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# **Chronic Wasting Disease; an emerging disease threat for caribou populations in Canada**

**Presented to: The First Nations Food, Nutrition and Environment Forum**

**November 6, 2019**

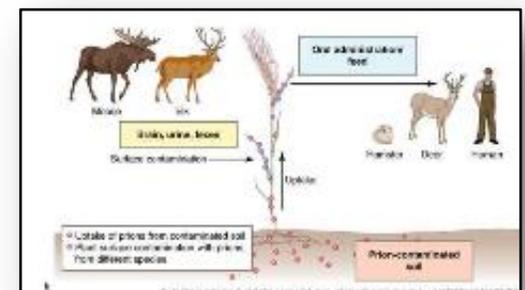
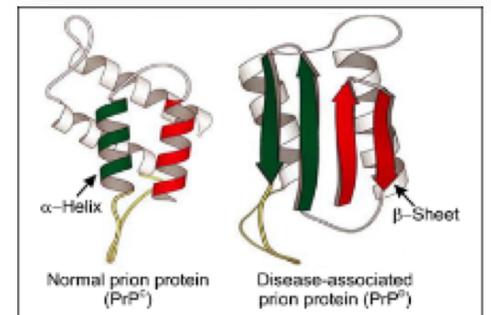
**Presented by: Dr. Jennifer Provencher, Wildlife Health Unit Head,  
Wildlife Management and Regulatory Affairs Division,  
Canadian Wildlife Service**

# Outline

- Chronic Wasting Disease
  - Overview
  - Roles and Responsibilities
  - Distribution and spread
  - Surveillance programs
  - Risks of spread to wildlife
    - Specifics on threat assessment to caribou
    - Specifics on work in BC
  - Conclusions

# Chronic wasting disease

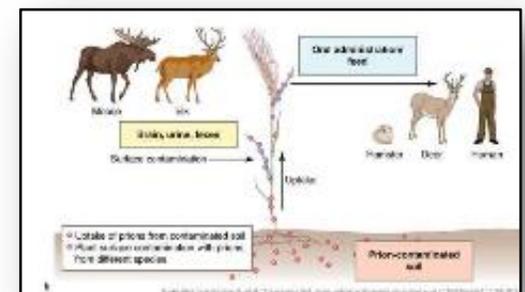
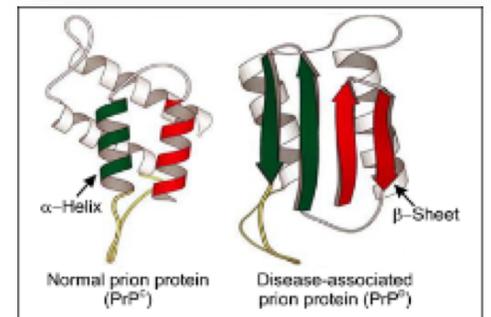
- **Chronic wasting disease (CWD)**
  - is a fatal neurological illness occurring in North American cervids (members of the deer family: deer, elk, moose etc.).
  - is in the same family of diseases that includes bovine spongiform encephalopathy (BSE) aka mad-cow disease in cattle and Creutzfeldt-Jakob disease (CJD) in humans.



# Chronic wasting disease

- **What causes CWD?**

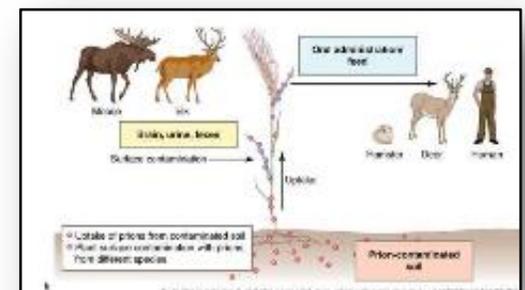
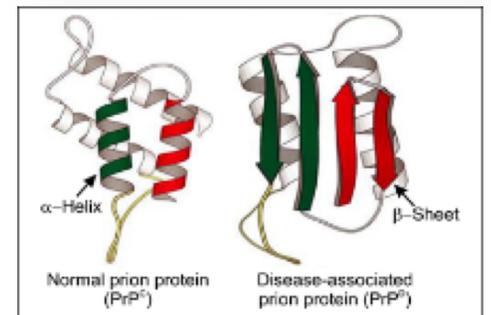
- Caused by a misfolded protein called a prion.
- All mammals produce normal prions that are used by cells.
- When disease-associated prions contact normal prions, they cause them to refold into the abnormal shape.
- Disease-associated prions are not readily broken down and accumulate in lymphatic and neural tissues.



# Chronic wasting disease

- **Transmission**

- CWD is spread through direct contact with infectious agent in saliva, milk and feces, but urine is likely the most significant route of transmission
- In addition, infectious prions bind to soil and remain infectious for years in this material, suggesting that environmental contamination of soil has played a role in spreading disease.



# Chronic wasting disease

- Can CWD be treated?

<b>Generic control option</b>	<b>Viability</b>
<b>Medical treatment</b>	No drugs or chemicals available for CWD treatment
<b>Immunization</b>	No effective vaccines exist
<b>Depopulation</b>	Legal, ethic and spiritual impediments reduce the likelihood of this as an acceptable option
<b>Quarantine or isolation</b>	Difficult to recognize contagious animals before onset of signs, especially for widely dispersed species like woodland caribou. Few practical ways to constrain wildlife movements. No practical way to identify uncontaminated environments
<b>Hygiene</b>	No means to remove the prion from contaminated environment
<b>Promote resilience to cope with the threat</b>	No specific information on how to do this for CWD and woodland caribou are facing multiple concurrent pressures that decrease their resilience

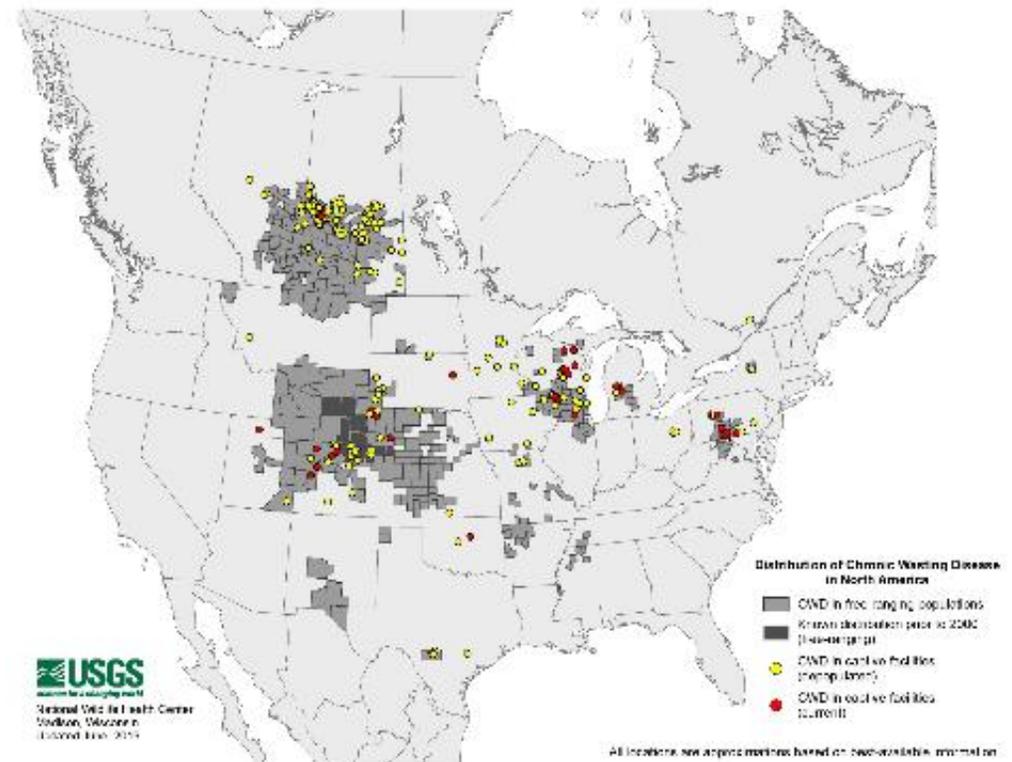
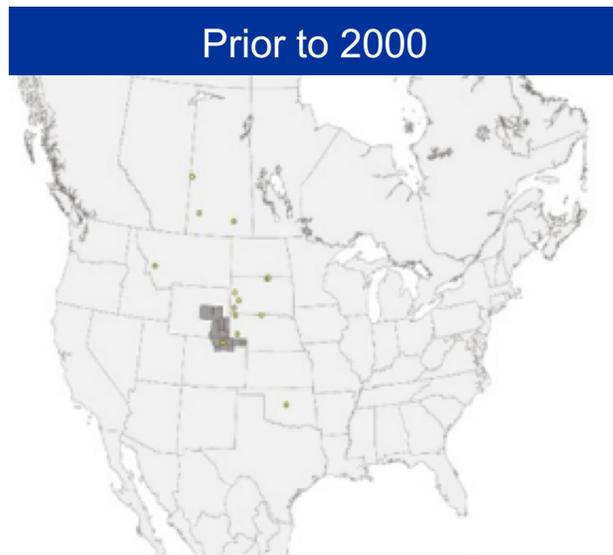
# Roles and Responsibilities:

- Canadian Food Inspection Agency (CFIA)
  - Lead federal agency for the management of CWD in captive cervids in Canada (responsible for the *Health of Animals Act*) and delivery of the Voluntary Herd Certification Program under the CFIA
- Agriculture and Agri-Food Canada (AAFC)
  - Promotes and supports Canadian agriculture and agri-food sector
- Provinces and territories (P/Ts)
  - Agriculture departments are responsible for the management of cervid farms
  - Wildlife departments are responsible for surveillance and tracking CWD in wild species
- Environment and Climate Change Canada
  - Provides advice on wildlife and ecosystem health issues
- Canadian Wildlife Health Cooperative (CWHC)
  - Coordinates diagnostics and data on CWD via submitted samples

# Distribution and spread in North America

## October 2019

- First discovered in 1967 in Colorado
- Likely introduced into Canada in farmed cervids; first confirmed case was in farmed elk in Saskatchewan in 1996; first case in wild cervids was in mule deer near the Alberta-Saskatchewan border in 2000



- As of July 2019, 24 U.S. States and 2 Canadian Provinces have reported CWD in free-ranging and captive cervids

# Summary of current CWD surveillance programs in western and northern Canada (Prior to detections near BC)

<b>Jurisdiction</b>	<b>Surveillance program summary</b>
<b>British Columbia</b>	Target sample collection volunteered from hunters in the Peace and Kootenay regions (300 samples per region), Will also accept and examine hunter volunteered cervids heads from all over the province.
<b>Alberta</b>	Mandatory testing in certain wildlife management units (WMUs) along the Saskatchewan border and west.
<b>Saskatchewan</b>	Combination of hunter-based and scanning surveillance managed by the CWHC Western/Northern region
<b>Manitoba</b>	Mandatory testing of hunted animals along Saskatchewan border and a voluntary testing along the U.S border
<b>Northwest Territories</b>	Opportunistic CWD sampling efforts
<b>Yukon</b>	Mandatory testing of hunted elk combined with effort to obtain voluntary samples from the other species (mule deer, barren-ground and woodland caribou, moose and bison).

# Risk of spread to wildlife

- CWD is present in wild deer, elk and moose populations in Canada (mainly deer)
- CWD emergence has been associated with population declines in some deer populations
- We work closely with the Environment Departments in the Provinces and Territories on these species
- Surveillance of CWD in wildlife through hunter submission programs, sick animals and road kill



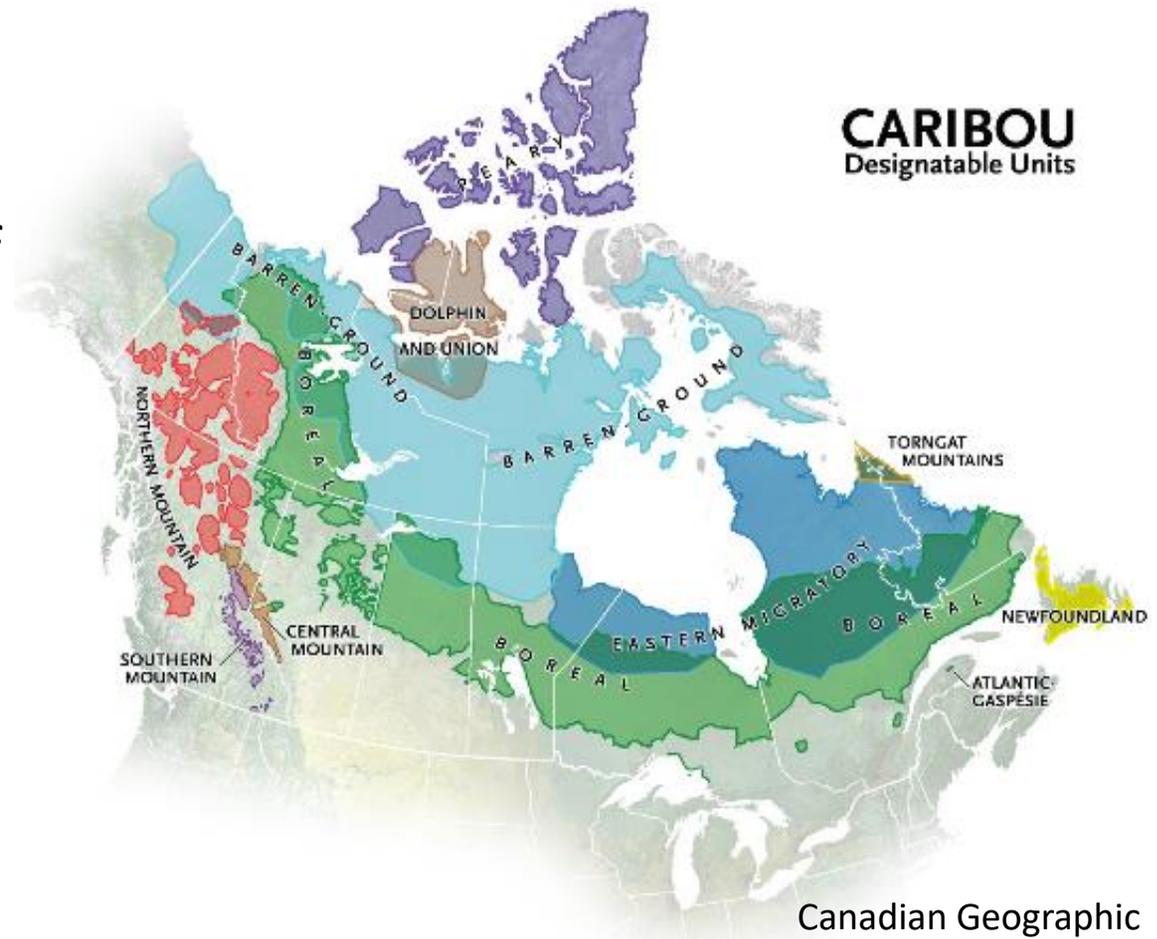
# Risk of spread to wildlife

- In March 2016, CWD was detected in reindeer (caribou) and moose in Norway.
- First detection in Europe, and the first time it has been detected in a caribou population.
- Norway actively trying to control the spread of the disease through several management strategies that include culling reindeer within the affected valley



# Risk of spread to caribou

- Until recently, the distribution of CWD in wild cervids in Canada was below the southern limit of caribou in North America
- Recent findings from Saskatchewan indicate that this gap has now closed, and that caribou and CWD positive cases in deer and elk have an overlap in distribution.



# Risk of spread to caribou

- In December 2018 the Wildlife Health Sub-Committee from the Canadian Wildlife Directors Committee (CWDC) met to discuss current data and next steps
- Prevention of CWD from moving further into the Boreal environment is a priority among partners



Government  
of  
Saskatchewan

## Chronic Wasting Disease: A Threat to Caribou

IGA STASIAK, WILDLIFE HEALTH SPECIALIST  
SASKATCHEWAN MINISTRY OF  
ENVIRONMENT  
DECEMBER 4, 2018

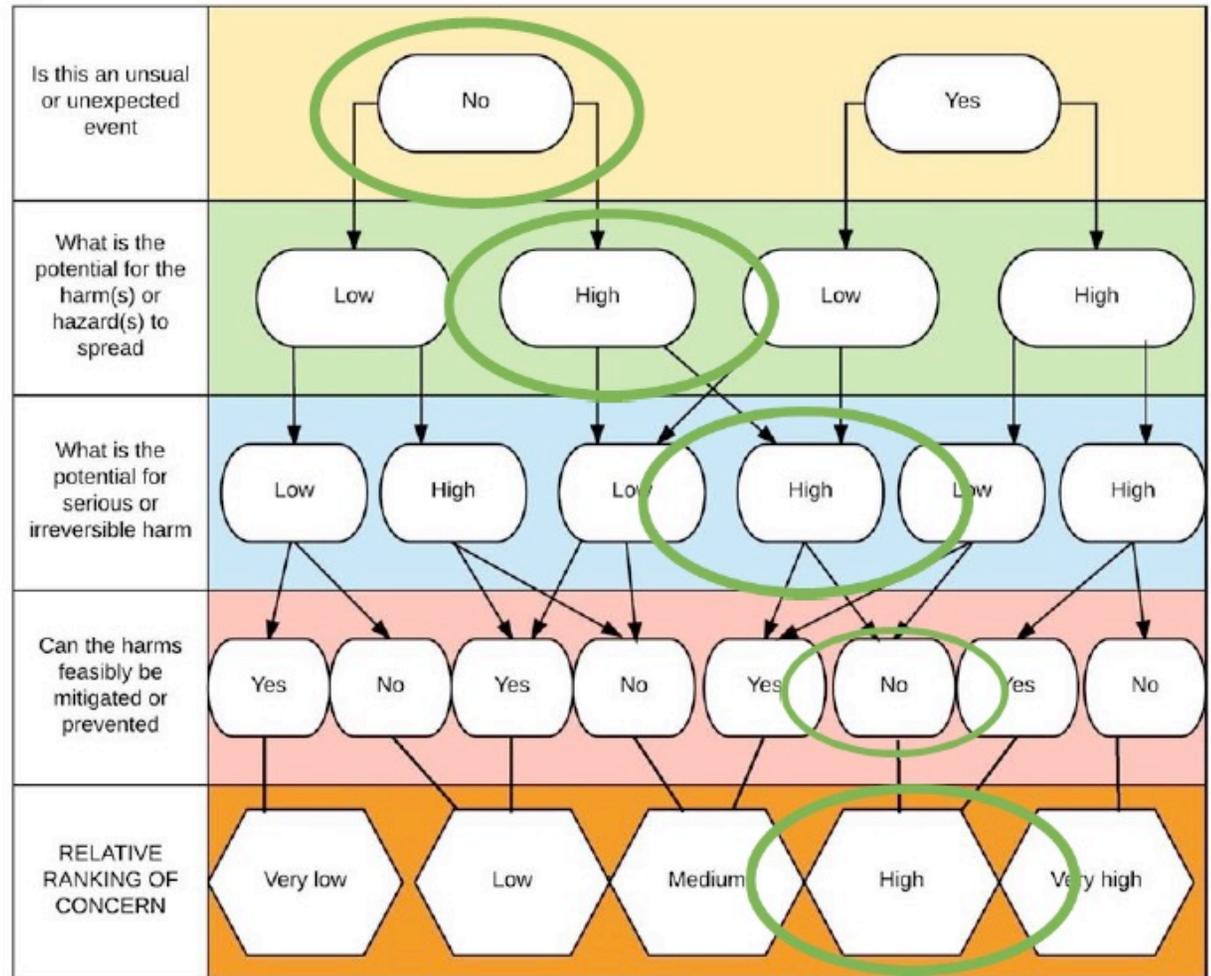
# Risk of Spread to Caribou – Threat Assessment (1/3)

- A threat assessment for the potential transmission of CWD to Boreal and Southern Mountain Caribou was led by the Canadian Wildlife Health Cooperative (CWHC).
- This was brought on due to the detection of CWD in white-tailed deer near the southern distribution of woodland caribou in Saskatchewan



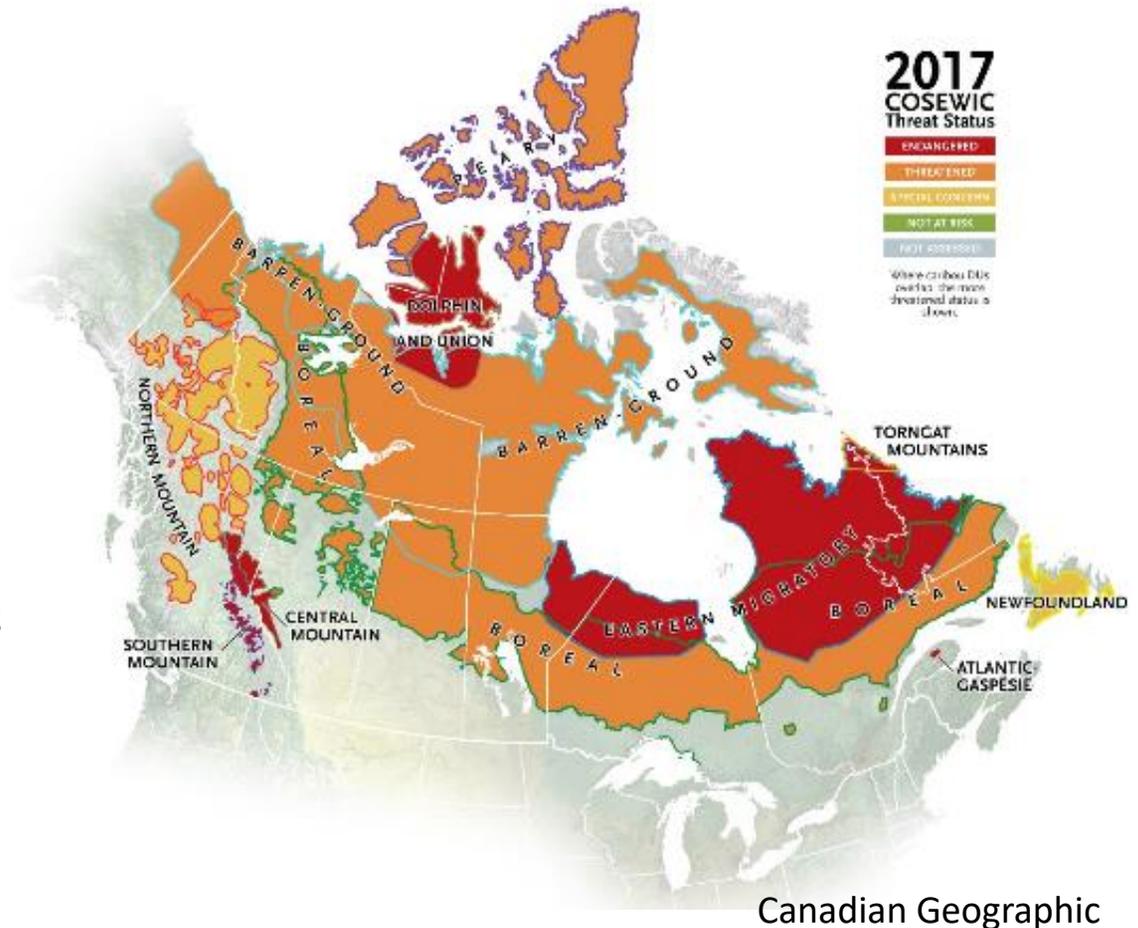
# Risk of Spread to Caribou – Threat Assessment (2/3)

- The threat assessment was completed in March 2019.
- Based on the dynamics of the disease, the susceptibility of caribou to CWD, and the preventative measures that are in place, CWD was ranked as High in this threat assessment by the Canadian Wildlife Health Cooperative (CWHC)

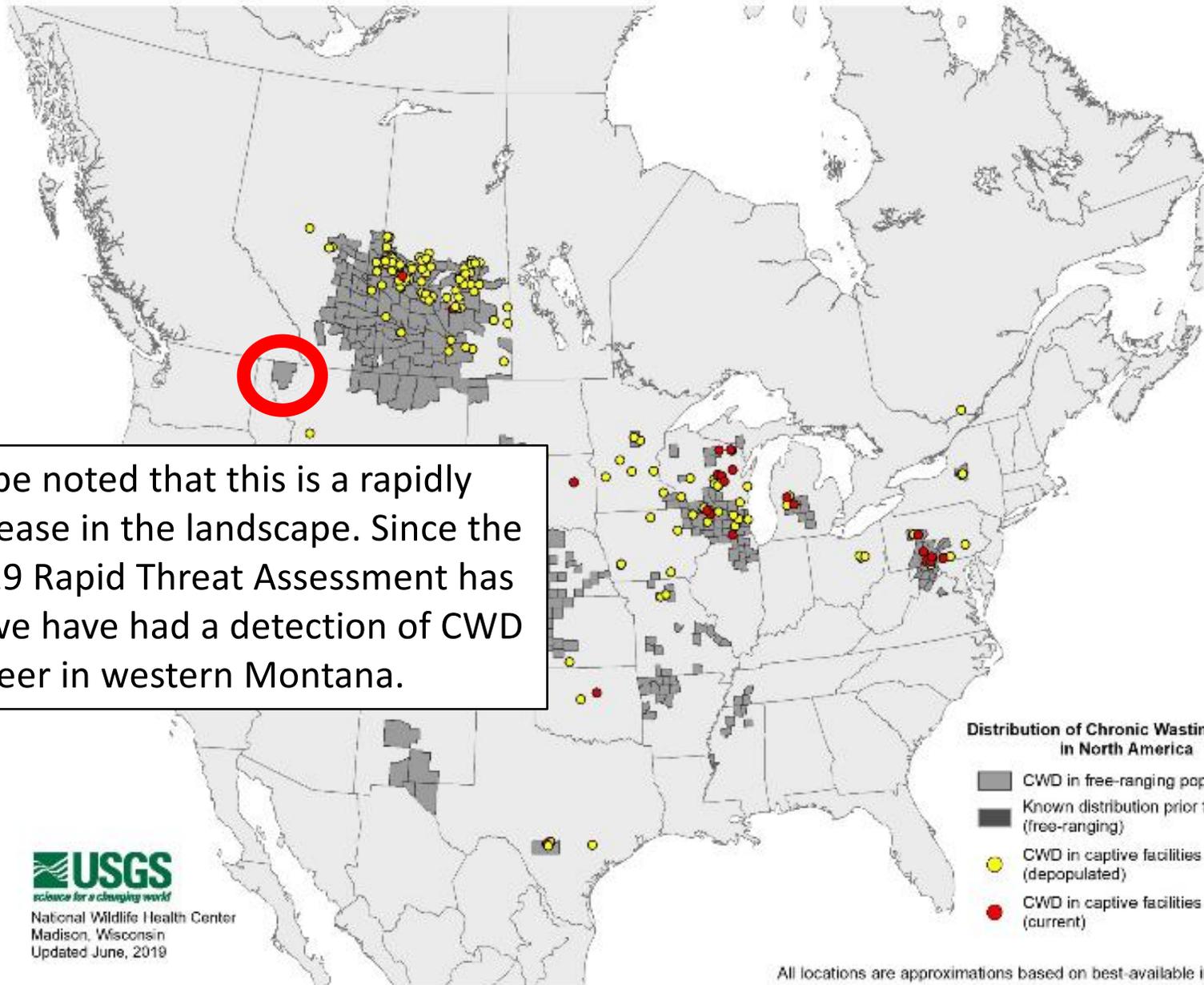


# Risk of Spread to Caribou – Threat Assessment (3/3)

- Threat Assessment includes:
  - Summary of the most recent information about CWD in all wild cervids in BC, AB, SK and MB
  - Summary of the movement data for cervids in the regions
  - Summary of all caribou samples that have been tested for CWD to date
  - Knowledge gaps



# Risk of Spread to Caribou – in the west



Should be noted that this is a rapidly moving disease in the landscape. Since the March 2019 Rapid Threat Assessment has occurred, we have had a detection of CWD in deer in western Montana.

# CWD in the West – BC CWD PROGRAM

- Slides courtesy of Cait Nelson from the Government of BC
- Response to the CWD positive detections in western Montana, just 50km south of the BC border

# CWD in the West – BC CWD PROGRAM

## Until Summer 2019 – BC was Low Risk

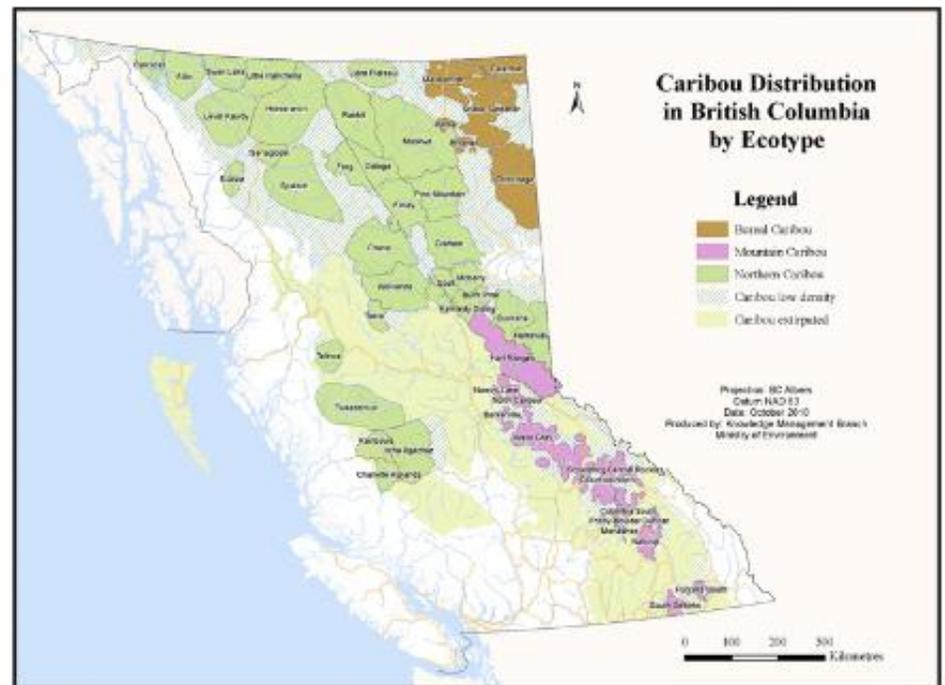
- Proactive management
- No native cervid farms
- Proximity to positive cases

## PREVENTION

- Outreach
- Regulations

## EARLY DETECTION

- Surveillance in wild cervids (since 2002)
- Outreach





# BC CWD Program

## REGULATORY TOOLS

### Carcass Import

CWD Regulation - Prohibits possession of intact cervid carcasses and high risk tissues harvested outside BC

### Cervid Scents

New Regulation - Prohibits the use of scents or attractants made from any part or derivative of a cervid



# BC CWD Program

## OTHER INITIATIVES

### CWD-positive Meat Disposal

Working with Hazardous Waste Program to develop options for disposal by incineration



### Import Of Plant Material

Engaging with partners in Agriculture, Range Program and Stakeholders to increase awareness and reduce risk



# BC CWD Program

## SURVEILLANCE

Head submission has been voluntary – 2019 General Order

Harvested, road killed, mortality investigations or clinical cervids

3900+ samples – No positives!

	<b>2002 - 2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>TOTAL</b>
<b>PEACE</b>	729	39	15	1	21	11	107	<b>923</b>
<b>KOOTENAY</b>	1433	182	151	232	236	142	99	<b>2475</b>
<b>OTHER</b>	187	9	9	105	93	71	88	<b>562</b>
<b>TOTAL</b>	<b>2349</b>	<b>230</b>	<b>175</b>	<b>338</b>	<b>350</b>	<b>224</b>	<b>294</b>	<b>3960</b>

# BC's Response to CWD in Montana



## Collaborative Approach

- CWD Advisory Committee
- Regional Working Group



## Objectives:

- Confirm if CWD has reached BC
- Maintain confidence in a healthy wildlife resource



## Surveillance and Response Plan for CWD in BC

\*Available online\*



BC TRAPPERS ASSOCIATION



# Conclusions

- CWD is a fatal disease for cervids in Canada
- The current range of CWD is now nearing threatened caribou populations in BC and SK
- ECCC is working with AFN to support an Indigenous led working group on this topic
- BC and SK are actively working on ways to reduce the spread of CWD in wild cervid populations

# Questions?

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