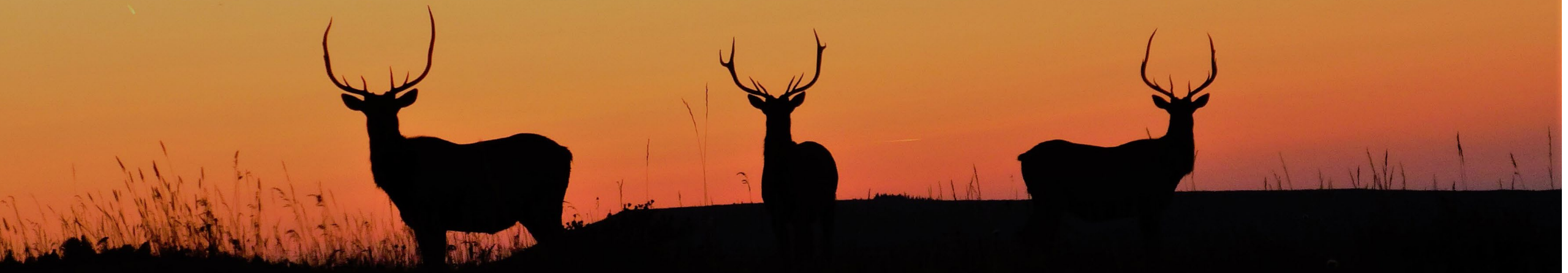
Current research and understanding of the potential for Chronic Wasting Disease to infect humans



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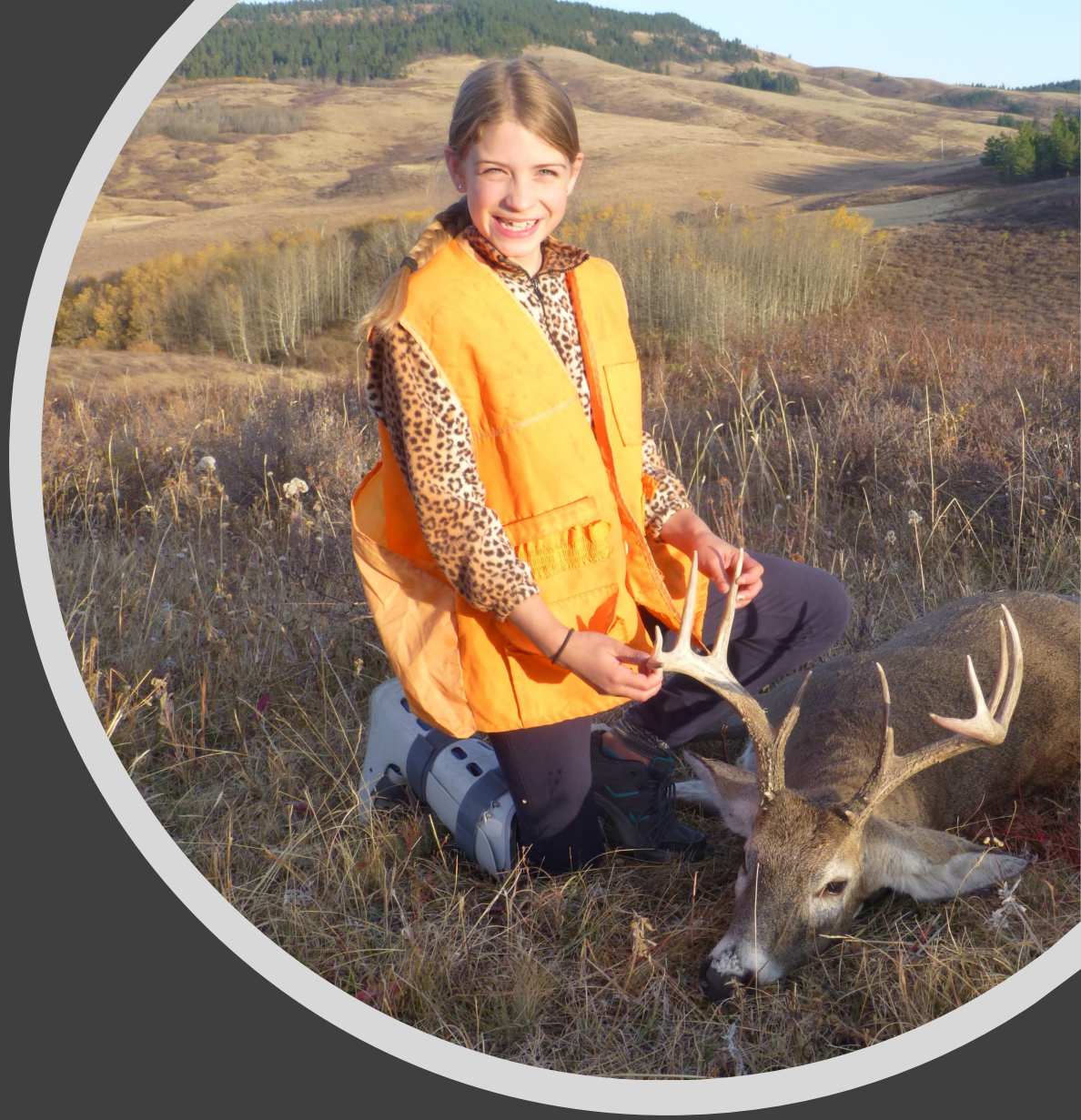
Animal prion diseases and host species

Prion source	Exposed species	Transmission Result
Cattle BSE (mad cow)	Cattle	++ BSE
Cattle BSE (mad cow)	Human	+ (low incidence)
CWD	Deer, Elk, Moose	+++ CWD
CWD	Human	?????

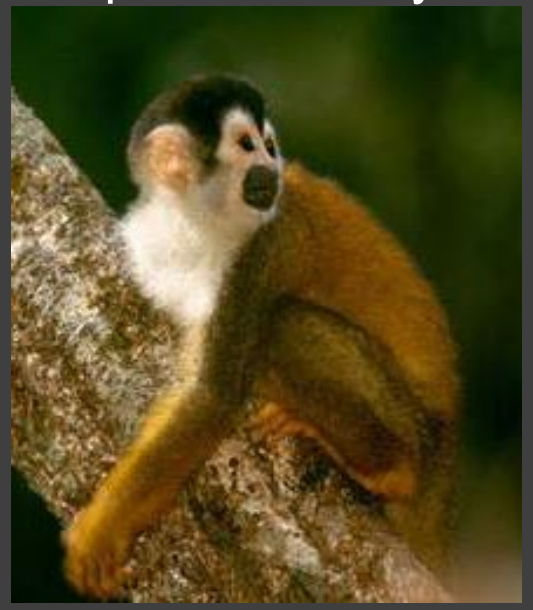
Research progress so far….

- Human epidemiology
- *In vitro* (at the lab bench)
- *In vivo* (animal models)



Summary of RML CWD transmission studies

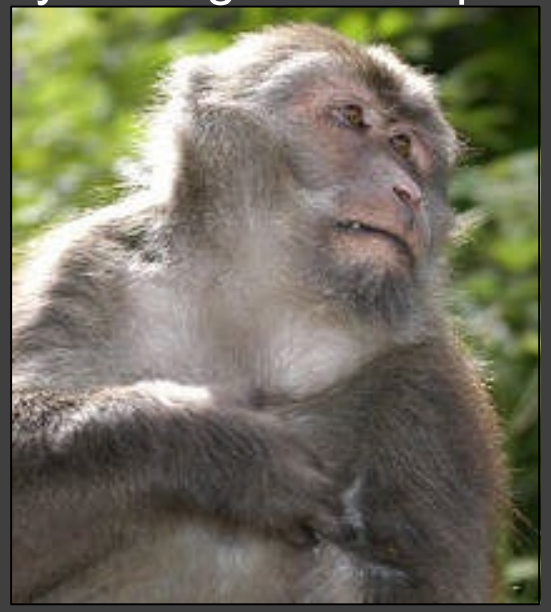
Squirrel monkeys



100% susceptible
(25 / 25)

Race B. et al. Emerg Infect Dis. 2014
Race B. et al. Emerg Infect Dis. 2009

Cynomolgus macaques



0% susceptible
0 / 14

Race B. et al. J Virol. 2018

Transgenic mice

0% susceptible
0 / 108*

Race B. et al. Vet Res. 2019
AND five other laboratories!!

- **Overall conclusions-**
  - No epidemiologic evidence for human transmission
  - Scientific studies support a strong species barrier exists between deer and humans

- Full review in: Waddell, L. et al. Current evidence on the transmissibility of chronic wasting disease prions to humans-A systematic review. Tranbound Emerg Dis. 2018:65:37-49.

Caveats/concerns:

Numbers game?
Incubation period of CWD in people ?
Will we recognize what CWD looks like in people (if it were to occur)?
CWD strains- differences in transmission ability ?
Human genetic diversity ?
Intermediate hosts? (potential changes to the prion protein properties)