

CONNECTIVITY

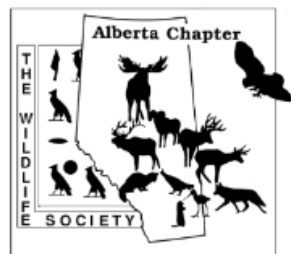


ACTWS • CSTWS
CANMORE • 2019

ALBERTA CHAPTER AND CANADIAN SECTION OF THE
WILDLIFE SOCIETY CONFERENCE AND AGM 2019



*"In nature, nothing
exists alone."*
- Rachel Carson



CONFERENCE COMMITTEES

Conference Chair: Andrea Morehouse

General Planning Committee: Alex Beatty, Joanna Burgar, Everett Hanna, Cindy Kemper, Brian Kiss, Sonja Leverkus, Erin McCance, Andrea Morehouse, John Wilmshurst

Open Paper Program: Mitch Flowers, Robin Gutsell, Kara MacAulay, Evelyn Merrill

Plenary: Joanna Burgar, Art Rodgers, Christopher Smith

Symposium: Andrea Morehouse

Field Trip: Everett Hanna, Cindy Kemper

Workshops: Don Barnes, Joanna Burgar, Nikki Paskar

Student Conclave: Justine Josephson-Laidlaw, Nikki Paskar

Entertainment: Justine Josephson-Laidlaw, Nikki Paskar

Professional Awards: Glynnis Hood, Wini Kessler

Student Presentation Awards: Jesse Tigner, Volunteer Judges

Scholarships and Travel Grants: Joanna Burgar, Wini Kessler

Auction: Cindy Kemper, Chuck Priestley

Sponsorship: Joe Litke, Christopher Smith

Registration: Alex Beatty, Student Volunteers

Website: Layla Neufeld

Communications: Ali Hughes-Juneau, John Wilmshurst

Conference Logo: Kate Broadley

Program Photography: Jesse Tigner

Program Design: Andrea Morehouse



**ACTWS AND CSTWS EXTEND A SINCERE
THANK YOU TO ALL OF OUR SPONSORS!**



ACTWS President's Message

Dr. Everett Hanna

Welcome to the 2019 Alberta Chapter of The Wildlife Society Conference and AGM in beautiful Canmore! This year we chose to gather in a place that truly 'connects' with the conference theme: "*CONNECTIVITY*". Canmore, and the Bow Valley more generally, is a key piece to the puzzle that is maintaining sufficient connection between the wildlife populations that inhabit our mountain and foothill ecosystems in the face of climate change and our ever-increasing human population. Whether you're well-versed in connectivity, or just starting out, you'll surely benefit from the opportunities to learn on tap at this year's conference – from the workshops and field trip to the oral and poster presentations to the banquet. Bring with you your experience and energy to share and take back the connections and memories our annual conference and AGM brings each year!



CSTWS President's Message
Dr. Rick Baydack

Welcome to Canmore and the Meeting and Annual Conference of the Alberta Chapter of The Wildlife Society being held in association with the Canadian Section of TWS! I expect that we are all looking forward to another outstanding event that will stimulate our various professional interests and enable enhanced networking with colleagues from near and far. I am sure that you will agree that the Organizing Committee has done an outstanding job in developing the Program that includes a diversity of Workshops, Presentations, Contributed Papers, Posters, Award Presentations, Social Events, and many other activities. The venue in Canmore and the surrounding landscape will no doubt add to our individual learning experiences, and provide lasting images and memories for many of us. I encourage each and every attendee to take part in as many activities as possible so as to gain maximum benefit from your attendance. Thanks very much to the leadership of the Alberta Chapter for agreeing to host this event, and we look forward to continuing associations with our other Provincial Chapters in the coming years. Enjoy and keep in touch.....Rick



Conference at a Glance

Thursday, March 21st

1900 – 2100 Public Talk, Dr. Colleen Cassady St. Clair
Spring Creek's Canmore Opera House, 400 Spring Creek Drive

Friday, March 22nd

All events are at the Coast Hotel unless noted
Conference participants are responsible for their own meals on Friday.

1000 – 1700 Conference Registration (Concourse)

0845 – 1600 Field Trip (off site, meet in lobby)

Workshops

0800 – 1200 Certified Wildlife Biologist Workshop (Crocus)

0800 – 1200 Boreal Wetlands 101 (Arnica)

1300 – 1600 Introduction to Telemetry and Winter Tracking (Crocus)

1300 – 1600 Defeat the darkside: how to use social media like a SciComm Jedi
(Arnica)

1300 – 1600 CSTWS Members Forum (Cougar/Grizzly Room)

1600 – 1700 CSTWS AGM (Arnica)

1700 – 1900 ACTWS AGM (Crocus)

1900 – 2200 Mixer/Cash Bar and Student Conclave (Wild Rose
Ballroom/Crocus)

1930 – 2130 Public walk with Roland Dechesne: light pollution in the Bow Valley
(off site, meet in lobby)

CONFERENCE AT A GLANCE

Saturday, March 23rd

0800 – 1200 Conference Registration (Concourse)

0830 – 0900 Conference Welcome (Wild Rose Ballroom)

0900 – 1200 Conference Plenary: Connectivity (Wild Rose Ballroom)

1200 – 1300 Lunch (provided in Concourse)

1300 – 1600 Open paper program, concurrent sessions (Wild Rose Ballroom, Divided)

1630 – 1730 Posters, cash bar (Cougar/Grizzly Room/Table Private)

1730 – 2400 Banquet

Dr. Margo Pybus, ACTWS – how we got to where we are

Scholarships

Awards

Dr. Fred Bunnell, Ian McTaggart-Cowan Award Recipient

Silent and live auction

Live music by The Wardens

Sunday, March 24th

0830 – 1000 Symposium: 30 Years of Women in Wildlife (Wild Rose Ballroom)

1000 – 1200 Open paper program, concurrent sessions (Wild Rose Ballroom, Divided)

1200 – 1300 Lunch (provided in Concourse)

1300 – 1430 Open paper program, concurrent sessions (Wild Rose Ballroom, Divided)

1440 – 1500 Student presentation awards & closing remarks (Wild Rose Ballroom)

Thursday, March 21st

Canmore Opera House
400 Spring Creek Drive

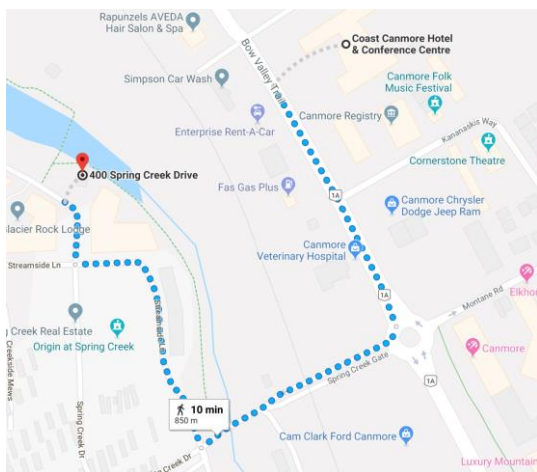
To kick-off our conference this year, we have invited Dr. Colleen Cassady St. Clair to share her research and thoughts on connectivity, coexistence and wildlife management in our increasingly disconnected world. We welcome you to join us for what promises to be a fascinating evening.

1900-2100

Public Talk

Attractants, adaptation, and learning in bear-train collisions

Dr. Colleen Cassady St. Clair, Professor, University of Alberta



Friday, March 22nd

Conference participants are responsible for their own meals on Friday.

1000 – 1700 Conference Registration
(Main Concourse)

0845 – 1600 Field Trip
(Off site, meet in lobby)

Workshops

0800 – 1200 Certified Wildlife Biologist
(Crocus)

0800 – 1200 Boreal Wetlands 101
(Arnica)

1300 – 1600 Introduction to Telemetry and Winter Tracking
(Crocus)

1300 – 1600 Defeat the dark side: how to use social media like a
SciComm Jedi
(Arnica)

1300 – 1600 CSTWS Members Forum (Cougar/Grizzly Room)

1600 – 1700 CSTWS AGM
(Arnica)

1600 – 1700 ACTWS AGM
(Crocus)

1700 – 2200 Mixer/Cash Bar & Student Conclave
Finger Foods Provided
(Wild Rose Ballroom/Crocus)

1930 – 2130 Public walk with Roland Dechesne: light pollution in the
Bow Valley (off site, meet in lobby)



Saturday, March 23rd – Morning*

WILD ROSE BALLROOM

CONFERENCE WELCOME

0830 – 0900

Everett Hanna, ACTWS President,
Instructor, Lethbridge College

Rick Baydack, CSTWS President,
Professor, University of Manitoba

John Borrowman, Mayor of
Canmore

Alice Kaquitts, Elder, Stoney First
Nation

0900 – 1200 PLENARY

Moderator: Matthew Pyper

AV Volunteer: Katie Baillie-David

CONNECTIVITY

- *What is connectivity? Why is connectivity important?*
- *How might climate change affect connectivity? Could connectivity facilitate movement of invasive species under climate change?*
- *How important is genetic connectivity? How can it be measured and maintained?*

- *What role, if any, does government policy have in maintaining connectivity?*
- *What role, if any, does third party support (e.g., industry on public lands; private landowners; hunting, trapping and angling NGOs) have in maintaining and/or promoting connectivity?*
- *How might the Alberta and/or Canadian Section(s) of TWS work with third party groups to further their efforts?*

0900 – 0905

Introduction

Matthew Pyper, Ecologist and
Science Communicator, Fuse
Consulting Ltd.

0905 – 0935

Connectivity in the Anthropocene:
Unravelling the tapestry of life
Fiona Schmiegelow, Professor,
University of Alberta

*conference registration open
0800 – 1200 in concourse

Abstracts for all oral and poster presentations are available for download and printing online: <https://www.actws.ca/conference-events/>

Saturday, March 23rd – Morning

WILDROSE BALLROOM

0935 – 0950

Connectivity in a working landscape

Elston Dzus, Ecologist, Alberta-Pacific Forest Industries

0950 – 1005

Impacts of oil and gas development on migratory birds: behaviour, productivity and migration

Nicola Koper, Professor, University of Manitoba

1005 – 1025 COFFEE BREAK (Provided in Concourse)

1025 – 1040

Connecting ecological process in the Bow Valley: past, present, and future

Adam Ford, Assistant Professor, University of British Columbia Okanagan

1040 – 1055

Stoney Nakoda Grizzly Report and Connectivity

William Snow, Consultation Manager, Stoney Nakoda First Nation

1055 – 1110

Connectivity Matters: A portfolio of connections are needed to protect wetlands and their ecosystem functions and services

Irena Creed, Executive Director and Professor, School of Environment and Sustainability, University of Saskatchewan

1110 – 1125

From Yellowstone to Yukon: Making the case for large landscape conservation

Aerin Jacob, Conservation Scientist, Yellowstone to Yukon

1125 – 1200

Panel Discussion

1200 – 1300 LUNCH BREAK (Buffet provided in Concourse)



Saturday, March 23rd – Afternoon

CONCURRENT SESSIONS

SESSION 2A

(Arnica/Crocus Room)

Birds and Bats

Moderator: Cesar Estevo

AV Volunteer: Samantha

Widmeyer

1300 – 1315

Size Matters: Relative impacts of in situ oil sands development features on habitat use of an avian generalist and specialist

Thea Carpenter, University of Alberta

1315 – 1330

Mapping priority conservation areas and assessing habitat quality for Ferruginous Hawks in Canada

Janet Ng, University of Alberta

1330 – 1345

Long-term monitoring of changes in harvest area, weather, and insect outbreaks on boreal birds

Lionel Leston, University of Alberta

1345 – 1400

Trends in songbird populations over ten years in Canada's Rocky Mountain National Parks

Brenda Shepherd, Parks Canada

1400 – 1415

Effects of Hurricane Maria on the bat community on the Caribbean island of Dominica

Lisa Sims, University of Calgary

1415 – 1430

Optimum temperatures of bat houses to enhance bat survival

Ryan Henderson, Lethbridge College and BearTracks Environmental Services

1430 – 1445 COFFEE BREAK
(Provided in Concourse)



Saturday, March 23rd – Afternoon

CONCURRENT SESSIONS

SESSION 2B

(Orchid/Ladyslipper Room)

Bears and Wolverine

Moderator: Brooke Biddlecombe

AV Volunteer: Corey Smereka

1300 – 1315

Assessing polar bears (*Ursus maritimus*) use of the western Hudson Bay flaw lead polynya
Erin Henderson, University of Alberta

1315 – 1330

Migration dynamics of polar bears (*Ursus maritimus*) in western Hudson Bay
Alyssa Bohart, University of Alberta

1330 – 1345

The sustainability of wolverine trapping mortality in southern Canada
Garth Mowat, B.C. Ministry of Natural Resources

1345 – 1400

Learning opportunities contribute to both problems and solutions for bear-train collisions
Colleen Cassady St. Clair, University of Alberta

1400 – 1415

Movement rates of grizzly bears in high recreation areas versus the backcountry in Kananaskis Country, Alberta
Jessica Hermann, Georg-August University of Göttingen, Germany

1415 – 1430

Evaluating two non-invasive genetic sampling approaches to population monitoring for the future of provincial grizzly bear management
Anja Sorensen, fRI Research

1430 –1445 COFFEE BREAK
(Provided in Concourse)



Saturday, March 23rd – Afternoon

CONCURRENT SESSIONS

SESSION 3A

(Arnica/Crocus Room)

Human-Wildlife Interactions

Moderator: Yasmine Majchrzak

AV Volunteer: Meghan Beale

1445 – 1500

The utility of river corridors for conservation of moose in the oil sands region

Stan Boutin, University of Alberta

1500 – 1515

Factors affecting spatial and temporal variation in human-carnivore interactions

Emily Sunter, UBC – Okanagan

1515 – 1530

Moose population dynamics during 20 years of declining harvest in British Columbia

Gerald Kuzyk, B.C. Ministry of Forests, Lands, Natural Resource Operations and Rural Development

1530 – 1545

Evaluating the risks and impacts of rapidly expanding invasive wild pigs across the Canadian landscape

Ryan Brook, University of Saskatchewan

1545 – 1600

Decision support tool for cumulative effects management based on multi-species monitoring data

Peter Solymos, Alberta Biodiversity Monitoring Institute and University of Alberta

1600 – 1630

Free Time



Saturday, March 23rd – Afternoon

CONCURRENT SESSIONS

SESSION 3B

(Orchid/Ladyslipper Room)

Tools and Technology

Moderator: Michael Peers

AV Volunteer: Darby McPhee

1445 – 1500

Large-scale trends in wildlife populations using remote cameras

Jesse Whittington, Parks Canada

1500 – 1515

Evaluating camera trap surveys as an effective means of monitoring remote ungulate populations

Joanna Burgar, University of Victoria and University of British Columbia

1515 – 1530

Using technology to track invasive species

Delinda Ryerson, Alberta Invasive Species Council

1530 – 1545

Acoustic based estimates of fisheries productivity in northern boreal lakes: Implications for offsetting

Michael Terry, University of Alberta

1545 – 1600

Welfare practices in wildlife capture: Narwhal (*Monodon monoceros*) handled for satellite tagging

Sandra Black, University of Calgary

1600 – 1630

Free Time



Saturday, March 23rd – Evening

BANQUET

1630 – 1730

Poster Session/Cash Bar (Cougar/Grizzly Room/ Table Restaurant Private Room)

List of contributed posters is available at the end of the program

1730 – 1840

Banquet (Wild Rose Ballroom)

1815 – 1840

ACTWS – how we got to where we are

Margo Pybus, Provincial Wildlife Disease Specialist, Alberta Fish and Wildlife

1840 – 1855

Scholarships – Joanna Burgar

1855 – 1915

ACTWS Awards – Glynnis Hood

CSTWS Awards – Mike Gillingham

1915 – 1925

Fred Bunnell, Ian McTaggart-Cowan Award Recipient

1925 – 2025

Live Auction – Matt Besko

Please note that we are able to accept credit/debit for all auction items

2025 – 2400

Live Music by The Wardens

Sunday, March 24th – Morning

WILD ROSE BALLROOM

0830 – 0955 SYMPOSIUM

Moderator: Andrea Morehouse

AV Volunteer: Eleanor Stern

30 YEARS OF WOMEN IN WILDLIFE

0830 – 0840

Margo Pybus, Provincial Wildlife

Disease Specialist, Alberta Fish
and Wildlife

0840 – 0850

Melanie Dickie, Research

Coordinator, Caribou Monitoring
Unit, Alberta Biodiversity
Monitoring Institute

0850 – 0900

Sonja Leverkus, Ecosystem
Scientist, Shifting Mosaics
Consulting

0900 – 0910

Wini Kessler, Retired Ecologist

0910 – 0920

Janet Ng, Cumulative Effects
Specialist, Government of
Saskatchewan

0920 – 0930

Evelyn Merrill, Professor,
University of Alberta

0930 – 0955

Panel Discussion

0955 – 1015 COFFEE BREAK
(Provided in Concourse)



Sunday, March 24th – Morning

CONCURRENT SESSIONS

SESSION 4A

(Arnica/Crocus Room)

Caribou Research and Management

Moderator: Elly Knight

AV Volunteer: Sarah Julin

1015 – 1030

A burning question: Using fine-scale step selection to understand the impact of wildfire on woodland caribou in Alberta

Sean Konkolics, University of Alberta

1030 – 1045

Seasonal patterns in body condition of adult, female woodland caribou: Evidence for a summer nutritional bottleneck with implications to mortality risk in southern Northwest Territories

John Cook, National Council for Air and Stream Improvement

1045 – 1100

Identification and evaluation of woodland caribou birth sites in northern Ontario

Phil Walker, University of Alberta

1100 – 1115

Ecological genomics and conservation of caribou in Alberta and western North America

Maria Cavedon, University of Calgary

1115 – 1130

Close encounters of the fatal kind: predators and landscape features associated with central mountain caribou mortalities

Tracy McKay, fRI Research Caribou Program

1130 – 1145

Behavioural responses of southern mountain caribou to commercial backcountry skiing activities

John Wilmshurst, ACTWS

1145 – 1200

Sharing the landscape: How the Regional Industry Caribou Collaboration are working together

Margaret Donnelly, Regional Industry Caribou Collaboration

1200 – 1300 LUNCH BREAK

(Buffet provided in Concourse)

Sunday, March 24th – Morning

CONCURRENT SESSIONS

SESSION 4B

(Orchid/Ladyslipper Room)

Mammals and Predation

Moderator: Erin Henderson

AV Volunteer: Sebastian Theis

1015 – 1030

The Waiting Game: Elk maintain fine-scale spatial avoidance of predators across various temporal scales

Mitchell Flowers, University of Alberta

1030 – 1045

Using predator scat contents to predict predation risk for elk (*Cervus elaphus*) in a multi-predator community

Kara MacAulay, University of Alberta

1045 – 1100

Is there differential parasite exposure in a partially migratory elk population?

Jacky Normandeau, University of Alberta

1100 – 1115

Temporal dynamics of terrestrial vertebrate use of forest-wetland edge in Uganda **Camille Warbington**, University of Alberta

1115 – 1130

Risk effects have nutritional, demographic, and evolutionary consequences on prey **Darcy Visscher**, The King's University

1130 – 1145

The effect of environmental change on predator-prey dynamics **Michael Peers**, University of Alberta

1145 – 1200

The role of food in the snowshoe hare cycle **Yasmine Majchrzak**, University of Alberta

1200 – 1300 LUNCH BREAK

(Buffet provided in Concourse)

Sunday, March 24th – Afternoon

CONCURRENT SESSIONS

SESSION 4A CONTINUED

(Arnica/Crocus Room)

Caribou Research and Management

Moderator: Nicole Boucher

AV Volunteer: Lara Hiles

1300 – 1315

Evaluating actions to reduce threats to caribou herds in Jasper National Park

Lalenia Neufeld, Parks Canada

1315 – 1330

Linear features and caribou declines: Understanding the mechanisms and predicting restoration efficacy

Melanie Dickie, Alberta

Biodiversity Monitoring Institute

1330 – 1345

Improving efficiency and effectiveness of caribou habitat restoration through an innovation roadmap

Matthew Pyper, Fuse Consulting Ltd.



Sunday, March 24th – Afternoon

CONCURRENT SESSIONS

SESSION 5

(Orchid/Ladyslipper Room)

On the Move

Moderator: Sean Konkolics

AV Volunteer: Lisa Sims

1300 – 1315

Immigrant female red squirrels
pay a fitness cost after settlement
but males do not

April Robin Martinig, University of
Alberta

1315 – 1330

Migratory connectivity:
connecting Common Nighthawk
populations across the annual
cycle

Elly Knight, University of Alberta

1330 – 1345

Evaluating impact of reintroduced
bison in Banff National Park

Lorina Keery, Royal Roads
University



Sunday, March 24th – Afternoon

CONCURRENT SESSIONS

SESSION 6A

(Arnica/Crocus Room)

Speed Talks – Session 1

Moderator: Kelly Mulligan

AV Volunteer: Chloe Wright

1345 – 1350

Genetic tagging in the
Anthropocene: Scaling ecology
from alleles to ecosystems

Clayton Lamb, University of
Alberta

1350 – 1355

Shifting strategies: Calving and calf
survival in a partially migration elk
herd

Jodi Berg, University of Alberta

1355 – 1400

Risky behaviour: Species and sex
differences in contact during the
breeding season may explain
variation in Chronic Wasting
Disease prevalence

Kelsey Saboraki, University of
Winnipeg

1400 – 1405 How do boreal
predators coexist on a working
landscape? Exploring
spatiotemporal co-occurrences of
large and medium bodied
carnivores in northern Alberta
Erin Tattersall, University of British
Columbia

1405 – 1410

Should we keep flying to count
deer? Reliability of indirect
measures for white-tailed deer
populations
Mariana Nagy-Reis, University of
Alberta

1410 – 1415

Integration of remote camera data
among projects for better
management of mammals in
Alberta
Jim Schieck, MacEwan University

1415 – 1420

Large-scale monitoring strategies
using passive acoustic sensor
technology
Alexander MacPhail, University of
Alberta and Alberta Biodiversity
Monitoring Institute

Sunday, March 24th – Afternoon

CONCURRENT SESSIONS

SESSION 6B

(Orchid/Ladyslipper Room)

Speed Talks – Session 2

Moderator: Karling Roberts

AV Volunteer: Ryan Henderson

1345 – 1350

Evaluation of citizen science to measure bobcat (*Lynx rufus*) trends in an urban environment

Sarah Julin, Lethbridge College

1350 – 1355

Wildlife corridors and connectivity

Simon Ham, Parks Canada

1355 – 1400

Crossing structures reduce wildlife mortality in the Bow Valley

Eleonore Lebeuf-Taylor,
University of Ottawa

1400 – 1405

Environmental Student Video Project - Why do Wildlife Matter?

Emily Thoroski, University of Manitoba

1405 – 1410

Seeking refuge: Avian community composition in boreal relicts as contemporary analog for future boreal hill systems

Cesar Estevo, University of Alberta

1410 – 1415

Nest site surveys and distribution of Black Swifts in Jasper National Park

Julien St-Amand, Parks Canada

1415 – 1420

A reclamation and wildlife success story in Alberta's Rocky Mountains

Beth MacCallum, Bighorn Wildlife Technologies Ltd

1430 – 1440 Open room partition



Sunday, March 24th – Afternoon

STUDENT AWARDS AND CLOSING REMARKS

Wild Rose Ballroom

1440

Student Presentation Awards: Jesse Tigner

Closing Remarks

ACTWS President: Andrea Morehouse

CSTWS President: Sonja Leverkus

*Thank you for participating in the 2019 ACTWS/CSTWS joint conference.
We wish you safe travels back home!*



CONTRIBUTED POSTERS

(Cougar/Grizzly Room/Table Restaurant Private Room)

Posters may be hung Saturday morning and must be removed by the end of the conference on Sunday

1. Common nighthawk monitoring in Jasper National Park ~**Serge Aucoin**
2. Drivers of ungulate distribution in the Willmore Wilderness Park ~**Katie Baillie-David**
3. Comparing interspecific differences in ungulate habitat use in response to coal mine reclamation ~**Meghan Beale**
4. Fragmentation of polar bear habitat in Hudson Bay ~**Brooke Biddlecombe**
5. Monitoring ecosystem dynamics in the Beaufort Sea using stable isotopes in polar bears (*Ursus maritimus*) ~**Nicole Boucher**
6. Evaluating use of Judas pigs and helicopter capture using net-gun for feral swine disease testing and population control ~**Ryan Brook**
7. Ecological and behavioural mechanisms underlying reproductive isolation in mule deer and white-tailed deer ~**Rebecca Carter**
8. "Pine-ing" for cover: Caribou and grizzly bear response to mountain pine beetle in west-central Alberta ~**Siobhan Darlington**
9. Beavers (*Castor canadensis*) as bioindicators of trace element contamination in northern Alberta ~**Melissa Dergousoff**
10. Analysis of mule deer (*Odocoileus hemionus hemionus*) contact rates in a CWD endemic area ~**Maria Dobbin**
11. Grizzly bear habitat selection adjacent to recreational trails ~**Sarah Elmeligi**
12. Evaluating population parameters of ungulates using trail cameras ~**Jennifer Foca**
13. Canada warbler response to vegetation structure on regenerating seismic lines ~**Jocelyn Gregoire**
14. Plains bison reintroduction to Banff National Park ~**Caroline Hedin**

15. Spatial separation during the caribou rut as a mechanism of reproductive isolation ~**Liam Horne**
16. Influence of woody cover distribution on the contact zones of chronic wasting disease ~**Dasha Ivanova**
17. Home range, habitat selection and nesting density of urban merlins (*Falco columbarius*) in Winnipeg, Manitoba ~**Justine Josephson-Laidlaw**
18. Goat Gatorade: How do mineral licks define mountain goat home range? ~**Laura Kroesen**
19. The influence of linear development on elk (*Cervus canadensis*) populations in the Foothills region of Southern Alberta ~**Jayme Ladouceur**
20. Gaining insights into Alberta's building roosting bats using citizen science ~**Erin Low**
21. A temporal comparison of delta 13C and delta 15N signatures in muscle and fin tissues in boreal freshwater fishes: Nonlethal sampling methods for stable isotope analysis ~**Taylor Lund**
22. Raptor behaviour at the Alberta Grain Terminal in Edmonton, Alberta: An update ~**Marissa Lynds**
23. Resilience of bighorn sheep in Banff National Park: Linking health to the long-term sustainability of an ecologically, culturally, and economically important alpine ungulate in Alberta ~**Bryan Macbeth**
24. The movement ecology of infection risk for California bighorn sheep (*Ovis canadensis californica*) in the South Okanagan, British Columbia ~**Sultana Majid**
25. Bull elk ecology in a partially migratory population ~**Hans Martin**
26. Winter behaviour of a new migratory strategy: The Ya Ha Tinda elk herd ~**Darby McPhee**
27. Arthropods in the fall diets of Plains sharp-tailed grouse in Alberta ~**Sejer Meyhoff**
28. Shifts in East Kootenay elk migration patterns ~**Kelly Mulligan**
29. Living in the country: The importance of wildlife habitat patches in mixed-use landscapes ~**Jordan Nakonechny**

30. Sex- and context- specific effects of personality on fitness but no link to life history traits in red squirrels ~**Sarah Nason**
31. Seasonal variation in parasite egg counts of seven parasites in male and female bighorn sheep, *Ovis canadensis* ~**Samridhi Rijal**
32. Exploring fish species richness and co-existence in boreal lakes with isotopic niches ~**Karling Roberts**
33. Female mating tactics of white-tailed deer and mule deer ~**Cora Romanow**
34. Using drones to detect songbird nests in the province of Alberta, Canada ~**Kent Russell**
35. Unmanned aerial vehicles and machine learning for eagle carcass detection ~**Kent Russell**
36. Urban, rural and agricultural Canada goose nesting success ~**Geoffrey Sage**
37. Calibrating Trafx trail counters with wildlife camera data - learnings and case histories from the field ~**Stefan Seifert**
38. Ten years of monitoring illustrates a cascade of effects of white pine blister rust and focuses whitebark pine restoration in the Canadian Rocky and Columbia Mountains ~**Brenda Shepherd**
39. Modelling lichen availability for woodland caribou forage in a fire-driven landscape ~**Joseph Silva**
40. Home-range characteristics of cougars at the northern range of their geographic distribution ~**Corey Smereka**
41. Modeling risk of the Chronic Wasting Disease in Alberta ~**Peter Smolko**
42. Modeling sensitivity of Alberta mule deer populations to landscape changes ~**Eleanor Stern**
43. Sequential mating tactics in bighorn sheep ~**Ryan Tate**
44. Assessing habitat enhancements to improve the restoration and development of northern boreal lakes ~**Sebastian Theis**
45. Wildlife responses to a temporal closure ~**Jesse Whittington**
46. Using stable isotopes to resolve prey composition in Puma concolor ~**Samantha Widmeyer**
47. Classifying caribou migratory behaviour to identify and preserve intraspecies biodiversity ~**Jessica Theoret**

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MAP



Ian McTaggart-Cowan Award Recipient

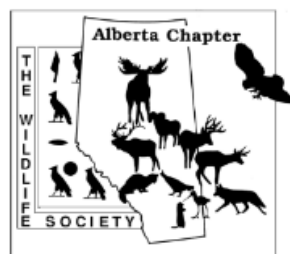
Throughout a professional career spanning over 50 years, Dr. Bunnell has achieved and excelled in biology, conservation, education, and management. After receiving his PhD from the University of California Berkeley in 1973 (Computer simulation of nutrient and lemming cycles in an arctic tundra wet meadow ecosystem), Fred joined the Faculty of Forestry at the University of British Columbia and remained there for his entire academic career. He was the founding Director of the Centre for Applied Conservation Biology (1991–2001) and in 1996 he was appointed the Forest Renewal BC Chair in Applied Conservation Biology. Dr. Bunnell's scholarly output (over 600 scientific articles, books, and reports to government and industry) has been recognized with more than 10 provincial, national, and international awards for applied research and writing. Crediting Dr. Ian McTaggart Cowan as his mentor, Dr. Bunnell has always focused on the larger issues of conservation and biodiversity. Throughout his academic career he used his expertise to try to influence management of forests, wildlife habitats and populations, and overarching biodiversity. Dr. Bunnell never strayed far from his 'system' roots and the importance of linking research outcomes to potential actions by decision makers. Examples of his impact include chairing the Clayoquot Scientific Panel, helping to create Canada's first co-management plan (for Beverly-Kaminuriak Caribou Management), and seeing his efforts at sustaining biodiversity applied on five continents. Dr. Bunnell is internationally recognized, having served on more than 70 provincial, national, and international committees dealing with resource management. He has been a mentor to many, including more than 30 graduate students directly supervised. He continues to inspire students, colleagues, and the public to think critically and do their best for the natural world.



Thank you for attending!



ACTWS · CSTWS
CANMORE · 2019



ALBERTA CHAPTER OF THE WILDLIFE SOCIETY
Box 4990, Edmonton, Alberta T6E 5G8 www.actws.ca