THE WILDLIFE SOCIETY

ALASKA CHAPTER

2026 Annual Meeting

Voices of the Wild:
Amplifying Science Through Communication
Part II

The Nave, Anchorage

April 7 – 10, 2026

THE WILDLIFE SOCIETY

ALASKA CHAPTER

2026 Annual Meeting

Anchorage, Alaska
April 7 – 10, 2026

MEETING PLANNING COMMITTEE

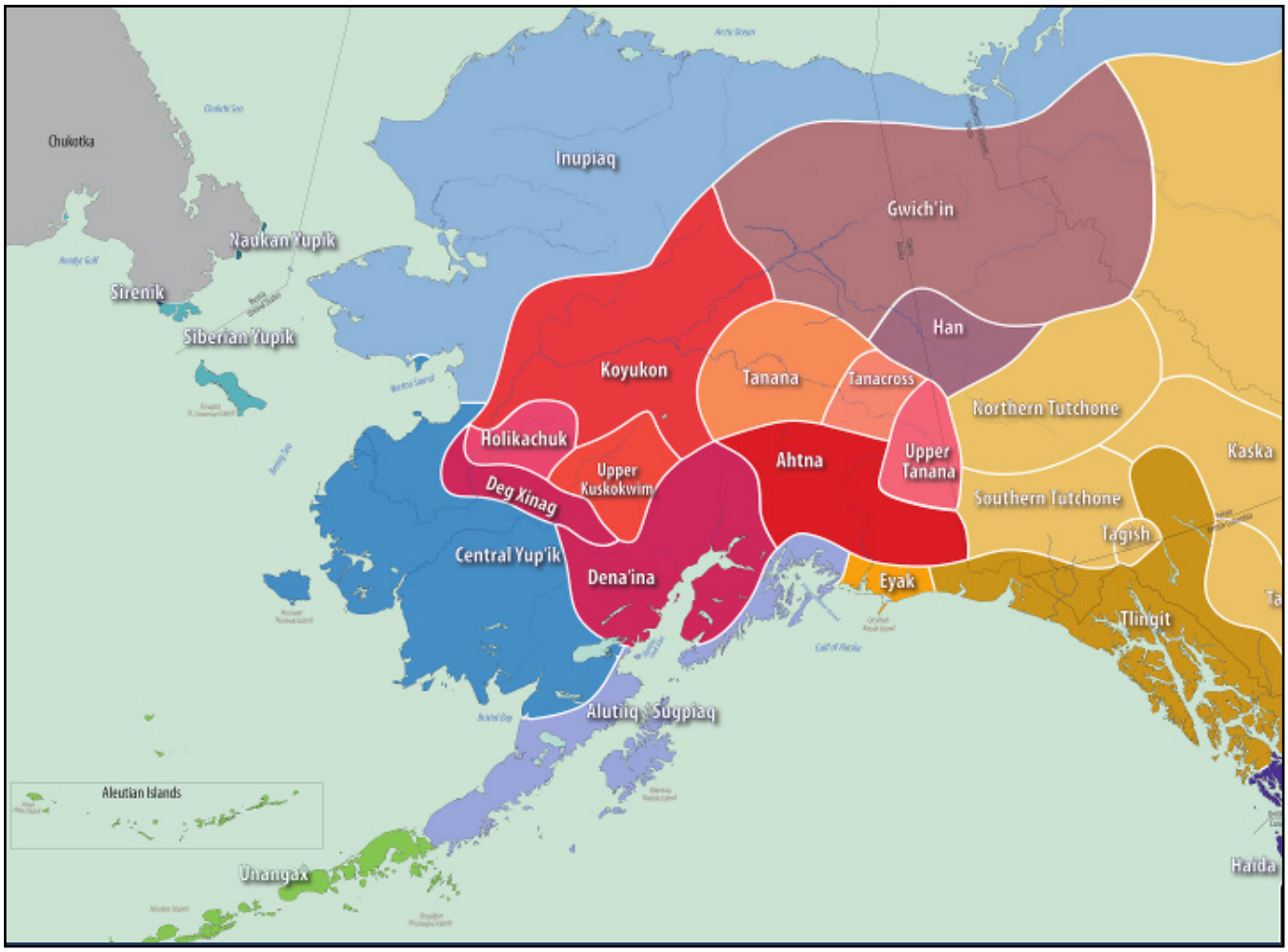
Alex Lewis, Ryan Mollnow, Cyndi Wardlow, Nate Svoboda, Blake Christler, Sarah Rauchenstein, Megan Ahern, Tessa Hasbrouck, Arin Underwood, Megan Milligan, and Jeff Wagner.

***Cover Photo*:** Jeff Wagner

USFWS/James MacCracken

Land Acknowledgment

The Alaska Chapter of The Wildlife Society would like to acknowledge that we are gathered on traditional lands where indigenous peoples have cared for Alaska's land, water, and wildlife for over ten thousand years. Their intimate knowledge of, and connection to, the land and its animals continues to inspire us in our professional and personal lives. Please take a moment to acknowledge the Native tribes in your area.



Alaska Native Language Center and Institute of Social and Economic Research, based on maps by Micheal E. Krauss.

Jeff Wagner

Code of Conduct

The Alaska Chapter of The Wildlife Society annual meeting provides opportunities for education, exchange of ideas, mentoring, networking with fellow wildlifers, and engagement with colleagues. Our hope is that each attendee will benefit from their participation during the conference. Even as we recognize the importance of and strive for diversity in our natural world, we acknowledge the contribution of individual diversity to our profession. As stated in TWS's long-standing Position Statement on Workforce Diversity in the Wildlife Profession, "The Wildlife Society recognizes the value of including the richness of human diversity in our efforts to discover, educate, inform policy, and involve the public in wildlife science and management."

In this light and with the goal of ensuring that our conference is welcoming and inclusive for all, we expect attendees to abide by the following code of conduct:

- All participants should be treated with respect and consideration, valuing the diversity of views and opinions that may be different than those you hold.
- Communicate with respect for others; critique ideas rather than individuals.
- Avoid personal attacks directed towards conference participants.
- Professionalism should be exercised at all times.

The following are examples of behavior that will not be tolerated at the annual conference, including oral and poster sessions and other organized meetings whether at the conference center or off-site:

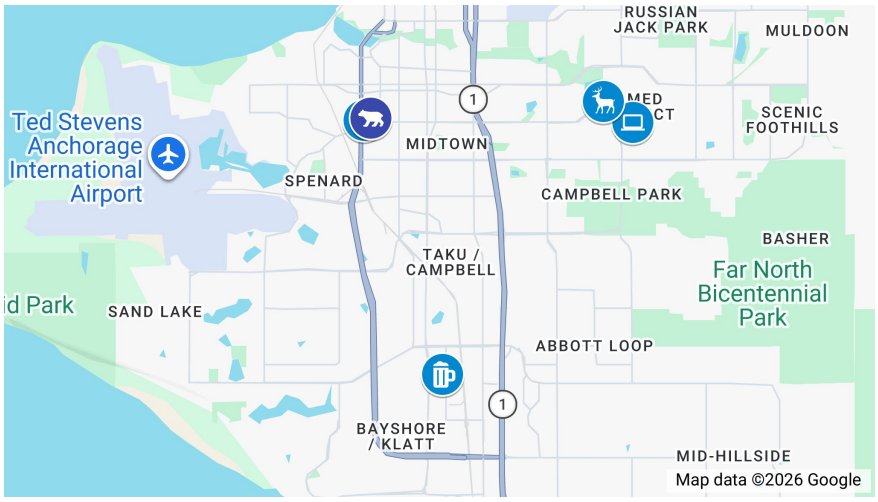
- Harassment, threats, intimidation, or discrimination of any kind or in any form, in-person or on social media platforms.
- Physical, verbal, or non-verbal abuse.
- Inappropriate comments related to gender, sexual orientation, disability, physical appearance, race, religion, or national origin.
- Conduct of a stalking or threatening nature.
- Disruption of talks, presentations, or other activities organized by AK-TWS.
- Unlawful conduct or activity of any kind.

If you are the subject of or witness conduct in violation of these guidelines, please notify an AK-TWS board member. Anyone experiencing or witnessing behavior that constitutes an immediate or serious threat to public safety during the meeting is advised to dial 911.

AK-TWS reserves the right, in their sole and reasonable discretion, to have individuals acting in an unprofessional manner or contrary to these guidelines removed from the conference or any meeting or event taking place at the conference and the right to prohibit attendance at any future meeting.

We appreciate your attention to these guidelines and wish you a productive and meaningful conference!

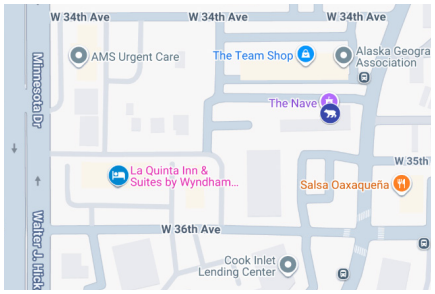
Venue Information



Map of venue and other key locations for the 2026 AKTWS Annual Meeting in Anchorage.

Key Locations

- La Quinta Inn & Suites
- The Nave
- USGS Alaska Science Center
- UAA ConocoPhillips Integrated Science Building
- King Street Brewing Company



The Nave

Meeting Sessions
Wednesday, April 8: 8:45am - 3:30pm
Thursday & Friday, April 9 - 10: 9am - 4pm

Poster Session / Happy Hour
Thursday, April 9: 4:30 - 6pm

Banquet and Awards Ceremony
Thursday, April 9: 6 - 10pm

King Street Brewing Company

Student-Professional Mixer
Wednesday, April 8: 6 - 9pm

USGS Alaska Science Center

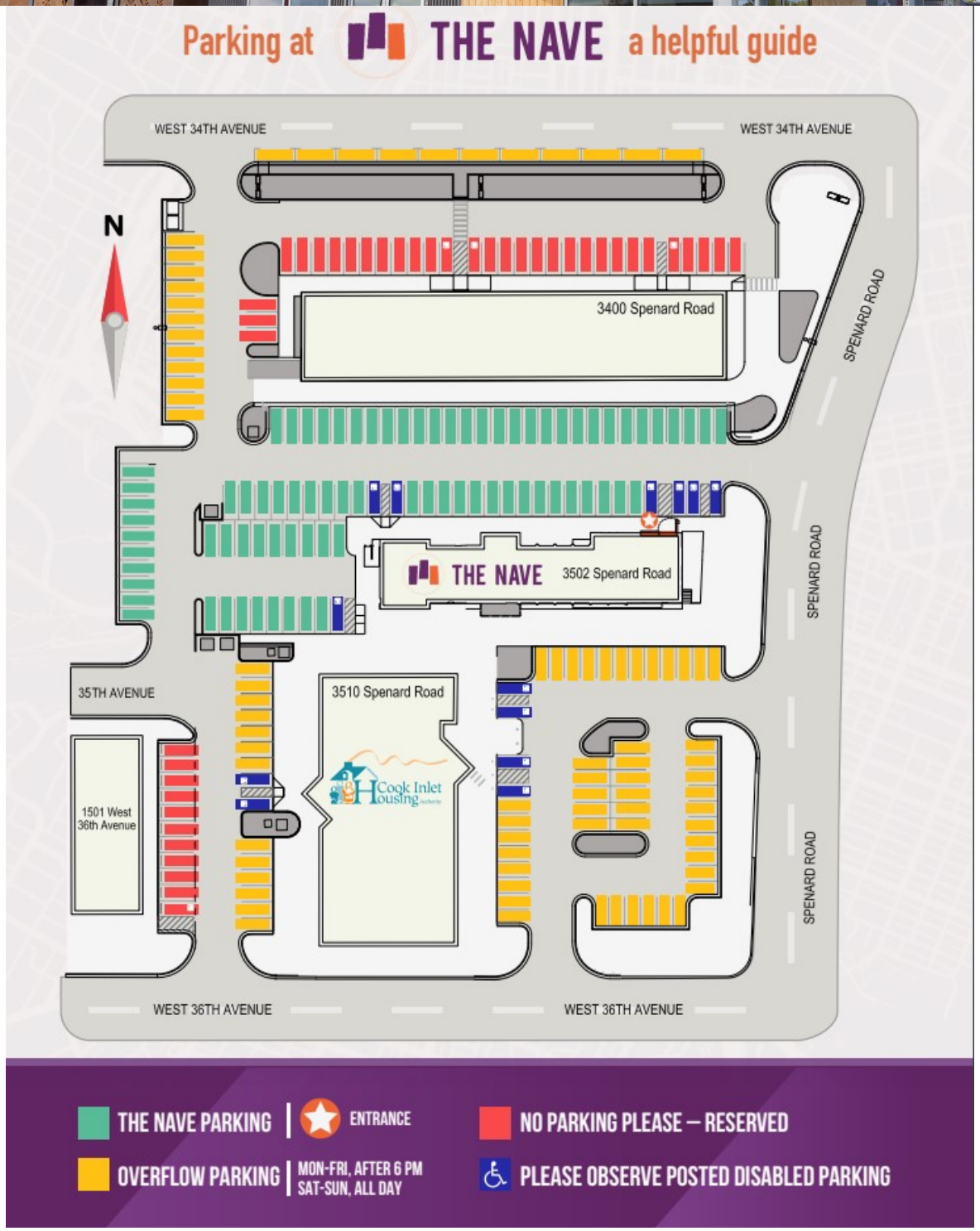
Bayesian Modeling Workshop
Tuesday, April 7: 9am - 5pm

UAA ConocoPhillips Integrated Science Building

Field Necropsy Workshop
Tuesday, April 7: 9am - 5pm

La Quinta Inn & Suites

Venue Information



We would like to thank the following organizations for their contributions. Your support ensures the continued success of the Alaska Chapter of The Wildlife Society and Annual Meeting.

MOOSE'S TOOTH
• ANCHORAGE, ALASKA •

Conference-at-a-Glance

Tuesday, April 7, 2026		
9:00 am - 5:00 pm	Bayesian Modeling Workshop - USGS Alaska Science Center	
9:00 am - 5:00 pm	Field Necropsy Workshop - UAA ConocoPhillips Integrated Science Building	
9:00 am - 3:00 pm	Field Trip - Alaska Wildlife Conservation Center	
Wednesday, April 8, 2026		
8:45am	Welcome and Opening Remarks	
9:00 am	Plenary Session	Erin Ranney - *Diving into Storytelling*
10:00 am	HQ Updates	Ed Arnett, TWS CEO
11:00 am	Break	
11:30 am	Session 1: Disease & Range Expansion	*N. Hamilton - Historic and contemporary museum specimens implicate Northern Red-backed Vole (Clethrionomys rutilus) as borealpox host as early as 1990s*
11:55 am		K. Zhang* - *Annual Patterns, Seasonal Shifts, and Modeled Trends in Polar Bear Encounters Near Prudhoe Bay, Alaska*
12:20 pm	Announcements	
12:30 pm	Lunch	
2:00 pm	Session 2: Human Dimensions, Harvest & Food Systems	*S. Iverson* - Salmon and Food Security in the Upper Copper River: Assessing Long-Term Changes in Availability*
2:25 pm		T. Paragi - *Domestic and wild red meat supply in Alaska, 2000-2016*
2:50 pm		E. Candler - *Offal Opportunity*
3:15 pm	Wrap-up and Announcements	
6:00 pm - 9:00 pm	Student-Professional Mixer - King Street Brewing Company ***Sponsored by Alaska Ducks Unlimited***	
Thursday, April 9, 2026		
9:00 am	Opening Remarks	
9:15 am	Special Session: Tools in Technology	M. Cobb - *Using Large Language Models to Transform Unstructured Information into Actionable Data in Wildlife Management*
9:40 am		M. Ahern - *Assessing Efficacy of Remote Cameras and Aerial Surveys in Understanding Mountain Goat Space Use*
10:05 am		A. Reinking* - *A Compendium of North American Operational Snow Datasets for Wildlife Ecologists – with an Emphasis on Alaska*
10:30 am		Break

** denotes student*
⁺ denotes virtual presentation

Thursday, April 9, 2026 (cont.)		
10:45 am	Special Session: Tools in Technology	E. Stacy - *Developing a GTseq panel for individual identification and evaluating application for native and transplanted Sitka black-tailed deer populations*
11:10 am		E. Racenet* - *Validating Antler- and Movement-Based Estimates of Reproduction in Barren-Ground Caribou using Video Camera Collars*
11:35 am		L. Vann* - *Curious Caribou: Infrastructure Influences Caribou Interactions with Camera Traps in Alaska's Arctic*
12:00 pm	Lunch	
1:30 pm	Business Meeting	Chapter and Working Group Updates
3:00 pm	Wrap-up and Announcements	
3:15 pm	Break	
4:30 pm	Poster Session and Happy Hour	
6:00 pm - 10:00 pm	Banquet and Awards Ceremony *Speaker: Grant Hilderbrand*	
Friday, April 10, 2026		
9:00 am	Opening Remarks	
9:15 am	Session 3: Wildlife Genetics & Population Assessment	E. Petrou - *Development of a genotyping-in-thousands by sequencing (GT-seq) panel for identifying individuals and estimating relatedness among Alaska black bears (Ursus americanus)*
9:40 am		W. Smith - *Empirical portrait of an imperiled island endemic subspecies: Glaucomys sabrinus griseifrons*
10:05 am		M. Milligan - *Broad-scale predictors of population trends in Alaskan breeding birds*
10:30 am	Break	
10:45 am	Quiz Bowl *Hosted by UAF Student Chapter*	
12:00 pm	Lunch	
1:35 pm	Session 4: Ungulate Ecology & Movement	A. Prichard - *Caribou Distribution and Movements Near a New North Slope Oilfield Road 2021–2025*
2:00 pm		T. Fullman - *Roads influence caribou movement behavior and survival in northwestern Alaska*
2:25 pm		H. Johnson - *Behavioral flexibility drives fitness tradeoffs for migratory caribou experiencing environmental change*
2:50 pm		H. Thamm* - *Vulnerability of Dall sheep to Avalanches in Southcentral, Alaska*
3:15 pm	Break	
3:30 pm	Student Presentation and Art Contest Awards	
4:10 pm	Wrap-up and Final Announcements	

** denotes student*
⁺ denotes virtual presentation

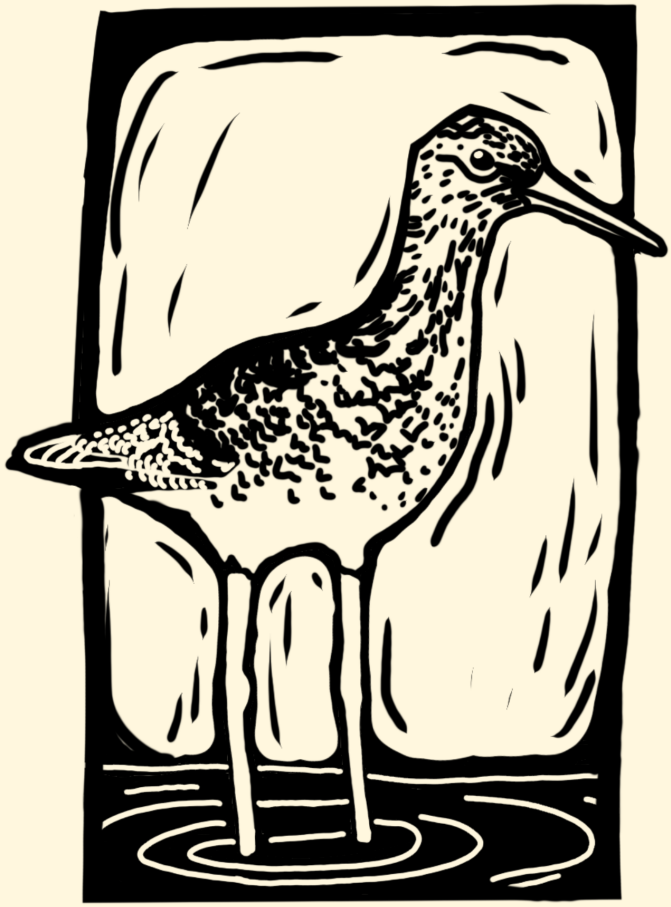
Grab your AK-TWS Merch!

We still have some AK-TWS swag remaining!

Support the Chapter by taking home one of these awesome hats (assorted colors) or a keychain!

Visit the registration table to purchase.

Enter to win the TWS Art Contest!



Do you have a piece of art in any medium that celebrates Alaska's habitats and wildlife? Photos? Knitting? Paintings? All mediums are accepted at this year's art contest!

Submit photos of your piece at **THIS LINK** or bring in-person and place submissions at the art table

Win $100!

Voting for submissions will commence April 7th

Tuesday, April 7

9:00 am – 5:00 pm **WORKSHOP: BAYESIAN MODELING: FUNDAMENTALS TO HIERARCHICAL MODELS**
Joe Eisaguirre, Ph.D. (USGS)
USGS Alaska Science Center, Glenn Olds Hall

9:00 am – 5:00 pm **WORKSHOP: A COMPARATIVE METHOD FOR FIELD NECROPSY IN WILDLIFE**
Drs. Daniel A. Novitch (DVM, PHV, FADD) & Melanie Iverson (DVM, DVSc, DACVP)
UAA ConocoPhillips Integrated Science Building, Room 213

9:00 am – 3:00 pm **FIELD TRIP: ALASKA WILDLIFE CONSERVATION CENTER**
Alex Lewis, AWCC Assistant Curator
Carpool departs at 9am; meet at AWCC at 10am

Wednesday, April 8

The Nave

8:00 am REGISTRATION AND CHECK-IN OPEN

8:45 am WELCOME AND OPENING REMARKS
R. Mollnow

9:00 am – 10:00 am **PLENARY SESSION: AMPLIFYING SCIENCE THROUGH COMMUNICATION**
R. Mollnow, Moderator

9:00 DIVING INTO STORYTELLING
Erin Ranney[+]

10:00 am – 11:00 am **HQ UPDATES**

10:00 Ed Arnett[+] (TWS CEO)

QUESTIONS AND DISCUSSION

11:00 BREAK

11:30 am – 12:20 pm **SESSION 1: WILDLIFE DISEASE & RANGE EXPANSION**
R. Mollnow, Moderator

11:30 HISTORIC AND CONTEMPORARY MUSEUM SPECIMENS IMPLICATE NORTHERN RED-BACKED VOLE (CLETHRIONOMYS RUTILUS) AS BOREALPOX HOST AS EARLY AS 1990S
N. Hamilton

11:55 ANNUAL PATTERNS, SEASONAL SHIFTS, AND MODELED TRENDS IN POLAR BEAR ENCOUNTERS NEAR PRUDHOE BAY, ALASKA
K. Zhang*

** denotes student*
[+] denotes virtual presentation

Wednesday, April 8 (continued)

12:20 ANNOUNCEMENTS
R. Mollnow

12:30 LUNCH

2:00 pm – 3:15 pm **SESSION 2: HUMAN DIMENSIONS, HARVEST & FOOD SYSTEMS**
M. Ahern, Moderator

2:00 SALMON AND FOOD SECURITY IN THE UPPER COPPER RIVER: ASSESSING LONG-TERM CHANGES IN AVAILABILITY
S. Iverson*

2:25 DOMESTIC AND WILD RED MEAT SUPPLY IN ALASKA, 2000–2016
T. Paragi+

2:50 OFFAL OPPORTUNITY
E. Candler

3:15 WRAP-UP AND ANNOUNCEMENTS
R. Mollnow

6:00 pm – 9:00 pm **STUDENT-PROFESSIONAL MIXER**
King Street Brewing Company
Sponsored by Alaska Ducks Unlimited

Thursday, April 9
The Nave

9:00 am WELCOME AND OPENING REMARKS
R. Mollnow

9:15 am – 12:00 pm **SPECIAL SESSION: TOOLS IN TECHNOLOGY**
T. Hasbrouck, Moderator

9:15 USING LARGE LANGUAGE MODELS TO TRANSFORM UNSTRUCTURED INFORMATION INTO ACTIONABLE DATA IN WILDLIFE MANAGEMENT
M. Cobb

9:40 ASSESSING EFFICACY OF REMOTE CAMERAS AND AERIAL SURVEYS IN UNDERSTANDING MOUNTAIN GOAT SPACE USE
M. Ahern

10:05 A COMPENDIUM OF NORTH AMERICAN OPERATIONAL SNOW DATASETS FOR WILDLIFE ECOLOGISTS – WITH AN EMPHASIS ON ALASKA
A. Reinking*

** denotes student*
+ denotes virtual presentation

Thursday, April 9 (continued)

10:30 BREAK

10:45 DEVELOPING A GTSEQ PANEL FOR INDIVIDUAL IDENTIFICATION AND EVALUATING APPLICATION FOR NATIVE AND TRANSPLANTED SITKA BLACK-TAILED DEER POPULATIONS
E. Stacy

11:10 VALIDATING ANTLER- AND MOVEMENT-BASED ESTIMATES OF REPRODUCTION IN BARREN-GROUND CARIBOU USING VIDEO CAMERA COLLARS
E. Racenet*

11:35 CURIOUS CARIBOU: INFRASTRUCTURE INFLUENCES CARIBOU INTERACTIONS WITH CAMERA TRAPS IN ALASKA'S ARCTIC
L. Vann*

12:00 LUNCH

1:30 pm - 3:00 pm **BUSINESS MEETING**

1:30 UPDATES FROM THE EXECUTIVE BOARD

2:15 UPDATES FROM THE CONSERVATION AFFAIRS COMMITTEE

2:30 MEMBER INPUT AND DISCUSSION

3:00 WRAP-UP AND ANNOUNCEMENTS
R. Mollnow

4:30 pm - 6:00 pm **POSTER SESSION AND HAPPY HOUR**
T. Hasbrouck, Moderator

POSTERS

MOUNTAIN GOAT OCCUPANCY ON THE CLEVELAND PENINSULA, ALASKA 2021-2025
M. Ahern

THERMAL CONSTRAINTS ON FEEDING GROWTH AND METABOLISM IN JUVENILE CHINOOK SALMON IN ALASKA.
S. Bhagat*

RESEARCH AT UAF'S LARGE ANIMAL RESEARCH STATION
T. Brinkman

RED FOX DIEL ACTIVITY IN AND AROUND FAIRBANKS
B. Chrisler*

** denotes student*
⁺ denotes virtual presentation

Thursday, April 9 (continued)

POSTERS

DEVELOPING DRONE-BASED PHOTOGRAMMETRIC METHODS TO ESTIMATE BODY CONDITION OF SPOTTED SEALS
M. Connor*

DIFFUSION OF MULE DEER INTO ALASKA
J. Eisaguirre

ATTRACTIVE EFFECTS OF CORVID VISUAL CUES ON SCAVENGING SPECIES AT HUNTER-DERIVED GUT PILES
I. Foote*

IMPACTS OF WOOD BISON (BISON BISON ATHABASCAE) ON HOLISTIC ECOLOGY IN CENTRAL ALASKA
C. Gordon*

UNDERSTANDING BLACK BEAR HUNTER PERCEPTIONS IN PRINCE WILLIAM SOUND
J. Keating*

EXPLORING THE CHANGING AVAILABILITY OF WESTERN ARCTIC CARIBOU AND COMMUNITY IMPLICATIONS
C. Luby*

QUANTIFYING HOW RAIN ON SNOW CHANGES SNOWPACK PROPERTIES AND IMPACTS ARCTIC SYSTEMS: CARIBOU AND MUSKOXEN TEST CASES
S. Højlund Pedersen

EVALUATING MONITORING APPROACHES OF LARGE MAMMALS ON PRINCE OF WALES ISLAND
S. Trujillo*

EFFECTS OF ROAD TRAFFIC ON CANADA LYNX HABITAT USE AND MOVEMENT BEHAVIOR IN THE DALTON HIGHWAY CORRIDOR, ALASKA
E. Wieser*

6:00 pm - 10:00 pm

BANQUET AND AWARDS CEREMONY
The Nave
Speaker: Grant Hilderbrand

** denotes student*
+ denotes virtual presentation

Friday, April 10
The Nave

9:00 am WELCOME AND OPENING REMARKS
R. Mollnow

9:15 am – 10:30 am **SESSION 3: WILDLIFE GENETICS & POPULATION ASSESSMENT**
E. Stacy, Moderator

9:15 DEVELOPMENT OF A GENOTYPING-IN-THOUSANDS BY SEQUENCING (GT-SEQ) PANEL FOR IDENTIFYING INDIVIDUALS AND ESTIMATING RELATEDNESS AMONG ALASKA BLACK BEARS (URSUS AMERICANUS)
E. Petrou

9:40 EMPIRICAL PORTRAIT OF AN IMPERILED ISLAND ENDEMIC SUBSPECIES: GLAUCOMYS SABRINUS GRISEIFRONS
W. Smith

10:05 BROAD-SCALE PREDICTORS OF POPULATION TRENDS IN ALASKAN BREEDING BIRDS
M. Milligan

10:30 BREAK

10:45 am – 12:00 pm **QUIZ BOWL**
Hosted by the UAF Student Chapter

12:00 LUNCH

1:35 pm – 3:15 pm **SESSION 4: UNGULATE ECOLOGY & MOVEMENT**
M. Milligan, Moderator

1:35 CARIBOU DISTRIBUTION AND MOVEMENTS NEAR A NEW NORTH SLOPE OILFIELD ROAD 2021–2025
A. Prichard

2:00 ROADS INFLUENCE CARIBOU MOVEMENT BEHAVIOR AND SURVIVAL IN NORTHWESTERN ALASKA
T. Fullman

2:25 BEHAVIORAL FLEXIBILITY DRIVES FITNESS TRADEOFFS FOR MIGRATORY CARIBOU EXPERIENCING ENVIRONMENTAL CHANGE
H. Johnson

2:50 VULNERABILITY OF DALL SHEEP TO AVALANCHES IN SOUTHCENTRAL, ALASKA
H. Thamm*

3:15 BREAK

** denotes student*
⁺ denotes virtual presentation

Friday, April 10 (continued)

3:30 pm STUDENT PRESENTATION AND ART CONTEST AWARDS
J. Wagner

3:45 pm WRAP-UP AND FINAL ANNOUNCEMENTS
R. Mollnow

Jeff Wagner

THE WILDLIFE SOCIETY | ALASKA CHAPTER

2026 ANNUAL MEETING — WORKSHOPS

Bayesian Modeling: Fundamentals to Hierarchical Models

April 7th, 9am - 5pm

USGS Alaska Science Center, Glenn Olds Hall

Instructor: Joe Eisaguirre, Ph.D. (USGS)

This full-day workshop will introduce participants to Bayesian philosophy and modeling approaches, covering introductory topics in the morning session followed by more advanced applications in the afternoon. Participants have the option to attend the morning only; however, afternoon attendees must attend the morning session. Selected topics include*:

- Bayes theorem and comparison to frequentist statistics
- Markov chain Monte Carlo (MCMC)
- Priors and how to use them
- Bayesian regression analyses
- Hierarchical models and data integration

* The material in this workshop will be geared toward graduate students and other researchers that have experience or have had coursework in applied statistics or biometrics, including using R for (generalized) linear modeling or other frequentist approaches, but are interested in learning what Bayesian statistics is all about. If you're unsure whether you have the necessary baseline knowledge for this course, please reach out to the instructor before signing up.

A Comparative Method for Field Necropsy in Wildlife

April 7th, 9am - 5pm

UAA ConocoPhillips Integrated Science Building, Room 213

Instructors: Drs. Daniel A. Novitch (DVM, PHV, FADD) & Melanie Iverson (DVM, DVSc, DACVP)

The goal of this workshop is to present a method for performing field necropsies on wildlife that can be used across all species of animals. There will be discussions on necropsy equipment, the selection and use of personal protective equipment/PPE, and tissue collection and submission methods. Documenting the necropsy process and findings will also be reviewed. Anatomic landmarks that are used to guide the necropsy process and a repeatable technique for performing field necropsies will be presented. Attendees will complete necropsies on a variety of wildlife species as part of this workshop. This workshop is not intended to provide an in-depth, exhaustive necropsy or analysis of potential ailments, but rather to provide field biologists with a broad assessment of potential abnormalities and provide guidelines on when and how to collect specimens.

INVITED SPEAKERS

ERIN RANNEY

Diving into Storytelling

Erin Ranney is an Emmy award winning and BAFTA nominated wildlife cinematographer and Director of Photography based between the Falkland Islands and the USA. She has filmed on wildlife series for BBC, IMAX, PBS, Smithsonian, Disney+ and National Geographic including the recent series Secrets of Penguins, Blue Planet III and Underdogs. Erin specializes in behavioral and deep sea shoots and has filmed many 'firsts.'

As well as being behind the camera, Erin was also a presenter on the children's conservation series for CBBC, Planet Defenders, and for Schoolyard Films In the Wild with Bears. She was featured in National Geographic Queens and did a press tour that included New York Fashion Week 'Fit for a Queen', the premiere in Hollywood and the White House. Her self-funded film, 'My Alaskan Journey' follows her exploring her bush pilot grandma's stories around Alaska.

Erin co-founded and is the Chair for the nonprofit Wildlife Cinematographer Diversity Fund. She also volunteers as a mentor and instructor for the nonprofits- Girls Who Click and NEWF. She's also on the board for the Wildstar Academy, promoting diversity and inclusion in TV. She's taught field hygiene skills and outdoor skills around the world. Erin has appeared in articles for Business Insider, Glamour, Forbes, the Guardian and more and several outdoor and adventure podcasts. You can see more here. She has also written articles for Zerb, a professional cinematography magazine.

Erin is a deep- sea specialist, as a deep-sea video engineer for Dr. Robert Ballard's exploration vessel, Nautilus, controlling the live cameras on ROVs at depths of 4000 meters and for BBC's newest deep sea series. She is also a trained guide and naturalist

INVITED SPEAKERS

GRANT HILDERBRAND

The Fortuitous Career of the Dumbest Guy in the Room

Grant Hilderbrand is the Superintendent of Lake Clark National Park and Preserve. While his roots are on a cattle farm in the Missouri Ozarks, Grant has lived and worked in Alaska for the past 32 years.

After receiving his Ph.D. from Washington State University in Zoology, Grant moved to Alaska where he worked as a wildlife biologist for 12 years with the Alaska Department of Fish and Game followed by 15 years with USGS and the National Park Service.

Grant was conference chair of the 2016 International Bear Association Conference in Anchorage that hosted more than 500 attendees from 38 countries. Grant also served as the president of the Alaska Chapter of the Wildlife Society, on the TWS National Council, was honored with the 2025 Lifetime Achievement Award from The Alaska Chapter, and is a Fellow of the National Conservation Leadership Institute. Grant has co-authored scores of scientific journal articles throughout his career and mentored more than a dozen graduate students. He is co-editor of the recently released book "Brown Bears in Alaska's National Parks: Conservation of a Wilderness Icon in the Last Frontier" which was published by the University of Alaska Press in 2025. This book synthesized several decades of bear research on NPS Parklands and equally respects and presents aspects of the long-standing relationships between Alaska Native peoples and bears.

ABSTRACTS

Wednesday, April 8

SESSION 1: DISEASE & RANGE EXPANSION (11:30 AM - 12:20 PM)

Session Moderator: Ryan Mollnow

11:30 am

HISTORIC AND CONTEMPORARY MUSEUM SPECIMENS IMPLICATE NORTHERN RED-BACKED VOLE (*CLETHRIONOMYS RUTILUS*) AS BOREALPOX HOST AS EARLY AS 1990S

Natalie Hamilton[1], Maya Juman[1,2], Jeffrey B. Doty[3,4], Clint N. Morgan[3], Audrey Matheny[3], Ariel Caudle[3], Marissa Breslin[1], Aren Gunderson[1], Katherine Newell[5,6], Julia Rogers[5,6], Victoria A. Balta[4,5], Italo B. Zecca[3,6], Florence Whitehill[3,6], Faisal Minhaj[3,6], Molly M. McDonough[7], Adam Ferguson[8], Louisa Castrodale[5], Yu Li[3], Crystal Gigante[3], Yoshinori Nakazawa[3], Joseph McLaughlin[5], Link E. Olson[1]

[1]Department of Mammalogy, University of Alaska Museum, University of Alaska Fairbanks; [2]Department of Veterinary Medicine, University of Cambridge, UK; [3]Poxvirus and Rabies Branch, Division of High-Consequence Pathogens and Pathology, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA; [4]Arctic Investigations Program, Division of Infectious Disease Readiness and Innovation, National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Anchorage, AK; [5]Alaska Division of Public Health, Section of Epidemiology, Anchorage, AK; [6]Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, GA; [7]Department of Biological Sciences, Chicago State University, Chicago, IL; [8]Gantz Family Collections Center, Field Museum of Natural History, Chicago, IL
Contact: nmhamilton2@alaska.edu

Abstract: Borealpox virus (BRPV), formerly known as Alaskapox virus, has recently emerged as a zoonotic pathogen of concern in several regions of Alaska and likely beyond. BRPV was first identified in Fairbanks in 2015. From 2020-2023, five additional cases were reported in Fairbanks, all of which involved self-limiting illness. However, in 2023 a fatal case was reported in an immunocompromised patient on the Kenai Peninsula, expanding the known geographic range of the virus and demonstrating its potential for virulence. BRPV is in the genus Orthopoxvirus, which includes viruses such as vaccinia viruses that are associated with small-mammal reservoirs. To investigate potential zoonotic sources of BRPV, we trapped and sampled small mammals in and around Fairbanks (2020 and 2021) and on the Kenai Peninsula (2024). We found evidence of past exposure of orthopoxviruses in five species, including the House Mouse (*Mus musculus*). BRPV DNA, as well as viable infectious virus, were detected in Northern Red-backed Voles (*Clethrionomys rutilus*). Additional screening of historic museum specimens revealed BRPV DNA in C. rutilus specimens collected in Denali National Park and Preserve in 1998 and 1999, 17 years before the first reported human case of BRPV. Phylogenomic analyses suggest that BRPV isolates from humans and small mammals in the Fairbanks area are phylogenetically distinct from isolates in the Kenai Peninsula. This suggests that the patient in the Kenai Peninsula was likely infected locally, with no connection to infections from Interior Alaska. This pattern, along with the presence of BRPV in specimens from the 1990s, supports a long-term, established wildlife reservoir with recent, occasional spillover into human populations. Additional museum- and field-based sampling will clarify the geographic range of BRPV, which is closely related to Old World orthopoxviruses and may be circulating beyond North America.

** denotes student*
⁺ denotes virtual presentation

11:55 am

ANNUAL PATTERNS, SEASONAL SHIFTS, AND MODELED TRENDS IN POLAR BEAR ENCOUNTERS NEAR PRUDHOE BAY, ALASKA

Kevin Zhang[1,2]* and Todd Atwood[2]

[1]Anchorage School District and [2]United States Geological Survey, Anchorage, AK. Contact: kzhangak@gmail.com

Abstract: Long-term monitoring data collected near Arctic infrastructure can provide insight into changes in the timing and frequency of human-wildlife interaction. We analyzed two decades of polar bear (*Ursus maritimus*) observation records from Prudhoe Bay, Alaska, to quantify seasonal timing and long-term trends in bear encounters near coastal industrial facilities. Encounters were strongly seasonal, with polar bears typically observed from mid-summer through late fall. Phenological analyses indicated a significant shift toward earlier first observations of polar bears on land over time (r^2 = 0.40, P = 0.00286), while no trend was detected in the timing of last observations (r^2 = 0.0098, P = 0.678). Annual observation totals exhibited substantial variability but generally increased over time (r^2 = 0.27, P = 0.0189). Because encounter counts were discrete and overdispersed, we evaluated appropriate count-based modeling approaches and selected negative binomial regression over Poisson models based on diagnostic comparisons. The selected model was used to estimate long-term trends in annual encounter frequency and associated statistical uncertainty. These results suggest an increased frequency of occurrence within the industrial footprint and an expansion of the seasonal window during which polar bears are present near Prudhoe Bay, driven primarily by earlier seasonal arrival. Together, these analyses demonstrate how long-term encounter records, combined with appropriate statistical modeling, can be used to detect changes in encounter patterns and seasonal timing relevant to monitoring and operational planning in northern Alaska.

SESSION 2: HUMAN DIMENSIONS, HARVEST & FOOD SYSTEMS (2:00 PM – 3:15 PM)

Session Moderator: Megan Ahern

2:00 pm

SALMON AND FOOD SECURITY IN THE UPPER COPPER RIVER: ASSESSING LONG-TERM CHANGES IN AVAILABILITY

Sahara Iverson*

University of Alaska Fairbanks. Contact: sbiverson@alaska.edu

Abstract: This project investigates changes in salmon availability in the Upper Copper River region of Alaska where local subsistence users have reported a decline in salmon availability over the last decade. However, abundance data collected by the Alaska Department of Fish and Game (ADF&G) from the Miles Lake's sonar along the Copper River shows that salmon escapement goals are being met, exposing a critical gap in available data. Addressing this discrepancy is important since fluctuating availability directly threatens food security and cultural traditions in rural communities. To bridge this gap, this study reviews three decades of qualitative data from Wrangell St. Elias National Park Subsistence Resource Commission (SRC) and Eastern Interior and South Central Regional Advisory Council (RAC) meeting transcripts. ATLAS.ti is used to identify long term trends in the transcripts to develop an availability index, which is then compared against quantitative data sets including harvest reports, abundance estimates, and environmental variables. This analysis provides more context for understanding how changing salmon populations are being experienced by up-river communities. By identifying why those shifts in availability occur, this research aims to help create a more responsive management strategy that integrates both biological evidence and community observations.

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2:25 pm

DOMESTIC AND WILD RED MEAT SUPPLY IN ALASKA, 2000-2016

Tom Paragi[+]

Alaska Department of Fish and Game, Retired. Contact: tparagi@gmail.com

Abstract: A substantial proportion of food consumed by Alaskans is imported from distant sources over various supply networks. Concerns over supply have long existed and today are described as "food security." Historically the proportion of food consumed from local sources has varied with human population size, costs of food transportation, agricultural production, and other factors. Market hunting of wild game for European settlers occurred until territorial laws were enforced in the early 20th century. Sustained yield requirements for game under the Alaska Constitution were further directed by a 1994 statute to achieve population and harvest objectives for caribou, deer, and moose (91% of game meat by weight) under "Intensive Management" (IM). My objective was to characterize contemporary proportions and trends in red meat consumed by Alaskans to inform food supply considerations and policy. I obtained carcass weight estimates of imported meat and Alaska-produced beef, pork, and reindeer. I tallied estimates of game harvest converted to dressed carcass weights of ungulates and bears. Percentages of imported red meat (84-86), wild game harvest (11-12), and Alaska domestic meat (3-4) persisted over 17 years. Active IM including predator control authorized to benefit 4 caribou herds and 7 moose populations beginning in 2003 did not seem to influence species or total game yields. My analysis did not include home-produced domestic livestock or harvest of small game, migratory birds, or marine mammals that can be regionally important. Agriculture as measured by number of farms is presently growing proportionately faster in Alaska than in any other state, although numbers and acreage are small. Potential to increase the amount of locally-sourced red meat varies widely among diverse urban and rural communities in Alaska. There are major differences between control of agriculture (private enterprise) and game harvest (allocation of trust resources in common use).

2:50 pm

OFFAL OPPORTUNITY

Ellen Candler[1], Ian Foote[1], Grace Milanowski[2], Amy Rager[2], Joseph Bump[3]

[1]University of Alaska Fairbanks, Fairbanks, AK; [2]University of Minnesota Extension, St. Paul, MN; [3]University of Minnesota, St. Paul, MN. Contact: emcandler@alaska.edu

Abstract: Alaska has, unarguably, some of the greatest and most diverse hunting opportunities in the U.S, if not the world. From the North Slope arctic tundra to the southeast coastal rainforests, there are multiple ungulate and carnivore species that are hunted for food, pelts, and recreation. Often, there are hunting remains associated with these endeavors including offal (gut piles), bones, and hides. These vastly different biomes and the conditions that are associated with them (climate, community makeup, accessibility) will certainly impact the scavenger community and consumption of carrion, including these hunting discards. My goal is to better understand this phenomenon, beginning in Unit 20 (Fairbanks-Central Tanana) and Unit 25 (Upper Yukon). With the assistance of hunters, remote cameras will be deployed at hunter discards immediately after field dressing takes place. These cameras will be at each site for a minimum of one month to record the scavenger species that visit the discards. My goal is to do this with both moose and caribou. This research is an offshoot of a successful project based in Minnesota, the Offal Wildlife Watching (OWW) project. The OWW project has been ongoing, each year, since 2018. Hunters from across the state of Minnesota deploy cameras at white-tailed deer gut piles. Thus far, we have recorded more than 60 species visiting offal across more than 375 offal sites. In this presentation, I will briefly go over the OWW project, project results, and the ideas to expand these questions to Alaska.

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Thursday, April 9

SPECIAL SESSION: TOOLS IN TECHNOLOGY (9:15 AM – 12:00 PM)

Session Moderator: Tessa Hasbrouck

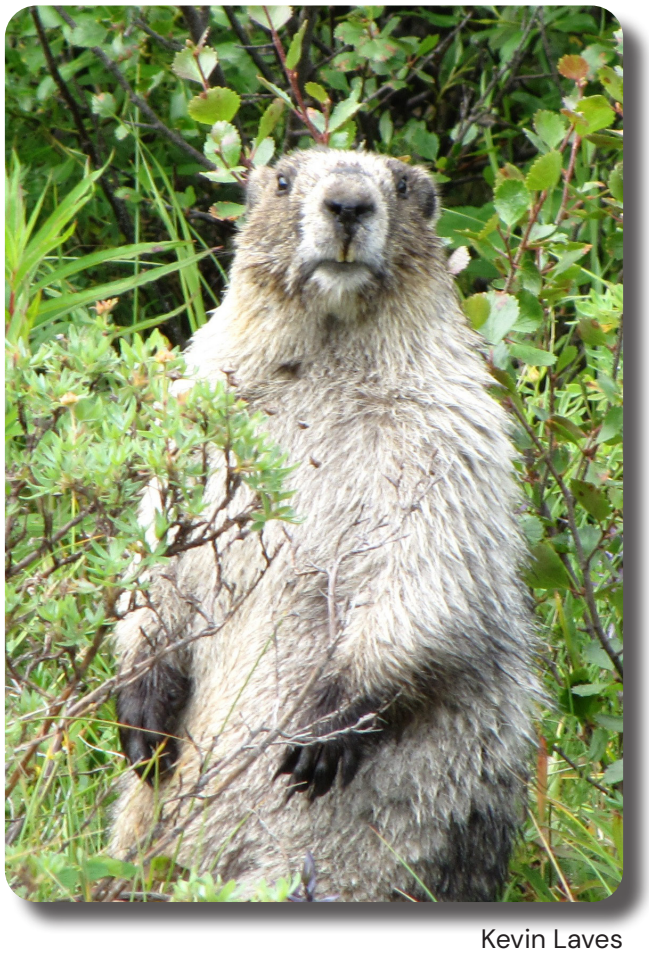
9:15 am

USING LARGE LANGUAGE MODELS TO TRANSFORM UNSTRUCTURED INFORMATION INTO ACTIONABLE DATA IN WILDLIFE MANAGEMENT

McCrea Cobb

U.S. Fish & Wildlife Service, Anchorage, AK. Contact: mccrea_cobb@fws.gov

Abstract: Wildlife management agencies maintain extensive information in unstructured formats such as reports, management plans, and field datasheets, limiting accessibility and synthesis. Large language models (LLMs) offer new approaches to extract and structure these data for operational use. We present three applied use cases. First, a retrieval-augmented generation (RAG) system was developed to query the U.S. Fish and Wildlife Service ServCat repository, enabling structured extraction of invasive species and management actions across coastal refuges. Second, LLM-based workflows were used to digitize legacy paper datasheets into standardized, machine-readable formats. Third, a RAG system was applied to seasonal employee resumes to extract relevant experience and generate structured summaries for review. Across applications, LLMs convert unstructured text into structured outputs, enabling downstream statistical analysis and synthesis that produce evidence to support informed natural resource decisions. These systems require validation and human oversight but reduce barriers between existing data and management action.



Kevin Laves

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9:40 am

ASSESSING EFFICACY OF REMOTE CAMERAS AND AERIAL SURVEYS IN UNDERSTANDING MOUNTAIN GOAT SPACE USE

Megan G. Ahern

Alaska Department of Fish and Game, Ketchikan, AK. Contact: megan.ahern@alaska.gov

Abstract: The rugged habitat preferences of mountain goats (*Oreamnos americanus*) in combination with the large, remote area of the Cleveland Peninsula (P) in southeast Alaska necessitate aerial surveys to address questions related to space use, but weather conditions and dense vegetation often limit sightability. The small, isolated population of mountain goats on the Cleveland P has produced 30% of the highest-scoring Boone and Crockett goats and understanding space use is paramount as interest in harvest remains high. As such, employing additional tools to deepen our understanding of mountain goat space use on the Cleveland P is imperative. To address this need, the Alaska Department of Fish and Game deployed 22 cameras at sites on the Cleveland P from 2021-2024. Previous efforts to research this population have employed collars and aerial surveys but this represents the first study to explore remote cameras as a detection method. Spatial analyses using camera- and aerial survey data elucidated trends in mountain goat occupancy across the peninsula and lent themselves to comparative analyses between methods. Camera data showed that occupancy on the peninsula is 0.678, with significant preference for thicket habitat during peak ambient summer temperatures. Camera detection probability peaked in August, with 85% of detections occurring between June and September each year. The mean mountain goat detection time was 12:24 p.m. AK, but shifts in detection time stratified by habitat type indicated that mountain goats selected more densely vegetated habitats as ambient temperatures rose each day. Aerial surveys and cameras produced equivalent naïve occupancy estimates (26.32%, 95% CI, [16.67, 35.97]), but unique distributions. These data suggest that aerial surveys are effective in estimating occupancy but should be used in conjunction with other methods to understand distribution. Further, mountain goat selection of thicket habitats during peak ambient temperatures underscores the need to conduct aerial surveys within several hours of sunrise, as ambient temperatures later in the day may exceed those which ensure maximum sightability.

10:05 am

A COMPENDIUM OF NORTH AMERICAN OPERATIONAL SNOW DATASETS FOR WILDLIFE ECOLOGISTS – WITH AN EMPHASIS ON ALASKA

Adele Reinking[1,2,3]*, Katherine B. Gura[1], Glen E. Liston[1], Vincent Cionnet[4], Colleen Mortimer[5], Kelly Elder[6], Stine H. Pedersen[1,7]

[1]Cooperative Institute for Research in the Atmosphere, [2]Graduate Degree Program in Ecology, [3]Department of Fish, Wildlife, and Conservation Biology - Colorado State University, Fort Collins, CO; [4]Meteorological Research Division, Environment and Climate Change Canada, Dorval, Canada; [5]Climate Research Division, Environment Climate Change Canada, Toronto, Canada; [6]US Forest Service, Rocky Mountain Research Station, Fort Collins, Colorado, USA; [7]Department of Biological Sciences, University of Alaska Anchorage, Anchorage, Alaska, USA. Contact: adele.reinking@colostate.edu

Abstract: Spatiotemporal distributions of snow properties can influence animal ecology in nearly endless ways. Additionally, snow can impact the ability of wildlife professionals to conduct research and monitoring. Therefore, it is essential that ecologists quantify snow properties, and how they might be changing, in their efforts to understand the dynamic cold-season environments that affect their study populations and effectively implement monitoring and management programs. Unfortunately, the most wildlife-relevant snow data are rarely available operationally (i.e., through regular data collection or generation and publicly available on a dedicated platform with high likelihood of continuation into the future). Moreover, (cont.)

A COMPENDIUM OF NORTH AMERICAN OPERATIONAL SNOW DATASETS FOR WILDLIFE ECOLOGISTS – WITH AN EMPHASIS ON ALASKA - A. Reinking, *continued*

operational datasets rarely represent snow information at appropriate spatiotemporal scales to both capture physical snow evolution processes and the scales at which wildlife respond to snow properties. Despite these challenges, the inclusion of the best snow data available is often preferable to their exclusion, so publicly available snow information may offer varying degrees of utility. We present some key highlights from our recent efforts to summarize available, North American, operational snow data products. This compendium is designed to aid ecologists in finding, understanding, selecting, and accessing appropriate snow data for their specific applications. We focus on point-based, remotely sensed, or modeled datasets that quantify snow properties with high relevance to many wildlife applications, including at least one of the following variables: snow depth, water equivalent, density, phenology, coverage, and rain-on-snow events. For each dataset, we detail spatial and temporal resolution and coverage, available variables, provided data format, the most up-to-date instructions for accessing those data and metadata, and associated publications. Lastly, we provide a brief description of data collection or production methodology and offer insights into each dataset's strengths and weaknesses, relative to ecological applications. This presentation will focus on operational snow datasets with the greatest relevance for Alaskan wildlife studies.

10:45 am

DEVELOPING A GTSEQ PANEL FOR INDIVIDUAL IDENTIFICATION AND EVALUATING APPLICATION FOR NATIVE AND TRANSPLANTED SITKA BLACK-TAILED DEER POPULATIONS

Elise Stacy[1], Jennifer R. Adams[1], Tessa Hasbrouck[2], Stacey A. Nerkowski[3], Nathan R. Campbell[4], Anthony Crupi[2], Lisette P. Waits[1]

[1]University of Idaho Department of Fish and Wildlife Sciences, [2]Alaska Department of Fish and Game, [3]U.S. Fish and Wildlife Service, [4]GT Seek LLC. Contact: estacy@uidaho.edu

Abstract: Population size estimation is critical for managing sustainable harvest of hunted species. Spatial capture-recapture via non-invasive genetic sampling is one method employed to estimate population size and is especially useful in habitats where aerial or other survey techniques are not possible. Developments in DNA sequencing technologies have led to the application of amplicon-based genotyping-in-thousands by sequencing (GTseq) for genotyping tissue and non-invasive genetic samples. Here we develop and assess the power of a GTseq single nucleotide polymorphism (SNP) panel for individual identification and perform population structure analysis of Sitka black-tailed deer (Odocoileus hemionus sitkensis) across native and transplanted populations in Alaska and British Columbia. Our panel contains 248 SNPs and has enough power for individual identification with as few as 30 loci across all sampled populations. We identified population structure aligned with island geography and translocation histories. To select panel SNPs, we sampled our initial genomic data from one island in central Southeast Alaska (CSEAK), resulting in ascertainment bias when applying the panel outside of CSEAK. We highlight that this ascertainment bias led to lower locus variability in populations other than CSEAK. For individual identification outside of CSEAK, we recommend subsetting the panel to only use loci that are variable for the population being studied. If intending to estimate patterns of diversity and differentiation across populations, we recommend re-designing the panel with additional range wide genomic data.

Mark Spangler

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11:10 am

VALIDATING ANTLER- AND MOVEMENT-BASED ESTIMATES OF REPRODUCTION IN BARREN-GROUND CARIBOU USING VIDEO CAMERA COLLARS

Emily Racenet[1]*, Heather Johnson[2], Gabrielle Coulombe[2], Martin Kienzler[3], Michael Suitor[3]

[1]University of Alaska Fairbanks, [2] U.S. Geological Survey, [3]Yukon Government, Canada. Contact: ecracenet@alaska.edu

Abstract: Wildlife agencies invest significant resources monitoring the reproductive rates of barren-ground caribou, especially given concerns about their population trends and the implications for management. Data on parturition and neonate survival have been traditionally collected using visual observations of antler and calf status of collared females from small, fixed-wing aircraft. Because these surveys are weather-dependent, expensive and dangerous, movement-based approaches have been developed to infer reproductive events from GPS location data. We had the unique opportunity to use video camera collar data to validate both antler- and movement-based methods for estimating reproductive rates in barren-ground caribou using data from the Porcupine (2018-2023) and Western Arctic (2021, 2023) herds. For the movement approaches, we specifically assessed the individual-based method and population-based method using 2-, 4- and 8-hour collar fix rates. We found that antler status at the onset of the calving period was highly accurate for indicating parturition (95% accuracy) but became unreliable later during the calving period as 80% of parturient females shed their antlers during this time. Meanwhile movement methods performed marginally for parturition (~68% accuracy) and were often positively biased, and performed poorly for neonate survival (accuracy for detecting parturition and fate was ≤49% for Porcupine caribou). These results have important implications for management agencies using antler- or movement-based methods to estimate caribou reproduction, particularly for informing assessments of population decline or recovery. Our results also highlight the value of video data for validating reproductive monitoring approaches and providing insights into how they can be improved.

11:35 am

CURIOUS CARIBOU: INFRASTRUCTURE INFLUENCES CARIBOU INTERACTIONS WITH CAMERA TRAPS IN ALASKA'S ARCTIC

Lydia Vann[1]*, Max Plichta[1], Todd Brinkman[1]

[1]University of Alaska Fairbanks. Contact: lrvann@alaska.edu

Abstract: Less invasive and labor-intensive than other study methods, camera traps provide a practical approach for long-term, continuous observation and monitoring of wildlife. Despite the many advantages they provide, camera traps can influence wildlife behavior, potentially biasing study results. These behavioral responses can include animals observing, inspecting, sniffing, chewing, or otherwise interacting with camera traps or related mounting infrastructure. This "camera investigation" phenomenon could be especially prominent in open habitats such as Alaska's Arctic Coastal Plain. In this region, barren-ground caribou (*Rangifer tarandus granti*) inhabit areas with varying levels of human activity and infrastructure, from the relatively undisturbed Arctic National Wildlife Refuge to the heavily industrialized Prudhoe Bay Oilfield Complex. Understanding how camera investigation varies depending on site characteristics, such as distance from human development, is an important step in accounting for potential biases during analysis. Using a multi-year camera trap dataset covering 40 sites across the Arctic Coastal Plain, we found that the likelihood of caribou investigating camera traps varied significantly with proximity to human infrastructure, such as roads and drill sites. Caribou were markedly less likely to investigate cameras at sites with infrastructure within an estimated 9 km viewshed ($p = 0.0092$). Our findings indicate that caribou attraction to camera traps varies depending on the presence of nearby infrastructure.

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Poster Session
(4:30 pm - 6:00 pm)

MOUNTAIN GOAT OCCUPANCY ON THE CLEVELAND PENINSULA, ALASKA 2021-2025

Megan Ahern

[1]*Alaska Department of Fish and Game*
Contact: megan.ahern@alaska.gov

Abstract: The rugged habitat preferences of mountain goats (*Oreamnos americanus*) in combination with the large area of state-designated management zones in southeast Alaska necessitate aerial surveys to address questions related to occupancy, but weather conditions often limit survey opportunity. Thus, other tools are required to explore mountain goat occupancy of remote and rugged landscapes. To address this need, the Alaska Department of Fish and Game deployed 22 cameras at sites on the Cleveland Peninsula in southeast Alaska, maintaining them from 2021-2025. Spatial analyses in ArcGIS Pro elucidate trends in mountain goat occupancy and resource selection across the peninsula. Further, aerial surveys of the peninsula in 2022 and 2025 facilitate spatiotemporal comparison between camera- and aerial detections. Aerial survey data also underwent covariate analyses for resource selection. These data suggest that aerial surveys may produce sufficient detection for estimating mountain goat occupancy as a proportion of total habitat but may not lend themselves to an understanding of fine scale resource selection. As such, they should be used in combination with other techniques to ensure a robust estimate in densely forested, rugged landscapes such as that of the Cleveland Peninsula in southeast Alaska.

THERMAL CONSTRAINTS ON FEEDING GROWTH AND METABOLISM IN JUVENILE CHINOOK SALMON IN ALASKA

Siya Bhagat[1], Gus Snyder[1], Amelia Wagner-Jones[1], Larissa Barreiros Scatamburlo[1], Willian Samuel[1], Emily Williams[1], Matthew Gilbert[1]

[1]*University of Alaska Fairbanks. Contact: sbhagat2@alaska.edu*

Abstract: Chinook salmon (*Oncorhynchus tshawytscha*) are vital to Alaska's freshwater and marine ecosystems, commercial fisheries, and Indigenous subsistence livelihoods. Increasing frequency and intensity of heat waves pose significant challenges to Chinook populations, including during freshwater early rearing. Thermal conditions experienced during the juvenile life stage can strongly influence energy requirements, feeding, growth, and survival, impacting the abundance and quality of smolts that reach the sea. Despite extensive research on temperature effects in juvenile Chinook salmon from southern latitudes, there remains a knowledge gap regarding the responses of potentially cold adapted northern Alaskan populations to both acute heat events and long-term climate warming. To address this gap, we conduct controlled laboratory experiments rearing juvenile Chinook across a broad temperature range with varied food availability to reflect natural conditions. We quantify food consumption, growth rates, feed conversion efficiency, and resting and maximum metabolic rates during prolonged warm exposure. These data are being integrated into temperature-performance and bioenergetics models specific to northern chinook. We hypothesize that juvenile Alaska Chinook salmon experience growth and metabolic performance limitations at lower upper temperatures than southern populations due to local thermal adaptation. Likewise, we predict a cold shift in physiological temperature-performance curves, with increased metabolic costs, reduced energetic efficiency, and constrained growth at elevated temperatures, particularly under limited food availability. These results will provide region specific parameters that can support predictive modelling and evidence based fisheries management under current and future climate conditions in Alaska.

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RESEARCH AT UAF'S LARGE ANIMAL RESEARCH STATION

Todd Brinkman

University of Alaska Fairbanks. Contact: tjbrinkman@alaska.edu

Abstract: The Large Animal Research Station (LARS) at the University of Alaska is eager to enhance its network of research partners. LARS is a 52-hectare facility in Fairbanks, Alaska that houses approximately 40 reindeer (*Rangifer tarandus*), 40 muskox (*Ovibus moschatus*), 10-50 wood bison (*Bison bison athabascae*), black bear (*Ursus americanus*), and ground squirrels (*Urocitellus parryii*). LARS facilitates excellence in large mammal research and teaching. Our objective is to provide meeting participants with information on how to engage and collaborate with LARS. Staff at LARS can assist researchers with proposal development, permitting (e.g., Animal Care protocols), study designs, project implementation, veterinary procedures and care, and data collection. Our facility provides researchers with access to equipment and supplies to support animal handling and measurements of animal diet, nutrition, body condition, health and physiology diagnostics, environmental conditions (e.g., weather stations), genetics, and behavior. LARS can also host teaching and other education and outreach events.

RED FOX DIEL ACTIVITY IN AND AROUND FAIRBANKS

Blake Chrisler[1]*, Ellen Candler[1]

[1]University of Alaska Fairbanks, Department of Biology and Wildlife. Contact: bmchrisler@alaska.edu

Abstract: Activity patterns of red foxes (*Vulpes vulpes*) in and around Fairbanks Alaska, are not well documented. Additionally, the long summer days combined with the urban environment makes this a unique study system. Through the Neighborly Wildlife: Fairbanks in Focus project, we sought to learn more about diel patterns of red foxes in the Fairbanks areas using remote cameras over 30 days in June and July when daylight is 19 to 21 hours a day. The study area consisted of three grids of varying urban densities (rural, suburban, urban) with 31 cameras divided among the grids. Images were analyzed for species, time, date, and behavior using an AutoHotkey code. We analysed fox active patterns relative to urban density. We found that red foxes in and around Fairbanks appeared to be more active at night time while human activity was low, while rural foxes were most active during mornings and evenings. These results can help us better understand how red foxes change their diel patterns in response to human densities in a far north city. Though this research only measures one month of red fox diel behavior, this effort is ongoing. Additional data has, and will continue to be, collected for one month each season. This additional data will allow us to better understand the relationship between red foxes and human activity in different urban densities. Additionally, this project is part of the Urban Wildlife Information Network (UWIN) which allows for easy collaboration among several other urban remote camera projects around the world.

Jeff Wagner

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DEVELOPING DRONE-BASED PHOTOGRAMMETRIC METHODS TO ESTIMATE BODY CONDITION OF SPOTTED SEALS

Maeghan Connor[1]*, Todd Brinkman[1], Donna Hauser[1], Andrew Von Duyke[2]

[1]University of Alaska Fairbanks, Fairbanks, AK; [2]North Slope Borough Department of Wildlife Management, Utqiagvik, AK. Contact: mrconnor@alaska.edu

Abstract: The Arctic is currently experiencing rapid and amplified warming, driving cascading ecological shifts throughout the region. Tracking body condition (i.e., length/width) trends can provide insight on how wildlife populations may be responding to these environmental changes. This project aims to develop a standardized protocol for estimating the body condition of spotted seals (*Phoca largha*) using photogrammetric methods. To achieve this, we will analyze previously collected drone imagery of hauled-out spotted seals in the Beaufort Sea. Systematic drone flights were conducted during the 2024 and 2025 summer seasons over hauled out seals (n = 493 seals) in Dease Inlet, a brackish inlet ~30 miles southeast of Utqiaġvik, Alaska. Individuals will first be classified as young-of-year (YoY) or adults based on total length. Body condition will then be estimated using MorphoMetriX, an open-source photogrammetry software designed to quantify morphometrics in pinnipeds and cetaceans. The resulting dataset will establish baseline estimates of average summer body condition for YoY and adult spotted seals in the Beaufort Sea from 2024 – 2025, providing a foundation for tracking body condition trends for this climate-vulnerable and culturally important marine mammal.

DIFFUSION OF MULE DEER INTO ALASKA

Joe Eisaguirre

U.S. Geological Survey, Alaska Science Center. Contact: jeisaguirre@usgs.gov

Abstract: Mule deer have been spreading north toward Alaska for some time. They were first documented in the Yukon around 1940 and then in Interior Alaska in the mid 1980s. The mule deer population in the Yukon is now estimated to be around 1000 animals. Mule deer carry parasites and pathogens that are novel to and could affect Alaskan ungulates, such as moose and caribou, which serve as critical subsistence resources for communities across Alaska. I compiled all available records of mule deer sightings in Alaska to map and summarize the status of the species in the state. I also outline the objectives of ongoing research to use aerial moose survey data that includes incidental mule deer observations from the Yukon paired with mechanistic models of population growth and spread based on ecological diffusion to model and forecast the spread of mule deer through the Yukon and into Alaska. Results will be used to inform disease surveillance and species monitoring programs.

ATTRACTIVE EFFECTS OF CORVID VISUAL CUES ON SCAVENGING SPECIES AT HUNTER-DERIVED GUT PILES

Ian Foote*

University of Alaska Fairbanks. Contact: isfoote@alaska.edu

Abstract: Hunter-derived gut piles (offal) represent a widely deposited, anthropogenically generated resource pulse found throughout terrestrial ecosystems worldwide. This seasonal influx of food, typically coinciding with peak hunting seasons, is exploited by numerous mammalian and avian scavengers; however, the broader ecological impacts of offal remain poorly understood. The Offal Wildlife Watching (OWW) project has compiled a growing dataset of over 300,000 remote camera images from white-tailed deer offal piles across Minnesota to address this knowledge gap. Using the OWW dataset, my research examines whether auditory and visual cues broadcasted by American crows (*Corvus brachyrhynchos*) and common ravens (*Corvus corax*) have an attractive effect on other scavenger guilds (generalist avian scavengers, raptors, and mammalian scavengers). Preliminary results indicate that scavengers are more likely to arrive at offal piles in the hours immediately following corvid group arrival compared to other time periods, (cont.)

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ATTRACTIVE EFFECTS OF CORVID VISUAL CUES ON SCAVENGING SPECIES AT HUNTER-DERIVED GUT PILES - I. Foote, *continued*

indicating a potential attractive effect. If confirmed, this relationship would help improve our understanding of scavenger behavior in response to carrion, shed light on how corvid groups influence the foraging efficiency of heterospecific scavengers, and may provide important insights into the landscape-scale transmission of Chronic Wasting Disease (CWD). Although this project is based in Minnesota, its findings have broad implications beyond the geographic bounds of the state. Many frequently observed scavenger species in the OWW dataset occur in Alaska, and the ecological communities or northern Minnesota closely parallel those of Interior Alaska. Additionally, Alaska's robust hunting culture likely results in the widespread deposition of hunter-derived carrion across the state. As northern latitudes continue to warm, Alaska may also experience the eventual colonization of white-tailed and mule deer, leaving native ungulates vulnerable to CWD exposure. By improving our understanding of scavenger responses to offal, this research may enhance our ability to predict wildlife movement and help mitigate the risk of CWD.

IMPACTS OF WOOD BISON (*BISON BISON ATHABASCAE*) ON HOLISTIC ECOLOGY IN CENTRAL ALASKA

Chaya Gordon[1]*, Todd Brinkman[1]

[1]University of Alaska Fairbanks. Contact: dgordonbland@alaska.edu

Abstract: American Bison (*Bison bison*) play a significant ecological and cultural role across the North American landscape. Once abundant, American Bison faced near extirpation by the late 1800s; reintroduction efforts began in the early 20th century. Wood Bison (*Bison bison athabascae*) reintroductions began in Alaska in 2015, under management of the Alaska Department of Fish & Game. My research focuses on holistic ecology of Wood Bison within Alaska's boreal ecosystems, with an initial focus on diet and nutrition. Wildlife nutrition influences life history events, health, and resilience. While nutritional ecology of American Bison is understood at broad scales, gaps remain in understandings of diet, nutrition, and foraging behavior for Wood Bison, particularly within Alaska. Current methods of assessing ungulate diets include DNA metabarcoding of fecal matter, and use of video camera collars. A 2025 comparative study by Johnson et al. concluded that these two methods yielded significantly different results in diet estimates and inferences of Caribou. My research strives to understand dietary intake and foraging behaviors of Wood Bison across seasonal variations, and to compare methods for dietary assessment. My study area includes Alaska's two reintroduction sites in the Innoko/lower Yukon River and lower Tanana River drainage areas. Methods include collection and DNA metabarcoding of fecal samples, and implementation of video-camera collars; data will be analyzed to understand patterns of foraging and nutritional intake, and compared to assess strengths and limitations of each methodological approach. Future aspects of my research will examine broader holistic ecology of Wood Bison within central Alaska, evaluating impacts on environmental factors such as biodiversity, invasive species, culturally significant species, and fire mitigation, and impacts on cultural and community health, wellness, and resilience. These aspects of Wood Bison ecology are poorly studied, presenting opportunities for meaningful research with direct applications to current conservation questions and community concerns.

Nate Svoboda

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UNDERSTANDING BLACK BEAR HUNTER PERCEPTIONS IN PRINCE WILLIAM SOUND

Jacqueline Keating[1]*, Todd Brinkman[2], Charlotte Westing[3]

[1]Alaska Department of Fish and Game, Division of Subsistence, [2]University of Alaska Fairbanks, [3]Alaska Department of Fish and Game, Division of Wildlife Conservation. Contact: jacqueline.keating@alaska.gov

Abstract: Black bears (*Ursus americanus*) have a long history as an important subsistence and recreational resource in Prince William Sound (PWS), and remain of high importance for hunters and nonconsumptive users today. In 2000, the Anton Anderson Memorial Tunnel to Whittier opened to public vehicle traffic and dramatically increased access to PWS from Alaska's largest population center. This unprecedented change in access increased pressure on fish and wildlife including black bears. Prior to the opening of the tunnel, the annual black bear harvest was less than 200 bears; today, annual harvests often exceed 500 bears. This change has led to management concerns about overharvest, as well as public concerns about bear abundance and hunter competition. This project seeks to understand black bear hunter motivations, satisfaction, and perceptions of bear population change and crowding to inform wildlife managers. Focus group discussions will be conducted in 2026 to inform the development of a hunter survey that will be administered in 2027.

EXPLORING THE CHANGING AVAILABILITY OF WESTERN ARCTIC CARIBOU AND COMMUNITY IMPLICATIONS

Caitlin Luby[1]*, Todd Brinkman[1], Kim Jochum[2], Ophélie Couriot[1]

[1]University of Alaska Fairbanks, [2]National Park Service. Contact: cluby@alaska.edu

Abstract: In the Northwest Arctic region of Alaska, caribou (*Rangifer tarandus*) are a vital source of food and culture for people of the region, however management of the Western Arctic Caribou Herd (WACH) involves diverse user groups, advocates, and government agencies. Efforts to monitor the herd using GPS satellite radio collars and aerial surveys have estimated population and migration metrics since the mid-90's, but fewer efforts have been undertaken to explore the relationship between the changing herd and the availability of caribou to communities in the region. Therefore, the research objectives for this project use a mixed methods approach to, 1) quantify how the availability of caribou to local communities has changed over space and time as the WACH population size and distribution has changed, and 2) assess the implications of those changes on community food security by using data sources that include public testimony from 1993-present and community subsistence harvest surveys. By integrating and synthesizing existing knowledge of caribou both biologically and culturally, and returning that analysis to communities and land managers, this interdisciplinary social-ecological systems (SES) approach is reconstructing the history of availability of caribou while expanding understanding of the WACH SES to identify crucial availability knowledge gaps and help inform management decisions of the herd. Overall, we aim to better understand food security needs and help with planning in the region. During our 30-year study period in Northwest Alaska, availability of caribou as a source of food for communities differs seasonally between fall and winter and does not reflect population trends of the herd. Our research began during fall 2024 and is expected to be completed during summer 2026.

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QUANTIFYING HOW RAIN ON SNOW CHANGES SNOWPACK PROPERTIES AND IMPACTS ARCTIC SYSTEMS: CARIBOU AND MUSKOXEN TEST CASES

Stine Højlund Pedersen[1,2], Adele K. Reinking[1], Katherine B. Gura[1], Kelly Elder[3], Heather Thamm[4], Dylan Elder[5], Glen E. Liston[1]

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Abstract: Rain-on-snow (ROS) events are increasing in frequency, with severe documented impacts on numerous components of the Arctic system, including humans, society, infrastructure, wildlife, ecosystem function, soil, and vegetation. Despite the growing concern about this major climate system change, we lack methodologies to assess and quantify the direct impacts of ROS events on the snowpack (e.g., melting snow and subsequent ice layer formation on top, within, or below the snowpack); we must be able to evaluate these snowpack changes if we are to understand how they affect other components of the Arctic system. The objective of this 5-year research project is to produce the key tools required to quantify physical snowpack modification resulting from ROS events. We will develop a physics-based, numerical ice-layer model (IceLayer) that quantifies the characteristics of ice layers formed in snow, including their location within the snowpack, thickness, strength, timing, duration, and areal extent, across space and time. Developing IceLayer requires both field observations (collected as part of this project), and historical records of ROS-induced snowpack changes, from across the Arctic (Alaska, Canada, Greenland, Svalbard, and Finland). These data, in concert with established and globally validated snow and climate-system modeling tools (i.e., SnowModel), will be used with IceLayer to identify thresholds in key snow and ice properties that influence winter mobility and forage accessibility for caribou and muskoxen. The key goal of IceLayer is to advance our understanding of the physical impacts of ROS events in Arctic systems, now and into the future. Our first year of field measurements has informed the variety of ways that rainwater freezes into ice on top, within, and below the snowpack and will help guide the future IceLayer development.

EVALUATING MONITORING APPROACHES OF LARGE MAMMALS ON PRINCE OF WALES ISLAND

Sarah Trujillo[1]*, Shawn Crimmins[1], Todd Brinkman[1], Gretchen Roffler[2], Colter Chitwood[3]

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Abstract: After decades of extensive timber harvest across southeast Alaska and subsequent shifts in resource availability, the conservation and management of Alexander Archipelago wolves (*Canis lupus ligoni*) on Prince of Wales Island (POW; GMU2) is of great interest to state and federal management agencies. Population abundance and density estimates are a key metric for managing wildlife. However, lack of persistent snowfall, limited road access, and the dense temperate rainforests of southeast Alaska render traditional methods of monitoring wolves costly and inefficient on POW. As such, camera traps and novel analytical tools provide an opportunity to explore cost effective and reliable methods for abundance and density estimates of wolves across POW. Space to event (STE) and time to event (TTE) models utilize camera traps and time-lapse photos to estimate population size and abundance without the need for identifying individuals. This sampling framework will allow us develop simultaneous population estimates of other game species on the island and may be utilized to answer a myriad of ecological questions. By expanding TTE and STE analyses to incorporate black bears (Ursus americanus) and Sitka black-tailed deer (Odocoileus hemionus sitkensis), we can gain a more comprehensive view of these intertwined population dynamics on POW. We aim to develop a streamlined framework for monitoring wolves, deer, and bears across POW. Results can help assess and evaluate ecological change and population dynamics, enhance communication with stakeholders to address hunter concerns, and provide additional scientific support to game management decisions.

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EFFECTS OF ROAD TRAFFIC ON CANADA LYNX HABITAT USE AND MOVEMENT BEHAVIOR IN THE DALTON HIGHWAY CORRIDOR, ALASKA

Emily Wieser[1]*, Knut Kielland[1], Ophélie Couriot[1]

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Abstract: The boreal forest is warming, on average, two times faster than the rest of the globe. In Alaska, many boreal forest species already exist at the northern edge of their geographic range and as a result experience more severe ecological presses and pulses. One such species is the Canada lynx, a keystone mesopredator well-known for its synchronized predator-prey cycles with Snowshoe hare. To date, only a handful of studies have been conducted on the ecology of this felid in the state of Alaska and none have addressed the potential effects of human-sourced disturbance. Therefore, I propose to study the potential disturbance effects of the Dalton Highway on a peripheral population of Canada lynx, located in the south-eastern portion of the Brooks Range. My research objective is to better understand the habitat use and movement behavior of Canada lynx in relation to road presence and increased traffic volume in a mountain valley environment. The methods will include using Brownian Bridge Movement Models to establish home ranges and Resource Selection Functions to identify habitat use. I will create maps to display lynx activity hotspots and habitat characteristics along the traffic corridor using ArcGIS Pro technology. I hypothesize that lynx distribution will be skewed away from the Dalton Highway, with a pronounced displacement effect shown in female lynx rearing young. The outcome of my research will help inform future management decisions and increase our understanding of how Canada lynx respond to increased anthropogenic disturbance in remote environments.

Friday, April 10

SESSION 3: WILDLIFE GENETICS & POPULATION ASSESSMENT (9:15 AM – 10:30 AM)

Session Moderator: Elise Stacy

9:15 am

DEVELOPMENT OF A GENOTYPING-IN-THOUSANDS BY SEQUENCING (GT-SEQ) PANEL FOR IDENTIFYING INDIVIDUALS AND ESTIMATING RELATEDNESS AMONG ALASKA BLACK BEARS (*URSUS AMERICANUS*)

Eleni Petrou[1], Colette D. Brandt[2], Timothy J. Spivey[3], Kristen M. Gruenthal[3], Cherie M. McKeema[1], Sean D. Farley[3], David Battle[3], Cory Stantorf[3], Andrew M. Ramey[1]

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Abstract: The management and conservation of large mammals, such as black bears (*Ursus americanus*), have long been informed by genetic estimates of population size and individual dispersal. Amplicon sequencing methods, also known as 'genotyping-in-thousands-by sequencing' (GT-seq), now enable the efficient and cost-effective genotyping of hundreds of loci and individuals in the same sequencing run. Here, we develop a GT-seq panel for individual identification and kinship inference in Alaska black bears. Using genomic data from restriction site-associated DNA sequencing of hunter-harvested bears from Southcentral Alaska (n = 85), we identified 170 microhaplotype and single nucleotide polymorphism (SNP) loci that were highly heterozygous in local populations. To enable sexing of individuals, we also included a previously published sex-linked locus in the GT-seq panel. We empirically validated the GT-seq (cont.)

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DEVELOPMENT OF A GENOTYPING-IN-THOUSANDS BY SEQUENCING (GT-SEQ) PANEL FOR IDENTIFYING INDIVIDUALS AND ESTIMATING RELATEDNESS AMONG ALASKA BLACK BEARS (*URSUS AMERICANUS*) - E. Petrou, *continued*

panel using samples collected at different spatial scales. These samples included tissues (n = 82) obtained from bears within a small geographic area in Anchorage, Alaska, which were likely to be relatives, as well as the hunter-harvested samples collected from geographically widespread locations throughout Southcentral Alaska. Empirical validation indicated high genotyping success and genotype reproducibility across replicate subsamples. Computer simulations demonstrated that the GT-seq panel had ample statistical power for distinguishing distinct individuals and first-order relatives (parent-offspring and full-sibling pairs) from unrelated individuals. As a final proof of concept, the panel was used to identify individual bears and close kin sampled from urban and wild habitats in Anchorage, Alaska. We anticipate that the GT-seq panel will be a useful genomic resource for the monitoring and management of Alaska black bear populations.

9:40 am

EMPIRICAL PORTRAIT OF AN IMPERILED ISLAND ENDEMIC SUBSPECIES: GLAUCOMYS SABRINUS GRISEIFRONS

Winston Smith

USFS, Pacific Northwest Research Station (retired). Contact: winstonpaulsmith@gmail.com

Abstract: Expectations of the Tongass Land Management Plan (TLMP) to maintain viable populations of native wildlife species have not been realized because of decades of extensive clearcut logging of the most productive old-growth forests, insufficient consideration of area-sensitive vulnerabilities of island communities, failure to implement a monitoring plan, and untenable inherent assumptions of a landscape conservation framework. The flying squirrel (*Glaucomys sabrinus*) was selected as an indicator species for the 1997 TLMP revision because of its dependence on old growth. I review published studies of the Prince of Wales (POW) flying squirrel (*G. s. griseifrons*) to highlight its life history, including multiscale habitat relations, diet, demography, perceptual range, dispersal, and long-term viability within isolated old-growth reserves (OGR) or as metapopulations among old-growth remnants across the managed matrix. *Glaucomys s. griseifrons* selected against logged areas, selected for larger patches of old-growth and landscape connectivity, and required 1-km2 fragments to contain ≥80% productive old-growth to achieve an 80% expectation of occupancy. Viable populations occurred only in productive Sitka spruce (*Picea sitchensis*)–western hemlock (*Tsuga heterophylla*) old growth. To sustain isolated populations for ≥100 yrs (P ≥ 0.95), *G. sabrinus* requires ≥250,000 ha reserves of 100% primary habitat; the existing preferred prescription is ≥16,000 ha with 50% habitat. At least 50% of OGRs across northern POW are not functionally connected because effective dispersal is limited by landscape resistance across managed landscapes, a result of reduced perceptual range, increased locomotor energetic costs, availability of food resources, and higher risks of predation. I conclude that *G. s. griseifrons* has experienced a significant increase in risk of extinction and recommend 4 policy adjustments: 1) discontinue logging of old-growth forests; 2) restore forests through intermediate stand management of second growth; 3) conduct a formal review of TLMP conservation elements and assumptions; 4) and implement a comprehensive monitoring plan.

Jeff Wagner

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10:05 am

BROAD-SCALE PREDICTORS OF POPULATION TRENDS IN ALASKAN BREEDING BIRDS

Megan Milligan[1], Katie Christie[2], Julie Hagelin[2]

[1]USGS, Alaska Cooperative Fish and Wildlife Research Unit, [2]Threatened, Endangered and Diversity Program, Alaska Department of Fish and Game
Contact: mcmilligan@alaska.edu

Abstract: Long-term monitoring can provide important insights into the dynamics of wildlife populations at large spatial and temporal scales, which is critical for management. The Breeding Bird Survey is a long-term, road-based monitoring program that has been tracking population trends of breeding birds in Alaska since the 1990s. We evaluated coarse predictors of species-level trends in both the state of Alaska and in key Bird Conservation Regions that represent common biomes in Alaska. We assessed the effects of both life history characteristics and habitat variables (e.g., tree loss in the non-breeding range) to estimate which factors were most closely related to long-term declines in Alaskan breeding birds. Preliminary results indicate that long-distance migrants, insectivores, and species that experienced greater proportions of tree loss on the non-breeding range were more likely to have declining population trends. In contrast, residents, short-distance migrants, herbivores, omnivores, and those with non-breeding ranges at higher elevations were more likely to have positive population trends. Together these results suggest that key life history characteristics and threats on the non-breeding range are related to declining population trends for Alaskan breeding birds. These results provide new insights into potential drivers influencing species-level declines, informing testable hypotheses related to management actions for Alaskan breeding birds throughout the annual life cycle. Information is preliminary and provided for best timely science.

SESSION 4: UNGULATE ECOLOGY & MOVEMENT (1:35 PM - 3:15 PM)

Session Moderator: Megan Milligan

1:35 pm

CARIBOU DISTRIBUTION AND MOVEMENTS NEAR A NEW NORTH SLOPE OILFIELD ROAD 2021–2025

Alex Prichard[1], Matthew J. Macander[1], Joseph H. Welch[1]

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Abstract: The ~20 km Pikka Development Project road was constructed during the winter of 2019–2020 between the Kuparuk oilfield and the Colville River, an area used as summer range by the Central Arctic Herd (CAH) of caribou. Because this project is in an area with high use by caribou, has had increased levels of human activity in recent years, and has extensive baseline data available prior to construction, it provides a good opportunity to examine the effects of a new oilfield road on caribou. We monitored post-construction caribou use and movements of the area during 2021–2025 using road surveys, time-lapse cameras, and GPS collar data collected at 15-minute intervals and compared that to pre-construction GPS collar data during 2014–2019. We also deployed traffic counters in 2024–2025. We used Hidden Markov Models to examine caribou behavior near the road and integrated step-selection analyses to look for changes in use of the area near the road and changes in road crossing probabilities. Some caribou were present in the area during all seasons, but the highest use occurred during the mid-summer mosquito and oestrid fly seasons when caribou moved closer to the coast. Although there were some changes in speed, directionality, and behavioral state observed adjacent to the road, our analyses found that caribou used the area in broadly similar ways both pre-and post-construction. Caribou crossed project roads frequently and used roads and pads for oestrid fly relief, even with increased levels of traffic and construction activity. While we did not test for all potential effects of oilfields on caribou, our results suggest that, after 50 years of exposure to infrastructure, CAH caribou are able to successfully navigate properly designed oilfield road and pipelines during summer movements.

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2:00 pm

ROADS INFLUENCE CARIBOU MOVEMENT BEHAVIOR AND SURVIVAL IN NORTHWESTERN ALASKA

Timothy Fullman[1], Chloe Beaupré[2], Eliezer Gurarie[2]

[1]The Wilderness Society, [2]State University of New York College of Environmental Science and Forestry. Contact: tim_fullman@tws.org

Abstract: Caribou (*Rangifer tarandus*) undertake some of the longest terrestrial migrations worldwide, yet studies have shown that their distribution and behavior can be influenced by human activity and infrastructure. We investigated behavioral responses to roads and survival implications for the Western Arctic Caribou Herd in northwestern Alaska. We applied an adapted version of the Barrier Behavior Analysis to classify movement behavior of caribou in proximity to roads. Movement straightness and heading near roads were compared to seasonal average values to detect changes in behavior and classify five potential movement behaviors: normal movement, back-and-forth, bounce, trace, and quick cross. Analyzing over 1 million locations from 366 GPS-collared adult female caribou between 2009-2024, we found that despite road buffers covering only 5% of the herd range, 63.1% of collared animals in our dataset entered the buffers and 61.5% of those displayed altered movement. Most altered movements occurred near the DeLong Mountain Transportation System (60.3%) or during fall migration (51.9%). Accordingly, we analyzed mortality rates for caribou whose fall movements were influenced by the road, comparing individuals exhibiting altered behavior with those for which the road functioned as an impermeable barrier. Mortality rates were significantly higher (42%) for caribou that did not cross or circumnavigate the road, compared with those that did (22%). As new development projects are proposed for northern Alaska, understanding wildlife responses is critical to identify mitigation measures and inform management decisions that balance responsible development with conservation of natural systems. This is all the more necessary given findings like ours that indicate that behavioral changes can scale up to influence survival, potentially leading to altered population dynamics.

2:25 pm

BEHAVIORAL FLEXIBILITY DRIVES FITNESS TRADEOFFS FOR MIGRATORY CARIBOU EXPERIENCING ENVIRONMENTAL CHANGE

Molly Caldwell[1]**, Heather Johnson[2]**

[1]Department of Zoology and Physiology, University of Wyoming, [2]USGS Alaska Science Center. Contact: heatherjohnson@usgs.gov

Abstract: Behavioral flexibility often allows animals to maintain their fitness across changing environmental conditions. Animals may adjust both the averages and breadths (e.g., specialist vs. generalist) of behaviors in response to changes in the environment, which can influence resource acquisition and energy expenditure. However, little is known about how such behavioral shifts contribute to variation in animal fitness outcomes, such as survival and reproduction. Using data from 2015-2020, we evaluated how variable summer forage and insect conditions drove shifts in the space use, movements, and forage use of migratory caribou in the Central Arctic Herd and their associated fitness outcomes. We found that caribou strongly shifted their space use and movements to maintain consistent use of summer forage. Some behavior changes corresponded to increased survival and reproduction, but others corresponded to decreased fitness outcomes, particularly during warmer summers with higher predicted insect harassment. Our results indicate that caribou are behaviorally adapting to changing environmental conditions, but may be unable to fully compensate for the fitness consequences of a rapidly warming Arctic. These findings have significant implications for caribou distributions and demographic trends in the future, and for the Indigenous communities that rely on caribou for subsistence. Further, this work demonstrates the importance of considering both the average and breadths of space use and movement behaviors when assessing the importance of behavioral flexibility for animal fitness.

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2:50 pm

VULNERABILITY OF DALL SHEEP TO AVALANCHES IN SOUTHCENTRAL, ALASKA

Heather Thamm[1]*, Tom Lohuis[2], Kyle Smith[2], Nick Fowler[2], John Sykes[3,4], Ophélie Couriot[1], Todd Brinkman[1]

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Contact: hthamm@alaska.edu

Abstract: Dall sheep (*Ovis dalli*) populations in Southcentral Alaska have declined sharply over the past 25 years, raising concerns about winter habitat limitations. While previous research has emphasized snow's effects on nutrition and recruitment, the hazards posed by snow in steep terrain have been largely overlooked. Mountain ungulates that rely on rugged terrain to avoid predation also expose themselves to avalanche hazards during snow-covered months. Between 2012 and 2024, the Alaska Department of Fish and Game monitored cause-specific mortality of 177 radio-collared (GPS & VHF) adult Dall sheep in Chugach State Park and the Talkeetna Mountains. Initial findings reveal avalanche mortality as the leading known cause of adult death (34.1%), exceeding predation (11%) and hunter harvest (5.5%). Although 41.8% of adult deaths were of unknown cause, 92% occurred during winter (October–May). Kaplan–Meier estimates indicate that annual adult survival ranged from approximately 0.66 to 0.97 across winters from 2012 to 2024 in Chugach State Park and 2019 to 2023 in the Talkeetna Mountains, with lower survival coinciding with higher avalanche-related mortality. Preliminary analyses of winter movement data from 135 GPS-collared sheep using the Avalanche Terrain Exposure Scale (AutoATES v2.0) indicate that sheep spent most of their time in high-hazard terrain classes, with 65% of winter GPS fixes occurring in complex terrain. Seasonal patterns show elevated exposure to potential release areas during early and late winter, aligning with observed peaks in avalanche mortality. Together, these results suggest that avalanche risk may stem from consistent use of steep, high-exposure terrain interacting with periods of unstable snowpack, rather than from active avoidance of hazardous areas. Understanding these exposure dynamics is an important step toward evaluating whether recent mortality patterns reflect long-standing ecological trade-offs or emerging stressors associated with changing winter weather patterns.

Jeff Wagner

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