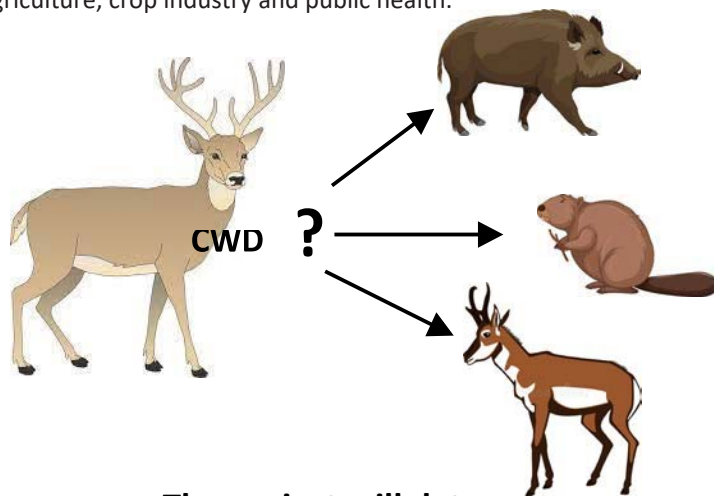


## Chronic Wasting Disease Transmission to Sympatric Species

Chronic wasting disease (CWD) is a fatal brain disease affecting deer, elk and moose across the USA and Canada as well as in parts of Europe and Korea. Infected deer spread prions in feces, saliva and urine. Prions remain infectious in soil for many years. CWD infection rates are increasing that impacts agriculture and economies deer farming, exports of related agricultural products and tourism. There is concern CWD will be transmitted to other animals that interact with deer, which may act as a route for infection to livestock and humans. This project will address the questions whether CWD can infect other animals. Further, the project team will investigate whether prions generated in laboratory models might be transmissible to cattle, pigs or humans. The outcome of the project will be relevant for assessing the risk CWD poses to agriculture, crop industry and public health.



The project will determine if CWD in Deer is transmissible to wild boar, beaver and pronghorn antelope



**RECIPIENT:**

University of Calgary, Dr. Sabine Gilch



**PARTNERS:**

Results Driven Agriculture Research



**TOTAL BUDGET:**

\$312,000



**AI FUNDING:**

\$249,500



**PROJECT DATES:**

JAN 2022 –  
DEC 2023



**PROJECT TRL:**

Start: N/A  
End: N/A

### APPLICATION

This project aims to fill a significant gap in knowledge about the role of transmission between distinct species in the molecular biology and ecology of CWD. Potential transmission between different species sharing habitat with CWD-infected cervids, and the consequence of potential transmission may pose a further expansion of the CWD host range. Knowledge of the susceptibility of transmission will be important in the development of risk assessments for animal and human health.

# ALBERTA INNOVATES CLEAN RESOURCES

## AGRI-FOOD INNOVATION

### PRION RESEARCH

#### PROJECT GOALS

- Analyze transmission of CWD strains both in vitro and in vivo to animal species that live in the same geographic range, namely pronghorn antelope, beavers and wild boar.
- Determine potential transmission of CWD from pronghorn antelopes, beavers or wild boar to livestock, cervids with some degree of genetic resistance, and humans.
- Generate data that will be translational and applicable for wildlife management, livestock industry and public health.
- Improve on collaborations within the international scientific community and key stakeholders and organizations affected by the outcome of this CWD research.
- HQSP will be trained at the Prion Centres at the University of Alberta and the University of Calgary.

#### BENEFITS TO ALBERTA

- The project will assist in the CWD policy development and management of the spread of CWD between animal species and geographic regions.
- Outcomes from this project are relevant for farmers, the crop and hay industry, outfitters, trappers and hunters, as well as wildlife managers, public health and food safety authorities and communities reliant on hunting as their primary food source.
- The research will benefit Government in the development of public and health policy regarding the management of CWD.



3-4 Publications



3 Students  
Trained



2-3 Project Jobs



2-3 Future Jobs

#### CURRENT STATUS

#### APR 2023

In 2022, we have completed transmission studies of CWD to transgenic mice expressing the beaver prion protein. Most of these mice inoculated with CWD prions directly into their brains developed prion disease, showing that CWD might be transmissible to beavers. Furthermore, we analysed lymphatic tissue of wild boar for indications of CWD infection and established new cell lines that can serve as infection model for prions detected in wild boar tissues.