

# The Michigan DNR Wildlife Health Section



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State Wildlife Veterinarian  
Wildlife Health Section Supervisor  
DNR Wildlife Division



*Thank you to Julie Melotti for many of these slides!*

1933

The DNR's "Game Division Laboratory" started and was housed on the campus of Michigan State University at Giltner Hall



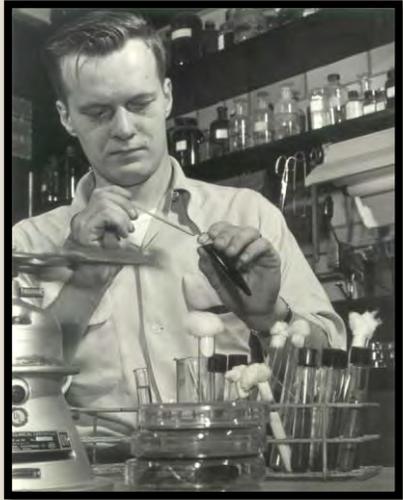
1936

The Mobile Disease Lab (!)



1956

Lab moved to the Rose Lake Wildlife Research Area



1959

A specialized facility was built for the Lab at Rose Lake



2004



The Wildlife Disease Lab moved to the Diagnostic Center for Population Animal Health (now VDL) at Michigan State University



*The DNR Wildlife Disease Laboratory is responsible for monitoring the health and well-being of wildlife in the State of Michigan.*

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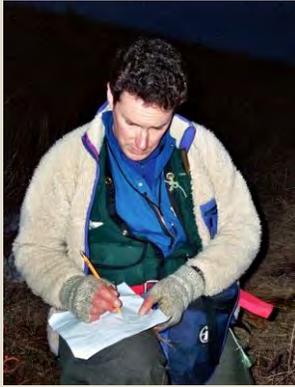
# The Health Section Team

Dr. Kelly Straka DVM, MPH



Veterinarian in Charge (2016)

Dr. Dan O'Brien DVM, PhD



Wildlife Veterinarian/  
Epidemiologist (1999)

Melinda Cosgrove, MS



Laboratory Scientist Manager (1997)

Tom Cooley, MS



Wildlife Biologist/Pathologist (1977)

Caitlin Ott-Conn, MS



Laboratory Scientist (2015)

Julie Melotti, MS



Laboratory Technician (2001)

Katie Farinosi, BS



Laboratory Assistant (2018)

Cameron Dole, BS



Department Technician (2019)



# But what do you do?

## Necropsy/Diagnostics



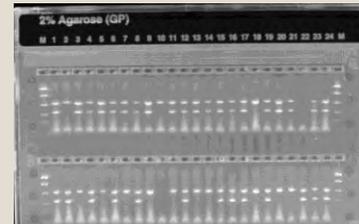
## Research



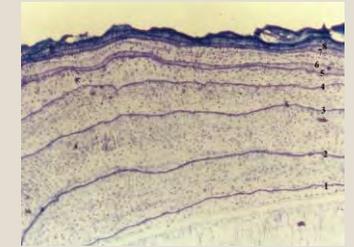
## Disease Surveillance



## Genetics



## Population Biometry



## Education and Outreach



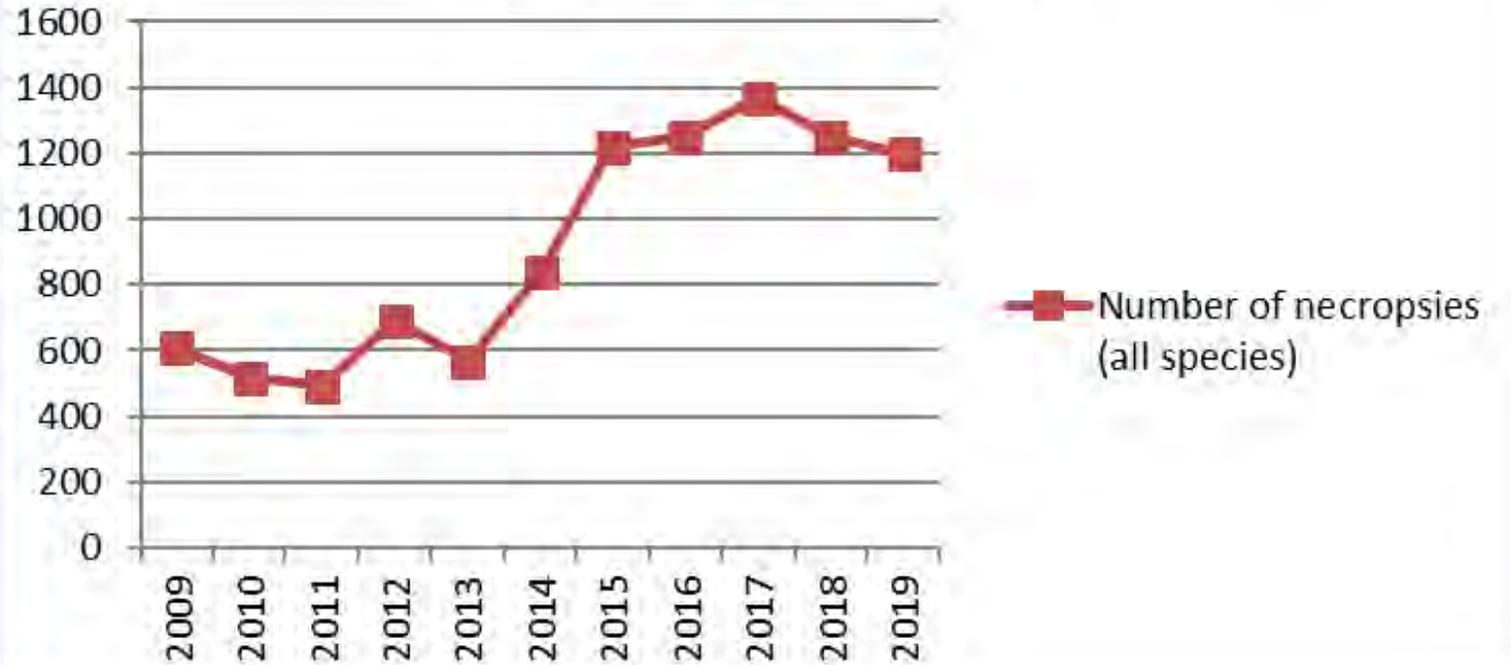
## Professional Development



# NECROPSY



**Figure 1. Number of necropsies performed per year by the WHS**



Necropsy caseload has doubled in the past ten years!

# COMMON DISEASES IN MI WILDLIFE

# Michigan Emerging Disease Issues

Diseases that may affect humans or animals.



MI Disease Mapper

Ticks and Your Health

Mosquitoes and Your Health

Being Safe Around Animals

Bed Bugs, Head Lice, and Scabies

Diseases affecting wildlife

## EMERGING DISEASE ISSUES

### Rabies

Rabies is a preventable viral disease of mammals most commonly transmitted by a rabid animal bite. The majority of reported cases occur in wild animals such as raccoons, skunks, bats, and foxes. The virus infects the central nervous system resulting in disease within the brain and then death. In people, the symptoms initially include fever, headache, and general weakness or discomfort. As the disease progresses, the symptoms become more severe including insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, increase in saliva, difficulty swallowing, and fear of water. Typically death occurs within days after the onset of these symptoms.

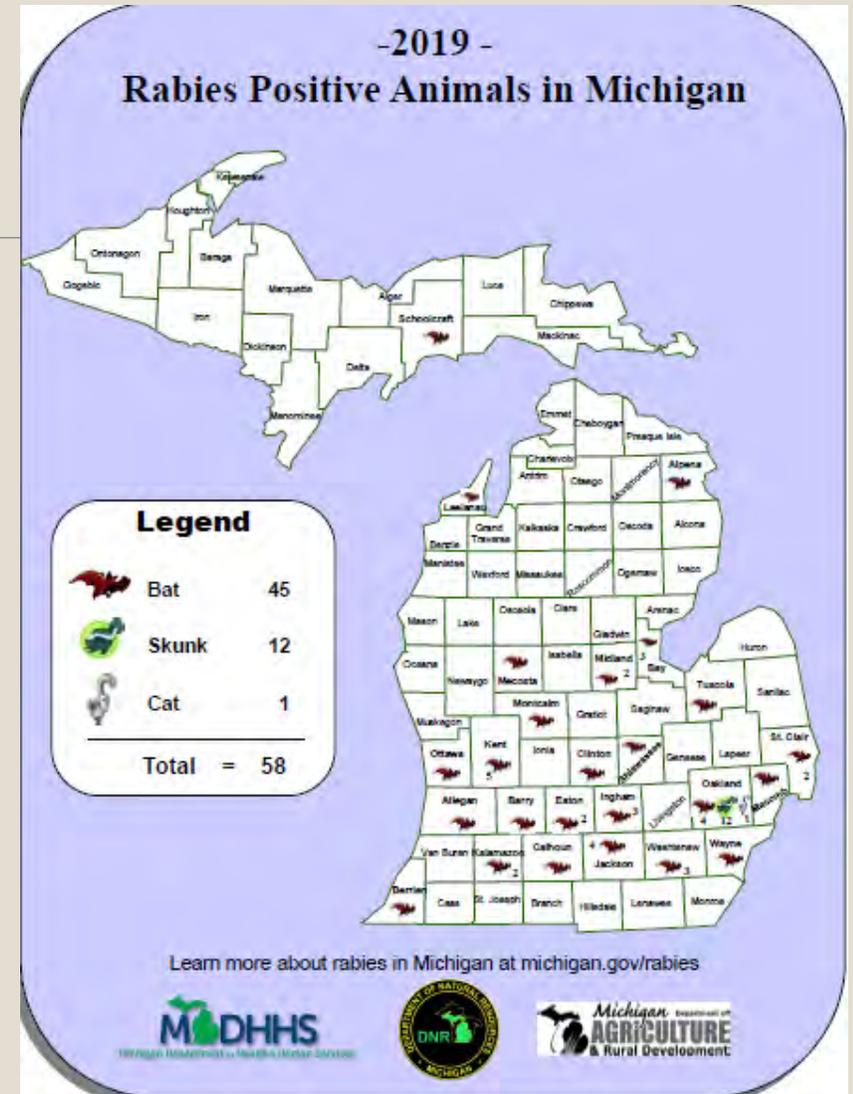


**Rabies**

# Rabies

- Bat-strain rabies is the primary strain in MI
- Skunk and fox-strain rabies have been reported from the southeastern Lower Peninsula
- The last positive raccoon was in 1997

Species	2015	2016	2017	2018	2019
Bat	33	37	35	77	45
Red Fox	1				
Striped Skunk	1	4	2	2	12
<b>Total</b>	<b>35</b>	<b>41</b>	<b>37</b>	<b>79</b>	<b>57</b>



# Canine Distemper

- Since 2015 the WDL has seen a drastic increase statewide in canine distemper cases in wildlife, with the majority of cases occurring in raccoons.
- In recent years, canine distemper has been diagnosed in wildlife in which it had not been previously seen, including a black bear, weasels, minks, and gray wolves.



Species	2013	2014	2015	2016	2017	2018	2019
Badger, American						1	
Bear, Black	1						
Coyote		1	6	3	2	6	3
Fox, Gray	1	5	21	11	16	5	9
Fox, Red			1		1	1	3
Mink				3	3		
Raccoon	2	13	62	97	73	69	86
Skunk, Striped			2	18	13	18	9
Weasel, Long-tailed					2		
Weasel, Short-tailed				1			
Wolf, Gray				1			1
Total	4	19	92	134	113	100	111

# West Nile Virus

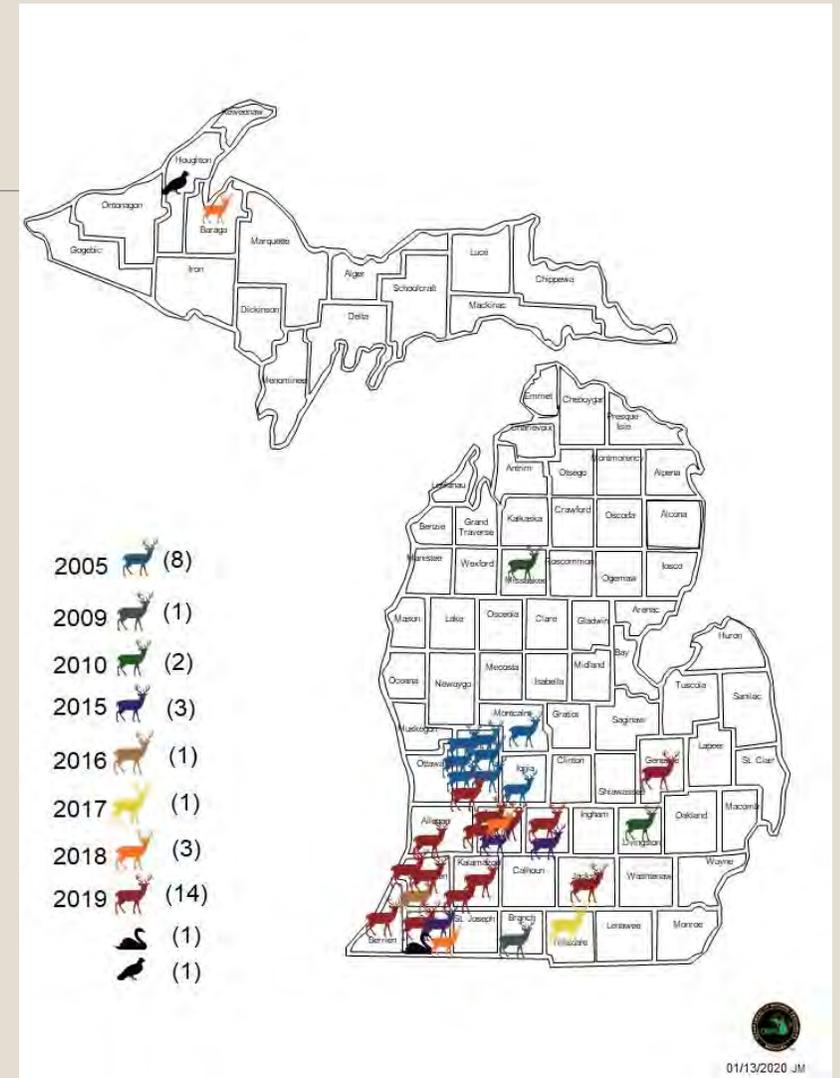
- WNV was first identified in Michigan in 2001
- High mortality in corvids (crows, blue jays, and ravens)
- WNV has been identified in >800 wild birds and mammals in MI
  - 64 avian and 6 mammalian species
- 2019: few cases as compared to previous years



Species	# WNV+
Crow, American	4
Flicker, Northern	1
Goose, Canada	1
Grackle, Common	1
Hawk, Cooper's	2
Hawk, Red-shouldered	2
Merlin	1
Osprey	1
Swan, Mute	1
	14

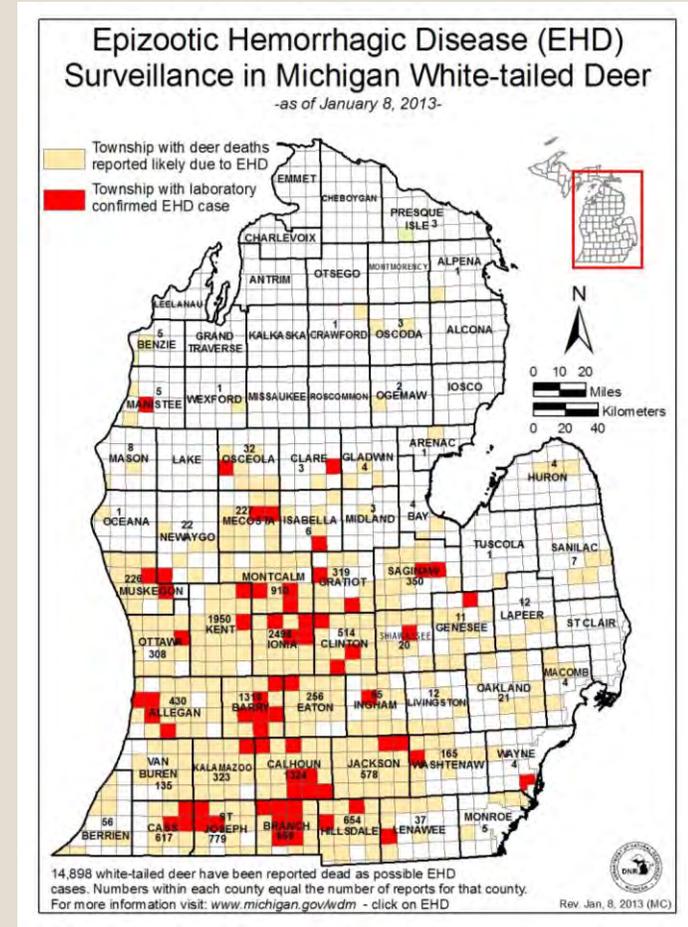
# Eastern Equine Encephalitis

- The most pathogenic arbovirus in North America
  - Rare but highly fatal
    - ~ 35% fatality rate in humans
    - ~ 90% fatality rate in horses
- 2005 MI outbreak in white-tailed deer (8)
  - First documentation of multiple deer
    - 2001 single animal in Georgia
    - 2004 single animal in Wisconsin
- 2019 outbreak
  - 14 deer
  - 1 swan
  - 1 ruffed grouse
  - 10 human cases with 6 mortalities
  - 29 horses, 2 canids, 1 goat, 1 sheep
    - Only 1 horse survived



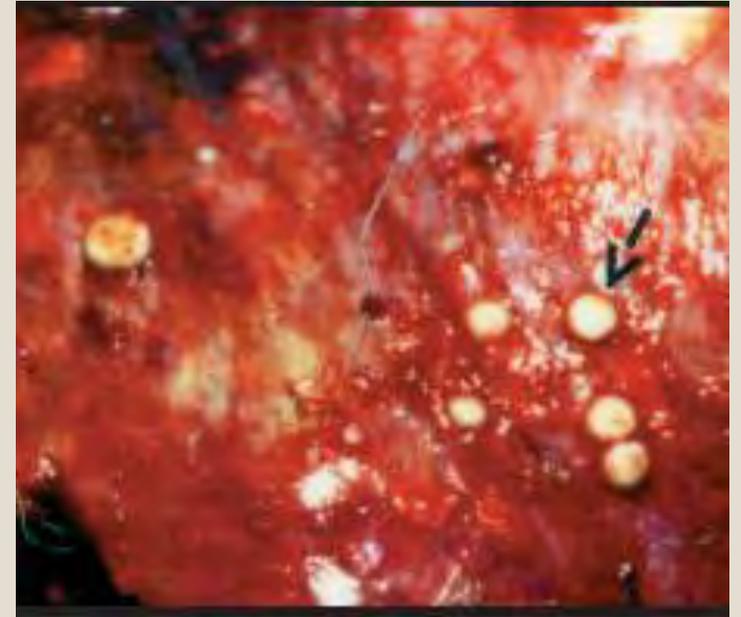
# Epizootic Hemorrhagic Disease

- In 2012, MI experienced its largest outbreak in history, with nearly 15,000 deer from 30 counties being affected.
- MI continues to experience small scale, localized die-offs on a nearly annual basis.
- Serotypes EHDV-1, 2 and 6 have been isolated from samples submitted to SCWDS.



# Bovine tuberculosis

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# Bovine Tuberculosis

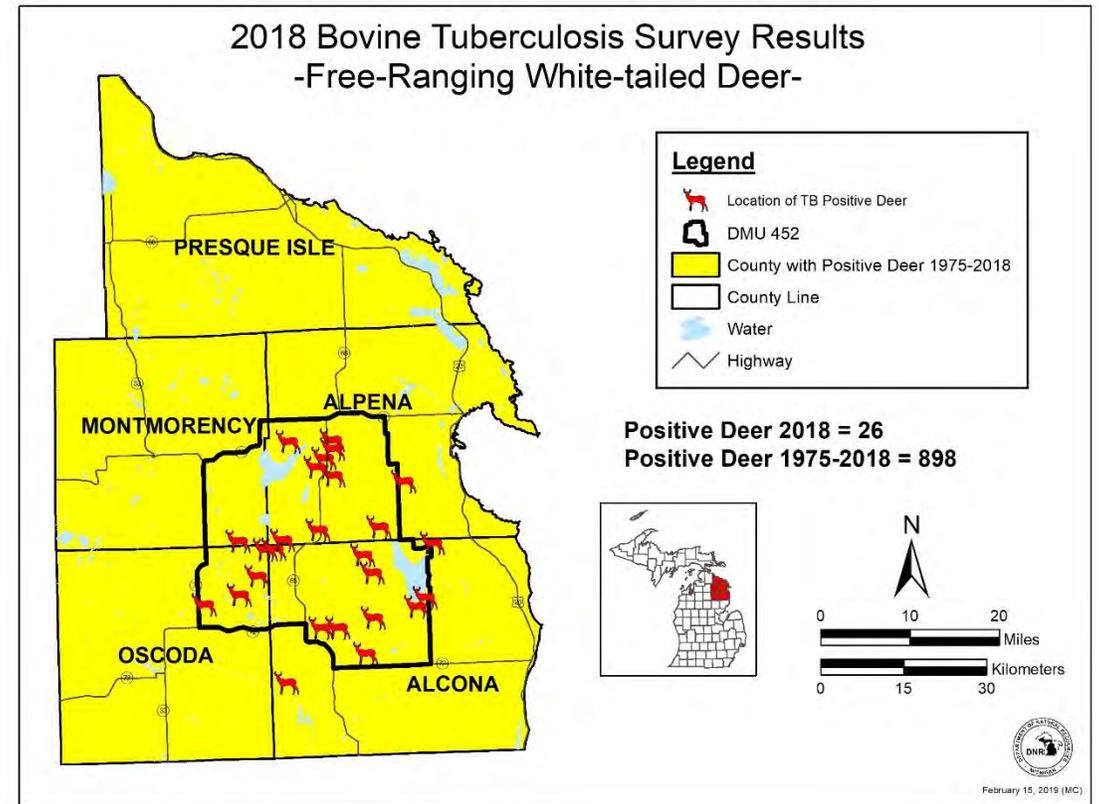
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- Caused by *Mycobacterium bovis*
- Chronic respiratory illness
- Transmitted via direct and indirect contact
- Established in free-ranging white-tailed deer in MI



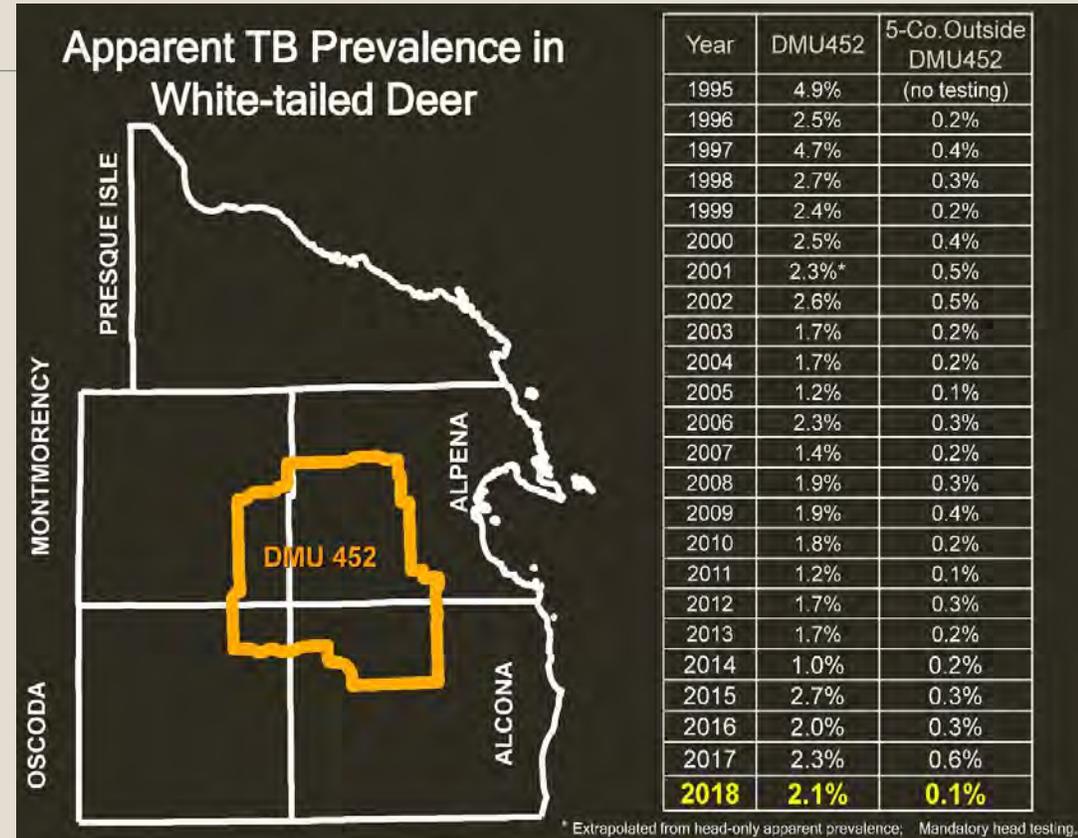
# Bovine tuberculosis

- Endemic area in NLP
- “Club Country”
- Culture of baiting for hunting
- MOU with USDA
  - Accreditation status impacted by # TB positive cattle herds
  - DNR has responsibility over free-ranging white-tailed deer and surveillance



# Bovine tuberculosis

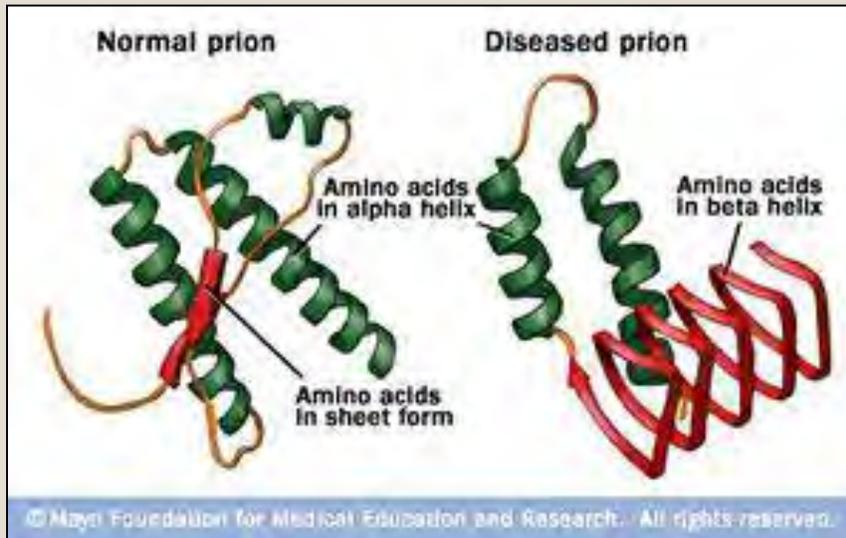
- First detected in MI in 1975 in a hunter harvested deer from Alcona County
  - Thought to be an isolated case
- 2<sup>nd</sup> case: 1994 in Alpena County in a hunter harvested deer
- Began surveillance in 1995
  - Almost 290,000 deer tested since that time with 898 positives



# Chronic Wasting Disease: What is it?

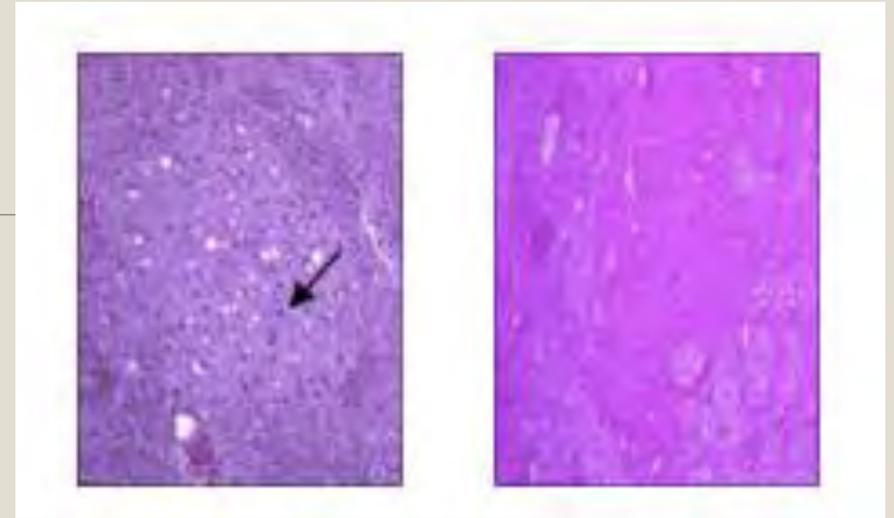
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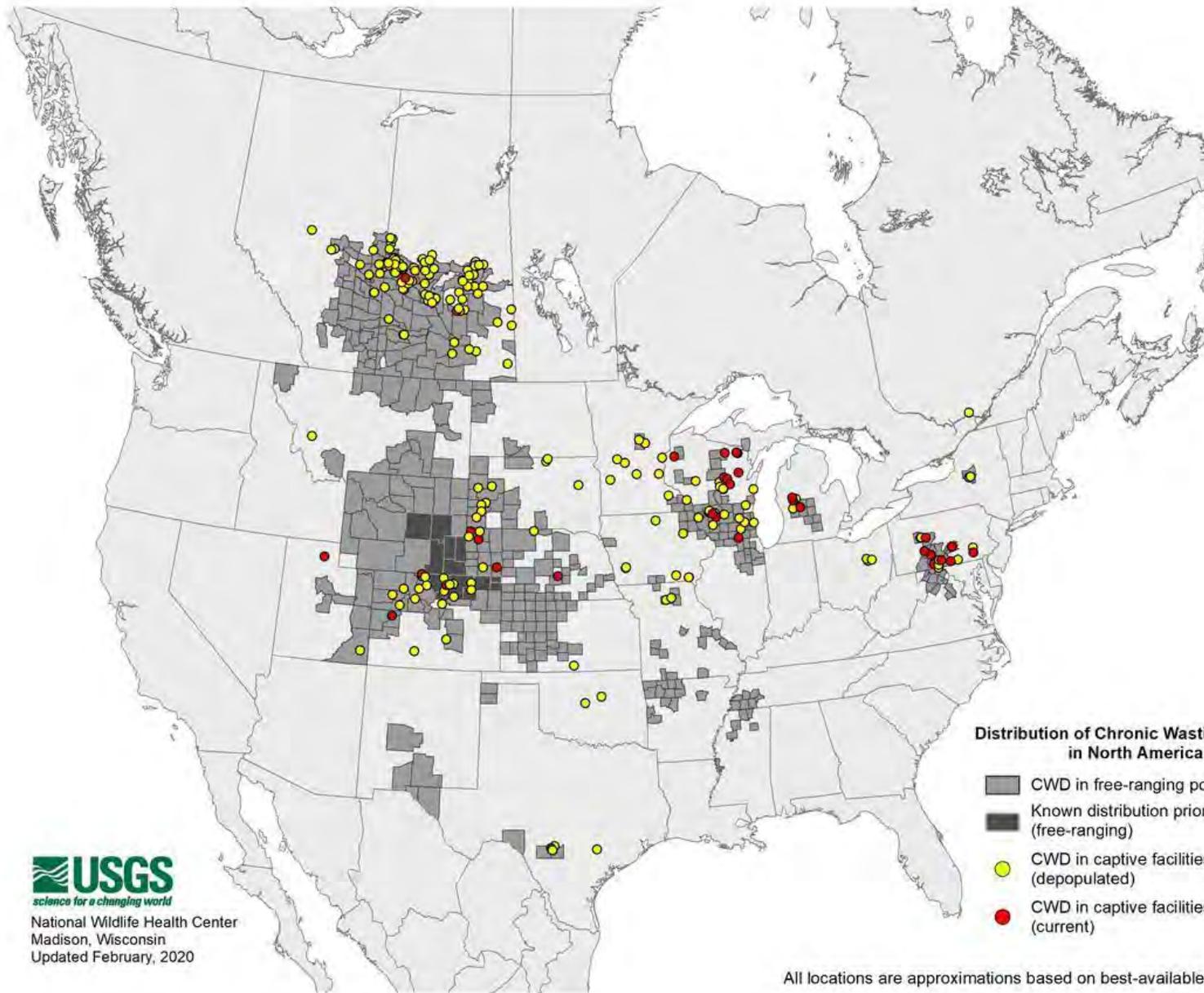
- A fatal, central nervous system disease of cervids
  - (i.e. deer-like species such as white-tailed deer, mule deer, elk, moose, and caribou)
- Caused by a *misfolded* prion protein within the body



# CWD: What is it?

- Disease can be spread from deer to deer and from infected soil or other material to deer
  - Spread before sick...
  - Environmental reservoir...
- CWD is fatal and there is currently no vaccine or treatment
- For more resources, please see:
  - [www.cwd-info.org](http://www.cwd-info.org)
  - [www.cidrap.umn.edu/cwd](http://www.cidrap.umn.edu/cwd)





**Distribution of Chronic Wasting Disease  
in North America**

- CWD in free-ranging populations
- Known distribution prior to 2000 (free-ranging)
- CWD in captive facilities (depopulated)
- CWD in captive facilities (current)



National Wildlife Health Center  
Madison, Wisconsin  
Updated February, 2020

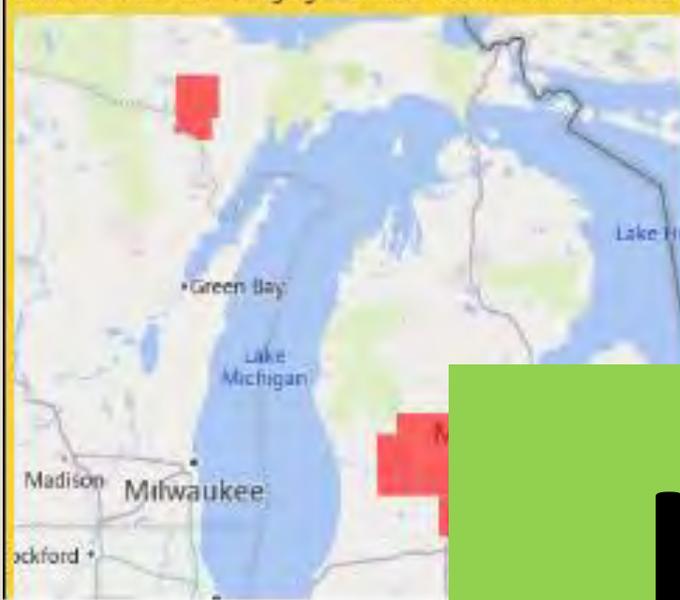
All locations are approximations based on best-available information

# CWD Surveillance

- The DNR undertakes a massive surveillance effort for CWD every year; both in order to better understand the distribution and extent of disease as well as to provide hunter service testing across the state
- In 2019, we tested over 20,000 deer for CWD with 65 positive detections



Counties Where Free-Ranging Deer Have Tested Positive for CWD



Townships Where Free-Ranging Deer Have Tested Positive



Total Positive Hunter Harvested

153

Total Positive Disease Control and Crop Damage

12

Total Positive Roadkill or Found Dead

2

Total Hunter Harvested Tested

64224

Total Disease Control and Crop Damage Tested

8125

Total Roadkill or Found Dead Tested

4400

Wildlife Services Tested

2494

Deer Tested

1099

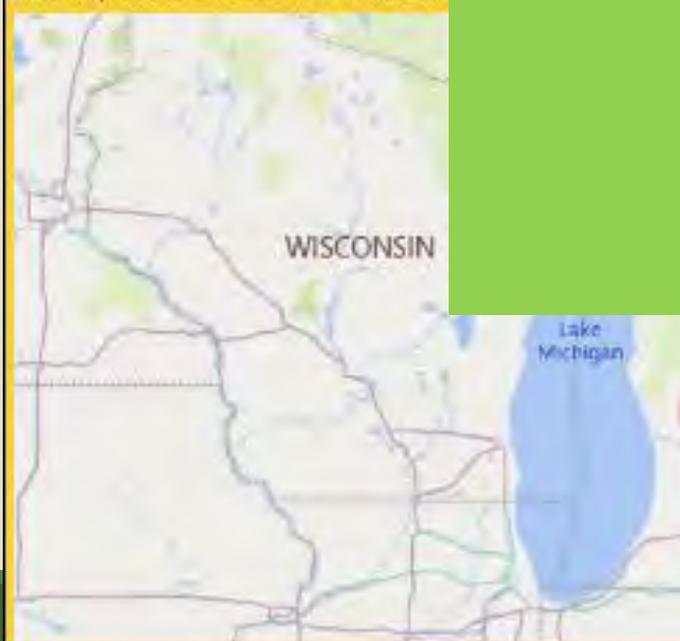
Total Positive

80342

Deer By Sex



Heat Map of Hunter Harvested Positive Cases



Heat Map of Hunter Harvested Positive Cases



[mi.gov/cwd](https://mi.gov/cwd)  
(!!!)



*PLEASE DON'T FEED THE DEER....*



QUESTIONS?

# Mange

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- The WDL receives numerous reports annually of mange in a variety of species.
- *Demodex* sp.: white-tailed deer
- *Notoedres* sp.: squirrels (Eastern fox, gray, red), cottontail rabbit
- *Sarcoptes* sp.: black bear, coyote, gray wolf, porcupine, red fox, raccoon



Demodectic mange in a white-tailed deer



Notoedric mange in a cottontail rabbit



Sarcoptic mange in a black bear