

UNGULATE MONITORING METHODS WORKSHOP

June 4-6, 2024. ONLINE {web link will be emailed to participants}



DRAFT AGENDA (last updated May 9, 2024).

WORKSHOP OBJECTIVE:

To collectively explore **current and prospective** monitoring methods for ungulates, considering **opportunities, challenges, and barriers to implementation**, and **identify next steps towards application** of best methods to improve ungulate population management.

June 4 Day 1 9 AM – 16:30 PM MST (all times are in Mountain Standard Time)

Session Facilitator: Dave Roberts (Alberta Biodiversity Monitoring Program)

9:00 – 9:20 AM (20 min) Workshop Introduction – Dan Farr and Mark Edwards (Alberta Environment and Protected Areas, EPA)

9:20 – 10:40 AM MST Ungulate Population Monitoring Needs

9:20 – 9:30 (10 min) **Jurisdictional Survey Results – Information Needs (TBD)**

Are accurate and precise population estimates needed everywhere? What other options may suffice?

9:30 – 9:50 (20 min) **Management Agency Perspectives (TDB)**

9:50 – 10:10 (20 min) **Researcher Perspectives - Mark Boyce (University of Alberta/ Alberta Conservation Association)**

10:10 – 10:40 (30 min) **Panel – Q & A**

10: 40 – 11:00 (20 min) COFFEE BREAK

Session Facilitator: Emily Herdman (Innotech Alberta)

11:00 – 12:30 PM MST Ungulate Monitoring Methods and Manned Aircraft

What Methods are agencies currently using, or plan to use, to monitor ungulate populations?

11:00 – 11:20 (20 min) **Jurisdictional Survey Results – Monitoring Methods (Anne Hubbs, EPA)**

Manned Aircraft (Non-Infrared)

11:20 – 11:40 (20 min) **Addressing sources of error in aerial data: what are common pitfalls and solutions (Kayla Davis, Michigan State)**

11:20 – 11:40 (20 min) **Addressing Detection Bias (Mike Russell, EPA)**

¹11:40 – 12:00 (20 min) **Where should we survey and how frequently? When can model-based estimates replace surveys? (Pauline Priadka, B.C. Water Lands and Resource Stewardship)**

12:00 – 12:30 (30 min) **Panel – Q & A**

12:30 – 13:00 (30 min) LUNCH BREAK

Session Facilitator: Hannah McKenzie (Alberta Agriculture and Irrigation)

13:00 – 14:50 PM MST Aerial Infrared Imaging and Drones

Manned Aircraft (Aerial Infrared Imaging (AIR))

13:00 – 13:20 (20 min) **State of AIR technology. How can AIR inform ungulate management? (Daniel Melody, Owyheeair, Idaho)**

Drones (Unmanned Aerial Vehicle / Remotely Piloted Airborne Systems)

13:20 – 13:40 (20 min) **State of Drone technology. How can drones inform wildlife management? (Kanwar Johal, Superwake, Ontario)**

13:40 – 14:00 (20 min) **Applying AIR and drone technology to wildlife management (Todd Whiklo and Kirsten Solmundson, Manitoba Fish and Wildlife)**

14:00 – 14:20 (20 min) **Evaluating drone technology in Alberta (Nicholas Coops, University of British Columbia and Gord Stenhouse, Foothills Research Institute)**

14:20 – 14:50 (30 min) **Panel – Q & A**

14:50 – 15:10 (20 min) COFFEE BREAK

Session Facilitator: Courtney Hughes (Alberta Forestry and Parks)

15:10 – 16:10 (60 min) **Facilitated Break-Out Sessions**

Potential Topics (in development)

1. What information do agencies need to inform management decisions, and what levels of precision are required to make good decisions?
2. What types of errors, biases or assumption violations are most common and likely to lead to poor inference or management decisions?
3. What are recommended approaches and characteristics of sampling designs that can address these issues?
4. How often should we monitor? How do we best determine this? How does this fit within an adaptive management cycle?
5. How can researchers, wildlife managers and others (e.g., Indigenous Peoples, citizens) align data collection for dual purposes and mutual benefits?
6. What are the opportunities, benefits, and challenges of incorporating Indigenous and citizen-science information to inform wildlife management decisions?

16:10 – 16:20 (10 min) **Daily Wrap-Up**

16:20 END DAY 1

UNGULATE MONITORING METHODS WORKSHOP

June 5 Day 2 9 AM – 15:00 PM MST (all times are in Mountain Standard Time)

Session Facilitator: TBD
9:00 – 10:00 AM Day 1 Recap and What we heard in the Break-Out Sessions

Session Facilitator: Cassandra Stevenson (ABMI and University of Alberta)
10:00 AM–12:20 PM MST Remote Cameras and Telemetry

- 10:00 – 10:20 (20 min) **Could camera trap surveys fill knowledge gaps in aerial ungulate survey programs, improving the science that guides wildlife management? (Jamie Clarke, University of Victoria, British Columbia)**
- 10:20 – 10:40 (20 min) **How do camera estimates compare with those from other methods? (Marcus Becker (Alberta Biodiversity Monitoring Institute))**
- 10:40 – 11:00 (20 min) **Comparing composition between remote cameras and aerial surveys in Dall sheep in Indigenous-led community-based program (Sydney Gowan (University of Victoria, B.C.) and Steve Anderson (Gwich'in Renewable Resources Board, Inuvik, NWT))**
- 11:00 – 11:20 (20 min) **Using remote cameras to inform Idaho's wildlife management program (tentative)**
- 11:20 – 11:40 (20 min) **How telemetry can meet the multiple needs of wildlife agencies (Randy Larsen, Brigham Young University, Utah)**
- 11:40 – 12:20 (40 min) **Panel – Q & A**

12:20 – 13:00 (40 min) LUNCH BREAK

Session Facilitator: TBD
13:00 – 14:00 (60 min) Facilitated Break-Out Sessions

Potential Topics (in development)

1. Should we be comparing results from the different methods? Can we? What is required?
2. How do we address issues with “big data”? What tools are available? What is the state of AI and what's required to move this forward?
3. What are key considerations when selected a monitoring method (e.g., species, landscape, cost, scale, training)?

4. Do we need to evaluate each technology in each landscape for each species? How broadly can we infer information in similar landscapes to elsewhere? What is needed to increase the scale of inference?

14:00 – 14:50 (50 min) **What we heard in the Break-Out Sessions and General Discussion**

14:50 – 15:00 (10 min) **Daily Wrap-up**

15:00 **END DAY 2**

UNGULATE MONITORING METHODS WORKSHOP

June 6 Day 3 9 AM – 15:30 PM MST (all times are in Mountain Standard Time)

Session Facilitator: Anne Hubbs (EPA)

9:00 – 9:10 AM Day 2 Recap and What to Expect on Day 3

9:10 – 10:10 AM MST Genetics / DNA

9:10 – 9:30 (20 min) Using DNA to estimate woodland caribou populations (Lalenia Neufeld, Jasper National Park, Alberta)

9:30 – 9:50 (20 min) Using DNA and citizen science to estimate goat populations in Glacier National Park (Tabitha Graves, United States Geological Survey, Montana; Mark Biel and Jami Belt, National Park Service)

9:50 – 10:10 (20 min) Panel – Q & A

10:10 – 10:30 (20 min) COFFEE BREAK

Session Facilitator: Mark Edwards (EPA)

10:30 – 12:10 AM MST Bringing It All together: Using Integrated Population Models and Multiple Monitoring Methods

10:30 – 10:50 (20 min) Integrated Population Models (IPMs) and Cost: Benefit Analyses for Wildlife Agencies (Josh Novaks / Paul Lukacs, SpeedGoat Wildlife Solutions, Montana)

10:50 – 11:10 (20 min) Various tools to confront challenging ungulate survey data: A barren-ground caribou case study (John Boulanger, Integrated Ecological Research, B.C)

11:10 – 11:30 (20 min) Using Multiple Methods to Estimate Population Size and Composition of Mule Deer (Brett Furnas, California Dept. of Fish and Wildlife)

11:30 – 12:10 (40 min) Panel – Q & A

12:10 – 13:00 (50 min) LUNCH BREAK

Session Facilitator: TBD

13:00 – 14:00 (60 min) Facilitated Break-Out Sessions – Opportunities and Challenges

Potential Topics (in development)

1. What are key data and knowledge gaps that need to be filled (prioritize list)?
2. Which methods are most applicable to address data and knowledge gaps?
3. What actions and resources would be required to fill these gaps?
4. What are challenges / barriers that must be overcome and possible solutions?
5. Do you see opportunities to collaborate to conduct adaptive management projects or other, and if so, what would this look like?

14:00 – 15:00 (60 min) What we heard in the Break-Out Sessions and General Discussion

15:00 – 15:30 (30 min) Next Steps and Workshop Wrap-up (Dan Farr and Mark Edwards, EPA)

15:30 WORKSHOP ENDS
