



LDWF vs. CWD

James M. LaCour DVM

State Wildlife Veterinarian

Louisiana Department of Wildlife and Fisheries

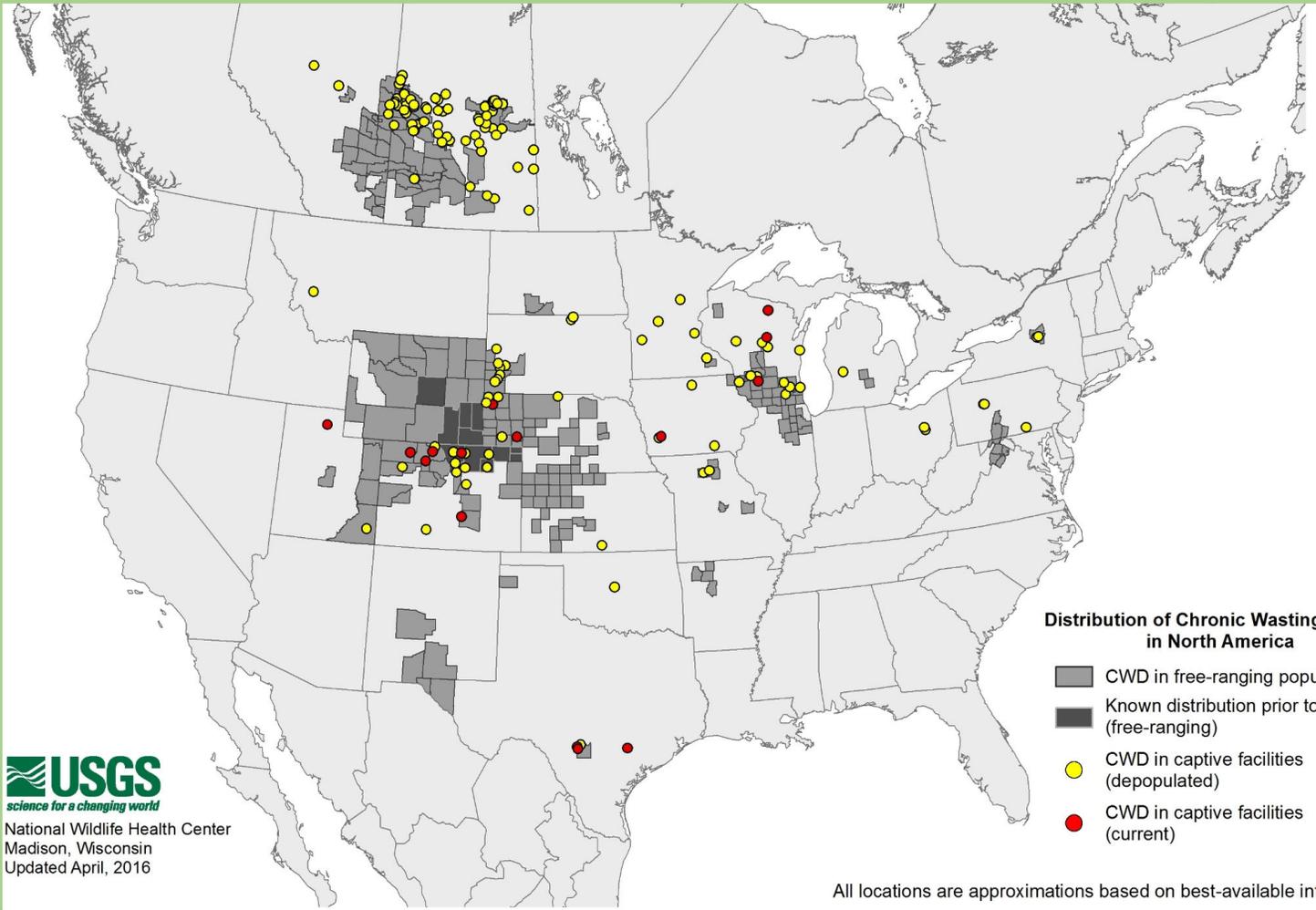


Chronic Wasting Disease Background

- Chronic Wasting Disease (CWD) was first documented in a captive Mule Deer herd in Colorado in 1967.
- CWD has since been discovered in 24 U.S. states and 2 Canadian provinces.
- In 2015, cervids tested positive for CWD in Texas and Arkansas.
 - Texas → both wild and captive deer infected
 - Arkansas → wild deer and elk infected



Chronic Wasting Disease Occurrence as of April 2016



National Wildlife Health Center
Madison, Wisconsin
Updated April, 2016

All locations are approximations based on best-available information



Chronic Wasting Disease

Causative Agent and Species Affected

- Chronic wasting disease (CWD), a neurologic disease, is characterized as a transmissible spongiform encephalopathies (TSE). Prions, an abnormally folded protein, are the causative agent of CWD and other TSE's.
- CWD only affects members of the *Cervidae* genus
 - Key deer
 - Mule deer
 - Sika deer
 - Red deer
 - White-tailed deer
 - Caribou
 - Elk
 - Moose
 - Reindeer



TSE's

Other Species Affected

- Other species have their own forms of prion-induced TSE's
 - Cattle
 - Bovine Spongiform Encephalopathy (BSE or “mad cow disease”)
 - Sheep
 - Scrapie
 - Humans
 - Creutzfeldt-Jakob Disease
 - variant Creutzfeldt-Jakob Disease (vCJD)
 - Kuru
 - Familial insomnia



Chronic Wasting Disease

Transmission

- CWD is transmitted via oral ingestion of infectious prions which are shed through saliva, urine, feces and decaying carcasses.
- The prions are ingested by deer, enter the tonsils, spread to the medial retropharyngeal and sub-mandibular lymph nodes then to other lymph nodes in the body.
- Eventually, the prions make it into the afferent nervous system and follow the nerves to the spinal cord and brain.
- They cause vacuolizing lesions in the brain with subsequent neurological impairment which ultimately leads to death of the animal.
- Incubation period before clinical signs is typically a minimum of 16 months with an average of 2-4 years.

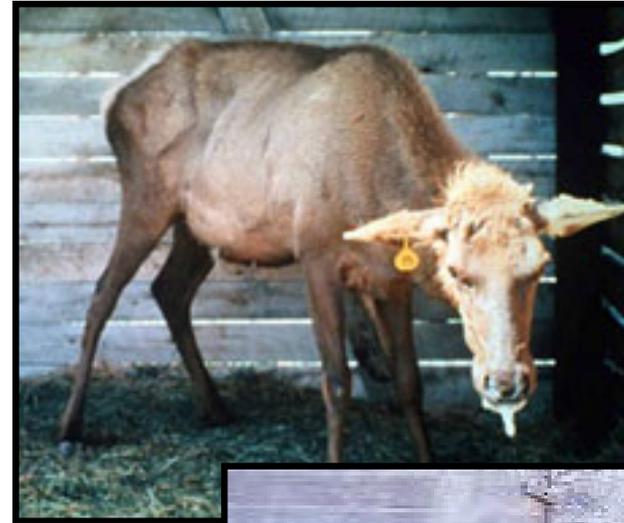


Chronic Wasting Disease Transmission and Human Health

- Prions can stay infectious in soil for many years, be taken up by plants, and infect watersheds.
- **CWD has not been shown to be contagious to humans. However, the USDA and World Health Organization discourage human consumption of CWD infected animals.**

Chronic Wasting Disease Neurological Symptoms in Cervids

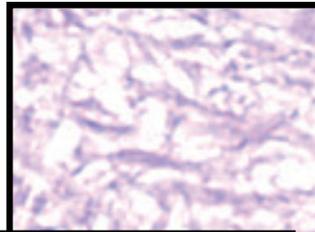
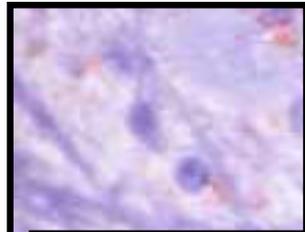
- Excessive thirst
- Excessive salivation
- Excessive urination
- Ataxia
- Grinding of teeth
- Dull mentation
- Head lowering
- Drooping ears
- Anorexia
- Weight loss
- Death



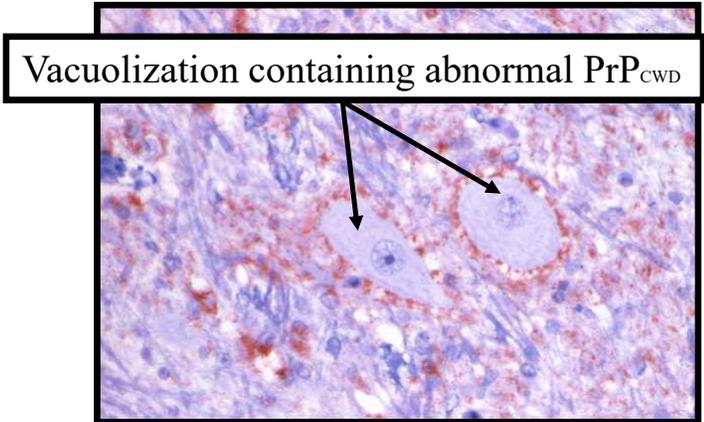


Chronic Wasting Disease

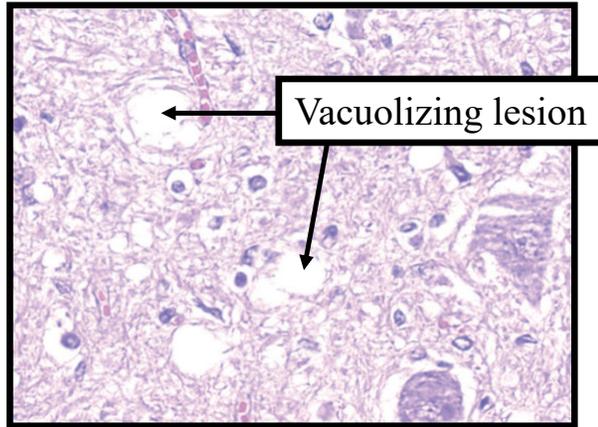
Histological Identification



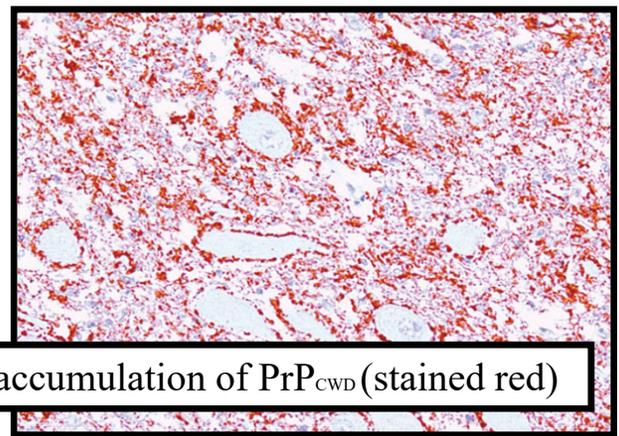
Normal immunohistological staining of brainstem



Vacuolization containing abnormal PrP_{CWD}



Vacuolizing lesion



Extensive accumulation of PrP_{CWD} (stained red)



Chronic Wasting Disease Louisiana Deer Background

- Minimum native deer population = 500,000 animals
- 17,000,000 acres of deer habitat
- 192,200 hunters harvested 156,100 native white-tailed deer during the 2015-16 deer season
- 292 LDAF-licensed captive cervid facilities
 - Approximately 10,000 captive cervids in these facilities
- Estimated annual economic impact associated with LA recreational deer hunting: **\$331,000,000.00**
(Southwick Associates 2010)



Chronic Wasting Disease LDWF Surveillance for CWD

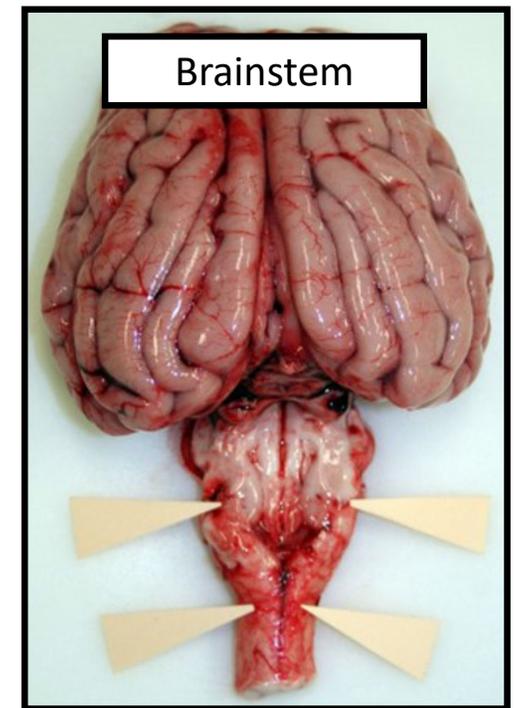
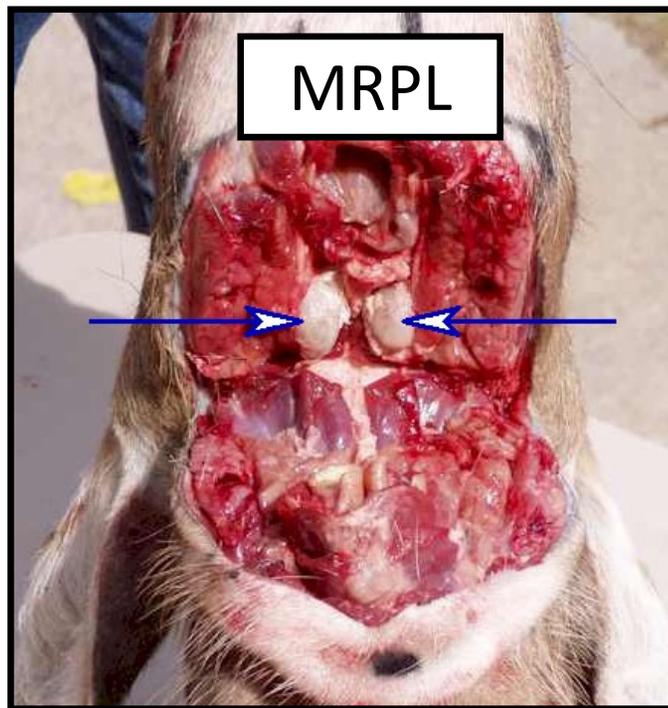
- Since 2002, LDWF has collected 8206 samples for CWD analysis.
- LDWF biological staff test primarily “target animals”.
- Target animals include:
 - Neurological deer
 - Emaciated deer
 - Deer hit by cars
 - Deer harvested adjacent to LA Department of Agriculture and Forestry (LDAF) permitted captive cervid facilities
 - Free-ranging captive cervids which escaped from LDAF permitted facilities or illegal pens



Chronic Wasting Disease

LDWF Surveillance for CWD

- Biologists collect medial retropharyngeal lymph nodes (MRPL) and brainstems, stored in 10% buffered formalin, for CWD testing.





Chronic Wasting Disease LDWF Surveillance for CWD

- MRPL and brainstems are submitted to the laboratory for testing.

To date, CWD has not been found in LA.



Chronic Wasting Disease

LDWF CWD Response Plan

- LDWF has a CWD Response Plan including an organizational chart, equipment list, and outlined interagency cooperation between LDWF, LDAF, USDA Wildlife Services, US Fish and Wildlife Service and other subject matter experts.
- This plan will become activated upon a presumptive laboratory diagnosis of CWD.
 - Upon confirmation of CWD by the National Veterinary Services Laboratory, an Incident Briefing will occur and the Incident Action Plan will be developed based on:
 - Geographic region
 - Deer herd density
 - Habitat type
- LDWF will create a Control Area consisting of an Infection Zone and Buffer Zone, as well as a Surveillance Zone based on current CWD epidemiology, deer density and deer habitat.



Chronic Wasting Disease

LDWF CWD Response Plan

- LDWF Secretary will be petitioned to implement local feeding and baiting bans under emergency authority.
- Louisiana Wildlife and Fisheries Commission (LWFC) will be petitioned to:
 - Implement a long-term local feeding and baiting ban.
 - Increase limits and/or hunting days in the Control Area and Surveillance Zone to reduce deer density and possibly disease transmission.
 - Impose a moratorium on the movement of deer carcasses out of the area, allowing only the removal of a cleaned skull plate, meat and cape from the affected region.



Chronic Wasting Disease

LDWF CWD Response Plan

- LDWF Biological staff will perform selective culling operations for disease testing in the Control Area and Surveillance Zone.
- Protocols for proper carcass disposal will be established and instituted depending on geographical region.
- Accurate, current information about CWD will be provided to the public, press, constituent groups and agency personnel.
- Hunter education on CWD will be a necessity.



Chronic Wasting Disease

What can LDWF do to Prevent CWD in LA?

- Insist that LDAF continue their moratorium on captive cervid importation which they instituted in 2012. This also upholds LWFC rule (L.A.C. 76:V.117), prohibiting the importation or transport of cervids in LA.
- Carcass importation restrictions implemented March 1, 2017.
- Educate taxidermists on proper disposal of cervid carcass remains.
- Be vigilant against illegal importation or release of cervids.
- Euthanize and test any escaped captive cervids.
- Test any suspect or target animals.
- Implement action immediately if CWD is discovered.



Chronic Wasting Disease

Lessons Learned from Other CWD States

- This is a long-term response.
- Once established, CWD will likely become endemic in the wild population.
- Agencies typically spend \$1,000,000 or more in the first and subsequent years of response.
- Deer hunting license sales drop, usually transiently but sometimes permanently.
 - This directly affects the LDWF budget.
- Deer hunters become fatigued with surveillance efforts.



Chronic Wasting Disease

More Information

CWD Alliance Website

<http://cwd-info.org>