Chronic Wasting Disease and the Captive Cervid Industry

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Outline
- Chronic Wasting Disease (CWD) Background
  - Biology/Clinical Symptoms
  - Diagnosis/Transmission
  - History
  - Control Strategies
- Captive Cervidae Industry
  - Markets
  - Uses
- Impacts of CWD
  - Economic/Demographic Losses
  - New Regulations

CWD Biology
- Transmissible Spongiform Encephalopathy (TSE)
  - Bovine spongiform encephalopathy (BSE)
  - Transmissible mink encephalopathy
  - Scrapie in sheep
  - Creutzfeldt-Jakob disease (CJD)
CWD Biology

- Clinical Symptoms
  - Loss of body condition
  - Wide based stance
  - Excessive drinking and urination
  - Excessive salivation and drooling
  - Death

- Incubation
  - Min: 17 months   Max: ???

Diagnosis

- Immunohistochemical Staining (IHC)
  - Neurological tissue
    - Ochre
  - Lymphoid tissue
  - Tonsillar biopsy

Transmission

- Lateral
  - Inter-specific
  - Intra-specific

- Alimentary tract
  - Feces
  - Saliva

- Maternal
Transmission

- Environmental Persistence
  - Binds to soil
  - 2-10+ years

- Captive Cervids
  - Proximity
  - Transportation

History

- 1967: First official recognition of CWD in CO
- 1970's: CO, WY, ON
- 1983: Begin hunter-harvest surveillance
- Early 1980's: Free ranging elk and mule deer
- 1990: Free-ranging white-tailed deer
- 1996: SK, SD
- 1998: Canada to Korea
- 2000-present: AB, Korea, NE, WI, NM, MT, UT, OK, KS, MI, IL, WV, NY
Control Strategies
- Prevention!!
- Quarantine
- Depopulation

Captive Cervidae Market
- Producers
  - New Zealand
  - Europe
  - North America

Markets
- Consumers
  - Southeast Asia
  - Europe
  - South Korea
  - North America
Markets

- Uses/Products
  - Breeding stock
  - Meat
  - Velvet Antler
  - Hunting
  - Hobby

Uses

- Breeding stock
  - Cows/Does: $2,400--$9,000
  - Bulls/Bucks: $1,500+

- Velvet Antler
  - Nutritional Supplement
  - $35--$60/lb.
  - Bulls: $1,500--$50,000+
Uses

- **Hunting**
  - Harvest, Genetics
  - Bulls: $2,500+
    (score 300-320)

- **Meat**
  - $2.50/lb carcass Wt
  - Emerging U.S. market

- **Impacts of CWD**
  - Venison
    - $2.50/lb ($2.50)
  - Velvet Antler
    - Exports plummet
    - $7/lb. ($60)
    - $420 vs. $2400
  - Hunting
    - WI: 2002 - $68 mil

- **Websites**
  - www.elk4sale.net
  - www.chefdepot.net
  - www.elkusa.com
Impacts of CWD

- **Economics (cont.)**
  - Breeding Stock
    - Cows/Does: $500-$1,000 vs. $2,400-$9,000
  - Land Values
  - Herd Loss

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New Regulations

- State-Specific
- USDA
  - Depopulation indemnities
  - Herd Certification
Future Direction

- Regulations
- Further research