and a need for more research on the less charismatic midrange components of an ecosystem such as red foxes, beavers, and bats.
**Biosketch:** Sarah is a Ph.D. student in the ACME lab studying how human disturbance shapes boreal predator dynamics in the Athabasca Oil Sands Region of northern Alberta. She is originally from Idaho, United States where she graduated from Seattle Pacific University with her BS in Ecology and from the University of North Dakota with her MS in Biology. Her research for her M.Sc. focused on population genetics and epidemiology of deer across the Northern Great Plains within the USA. Sarah has experience working with game birds, ungulates, and predators throughout the United States and enjoys using molecular methods to assess population level questions.

**9:30-9:45:** Environmental noise as a key driver of biodiversity patterns in the Central Parkland's largest urban center

**Martin Hinojosa, University of Alberta**
**Coauthors:** Alex MacPhail, Catherine Shier, Erin Bayne

**Abstract:** Environmental noise is a ubiquitous component of urban environments, yet it remains underrepresented in assessments of urban habitat quality and biodiversity. Although noise is known to affect wildlife behavior, communication, and habitat use, city-scale evaluations that link fine-resolution noise exposure to ecological patterns remain limited. We present a city-wide assessment of environmental noise and its ecological implications for urban wildlife communities in Edmonton, Alberta, Canada. Using 65 sound level meters and 107 autonomous recording units deployed across green spaces, we quantified spatial and temporal patterns of noise and examined relationships between noise levels, species richness, and community composition. Noise levels were strongly influenced by distance to major arterial roads, with additional contributions from land-cover class, road density, tree cover, and elevation. We found that 28.0% of the city exceeded 50 dBA, with approximately 321,000 residents exposed. We detected 121 bird species, and species richness declined significantly with increasing noise, with the generalized additive model explaining 39.6% of the variation in species richness ($R^2 = 0.395$). The strongest declines occurred in natural and managed open habitats, where species richness decreased by 1.52% and 0.95% per 1 dBA increase in noise, respectively. Naturally wooded and naturally non-wooded landscapes exhibited more moderate declines. Multivariate analyses revealed differences in species composition among land-cover classes, suggesting community turnover along urbanization and noise gradients. Our results show that environmental noise acts as an important ecological filter shaping urban wildlife communities and highlighting the value of integrating noise mapping with biodiversity monitoring to inform urban planning decisions.

**Biosketch:** I am a graduate student at the University of Alberta researching invasive species ecology. I hold a degree in Ecosystem Engineering from Ikiam University, Ecuador, with training in wildlife ecology and tropical forests. My interests focus on biodiversity management and conservation with focus on the ecological effects of anthropogenic stressors.

## Behaviour

**9:45-9:50:** Observation of predatory infanticide by a solitary female brown bear

**Camille Jodouin, University of Alberta**

**Abstract:** Infanticide followed by cannibalism is a documented occurrence in ursids, and is usually carried out by unrelated males. While females also exhibit this behaviour, existing observations are limited to females with offspring. My proposed talk presents a unique observation of a solitary adult female brown bear ("Bear 175") killing and consuming a yearling in Peter Lougheed Provincial Park, Canada. The yearling, prematurely weaned by its mother, had followed her for several days prior to the incident. Following the infanticide, the female consumed a large part of the carcass, including viscera, which are usually untouched by infanticidal females. I argue that Bear 175's unusual behavior was caused by the extended proximity of the yearling, which may have triggered a predatory attack. This observation furthers our understanding of infanticide and cannibalism in ursids, presenting evidence that in addition to females with offspring, solitary female bears can also commit predatory infanticide. It also raises the question of whether past infanticides were committed by solitary females misidentified as adult males, emphasizing the need for proper identification of individuals when reporting behavioural observations. Note: This observation

occurred in July 2023. A report summarising the event was recently accepted in the journal Ursus as a short communication.

**Biosketch:** Camille Jodouin is a M.Sc. graduate from the University of Alberta, with a thesis focusing on polar bear movement. She has worked multiple seasonal roles over the past years, including one summer technician position with the ABMI and one season as a bear technician in Kananaskis Provincial Park.

**9:50-9:55:** Franklin's Gull (Larus pipixcan) massively feeding on water fleas (Moina sp.) at Cooking Lake, Alberta

**Norbert Nguyen, University of Alberta**

**Coauthors:** Dick Dekker (This is an independent volunteer research project with no affilitations to any institutions)

**Abstract:** Over the past decade, Cooking Lake in central Alberta has observed dramatic declines in water level. By 2025, the majority of the lake has completely drained and transformed into a mudflat. During summers exhibiting shallow water, Franklin's Gulls (Larus pipixcan) were observed summering in exceptionally high numbers, estimated at several tens of thousands. While swimming, the gulls consistently picked up small items from the lake surface. To investigate their food base, we took water samples and identified various invertebrates in the summers of 2023 and 2024. Large abundances of water fleas (Moina sp.) were estimated at densities of 10 000/m3, coating the lake in a shimmering red appearance. Other abundant anthropods included the larvae of midges (Chironomidae), springtails (Podura aquatica), and shore flies (Ephydria sp.). In August 2024 the lake dried up to <5% of its former size. Mean annual precipitation data for central Alberta for 2007-2024 was 389 mm, less than the long-term mean of 454 mm for 1883-2006. Further land use changes in the surrounding area have also accelerated the lake's drainage, leading to changes in the aquatic invertebrate community. We suggest that the exceptionally high numbers of Franklin's Gulls and their unusual method of foraging on water fleas were linked to the lake's shallowness.

**Biosketch:** Norbert Nguyen is a fourth year undergraduate student studying Conservation Biology at the University of Alberta. He is incredibly passionate about building human-wildlife connections, working at the Canadian Forest Service studying caribou habitat and the Alberta Chapter of the Wildlife Society coordinating student hunting and fishing programs.

## Session 3C – Summit Room

### Population Ecology

**9:00-9:15:** The Impact of Wildfire (2015, 2023, and 2025) on Bald Eagles on Besnard Lake, Saskatchewan

**Elston Dzus, Independent Ecologist**

**Coauthors:** Jon Gerrard, Naomi Gerrard, Connie Dzus and Peter Gerrard

**Abstract:** Wildfires are important natural events in the boreal forest regions of Canada. They have short, medium and long-term biotic effects as they lead to forest renewal. In recent decades, the

area burned, number of large fires, and lightning-caused fires are increasing in most of western Canada. The response by various biota to wildfire has been the focus of considerable research. Birds can take a variety of approaches after wildfire ranging from avoiding/abandoning burnt areas, using unburnt patches within a larger burn complex or being attracted to recent burns. Besnard Lake, Saskatchewan has supported the longest continuous study (1968-2025) of Bald Eagles (Haliaeetus leucocephalus) in North America. Including 2015, this population has been exposed to three recent wildfires (ranging from 57,790 to 188,633 ha), providing an incredible opportunity to examine how repeated wildfires affect a well-studied raptor population. In this presentation, we assess the impact of the 2015, 2023 and 2025 wildfires on Bald Eagle breeding on Besnard Lake comparing the three years before the wildfire to the year of the wildfire. We were also able to evaluate the data for the nine years after the 2015 fire.
Biosketch: Dr. Elston Dzus has studied the Bald Eagle (Haliaeetus leucocephalus) for the past 40 years. He has conducted various research projects aimed at understanding the habitats and breeding patterns of this iconic species.

9:15-9:30: Long-term Owl Surveys in Alberta, Canada, What Have We Learned
Lisa Takats Priestley, STRIX Ecological Consulting
Coauthors: CHUCK PRIESTLEY, STRIX Ecological Consulting WENDY CROSINA, Weyerhaeuser Company Ltd. LAURA TROUT and EMILY CICON, West Fraser Mills Ltd.
Abstract: Owls are a longer-lived group of species and require long-term monitoring, as they may not breed every year and show breeding population fluctuations due to food availability. Long-term surveys however can be costly, and citizen science programs have become an important means for collecting long-term data on a variety of wildlife taxa. In Canada, the Alberta Nocturnal Owl Survey was initiated in 1998, and the survey gained momentum in 2002 when Birds Canada initiated a standardized national nocturnal owl survey. Surveys are conducted at roadside stations with call playback. The Alberta survey is now coordinated by STRIX Ecological Consulting, and data are contributed to Nature Counts (https://naturecounts.ca/nc/abowls/main.jsp). In 2025, the Alberta program celebrated its 23rd year of monitoring. We average almost 200 volunteers per year, and about 100 routes (10 stations each) are surveyed across Alberta. In more remote areas where volunteers are not available to conduct surveys, forest companies have established monitoring programs to keep track of owl populations on their managed lands. Weyerhaeuser runs nocturnal and diurnal surveys at 706 stations spread over two management areas, and West Fraser runs nocturnal surveys at 639 stations spread over five management areas. Results of the first 23 years of the volunteer program and some results from the forest companies will be presented, including comparing year-to-year variations of owls between the programs across Alberta.
Biosketch: Lisa has been involved in wildlife research and monitoring for over 30 years. She has a biological sciences diploma from NAIT, and a BSc. and MSc. from University of Alberta, studying Barred Owls. She and her husband Chuck incorporated STRIX Ecological Consulting in 2005.

9:30-9:45: Twenty-five years of ecological and management insights from the Ya Ha Tinda elk long-term study
Mark Hebblewhite, University of Montana

**Abstract:** The Ya Ha Tinda (YHT) elk research project began in 2001 and is now amongst the world's longest running ungulate studies. We review contributions of our long-term study to demography of partially migratory ungulates, predator-prey dynamics, habitat ecology, harvest and transboundary management. Our central focus is understanding the behavior and population dynamics of different migratory tactics. Individual female elk switch migratory tactics to maximize reproductive success. Switching is based on making individual trade-offs between maximizing access to superior forage versus minimizing juvenile or adult mortality by carnivores. Yet these individual decisions result in a balance in demography between migrant tactics that has stabilized population size. Density-independent predation by wolves on adult females, and grizzly bears on juvenile elk limit population size to about 25% of the maximum observed population size. Yet bottom-up habitat factors drive pregnancy rates, juvenile body mass, and diet quality. Prescribed and natural forest fires enhance forage quality, whereas roads associated with forestry and salvage logging reduced habitat quality. Climate changes to forage are differentially affecting the different migratory tactics. This population has growing female harvest by indigenous hunters, and limited entry hunting for male elk. Yet male elk rarely escape to 'trophy' size due to high harvest rates and road access. Emergent properties of our transboundary system spanning National Parks and Provincial lands result in differential carnivore harvest and logging disturbances. Which - when combined with pronounced regional climate trends - suggest continued change in the future for partially migratory ungulate populations in Alberta and beyond.
**Biosketch:** Mark is the Layser Distinguished Professor in Conservation Biology and Policy at the University of Montana, where he leads the Ungulate Ecology Lab. His research focuses on large carnivores and ungulates across North America and Eurasia. He earned degrees from the University of Guelph, University of Montana, and University of Alberta.

# APPENDIX D: POSTERS

**Where:** Black Bear Room

### 1. Outcomes of Community-Based Forest Management for Biodiversity Conservation in Northwest Ethiopia

**Kassie Tesfaye Mengie, University of Pecs**
**Coauthors:** László Szemethy
**Abstract:** Community-Based Forest Management (CBFM) has emerged as a promising approach to balance biodiversity conservation with rural livelihoods. Despite its growing implementation in Ethiopia, empirical evidence on its ecological and socioeconomic impacts remains limited. This study examined biodiversity outcomes and livelihood implications of CBFM in three districts of Northwest Ethiopia—Dangila, Fagita-Lokoma, and Banja—where forests are communally managed. Data were collected from 412 randomly selected farmers through structured questionnaires and analyzed using Likert scale ratings, descriptive statistics, and chi-square tests (SPSS Version 23).

Results revealed significant variations among districts in community participation, awareness of environmental policies, and involvement in habitat restoration. Fagita-Lokoma showed the highest engagement and knowledge of conservation laws ($\chi^2 = 11.81$, $p < 0.019$; $\chi^2 = 13.3$, $p = 0.01$) and the greatest involvement in restoration efforts ($\chi^2 = 301$, $p = 0.000$), likely due to stronger local governance and greater livelihood dependence on forests. Banja, in contrast, showed the lowest participation.Overall, 76.7% of respondents identified socioeconomic interests—mainly timber, wildlife, and tourism—as major motivations for conservation. While biodiversity benefits were perceived as moderate, 65% viewed conservation costs as low to medium.
The study underscores that CBFM can deliver positive biodiversity outcomes when local livelihood interests are effectively integrated with ecological objectives. Strengthening community awareness, participation, and governance support is essential for enhancing the long-term sustainability of community-managed forests in Ethiopia.
**Biosketch:** Tesfaye Mengie Kassie is a PhD candidate in Conservation Biology at the University of Pécs, Hungary. His research focuses on biodiversity conservation, community-based forest management, and wildlife. He has published papers on biodiversity conservation and forest management and participated in ICCB 2025 and other international conferences.

### 2. Stizostedion is the Valid Generic Name for Walleye, Sauger, and Eurasian Pikeperch

**John Bruner, University of Alberta**
**Coauthors:** John Bruner
**Abstract:** Sander, the German common name for Stizostedion lucioperca (Percidae), is an alternate spelling of Zander. Sander (Oken 1817) is not a valid Latinized scientific generic name. Collette (1963), the first reviser of Percidae, concluded Stizostedion Rafinesque 1820 is the correct generic name. ICZN's Opinion 417 (Hemming 1956) rejected Oken's (1815-1816) encyclopedia for nomenclatorial purposes because of his use of common names as scientific names. Gill (1903) discovered Oken's publications and mistook sander as a Latin name. Eschmeyer and Bailey (1990), citing Gill (1903), wrote sander was the senior synonym of Stizostedion, but did not investigate its Latinization. If they had, they would have found both Bloch (1783) and Fischer (1791) wrote sander is a vernacular name. To correctly latinize sandr (a geological term referring to the outwash plain of a glacier) as a nominative singular noun, you add the suffix "-us" as was done by Stark (1828) and Jordan (1929), eight years after Stizostedion was coined. Kottelat (1997) citing Gill (1903) and Eschmeyer sic but ignoring publications of the former Soviet Union and North American publications, emphasized Sander was the correct generic name. Nelson et al (2003) publication in AFS Fisheries supported sander but was never sent out for peer review because it was considered a committee report. The AFS/ASIH Common and Scientific Names of Fishes (2004, 2013, 2024) in recognizing sander, have forced fishery biologists wishing to publish in AFS journals to use the wrong generic name for an annual Walleye fishery worth over a billion dollars (USA).
**Biosketch:** Past chair of the Walleye Technical Committee American Fisheries Society North Central Division, I have published several papers on this topic (2011, 2011, 2021) and was a co-editor of a book (2021) on Yellow Perch, Walleye, and Sauger. https://orcid.org/0000-0002-0114-7050

3. How urban barriers affect population genetic structure of northern house wren Troglodytes aedon in Alberta?

Milan Baral, University of Lethbridge
Coauthors: Theresa M Burg

Abstract: Urbanization transforms land use type and fragments habitats restricting animal movements, reducing population connectivity and limiting gene flow. This results in genetic isolation and reduces genetic diversity within populations. Despite the importance of genetic diversity, information on how urbanization affects gene flow among populations and levels of genetic diversity are scant. Our study focuses on exploring the influences of urbanization on the population connectivity of the northern house wren (Troglodytes aedon) in Calgary and Lethbridge. Firstly, we used species distribution model (SDM) to determine areas of suitable habitats for northern house wrens in urban and nonurban areas and used the ratio of built-up area to ground area in ArcGIS to quantify the degree of urbanization. We used these results to help select three urban sites in Lethbridge, four urban sites in Calgary and one nonurban site around each city and sampled five northern house wrens at each site. We genotyped the samples using low-coverage whole genome sequencing and will use Bayesian clustering and least-cost corridor model to determine the genetic structure and population connectivity of house wren respectively. Our study will provide information on how urbanization affects connectivity in urban wildlife populations and can be used to inform urban planning to maintain biodiversity in cities.

Biosketch: I am a Master of Science student in Biological Sciences (molecular ecology) at the University of Lethbridge, where my research focuses on the population genomics of urban birds. I investigate how urban barriers influence genetic connectivity and population structure of the Northern House Wren across Alberta using low-coverage whole-genome sequencing. I have an extensive field and analytical experience, including work on bird migration, breeding ecology, raptor conservation, feeding ecology, and large-scale genomic datasets. My broader research interests include urban ecology, conservation genomics, and the impacts of human-modified landscapes on wildlife populations.

4. Supporting Wildlife Monitoring and Management with Automated Acoustic Detection

Sunny Tseng, University of Northern British Columbia
Coauthors: Dexter D. Hodder, Ken A. Otter

Abstract: Passive acoustic monitoring is increasingly used in wildlife research and management to assess avian biodiversity across large spatial and temporal scales, yet the volume of audio data generated presents major challenges for analysis and interpretation. This study evaluates and advances the use of automated acoustic detection to support ecologically meaningful and management-relevant inference using multi-year monitoring data from the John Prince Research Forest in British Columbia, Canada. Automated detections were generated using BirdNET and applied across songbird and owl monitoring programs. First, this study examines how BirdNET confidence threshold selection influences precision and data remained, comparing universal and species-specific thresholds across multiple songbird species. Species-specific thresholds substantially improve precision while retaining detections, supporting more reliable use of automated outputs in monitoring and decision-making contexts. Second, this study investigates the

potential for individual-level inference from passive acoustic data by assessing vocal individuality in owls, illustrating how automated detections can inform fine-scale monitoring relevant to population assessment. Third, BirdNET detections are integrated into occupancy models and generalized additive models to quantify seasonal patterns, detection dynamics, and temporal variation in avian presence while accounting for variation in sampling effort. Finally, a rarefaction-based framework is developed to estimate standardized species richness from large acoustic datasets, enabling meaningful comparisons across sites and seasons despite unequal monitoring intensity. Together, this study demonstrates how automated acoustic tools can be rigorously validated and integrated into ecological workflows that bridge scientific analysis and practical monitoring needs. The methods developed here are implemented in the birdnetTools R package, supporting transparent, reproducible, and scalable bioacoustic analyses for researchers and practitioners.
Biosketch: I've spent much of my career conducting bird-related scientific research in Siberia, Taiwan, Canada, and Lithuania, collecting bird sounds from more than 300 species. I am a PhD candidate focusing on applying machine learning on bioacoustics, also work as an ecological R data scientist and infographic designer.

5. The AMF Scoop: Commercial vs. Native Arbuscular Mycorrhizal Fungi in Rough Fescue Under Controlled Conditions
Rosa Martinez Lozano, Lethbridge Polytechnic
Coauthors: Dale Pulvermacher, Jo Johnson, Dr. Adriana Morrell
Abstract: Rough Fescue is also an important source of forage and habitat for wildlife. Given that these grasslands are difficult to restore once disturbed, effective reclamation is essential for preserving their ecological function. Arbuscular Mycorrhizal Fungi (AMF) are beneficial soil fungi that form symbiotic relationships with over 80% of land plants. In restoration efforts, AMF can increase nutrient uptake and native plant survival when restoring disturbed ecosystems along with their plant communities. Mountain Rough Fescue (Festuca campestris) is a perennial bunchgrass native to North America's montane and subalpine regions.
Biosketch: Lethbridge polytechnic, Environmental Assessment and Restoration Diploma. I began in September 2021 and now finishing a bachelor's degree in ecosystem management (2026). My academic background focuses mostly on lab work performed as soil resources, ecology, and zoology. Experience with ArcGIS and ArcGIS Pro (Excel, Word, R software, JMP data) Currently working in Lethbridge at the research centre in microbial ecology.

6. Influence of Programming on Nature Engagement in Youth
Megan Amstutz, Lethbridge Polytechnic
Abstract: This project aims to examine the influence of attendance in nature-based interpretive programming on nature engagement in youth. Studies show that increased levels of nature engagement in youth is correlated with communities of adults who exhibit pro-environmental behaviors. This suggests that increasing nature engagement in youth is a viable way to inspire a future of increased environmental sustainability. Measuring nature engagement was be done using surveys which ask questions that identify whether a child is emotionally invested in nature, with regards to whether they are expressing and acting upon this interest in nature to their families,

friends, and broader community. Surveys were distributed to parents with children who attended nature programming, and parents of children who did not attend these programs.
A comparative analysis was done, using Fishers Test and Chi Squared tests, to determine if nature programs have a statistically significant effect on nature engagement in youth.
Results indicated that interpretive programming has a significant effect on personal measures of nature engagement, such as reading more books about nature, but does not have a statistically significant effect on social measures. The scope of this research is very small, but serves as a foundation for future work evaluating nature engagement for youth who may or may not have access to nature programming.
**Biosketch:** Megan Amstutz is currently completing her degree in Ecosystem Management at Lethbridge Polytechnic. She has worked as an environmental educator and nature interpretation program leader for three years and has a specific interest in science communication as a valuable directive in restoring ecological and human communities.

### 7. Leveraging AI for Big Data Insights in Wildlife Management: Enhancing Hunter Contributions to Conservation

**Everett Hanna, Lethbridge Polytechnic**
**Coauthors:** Kyle Bates, Jayden Andrada

**Abstract:** Effective wildlife management depends on robust demographic data, yet collecting, aging, and interpreting these data at scale remains a persistent challenge. The Wildlife Analytics Lab (WAL) at Lethbridge Polytechnic, in collaboration with One Health Medical Technologies (OHMT), FieldLab Films, and the Wyoming Game and Fish Department's Wildlife Forensics and Fish Health Lab, is exploring the use of artificial intelligence (AI) to address these limitations through applied innovation. This initiative focuses on the development of AI-assisted approaches to automate cementum tooth-aging analysis—an essential but labour-intensive method for estimating age structure and population health in harvested wildlife. By leveraging existing archives of cementum slides and expert-derived age estimates, the project aims to evaluate how machine-learning models might support or augment traditional aging workflows for species such as mule deer, elk, moose, and bighorn sheep. In parallel, the project envisions a mobile application that would enable hunters to contribute standardized tooth images as citizen scientists, generating rapid, coarse age estimates while contributing to a centralized demographic database. When paired with the precision of cementum-based aging, this approach highlights how hunter participation and AI-driven analytics could expand the scale and resolution of population data available to wildlife managers. This poster summarizes the project's conceptual framework, collaborative foundations, and intended research pathway, highlighting lessons learned to date and outlining next steps toward implementation. Collectively, the work underscores the potential for AI-enabled tools to enhance data-driven wildlife management while strengthening partnerships between hunters, researchers, and conservation agencies.
**Biosketch:** Everett Hanna, PhD, PBiol, CWB® is a professional wildlife biologist and faculty member at Lethbridge Polytechnic, where he leads the Wildlife Analytics Lab. His work focuses on applied wildlife research, population ecology, and advancing analytical tools to support conservation and management decision-making.

8. To Pee or Not to Pee: A Qualitative Study on Bathroom Access and Belonging in Wildlife Fieldwork

Everett Hanna, Lethbridge Polytechnic
Coauthors: Josh Hill

Abstract: Fieldwork is central to wildlife biology, yet logistical issues like bathroom access are rarely addressed in training, planning, or policy. Recent research in other field-based disciplines suggests that lack of accessible bathroom facilities can negatively impact health, safety, psychological comfort, and participation — particularly for women, non-binary individuals, and those with health or family-related constraints. This study investigates how bathroom access shapes the fieldwork experiences of wildlife professionals and students in Alberta. Through a mixed-methods approach involving an anonymous online survey and optional follow-up interviews, we aim to document the frequency and impacts of bathroom-related challenges, explore coping strategies, and examine how experiences vary across gender, role, and setting. This poster will present our study rationale, research questions, and methodology as we begin participant recruitment. By ACTWS 2027, we aim to share findings that inform more inclusive fieldwork protocols and safety planning. In the meantime, we invite ACTWS members and conference delegates to participate in the study and share it with others in their networks.

Biosketch: Everett Hanna, PhD, PBiol, Certified Wildlife Biologist® is a professional wildlife biologist and faculty member at Lethbridge Polytechnic, where he leads the Wildlife Analytics Lab. His work focuses on education and training, applied wildlife research, population ecology, and advancing analytical tools to support conservation and management decision-making.

9. Bison, Burns, and Bogs: An Introduction to Assessing Post-Disturbance Impacts on Boreal Mammal Movement.

Erin Blythe, Applied Conservation and Macro Ecology (ACME) Lab - University of Victoria
Coauthors: Dr. Jason Fisher, Lindee Dumas, Brian Kopach

Abstract: Mammal species and communities face increased impacts from anthropogenic land use change and increasing frequency and severity of wildfires. Disturbance disproportionately impacts species already in decline due to disease and overexploitation. In Indigenous communities, species of cultural, spiritual, ecological, and economic significance may be affected – severely limiting access to resources essential to community subsistence and cultural practices. The Little Red River Cree Nation (LRRCN) is located within Treaty 8 territory, near Wood Buffalo National Park (WBNP), Alberta. LRRCN communities rely on wood bison (Bison bison athabascae) and other boreal mammals which may be affected by wildfire and anthropogenic disturbance. Wood bison are listed as Threatened under Canada's Species at Risk Act (SARA) and Alberta's Wildlife Act and Regulation, with wild populations declining largely due to disease and habitat fragmentation. Some herds within and around LRRCN territory are currently positive for bovine tuberculosis and brucellosis, raising concerns about managing disease transmission among herds. Furthermore, the landscape around the LRRCN communities of Fox Lake, Garden River, and John D'Or Prairie has been altered by industrial exploration, forestry, and wildfire - including the devastating 2023 Paskwa fire. So, utilizing a wildlife camera trap array and associated data, I will assess the movement and distribution of wood bison in response to anthropogenic and wildfire disturbance. Through this, I aim

to explore whether proposed management strategies, such as translocating individuals into declining herds, may contribute to the spread of disease by increasing the distribution of individual herds and bringing disease and disease-free herds into proximity.
**Biosketch:** Erin is a MSc student in the Applied Conservation and Macro Ecology Lab at the University of Victoria. Her work utilizes camera traps to assess the impact of disturbance on wood bison distribution, aiming to inform disease management of key herds in Little Red River Cree Nation Traditional Territory.

### 10. An assessment of avian window-strikes and strike deterrents in an urban area

**Billie Bilodeau, MacEwan University, Nature Alberta**
**Coauthors:** Natalie Shappka

**Abstract:** It is estimated that up to one billion birds die via window strikes in North America per year, the primary cause for which is suspected to be a combination of avian visual acuity, ecological factors, and architectural design of buildings. In collaboration with Nature Alberta, 37 surveys between the months of September to November were conducted to assess the frequency of avian mortality and injury on Grant MacEwan campus in Edmonton, Alberta. In addition to assessing the frequency of window strikes, we also assessed the presence of window-strike deterrents. During surveys, we summarized the number of window-strikes and species impacted, as well as where on campus these collisions occurred. Primary tasks for this work-placement included surveys, bird identification, and data collection and entry. Overall, 20 specimens were recorded that we believed to have been from fatal window-strikes. The most frequent bird species found to be affected from window strikes were Rock Pigeons and Dark-eyed Juncos. While we were unable to determine if the use of window deterrents prevented any window-strikes from occurring on campus; locations with high recorded mortality also displayed highly reflective windows and abundant vegetative cover suggesting these factors may positively correlate with increasing window-strikes.
**Biosketch:** Natalie and Billie are undergraduate students at MacEwan University pursuing degrees in biological sciences, with a focus on ecology and diversity. Both hope to pursue Masters degrees.

### 11. Does Understory Protection Increase Persistence of Sensitive Songbirds?

**Isabelle Lebeuf-Taylor, University of Alberta**
**Coauthors:** Taylor Hart (co-first-author), Erin Bayne

**Abstract:** Background Understory protection (UP) is a retention forestry practice common in Alberta's boreal forest that removes the hardwood overstory while preserving understory conifers. These retained strips may function as buffers for wildlife; UP sites harbor mature-forest songbird specialists absent from low-retention harvests. However, longer-term wildlife response remains uncertain. Objectives We aim to (1) identify which local habitat features drive species-specific colonization of and persistence in UP sites, and (2) project regional population trajectories under scenarios varying in the proportions of low-retention, UP, and mature stands. Methods We compared occupancy, colonization, and extinction across low-retention harvests (n=55), UP sites (n=55), and mature forest controls (n=55) using three annual visits per site over 10 years (2015–2025). We selected five migratory songbirds spanning forest-age and structural associations—Bay-breasted Warbler, Winter Wren, Hermit Thrush, Tennessee Warbler, Black-throated Green

Warbler—several experiencing steep regional declines. We modeled occupancy dynamics as functions of local habitat structure and used scale-dependent covariates to simulate regional population change. Predictions  Regions with higher low-retention densities will show steeper declines across all species relative to mature-forest-dominated regions; UP density will attenuate logging effects. Significance  This research tests whether UP provides habitat value for sensitive species, potentially offering a sustainable alternative balancing conservation and forestry objectives.
**Biosketch:** Isabelle Lebeuf-Taylor is completing her PhD at the University of Alberta in Dr. Erin Bayne's lab. Her research interests lie in improving methods of linking bird populations to changing landscapes for more effective conservation.

### 12. The Cost of Sharing: Effects of Parasite-Mediated Competition on Flying Squirrel Reproduction
**Meagan Stager, Trent University**
**Coauthors:** Meagan Stager (lead author) and Jeff Bowman (co-author)
**Abstract:** Parasites can impose significant costs on individual fitness and act as a driving force of indirect competition between hosts. When hosts have asymmetrical tolerance to infection, the more tolerant (reservoir) host can gain a competitive advantage over the less tolerant host, potentially leading to population shifts such as species turnover. We tested the hypothesis that Strongyloides robustus (S. robustus), an intestinal nematode, facilitates parasite-mediated competition between sympatric northern flying squirrels (Glaucomys sabrinus; a less tolerant host) and southern flying squirrels (G. volans; a reservoir host) through effects on reproductive success of females. To test this, we evaluated effects of infection on litter size and pregnancy success rates of both flying squirrel species using live-trapping, radio telemetry, and camera nest inspection. We also examined fecal samples for S. robustus eggs to determine infection status. We collected data on 10 southern flying squirrel litters in 2025 and assessed the pregnancy success rates from eight northern and 41 southern flying squirrel observations across 2021, 2024, and 2025. Despite low sample sizes and limited statistical power, we found no evidence that infection affects the pregnancy success of northern flying squirrels, contrary to our expectations. Furthermore, we did not detect significant effects of infection on reproductive success of southern flying squirrels, consistent with a reservoir host. Overall, our results provide partial support for aspects of parasite-mediated competition; however, since litter size data were unavailable for northern flying squirrels, infection effects on reproductive output cannot be ruled out, and parasite-mediated effects may occur through other pathways.
**Biosketch:** As a young professional and academic, I have seven years of experience working with diverse wildlife including snakes, bats, turtles, birds, and now flying squirrels, as I complete a Master of Science in Environmental Science at Trent University. I am passionate about wildlife and aim to continue with research.

### 13. Life underwater: molecular detection of amphibians using nanopore technology in Alberta
**Colin Pattison, Environmental DNA Research Lab at the Southern Alberta Institute of Technology (SAIT)**
**Coauthors:** Olivia Zamrykut

**Abstract:** Amphibian populations have declined substantially over the past decades, driven by disease, habitat modification, pollution and other environmental pressures. Identification and monitoring using traditional methods is time-consuming, expensive and potentially hazardous for field workers. Environmental DNA (eDNA) is a rapidly advancing technique that offers new opportunities to detect and monitor amphibians and other species more efficiently. This project gathered aquatic samples from study sites (n= 11) in mountain, grassland and parkland regions to investigate the presence of amphibians in streams, ponds and wetlands. We gathered negative controls with each eDNA sample and collected metadata for each site (e.g. nutrient concentration, dissolved oxygen, temperature, etc.). We extracted DNA using commercially available kits, amplified using an amphibian-specific oligonucleotide and sequenced our samples using Oxford Nanopore Technology. Prior to sequencing, samples were assessed for quantity (Qubit) and quality (NanoDrop). Sequences were compared to publicly available reference sequences using a curated database for amphibians. Autonomous recording units (ARUs) were also deployed to ground truth species presence. Amphibians were detected on all of our study sites, suggesting that they persist in these areas of Alberta. Our results further suggest that nanopore technology was an effective tool for detecting amphibians in multiple natural regions of Alberta and in multiple habitat types and conditions. This workflow represents an advancement in biological monitoring which may be used for future amphibian monitoring and detections of other species and taxa.
**Biosketch:** Olivia Zamrykut is a student at the University of Manitoba, graduate of the Environmental Technology program and Research Assistant at SAIT. Dr. Colin Pattison leads the eDNA Research Lab and is an Instructor in the Environmental Technology Program at SAIT.

### 14. Ring-Necked Pheasant Stocking Effects on Breeding Bird Populations in Southeastern Alberta

**Dani Nadeau, University of Alberta**
**Coauthors:** Dani Nadeau, Mark Boyce
**Abstract:** Ring-Necked Pheasants (Phasianus colchicus) are upland birds native to Asia that have been introduced worldwide for hunting. Pheasants in Canada have become naturalized in agricultural grasslands, particularly in Alberta, where they are are immensely popular as a game species, as well as a target species for habitat restoration. Alberta supplements naturalized pheasant populations with annual releases at designated release sites. Pheasant release sites globally have been linked to both reductions in biodiversity and increased predator density and human disturbance. Our project seeks to document impacts of pheasant release sites and habitat restoration sites on breeding pheasants and other birds in Alberta, using analyses of both avian community metrics and landscape-level habitat selection. This study will be conducted in the Eastern Irrigation District near Brooks, Alberta, and will compare current breeding bird surveys and pheasant crow counts to existing baseline surveys of avian communities in relation to release sites and habitat restoration sites. The primary contribution of this study is to investigate spatial and temporal trends in habitat selection by pheasants and other grassland birds in response to patterns of land use. The secondary contribution is to identify whether anthropogenic hunting pressure or shifts in predator density are the larger consequence of pheasant release sites. This research will better inform managers, stakeholders and researchers on the effects of alternative

management strategies to assess future directions in grassland management in Alberta, particularly concerning pheasant release sites.

Biosketch: Dani Nadeau is an MSc student with the Boyce Lab at the University of Alberta. She received her BSc (Hon) with Great Distinction from the University of Lethbridge, where she conducted multiple undergraduate research projects. Dani is a passionate outdoorsperson and is beginning her career in wildlife management in Alberta.

### 15. Tracking an Invisible Threat: Using eDNA to Detect Whirling Disease in the Kananaskis River.

Emma Gasser, Southern Alberta Institute of Technology

Coauthors: Alina Johns, Andrew Smith, Luke Vadeboncoeur and Dr Colin Pattison who leads the eDNA Research lab and is an instructor at SAIT.

Abstract: Whirling disease, caused by the parasite Myxobolus cerebralis, poses a significant threat to salmonid populations and can be unintentionally spread by human movement between water bodies through contaminated recreational equipment. This presents a growing risk to areas such as provincial parks, where maintaining ecological integrity is a management priority. Developing effective, non-invasive monitoring techniques is therefore critical for early detection and prevention of disease spread. Environmental DNA is an emerging technique that captures DNA shed by organisms in the environment and processes them in the lab to extract, isolate and sequence DNA for comparison to reference databases. It allows the identification of species without directly capturing the species of interest. We sampled four sites along the Kananaskis river to see if we can detect DNA from the parasite Myxobolus cerebralis and sludge worms. From our samples, the concentration of DNA extracted is between 1.14 ng/mL and 6.16 ng/mL. We will now be working on amplifying using species-specific oligonucleotides. Then we will quantify and assess the quality of the DNA. We will sequence the DNA using Oxford Nanopore technology and then compare the sequences to a curated reference database for the species of interest. The results of this study will contribute to the growing body of research supporting eDNA as a practical monitoring tool for aquatic pathogens. If successful, this approach could improve early detection efforts, and support management strategies aimed at protecting freshwater ecosystems and recreational waters from the spread of whirling disease.

Biosketch: Alina Johns, Emma Gasser, Andrew Smith and Luke Vadeboncoeur are Environmental Technology Students at SAIT. Emma also holds a BSc from the University of British Columbia. Dr. Colin Pattison leads the eDNA Research Lab and is an Instructor in the Environmental Technology Program at SAIT.

### 16. Does time under human care effect burrowing owl diet composition post-release?

Lacey Hébert, Wilder Institute/ Calgary Zoo

Coauthors: Graham Dixon-MacCallum, Erin Gilbert

Abstract: Burrowing owls (Athene cunicularia) are an endangered species in Canada, with populations experiencing declines across their range for decades. The 2012 Recovery Strategy identified translocation as a potential technique to support population recovery. In 2016, the Wilder Institute/Calgary Zoo initiated a head-starting program, a conservation translocation approach that involves collecting the youngest nestlings which are least likely to survive, overwintering them under

human care, and releasing them as adults when their probability of survival is greater. To evaluate the effects of eight months under human care on diet, we collected and dissected pellets from head-started and wild owls within the study area in southeastern Alberta. This poster will present the preliminary results from the pellet analysis and provide insights into the ecological implications of head-starting for burrowing owl conservation.

**Biosketch:** Lacey is a Conservation Associate at the Wilder Institute/ Calgary Zoo and supports the burrowing owl headstart program since 2017. Over 9 years at the zoo, Lacey has worked on a variety of the conservation programs including swift fox, Greater sage grouse, black-tailed prairie dog, fisher, and curiously isolated hairstreak

### 17. Best Management Practices for Mycoplasma ovipneumoniae control in Rocky Mountain Bighorn Sheep

**Gillian Power, University of Alberta**

**Coauthors:** Russel Dinnage, Colleen C. St. Clair, Anne Hubbs, Mark S. Boyce (Supervisor)

**Abstract:** Bighorn sheep (Ovis canadensis) are under constant threat from bacteria, specifically Mycoplasma ovipneumoniae (Movi), carried by domestic Caprinae. Movi is a destructive pathogen in bighorns, potentially reducing the population by 20–100%. Movi is largely responsible for population extirpations in North America and continues to be a primary concern for the sustainability of bighorn sheep. In Alberta, the Rocky Mountain bighorn sheep population has been mostly stable, with a small Movi outbreak in 2023 near Sheep River Provincial Park. To effectively combat the spread of Movi, wildlife management requires actionable, scientifically based practices. We will use an integrated Step Selection Analysis (iSSA) and logistic regression to identify habitat use and variations in movement. We will use a transformer neural network and a hybrid in-silico simulation to provide locations with high transmission risks between the domestic and wild populations and quantify the differences in disease transmission of various management strategies. Commonly used strategies, like double-fencing and guardian dogs, should reduce the commingling of domestic and bighorn sheep, and thereby limiting the introduction of Movi to the bighorn population. Implementing other strategies, such as increasing the distance of the buffer zone in which domestic Caprinae can graze and road salt management, should also reduce the introduction and spread of Movi. We will provide wildlife managers with practices in combinations, as well as locations for surveillance and prevention to ensure the protection of Alberta's bighorn sheep population.

**Biosketch:** Gillian is a PhD student in the Boyce Lab at the University of Alberta. Following research in veterinary epidemiology and animal welfare at the University of Guelph and University College Dublin, she applies her background in biosecurity to develop management strategies protecting bighorn sheep from diseases transmitted by domestic Caprinae.

### 18. Bayesian Approaches to Wildlife Monitoring in Alberta's Oilsands: Making the Most of What We Know

**Emily Herdman, InnoTech Alberta**

**Coauthors:** Stefan Schreiber

**Abstract:** Purpose: Bayesian statistical methods provide direct probability statements for management decisions and formally incorporate existing knowledge, including traditional ecological knowledge , historical surveys, and expert understanding, alongside field data. While increasingly recognized in ecological literature, practical application remains limited. We demonstrate Bayesian modeling for wildlife monitoring using a hypothetical moose (Alces alces) case study and introduce an interactive tool to help practitioners understand prior knowledge integration. Methods: We developed a Shiny web application allowing users to explore how prior knowledge influences population estimates using simulated datasets. The app demonstrates Bayesian negative binomial regression, a flexible distribution for modeling count data, with hypothetical moose monitoring scenarios. Users specify their prior knowledge (for example, "typically see 2 to 3 moose per day") and confidence level, then observe how the model combines this with sparse simulated observations. Results: Bayesian models incorporating prior knowledge provide a more complete representation of available information by formally integrating diverse knowledge sources with field observations. The interactive app allows practitioners to explore how varying prior knowledge and confidence levels influence estimates, illustrating the transparent integration process that supports adaptive management as new data become available. Conclusions: Our interactive Shiny app makes prior knowledge integration tangible for practitioners. This framework is especially valuable when management questions focus on finer spatial scales, where broad monitoring data may be insufficient or not applicable but local knowledge provides important context. Implementation using standard R packages (brms, rstanarm) makes Bayesian approaches feasible for routine monitoring.
**Biosketch:** Emily Herdman is the Director of Environmental Services at InnoTech Alberta, where she completes applied research to help industry, government and practitioners address environmental, natural resource management, and greenhouse gas challenges. She has a special interest in cumulative impacts and leveraging technology to better understand environmental outcomes.

### 19. Habitat Associations with Coyote Activity and Fence Crossing Patterns at Elk Island National Park, Alberta, Canada

**Michaela Regimbald, MacEwan Univeristy**
**Coauthors:** Arthur Whiting

**Abstract:** This project examined coyote movement activity through the fence at Elk Island National Park during February 2024 - March 2025. This project contributed to the Fence Permeability Project guided by Dr. Arthur Whiting and the Friends of Elk Island Society (FEIS). The objectives were to examine if habitat associations exist within the movement of coyotes through the fence and to compare results with previous research to provide insight into fence permeability. Coyote activity data was collected through camera trail cameras, and habitat composition was analysed using a 0.25km2 area around each camera. Habitat associations were analyzed by examining abundance, crossing events, and directionality of crossings associated with habitat types. Data was analyzed using four General Linear Models as well as a Stepwise-AIC analysis. Results suggested that coyotes activity was highest at the fence near areas with agriculture, meadow, and open water, and low near wetland areas. Habitat associations found in this study reflect the coyotes natural habitat preferences. This indicates that the fence may not limit coyote activity by allowing the species to move across the fence within preferred habitats. Results may be

applied to future wildlife management through the knowledge obtained around directionality and areas of high coyote activity.
**Biosketch:** I am a 22 year old female - passionate about the environment - and am most interested in the examination and mitigation of anthropogenic effects on our environment. I am in my final semester of my BSc in Biology and am looking forward to obtaining an environmentally applied position after graduation.

### 20. Benefits and Limitations of Selected Automated Detection Tools for Processing Large Bioacoustic Data Sets.

Kasper Sanders, Red Deer Polytechnic
**Coauthors:** Azriel Handa
**Abstract:** Automated detection tools such as BirdNET Analyzer and HawkEars have allowed for the relatively quick detection and identification of bird calls from Passive Acoustic Monitoring (PAM) recordings. While these new methods employing machine learning are effective, they are prone to detection and identification error. Furthermore, documentation on the effective usage of these tools is not widely available plus the use of these tools is not standardized within the literature. This study investigated available and ready to use automated detection tools, their user friendliness, and the accuracy of results when processing bioacoustics data under different analysis settings. The data analyzed was recorded using Wildlife Acoustics PAMs at various locations in Central Alberta which included Cygnet Lake, Kerry Wood Nature Center, and Waskasoo Park in Red Deer. Data analysis focused on recordings from Cygnet Lake and Waskasoo Park. This study found that while automated detection tools are indeed powerful in their ability and speed to analyze large audio data sets, particular care is needed to remove sources of error and to tailor these tools appropriately to the needs of a study.
**Biosketch:** Azriel and Kasper are both 4th year students of Red Deer Polytechnic's B.Sc. Biological Sciences program. Both students have been investigating currently available automated detection methods as part of their BIOL 2399 research opportunity course with their supervisor Dr. Sally Stuart.

### 21. Restoring Woodland Caribou Habitat in Alberta

Sarah Kristoff, Alberta Biodiversity Monitoring Institute
**Coauthors:** Sara Barszczewski, Melanie Dickie
**Abstract:** Boreal woodland caribou are listed as threatened under Canada’s Species at Risk Act, with declines driven by habitat alteration that increases predator access and hunting efficiency. In Alberta, extensive linear disturbance has degraded caribou habitat, prompting the Government of Alberta to launch the Caribou Habitat Recovery Program in 2017. The program aims to treat and assess ~209,000 km of legacy seismic lines through treatments such as site preparation, tree planting, and line blocking. These interventions are designed to accelerate forest regeneration, reduce predator efficiency, and limit human access. In 2024, the Alberta Biodiversity Monitoring Institute (ABMI) established a long-term monitoring program to evaluate restoration effectiveness. The program tracks treatment condition, vegetation regeneration, and human and wildlife response using vegetation plots, remote cameras, and remote sensing. We will present early insights from the

first phase of the program. Two years post-treatment, many sites show high treatment persistence, high survival of planted trees, and limited human or wildlife use—indicators of early functional recovery. While long-term effectiveness cannot yet be assessed, these results are promising and highlight the value of early, multi-scale indicators. This monitoring framework provides the foundation for consistent, evidence-based evaluation of restoration across Alberta's caribou ranges and will support adaptive management decisions as treatments scale up in coming years.
**Biosketch:** Sarah Kristoff is a Restoration Ecologist with the Alberta Biodiversity Monitoring Institute. Her work focuses on developing a long-term monitoring program to evaluate the effectiveness of restoration strategies for caribou habitat recovery in Alberta.

### 22. Spatial, Genetic, and Livestock-Associated Drivers of Gut Microbiome Variation in Rocky Mountain Bighorn Sheep

Jasmine Veitch, University of Calgary
**Coauthors:** Mason Stothart, David Coltman, Samuel Deakin, Jamie Gorrell, Jeffery Kneteman, Jocelyn Poissant

**Abstract:** Wildlife gut microbiomes are shaped by multiple factors, including spatial features, host genetics, and species interactions/proximity, but many studies examine isolated factors or single populations. Rocky Mountain bighorn sheep (Ovis canadensis canadensis) provide an excellent model to investigate determinants of gut microbiome variation, as they are reliant on gut microbes for digestion and nutrient acquisition. Additionally, the potential for pathogen exchange at the wildlife-livestock interface as a primary source of population decline highlights the particular importance in investigating the bighorn sheep gut microbiome, which has close ties to host immune function. Our study examines the primary determinants of gut microbiome variation in bighorn sheep populations across Alberta, specifically how spatial, genetic, and livestock-associated factors explain gut microbiome variation across a broad geographic scale. We analyzed bighorn sheep fecal samples (n=304) from 22 sampling locations across Alberta using metagenomic sequencing to characterize gut microbiomes. Host genetic data was generated from microsatellite loci and livestock data was acquired from grazing leases and forest reserve allotments. We assessed how spatial connectivity, genetic distance, and livestock proximity explain gut microbiome beta-diversity using linear models, PERMANOVA, and dyadic Bayesian regression models. Our findings reveal the relative importance of these factors in shaping microbiome patterns and improve understanding of potential microbial transmission at the wildlife–livestock interface. The results of this study will advance our understanding of ecological processes that govern wildlife gut microbiomes across broad spatial scales and may inform conservation strategies in bighorn sheep populations.
**Biosketch:** Jasmine Veitch is a PhD Candidate at the University of Calgary. She previously completed her Master's degree at Laurentian University where she investigated parasite community dynamics and host-parasite interactions of small mammals. Her research interests are centered on wildlife health, spanning parasites, viruses, and gut microbes.

### 23. Spider Webs as Natural Bio-filters for Environmental DNA Monitoring of Large Mammals in Alberta

Nuttakan Chimpanid and Tzu-yun Hsueh, eDNA Research Lab at Southern Alberta Institute of Technology (SAIT)
Coauthors: Olivia Zamrykut and Dr. Colin Pattison
Abstract: Environmental DNA (eDNA) is emerging as a powerful, non-invasive tool for biodiversity monitoring; however, most applications focus on aquatic systems, while terrestrial monitoring remains logistically challenging and resource-intensive. This study explores the feasibility of using spider webs as natural bio-filters to collect airborne and particle-bound eDNA for the detection of large terrestrial mammals in Alberta. Spider webs passively accumulate biological material shed by organisms, offering a low-cost, low-risk, and non-invasive sampling medium. Six spider web sample locations were collected from multiple terrestrial habitats and preserved at -20 °C conditions. DNA extraction and quantification were completed, with detectable DNA recovered from all six samples. The highest measured DNA concentration was 2.91 ng/µL, indicating successful recovery of environmental DNA from spider web material. Laboratory methods will include PCR amplification targeting large mammal, followed by sequencing and comparison against reference databases to identify mammalian species present in the surrounding environment. If successful, this approach could expand the toolbox for wildlife monitoring by providing scalable and non-invasive method applicable across diverse habitats. The findings may support conservation efforts, early species detection, and long-term ecological monitoring programs in Alberta and beyond.
Biosketch: Nuttakan Chimpanid and Tzu-yun Hsueh are Environmental Technology students at the Southern Alberta Institute of Technology (SAIT). Their research explores non-invasive eDNA monitoring using spider webs to support terrestrial biodiversity assessment in Alberta, working with Olivia Zamrykut and Dr. Colin Pattison in the SAIT eDNA Research Lab.

24. Uncovering the Diet of Columbian Fishers (Pekania pennanti): A Comparative Analysis of Physical Sorting and DNA Metabarcoding
Ali Waterhouse, Thompson Rivers University
Coauthors: Mae Frank, Karl Larson
Abstract: The Columbian population of fishers (Pekania pennanti) in British Columbia is red-listed and in decline. This population exhibits larger home ranges and lower reproductive rates than neighbouring populations, potentially due to nutritional limitations. It is important to understand how the diet of this population compares to other populations that are not facing the same levels of decline. Fisher scats were collected by a scat detection dog team from two different forested areas in the Columbian fisher range. The contents of the scats were identified through physical sorting and DNA metabarcoding to determine diet composition for the Columbian fisher. Data from the two methods were compared to assess if the methodologies produce statistically different dietary results. Physical sorting revealed that species richness was similar between sites, but composition and relative abundance of prey differed. It was also found that snowshoe hare (Lepus americanus) was the most abundant prey item at both locations, occurring in ~71% of samples. Notably, one sample contained remains of several paper wasps (Polistes sp.) which would not be detected through vertebrate DNA–based analyses. This study was conducted in collaboration with Thompson Rivers University, the Government of British Columbia, the Levi Labs at Oregon State University, and Rogue Detection Team. Examining diet composition provides important insight into

resource use and ecosystem interactions. By determining the comparative accuracy of these techniques, the study will strengthen confidence in future dietary research and improve reliability of scat-based analyses.
**Biosketch:** Ali is an undergraduate researcher in the Natural Resource Science program at Thompson Rivers University. Her interests include wildlife conservation and resource management, and she has experience in ecological data collection and analysis. She is excited to explore how management choices can shape more sustainable decisions in the future.

### 25. Understanding Urban Moose (Alces alces) Occurrence and Temporal Behavior in Red Deer, Alberta using Remote Cameras

**Eric Wolstenholme-Schmidt, Red Deer Polytechnic**
**Coauthors:** Sandra MacDougall, Todd Nivens, Ken Lehman
**Abstract:** Following a range expansion into the Parkland Region of Alberta in the early 1990's, moose (Alces alces) are now regularly observed in regional urban centres such as the City of Red Deer. The city features areas of high-quality moose habitat interspersed with a matrix of urban development. While many residents value seeing moose within the city, human-moose conflicts occur. There is a recognized lack of information on the seasonal occurrence of moose in the city and temporal activity patterns of urban moose versus non-urban moose populations. To better understand moose occupancy and behaviour in Red Deer, we deployed twenty remote cameras throughout the city for two years from Jan 1st, 2024, to Dec 31st, 2025. Camera locations were selected using a stratified random sampling design. Over 6000 images of moose were tagged by sex and age class in WildTrax. Individual detections are defined as one detection every thirty minutes until the individual leaves the field of view. This data will be used to build yearly occurrence graphs broken down into weeks, to visualize temporal and seasonal activity patterns, and to compare how seasonal occurrence in urban centre differs between age and sex classes. Temporal activity patterns will be compared to remote camera data from a non-urban area in the Parkland Region. The results from this study will enable city managers to better understand and mitigate negative interactions between humans and moose in Red Deer.
**Biosketch:** Fourth Year student at RDP in Bachelor of Biological Sciences. After completing my undergraduate degree, I aim to work for urban management of wildlife and growing our understanding of species living within urban centers. My favourite accomplishment so far is finding the largest Albertosaurus sarcophagus!

### 26. Boar on the Radar: Detecting Pathogens in Alberta Wild Populations

**Oshin Ley Garcia, University of Calgary**
**Coauthors:** Oshin Ley Garcia, Frank van der Meer, Diego Nobrega, Sylvia Checkley, Hannah McKenzie, Chunu Mainali, Tamiru Alkie, Susan Detmer, Yohannes Berhane, and Mathieu Pruvot.
**Abstract:** Wild boars are rapidly expanding across the Canadian prairies, raising concerns about their role in transmitting pathogens at the wild–domestic pig interface. In Alberta, the health status of wild boars remains largely unknown. The study aims to provide an overview of key pathogens circulating within the invasive wild boar population in Alberta. From 2018–2024, we opportunistically sampled 331 individuals. Swine pathogens were screened by serological,

molecular and coprological tests. Escherichia coli isolates underwent antimicrobial susceptibility testing. Wild boars were infected with 13 pathogens. Viral pathogens include porcine reproductive and respiratory syndrome (PRRS) (1%; 1/96), porcine circovirus (PCV1) (0.3%; 1/331), PCV2 (33%; 109/331), PCV3 (27%; 90/331), rotavirus (27%; 25/92), porcine parvovirus (PPV) (20%; 2/10), and influenza A virus (IAV) (4%; 5/120), Bacterial detections included Erysipelothrix rhusiopathiae (100%; 120/120), Salmonella spp. (3%; 2/66), and Mycoplasma hyopneumoniae (2%; 2/96). Parasites identified were Eimeria spp. (40%), Metastrongylus spp. (26%), Trichuris spp. (6%), Ascaris spp. (6%), and Strongyloides spp. (4%). Evidence of exposure to HPAI H5N1 was identified. Positive samples were collected during a widespread epizootic of H5N1 2.3.4.4b strain circulating in wildlife species, and wild and domestic birds. This suggests possible transmission of H5N1 to wild boars. We observed resistance for antibiotic classes, including macrolides, aminoglycosides, fluoroquinolones, phenicols, and second and third generation of cephalosporins. This study demonstrate that Alberta wild boar carry multiple pathogens including of zoonotic importance, highlighting their potential role in disease transmission and the need for continued surveillance to safeguard livestock, wildlife, and public health.

**Biosketch:** Oshin earned a DVM from UNAH in Cuba and worked as a Veterinary Epidemiologist at CENSA on national and international One Health projects. She completed a Master's in One Health in Belgium and is now a PhD Candidate at the University of Calgary studying disease surveillance at the wild-domestic pig interface in Alberta.

### 27. Working Together for Wild Sheep: Using Citizen Science to Guide Mountain Ungulate Conservation in Southwestern Alberta

**Peter White, Government of Alberta - Fish and Wildlife Stewardship**

**Coauthors:** Cassie Stevenson, Anne Hubbs

**Abstract:** Effective wildlife conservation depends on collaboration between scientists, managers, and the public to generate timely, decision-ready evidence. For bighorn sheep in often rugged, mountainous terrain, traditional monitoring is costly and limited in frequency. This project is Alberta's first large-scale integration of citizen science for mountain ungulates, designed to expand spatial coverage and improve responsiveness to management needs. Standardized, ground-based surveys led by trained volunteers will record composition (e.g., lamb:ewe ratios), minimum counts, and health observations in herds exposed to varying risks of potential disease transmission (e.g., Mycoplasma ovipneumoniae). Surveys will be repeated three times annually and integrated with GPS-collar data, government aerial surveys, and relevant land-use information to produce spatial risk assessments and proactive actions (e.g., disease responses, policy, no-contact fencing, habitat enhancements, and education programs). Long-term ground-based surveys east of Canmore (1989–2025) provide valuable baseline trend and composition data for a high-conflict but lower disease risk corridor. Average lamb:ewe ratios between 1989-2025 are relatively low (24:100), while the most recent decade averages 34:100—consistent with a stable population—highlighting the importance of continued, frequent monitoring to detect change. Building on these methods, survey routes will be expanded to >15 regions in high and low disease risk zones in Southwestern Alberta. Movement data from approximately 40 newly deployed GPS collars will guide spring 2026 survey implementation and site prioritization. By embedding management needs into study design

and leveraging citizen participation, this collaborative monitoring program will deliver actionable insights to accelerate disease detection, reduce mortality risks, and target habitat management. The approach strengthens partnerships and provides a scalable model for bighorn sheep conservation across Alberta.

Biosketch: Peter White is a wildlife biologist with Alberta's Fish and Wildlife Stewardship, focusing on population and disease monitoring, habitat management, and landscape connectivity. Based in Canmore, Alberta, he holds an M.Sc. from the University of British Columbia (Okanagan), where his research centered on mountain ungulate ecology in the Canadian Rockies.

### 28. Black Bear (Urus Americanus) Daybed Model: Insights into Habitat use and Daybed Selection in the Beaver Hills Biosphere.

Meghan Mackenzie & Taylor Eaton, Red Deer Polytechnic

Coauthors: Taylor Eaton, Erin Henderson, Ramona Maraj, Sandra MacDougall

Abstract: Daybeds are resting sites used by American black bears (Ursus americanus) throughout the active season and are important for thermoregulation, security, and energy conservation. We examined daybed selection by GPS-collared black bears in the Beaver Hills Biosphere, Alberta. Fourteen bears (7 males, 7 females) were fitted with GPS collars programmed to record locations every two hours. Daybeds were identified using spatial clustering of GPS fixes indicating stationary periods of six to eight hours. For each individual, daybeds were visited weekly from May to early September. We measured site characteristics including habitat type, bedding material, vegetation structure, proximity to refuge trees, distances to water and anthropogenic features, as well as weather conditions and individual bear attributes. Daybed selection will be analyzed using generalized linear mixed-effects models with individual identity included as a random effect to account for repeated measures. This study will provide insight into resting habitat selection in a human-modified landscape and highlight how black bears balance security, thermal cover, and disturbance.

Biosketch: Meggie Mackenzie and Taylor Eaton are recent graduates of Red Deer Polytechnic (June 2025). They served as field technicians on Sandra MacDougall's research examining the population dynamics of recolonizing black bears in the Beaver Hills Biosphere, where they gained experience in data collection and contributed to research on black bear daybed ecology.

### 29. Identifying the diet of Franklin's ground squirrel (Poliocitellus franklinii) using macrofossil analysis

Tristin Tanton, MacEwan University

Coauthors: Jessica A. Haines, Diana Tirlea, Daylen Towers, Joshua M. Miller, David A. McFayden, Julia Hebert

Abstract: Macrofossils are miniscule remains of living biota in the Quaternary time period and can be used to understand environments. When macrofossils are identified by characteristics (e.g. seed coatings and shape) their taxa is revealed. Franklin's ground squirrel (Polioctellus franklinii) is declining in the central Alberta region. This study utilized adapted techniques in macrofossil analysis to identify the diet of Franklin's ground squirrel by looking through fecal pellets. The study sampling area covered the eastern portion of Wabamun Lake Provincial Park, where traps were set in

suitable habitat with confirmed sightings throughout May to August of 2024. Fecal pellets were collected, removed of attached debris, using forceps and placed in 1.5mL vials from 33 different individuals, each vial containing 1 to 5 fecal pellets. Single vials were analyzed as sample units for presence and frequency of identifiable macrofossils. In 34 units, 15 distinct plant and invertebrate macrofossils with varying observation counts were found. Rubus idaeus seeds and Forimicidae spp. bodies were the most observed across all analyzed samples. Trends in the observations might suggest Franklin's ground squirrel eats more invertebrates in May and June, compared to berries in July and August. In Alberta, Franklin's ground squirrel's critical habitat intactness is severely declining, from anthropogenic activities, and habitat loss should be investigated as the driver for species decline in the future. This analysis is minimally invasive and effectively reveals information on habitat and dietary requirements of Franklin's ground squirrel which is contributionary to potential conservation plans.
**Biosketch:** Tristin is an undergraduate student at MacEwan University, studying ecology and statistics, and the recipient of the Undergraduate Student Research Initiative (USRI) project grant. Her research adapted techniques used in macrofossil analysis to identify the diet of Franklin's ground squirrel as a non-invasive contribution to conservation efforts.

### 30. Incidence of Kleptoparasitism Observed for an Individual Black Bear (Ursus americanus) in the Beaver Hills Biosphere, Alberta

**Charlotte Cutts, Red Deer Polytechnic**
**Coauthors:** Ramona Maraj, Erin Henderson, Sandra MacDougall
**Abstract:** The objective of this pilot study is to investigate the kleptoparasitic behavior of an adult male black bear in the Beaver Hills Biosphere of Alberta, Canada. This will be accomplished by analyzing camera collar footage collected hourly during the daytime from a radio-collared black bear from May 21, 2023 to April 18, 2024. This research will attempt to characterize the observed kleptoparasitic behaviors of this bear, a kleptoparasitism rate, and seasonal trends in kleptoparasitism, to compare with previous literature. Observations of kleptoparasitism of the beaked hazelnut (Corylus cornuta) hard mast from suspected rodent caches have been observed for this individual. These observations lead to a further objective of this pilot study, which is to determine factors that may be influencing the amount of kleptoparasitism seen across the study period/area. The time of year, in relation to energy needs and habitat types, will be analyzed along with incidences of kleptoparasitism to determine if there is a significant relationship using an exploratory statistical model. There is limited research investigating ecological factors that may influence the incidence/rates of black bear kleptoparasitism, which is potentially important in increasing a bear's nutrition during seasons of high energy need. A greater understanding of this behavior and its potential impacts can help inform future management decisions. The data analysis for this project is still in progress, but preliminary results will be presented.
**Biosketch:** My name is Charlotte Cutts, and I am from central Alberta. I am just finishing my fourth year of a BSC in Biological Sciences at RDP. Growing up in a rural area, I have always been interested in wildlife and am always excited to learn more!

### 31. Comparing the efficiency of two non-invasive hair sampling techniques for black bears (Ursus americanus) in Elk Island National Park, Alberta.

Julia Tchir, Red Deer Polytechnic
Coauthors: Erin Henderson, Ramona Maraj, & Sandra MacDougall

Abstract: Population monitoring is a fundamental component of conservation and management. Non-invasive sampling and spatially explicit capture-recapture (SECR) modelling are widely used to estimate population densities for large-range mammals such as black bear (Ursus americanus). This study will provide a rare direct comparison of two commonly used non-invasive trap types, the hair corral trap and the hair triangle trap, by quantifying visit-to-hair deposition probability to optimize non-invasive sampling. Ten triangle traps and ten hair corral traps were set up side-by-side and randomly distributed throughout Elk Island National Park (EINP). Remote camera traps were placed at each site and will provide information on the total number of visits, and account for bear behavior that the trap type elicits which may influence trap efficiency. Using remote camera data, hair collection data, and genetic data this study will model the visit-to-hair deposition probability using SECR to estimate the visit probability and a generalized linear mixed model to quantify the deposition probability. Probabilities between trap types will be compared to determine trap effectiveness. These findings can help to maximize future sampling and study design by indicating detection efficiencies of each trap type, reducing sampling and sequencing costs, and improving population estimate accuracy which informs conservation decision making. Preliminary results will be presented as data analysis is ongoing.

Biosketch: I am a fourth year undergraduate student completing a Bachelor of Science in Biology at Red Deer Polytechnic. I am from Rocky Mountain House, Alberta and in my free time, I enjoy being outdoors and hiking.

### 32. A dive into Sexual Dimorphism, and the Diet of the Interior British Columbia Fisher (Pekania pennanti)

Maya Saharchuk, Thompson Rivers University
Coauthors: Mae Frank and Karl Larsen

Abstract: This essay examines an introduction to sexual dimorphism through previous literature, and how it relates to the diet composition of fishers (Pekania pennanti). In British Columbia, fishers in the interior of the province (Columbian population) are red-listed and in decline. Multiple factors are contributing to the population's decline, but one theory is that their diets have changed due to prey availability, causing lower reproductive rates than other populations in North America. Columbian fisher diets were examined through stomach content analysis collected from incidentally trapped fishers (2023-2024) within the Columbian population range, and the results were compared to a similar study done 30 years prior. This study documents the diversity and relative frequency of prey items, including mammals, birds, insects, and plant materials over time. Where biological data were available, dietary differences related to sex and body size were examined to assess whether larger individuals consumed larger or different prey types. Key prey species identified in both studies include Southern red-backed vole (Clethrionomys gapperii), snowshoe hare (Lepus americanus), red squirrel (Tamiasciurus hudsonicus), and muskrat (Ondatra zibethicus), while striped skunk (Mephitis mephitis) and mink (Neogale vison) were uniquely

identified in this study. The findings from this study provide insight into trophic behavior, prey selection, sexual morphology, and ecological adaptability of fishers within forested ecosystems and will help with the management and conservation of this red-listed species.
**Biosketch:** Maya Saharchuk is a fourth-year undergraduate in the Bachelor of Natural Resource Sciences program at Thompson Rivers University. She has supported fisher and forestry research with biologists and UBC's Mother Tree Project, and conducted an independent fisher diet study for her graduating essay.

### 33. Monitoring Invasive Aquatic Species Using Environmental DNA in the Kananaskis Region

**Jarrett Lynn, Southern Alberta Institute of Technology (SAIT)**
**Coauthors:** Colin Pattison, Olivia Zamrykut

**Abstract:** Environmental DNA (eDNA) is an emerging technology that opens new avenues for detection of aquatic species through DNA shed by organisms into water bodies. This capstone project evaluates the effectiveness of eDNA sampling in detection of invasive aquatic species within the Kananaskis region of Alberta. Sampling has been completed, and laboratory work is ongoing. Target species include Northern Crayfish (Faxonius virilis), Prussian Carp (Carassius gibelio), and Rosy Red Minnow (Pimephales promelas), all of which have been chosen based on their invasive status within the Bow River watershed, each posing unique ecological risks to native species through competition and additional impacts. Field sampling was at two primary sites, including Mt. Lorette Pond, and Sibbald Meadows Pond. Sampling locations within each water body were selected based on alignment of habitat preferences for each species, and likelihood of introduction through natural or anthropogenic influences. Collection protocols included strict contamination prevention measures such as equipment sterilization, collection of field blanks, and air control samples to identify unexpected results. Approximately 22 L of water is filtered per sample using a vacuum pump to collect sufficient DNA for analysis; water quality information was collected such as multimeter data (Dissolved Oxygen, Temperature, etc.) and Phosphorus, Nitrate, and Nitrite.
By combining carefully informed site selection with rigorous field and laboratory protocols, the projects methodology for detection of invasive species could open new avenues for eDNA research within the Bow River watershed and have the potential to be applied broadly for invasive species monitoring across Alberta and beyond.
**Biosketch:** Cyril Stamp is an Integrated Water Management program. His capstone research evaluates environmental DNA (eDNA) as an innovative monitoring tool for detecting invasive aquatic species in Alberta, supporting proactive water management, ecological protection, and evidence-based decision-making. Jarrett Lynn is an Integrated Water Management program student. His capstone research focuses on evaluating environmental DNA (eDNA) as an innovative tool for early detection of invasive aquatic species in Alberta, contributing to improved environmental monitoring, watershed protection, and sustainable resource management.

### 34. Estimating the crop-raiding risk by African Elephants in Real-time

**Cassander Engelen, Elephants Alive**
**Coauthors:** Henrik J. de Knegt, Koen de Koning, Michelle D. Henley.

**Abstract:** The frequency and severity of human-wildlife conflict (HWC) are on the rise, increasing the need for targeted mitigation strategies. Crop raiding can inflict significant economic and psychological burdens on communities and undermine conservation efforts by fostering increased intolerance and retaliatory killings of wildlife. African elephants have frequently been identified as crop-raiding culprits. To better direct mitigation strategies, as resources are often limited, we developed a model that predicts the risk of crop-raiding throughout Southern Mozambique. These predictive models, which incorporate over a decade of elephant-tracking data from southern Mozambique combined with Earth Observation data, can potentially reduce the area of focus for mitigation efforts by approximately 90%. Additionally, our model demonstrated that soil nutrients can be a valuable addition when predicting elephant crop-raiding risk. We are currently in the process of expanding this project into a Digital Twin, which updates the estimates of crop-raiding risk across Southern Mozambique in real time, further enhancing management decision-making.
**Biosketch:** I am a wildlife conservation scientist and data analyst specializing in GPS telemetry, spatial modeling, and machine learning to study animal movement and human–wildlife interactions, with a focus on translating complex data into actionable insights for applied conservation and management.

### 35. Phone-based Lidar scanning as a method of obtaining Black Bear (Ursus americanus) den volume and dimensions in the Beaver Hills Biosphere.

**Jules Fetaz, Red Deer Polytechnic**
**Coauthors:** Ramona Maraj, Erin Henderson, Sandra MacDougall.
**Abstract:** Black bears (Ursus americanus) use dens in response to harsh winter conditions and the corresponding lack of food, as well as for a secure area for females to give birth to their young. Understanding den characteristics such as volume and structure are important to understanding the metabolic needs of bears during hibernation and how that may impact fitness. Dens are usually measured manually, but with the inclusion of light detection and ranging (LIDAR) sensors on Apple and Android devices it has become easier to obtain the accurate, unbiased volume and measurements of black bear dens, as well as archive the den scans for future studies. Den site investigations were conducted post-hibernation for black bears fitted with radio collars from 2021-2026. Ten dens were measured both manually and using an iPhone 16 pro as a LIDAR scanner. Using 3d models produced by the LIDAR scan, den volume and other measurements can be obtained using a variety of computer programs. As this is a study in progress preliminary results will be presented comparing den volumes using each method and describing den site characteristics of black bears in the Biosphere.
**Biosketch:** I am in the fourth year of a Bachelor of Science in Biological Sciences at Red Deer Polytechnic. My career interests are in the realm wildlife ecology and other types of ecology. My favorite hobby is canoeing.

### 36. Wildlife Monitoring and Dark Skies in an Urban Protected Area

**Sara Jordan-McLachlan, Weaselhead/Glenmore Park Preservation Society**
**Coauthors:** Sara Jordan-McLachlan, Roland Dechesne, Maureen Luchsinger, Tracy Lee, Jennifer Howse

**Abstract:** The Weaselhead/Glenmore Park Preservation Society is a partner on Calgary Connect, a multi-year wildlife monitoring and ecological connectivity program that, in part, uses motion activated camera traps placed in key natural environment parks and natural movement corridors. Analysis of images from 2017-2022 has provided insight into which animals live in Weaselhead Flats Natural Environment Park which is designated by The City as a Special Protection Natural Area on the SW edge of the city; how they respond to people in the park; and how mitigation around high volume roads is supporting their movement in and out of the park. Data analysis has shown that wildlife including moose, coyotes, bobcats, black bears and cougars are actively avoiding humans by using the park at different times than people, particularly at night. This information is supporting an application for Weaselhead Flats to be designated as a Dark Sky Sanctuary with the Royal Astronomical Society of Canada. This poster will provide an overview of wildlife monitoring in the park and how multiple groups including the Weaselhead/Glenmore Park Preservation Society, Miistakis Institute, City of Calgary, Royal Astronomical Society of Canada and the Rothney Observatory are working together to support ecological health in the urban environment.

**Biosketch:** Sara Jordan-McLachlan is a Naturalist with the Weaselhead/Glenmore Park Preservation Society and has worked since 2017 on Calgary Connect with the Miistakis Institute.