

A background image of a deer with large antlers standing in a field. The deer is facing forward, and its antlers are prominent. The background is a soft-focus landscape with grass and trees.

Chronic Wasting Disease in Wyoming & Animal Waste Disposal

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What Is It?

Chronic Wasting Disease (CWD) is a progressive, fatal nervous system disease of white-tailed deer, mule deer, elk, moose, and reindeer.



Causative agent: Prion (infectious protein)

Distribution of CWD



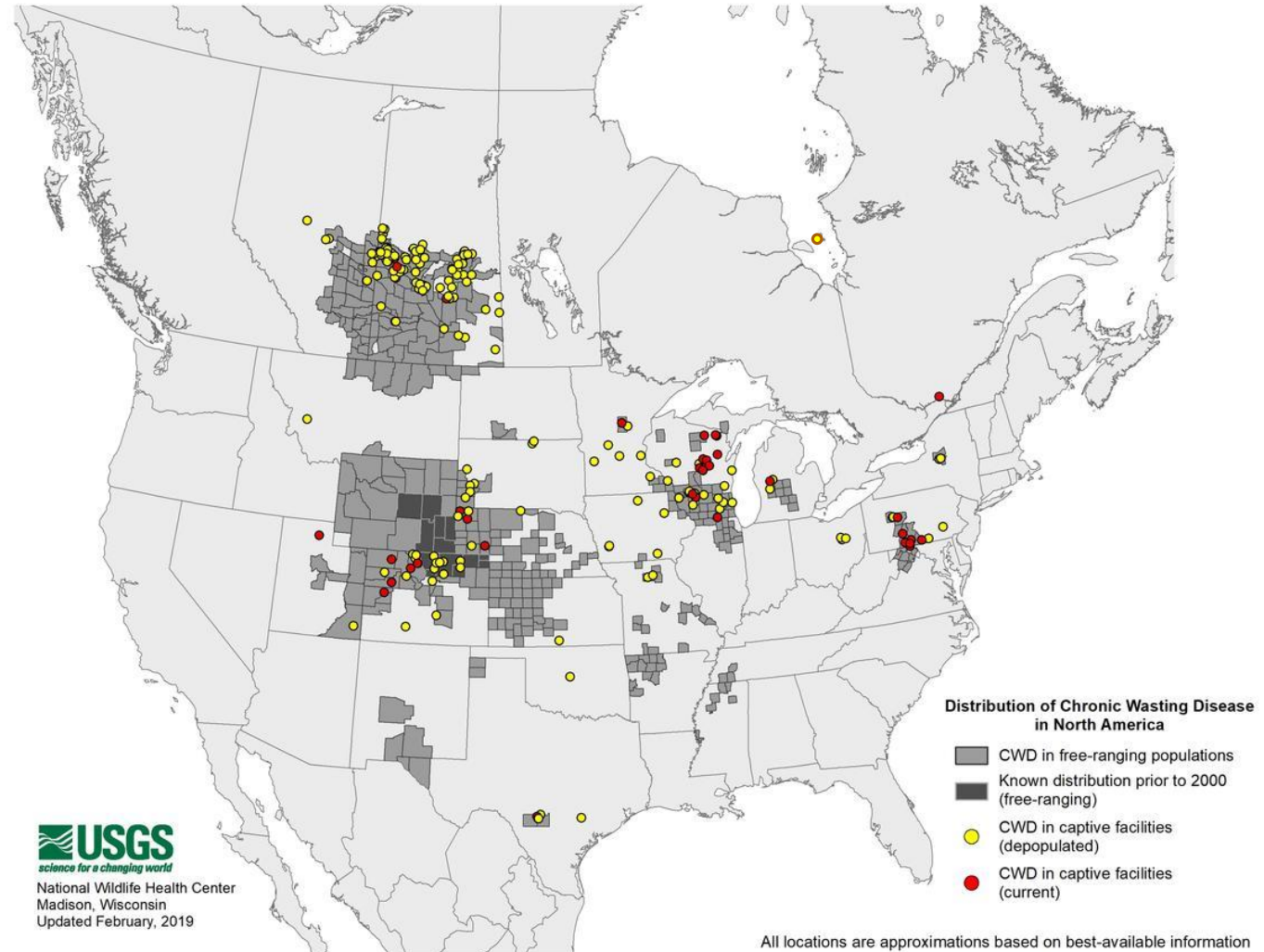
Norway - 2016



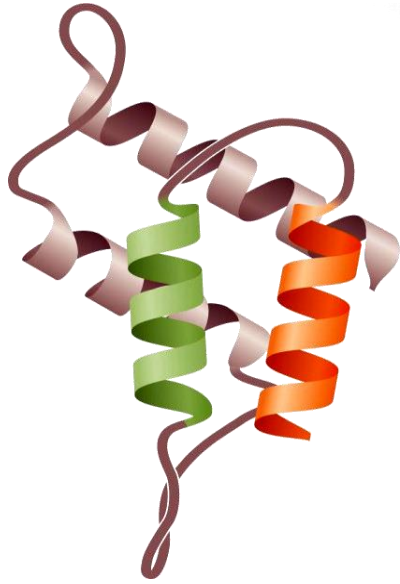
Finland - 2018



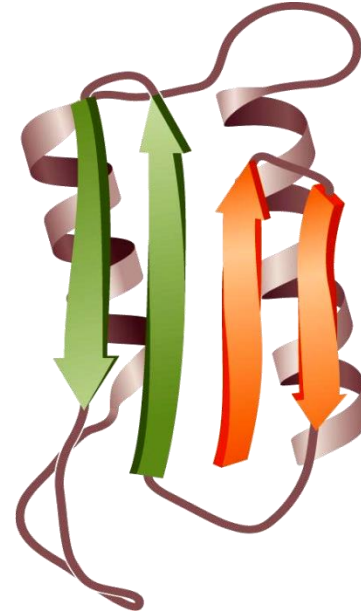
South Korea - 2000



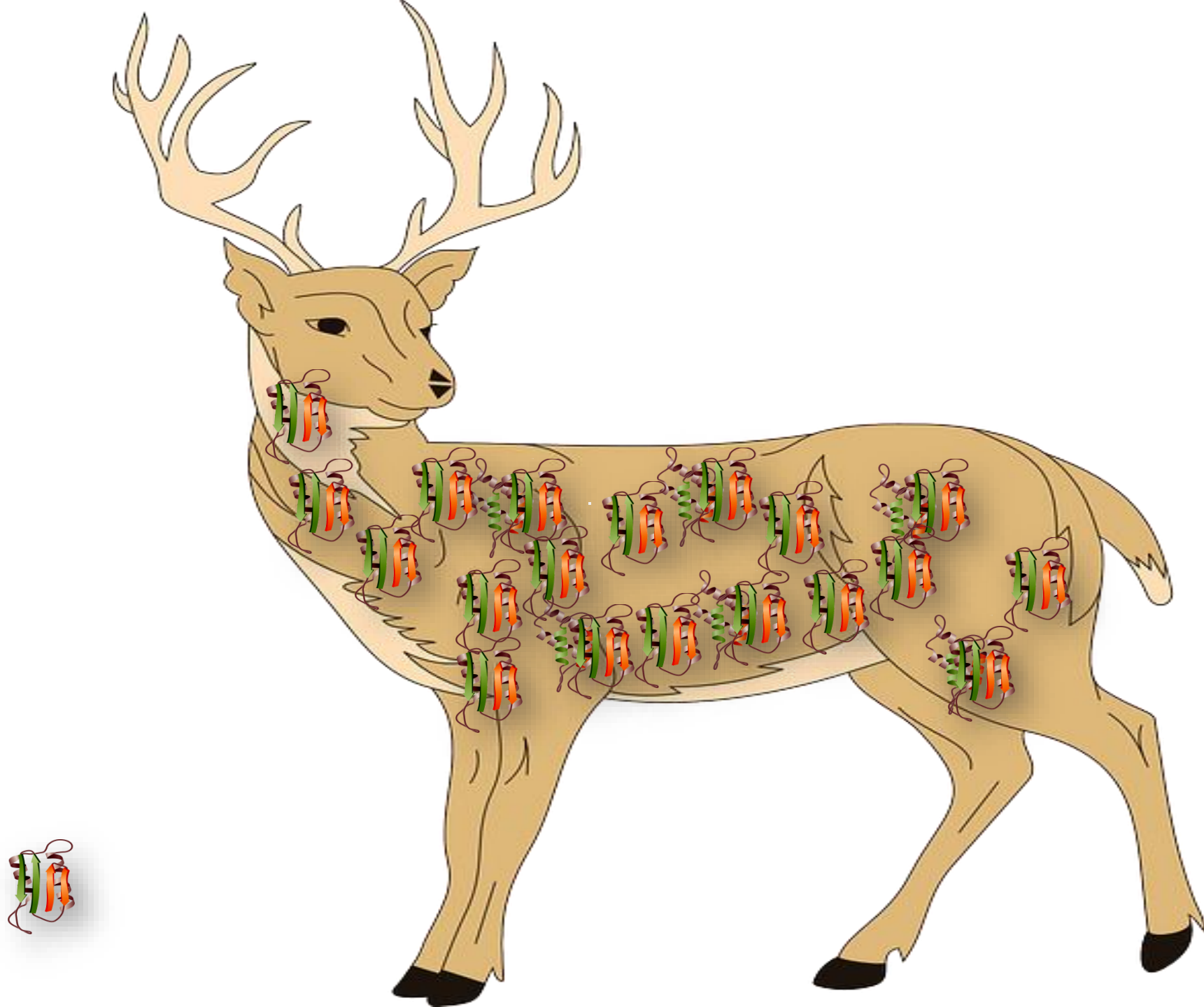
Prion Simplified



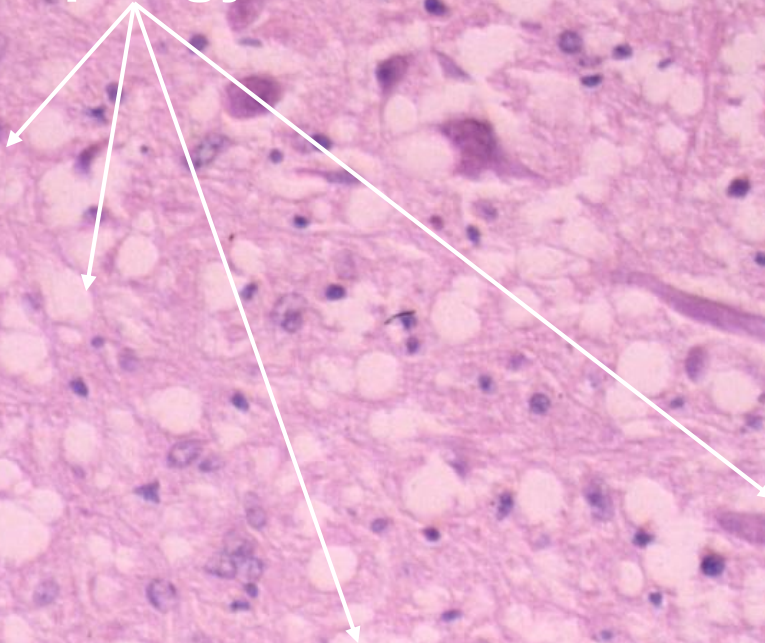
Normal Protein



**Abnormal Prion
Protein**



Note “spongy” holes in brain

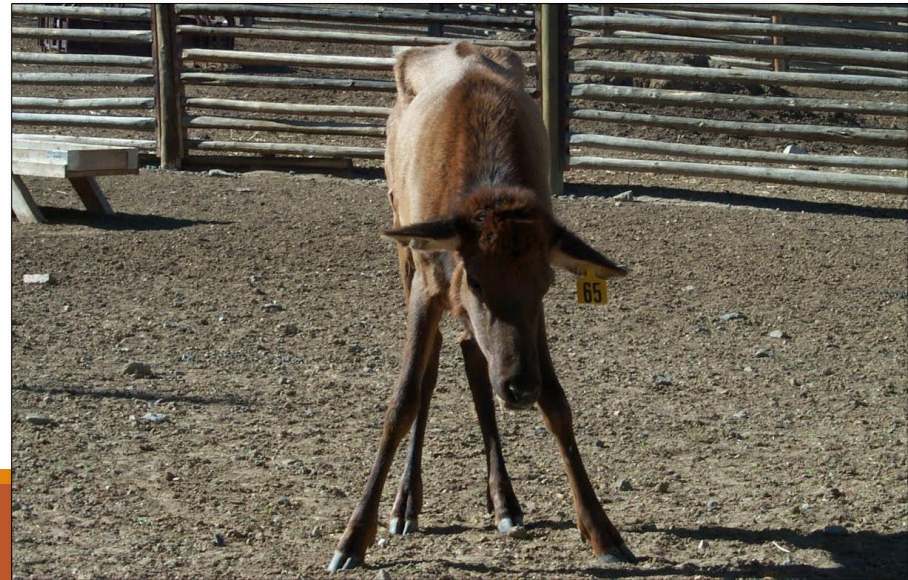


Clinical Signs

No clinical signs until very late disease stage

- Weight loss
- Drooling
- Behavioral changes
- Hair/coat changes
- Droopy ears
- Lack of general awareness

The majority of all harvested CWD positive animals appear completely normal!!



CWD

Transmission

Direct: Animal to Animal

Indirect: Environmental

- Ingestion with contaminated soils/plants
- Carcasses
- Saliva, urine, fecal contamination
- Contaminated surfaces
- Fences, feeders/troughs
- Mineral licks, tubs





CWD and Human Health

Laboratory Studies: Substantial species barrier – not absolute.

Ongoing study reported transmission to macaques via ingestion.

Public Health Studies: No demonstrated link between human prion disease and ingestion of game meat.

- Disease presence in the state 50+ years
- Hunter Registry Project tracking cause of death in hunters over the past 20+ years
- Joint collaboration between WY Dept of Health, CO Dept of Health, and CDC
- Wyoming/Colorado rate of CJD in humans below national average

CWD and Human Health



Although there is no current evidence for human illness, limiting CWD and minimizing human exposure to CWD may be prudent.

CDC and the World Health Organization recommend CWD positive animals not be consumed.

Disinfection: Hunting knives/butchering equipment may be disinfected in 50% bleach for 1 hour

CWD in Wyoming

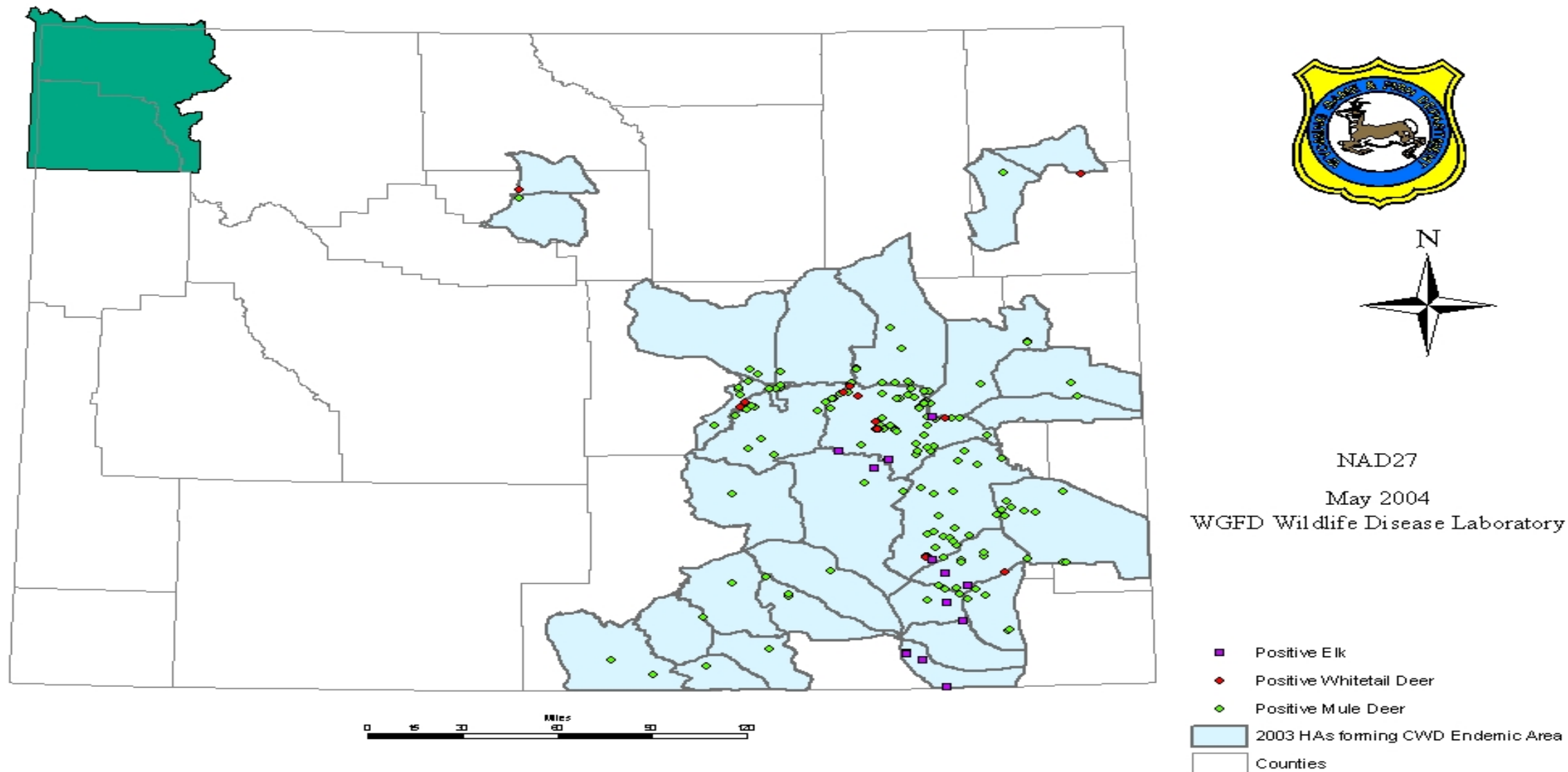
Unknown origin or date of establishment

- Modeling suggests disease presence since 1950s

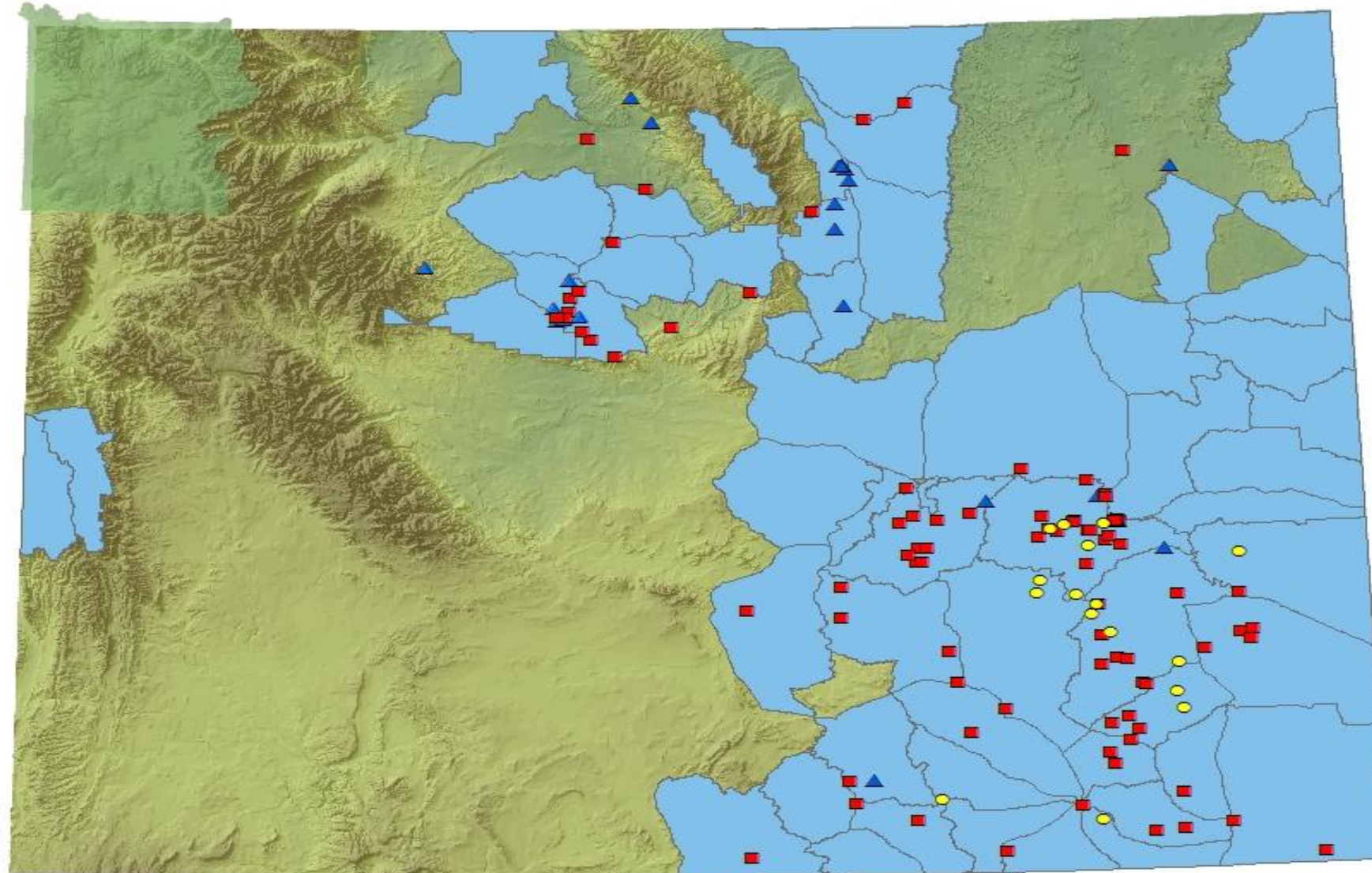
Documented in free-ranging mule deer (1985), elk (1986), WTD (1990), and moose (2008)



2003 Chronic Wasting Disease Test Results in Wyoming: All Positive Species



2010 Wyoming Chronic Wasting Disease Surveillance: Positives by Species



Wyoming Game and Fish Dept.
Wildlife Disease Lab
March 2011

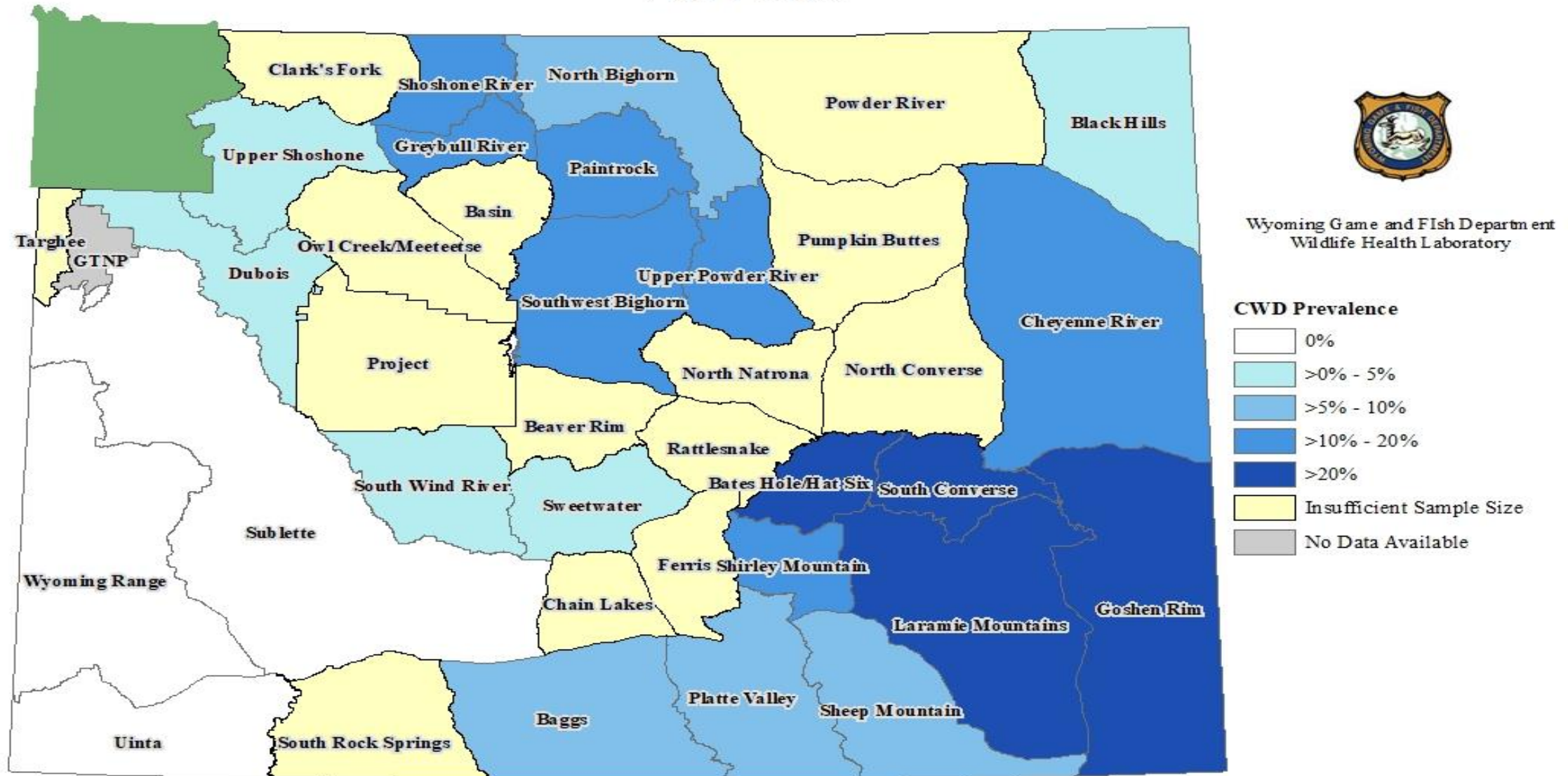
-  Pos Elk
-  Pos Mule Deer
-  Pos Whitetail Deer
-  2010 CWD Endemic Area

Wyoming Chronic Wasting Disease Positive Mule Deer Hunt Areas

4/17/2019



Chronic Wasting Disease (CWD) Prevalence in Hunter Harvested Adult Buck Mule Deer by Herd Unit 2014-2018

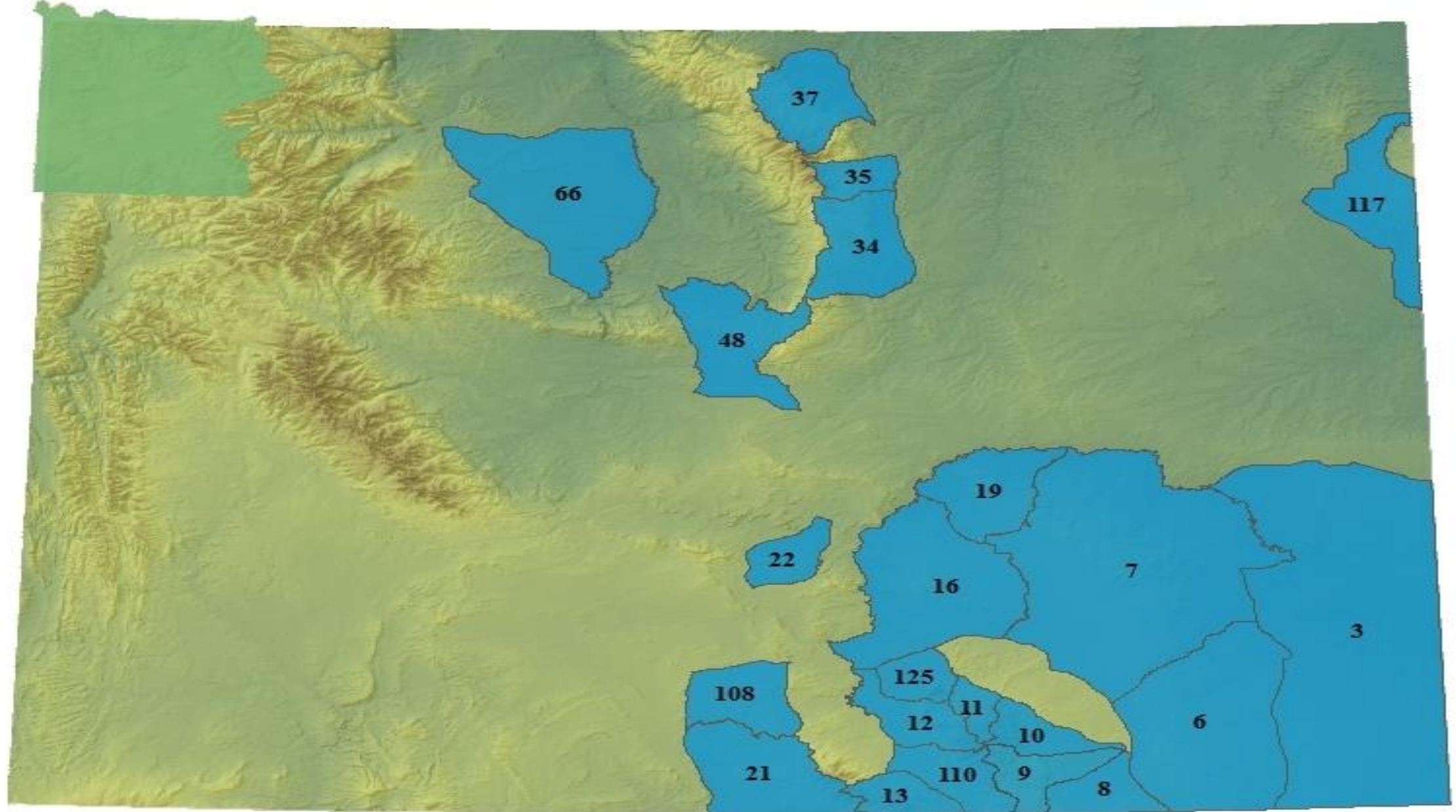


* Sample size is too low for estimation of prevalence

This map depicts prevalences calculated from 2014-2018 data only, see distribution map for statewide distribution of CWD

Wyoming Chronic Wasting Disease Positive Elk Hunt Areas

4/17/2019



Chronic Wasting Disease (CWD) Prevalence in Hunter Harvested Adult Elk by Herd Unit 2014-2018



* Sample size is too low for estimation of prevalence

This map depicts prevalences calculated from 2014-2018 data only, see distribution map for statewide distribution of CWD

What We Don't know

Why the distribution and prevalence of CWD in deer is so different from elk.

- Captive elk very susceptible

Long term effects on deer and elk populations

- Modeled extinction for populations with high CWD prevalence

CWD disease management

- Stop the spread of this disease
- Reduce prevalence (some management experiments show promise)
- Recover severely affected populations

Role of environment in disease maintenance

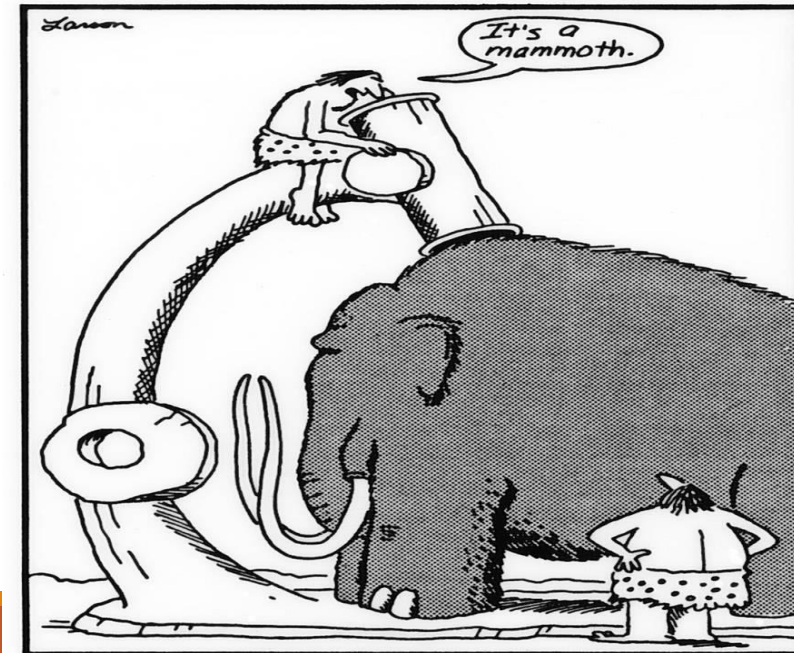
What We Know

CWD is likely to have significant population effects on some populations

Some deer and elk populations likely to persist even with long-term exposure to CWD

CWD positive animals:

- More likely to end up as “road-kill”
- More likely to be harvested
- Shed infectious prions in feces, saliva and urine
- Carcasses can transmit CWD to other cervids



Early microscope

Carcass Transportation and Disposal Regulations



Head and entire spinal column of all deer, elk and moose harvested from any hunt area in the state must either remain at the kill site or disposed of in an approved landfill after processing

Whole deer, elk and moose carcasses cannot be transported out of state

- Edible portions, cleaned hide and skull plate, teeth, finished taxidermy

Whole deer, elk and moose carcasses harvested outside the state in areas where CWD is known to occur - cannot be transported into the state unless head and spinal column are disposed in an approved landfill

- Edible portions, cleaned hide and skull plate, teeth, finished taxidermy

Disease Management Includes Proper Disposal

Remove source of disease from the landscape

- Stop transmission to other animals
- Proper disposal contains/inactivates infectious agent



Wildlife Disposal Problem

Multiple sources

- ~74,000+ Deer and elk harvested
- ~5,000 – 6,000 Road-killed animals each year
- Winter mortality and mortality in urban populations

Disposal options

- Landfill: Currently the preferred and most efficient
 - Disposal on public land: source of infection to other cervids
- Composting: Decreases bulk, nitrogen, and prions - but does not inactivate all prions and must be landfilled.
- Incineration or alkaline digestion: inactivates prions, but not practical



Wyoming Solid Waste Facilities – Animal Waste Management Status

<u>County</u>	<u>Solid Waste Facility</u>	<u>Facility Type</u>	<u>Accept Animal Waste</u>	<u>Animal Waste Disposal Fee (Yes/No)</u>	<u>If Landfill - Subtitle D Lined/PBD Landfill</u>
Albany	City of Laramie Solid Waste	landfill	Yes	Yes	Yes
Big Horn	Big Horn County Solid Waste Disposal District	B.H. North Landfill	Yes	Yes	No
	Big Horn County Solid Waste Disposal District	B.H. South Landfill	Yes - Compost	Yes	No
	Big Horn County Solid Waste Disposal District	B.H. South Transfer Station	Yes, for Tranfer N.	Yes	
Campbell	Campbell County Landfill	landfill	Yes	Yes	Yes
Carbon	City of Rawlins Solid Waste	transfer station	Yes	Yes	N/A
	Baggs Solid Waste Disposal District	landfill	Yes	Out-of-District Fee only	No
Converse	City of Douglas	transfer station	Yes	Yes	N/A
	Glenrock Solid Waste Disposal District	landfill	Yes	Yes	No
	Glenrock Solid Waste Disposal District	transfer station	No	N/A	N/A
Crook	Sundance Landfill	compost	Yes	Yes	N/A
	Moorecroft Landfill	landfill	Yes	Yes	No

County	Solid Waste Facility	Facility Type	Accept Animal Waste	Animal Waste Disposal Fee (Yes/No)	If Landfill - Subtitle D Lined/PBD
					Landfill
Fremont	Lander MSW Landfill - FCSWDD	landfill	Yes	Yes - not for deer species	No
	Lander Transfer Station - FCSWDD	transfer station	Yes	Yes - not for deer species	N/A
	Riverton Transfer Station - FCSWDD	transfer station	Yes	Yes - not for deer species	N/A
	Sand Draw MSW Landfill - FCSWDD	landfill	Yes	Yes - not for deer species	No
	Dubois C&D Landfill - FCSWDD	landfill	No	N/A	N/A
	Dubois Transfer Station - FCSWDD	transfer station	Yes	Yes - not for deer species	N/A
	Shoshoni C&D Landfill - FCSWDD	landfill	No	N/A	N/A
Goshen	City of Torrington Landfill	landfill	Yes	Yes	PBD
Hot Springs	Town of Thermopolis Landfill	landfill	Yes	Yes	No
Johnson	Johnson County Solid Waste Disposal District - Buffalo	landfill	Yes	Yes	Yes
Laramie	City of Cheyenne	landfill	Yes	Yes	Yes
	Eastern Laramie County Solid Waste Disposal District - Burns	landfill	Yes	Yes	Yes

County	Solid Waste Facility	Facility Type	Accept Animal Waste	Animal Waste Disposal Fee (Yes/No)	If Landfill - Subtitle D Lined/PBD Landfill
Lincoln	Lincoln County Landfills	Kemmerer	Yes - in county only and doesn't accept from G&F or WDOT	Yes	Yes
	Lincoln County Landfills	Thayne Transfer Station	Yes - in county only and doesn't accept from G&F or WDOT	Yes	N/A
	Lincoln County Landfills	Cokeville CDW Landfill	No	N/A	N/A
Natrona	City of Casper	landfill	Yes	Yes	Yes
Niobrara	Lusk Transfer Station	transfer station	No	N/A	N/A
Park	Park County Landfill (Cody)	landfill	Yes	Yes	Yes
	Park County Landfill (Powell)	landfill (CDW)	Yes	Yes	Compost
	Park County Landfill (Clark)	landfill (CDW)	No	No	N/A
	City of Powell Transfer Station	transfer station	No	N/A	N/A
Platte	City of Wheatland	transfer station	No	N/A	N/A
Sheridan	City of Sheridan Landfill	landfill	Yes	Yes	Yes
Sublette	Sublette County Landfill	landfill	Yes	Yes	Yes
	Sublette County Transfer Station - Pinedale	transfer station	Yes	Yes	N/A

County	Solid Waste Facility	Facility Type	Accept Animal Waste	Animal Waste Disposal Fee (Yes/No)	If Landfill - Subtitle D Lined/PBD Landfill
Sweetwater	Sweetwater County Solid Waste Disposal District #1	Rock Springs Landfill	Yes	Yes	Yes
	Sweetwater County Solid Waste Disposal District #2	Wamsutter Landfill	Yes	Yes	Yes
	Eden Valley Solid Waste Disposal District - Farson/Eden	landfill (CDW)	Yes	No	No
	Eden Valley Solid Waste Disposal District - Farson/Eden	transfer station	No	N/A	N/A
Teton	Teton County Solid Waste	transfer station	Yes	Yes	N/A
Uinta	Uinta County	Evanston Landfill	Yes	Yes	PBD
	Uinta County	transfer station	Yes	Yes	N/A
Washakie	Washakie County Solid Waste Disposal District #1 - Worland	landfill	Yes	Yes	Yes
	Washakie County Solid Waste Disposal District #2 - Ten Sleep	transfer station	No	N/A	N/A
Weston	Town of Upton	landfill	No	N/A	N/A
	Town of Newcastle	landfill	Yes	Yes	No
	Central Weston County Solid Waste Disposal District - Osage	landfill	No	N/A	N/A

Summary of the Animal Waste Acceptance:

Number of counties accounted for:	23 counties
Number of counties that accept animal waste:	21 counties
Number of counties that <u>don't</u> accept animal waste:	2 counties
Number of sites that accept animal waste:	37 sites
Number of sites that <u>don't</u> accept animal waste:	12 sites
Number of sites managing within lined (or PBD) landfill:	15 landfills
Number of sites managing without a lined (or PBD) landfill:	7 landfills

Fremont County Solid Waste Disposal District - Experiences, Status, etc.

- We at FCSWDD have been working with Wyoming Game & Fish for the past few years on an effort to better manage animal waste, specifically deer waste. We are now into our 2nd year of having all disposal fees waived for deer species waste (i.e. Mule Deer, White-Tailed Deer, Elk and Moose).
- A political experience we have in our county has been related to our Board of Directors review of a request to receive out-of-district animal waste. This out-of-district animal waste is from a county with known CWD impacts within their wildlife. As our Board reviewed this request, held discussions with Wyoming Game and Fish, and independently researched this option, elected officials within our county with limited information developed public comment in opposition and created strained relations. We continue to research this possibility...

CWD Management – What We Can Do

Learn to live with the disease

- Public education
- Encourage hunting and testing (prior to processing) of harvested animals

WGFD CWD Management Plan

- Monitor distribution and prevalence
- Implement disease management strategies that may show promise
- Limit environmental contamination and sources of infection
 - Euthanize and properly dispose of animals exhibiting signs of CWD
 - Proper disposal of hunter-killed and road-killed animals



Who is all having active discussions around managing animal waste, wildlife waste, or even deer waste?

- What are the concerns?
- What are the discussions?

Comments and Questions?
