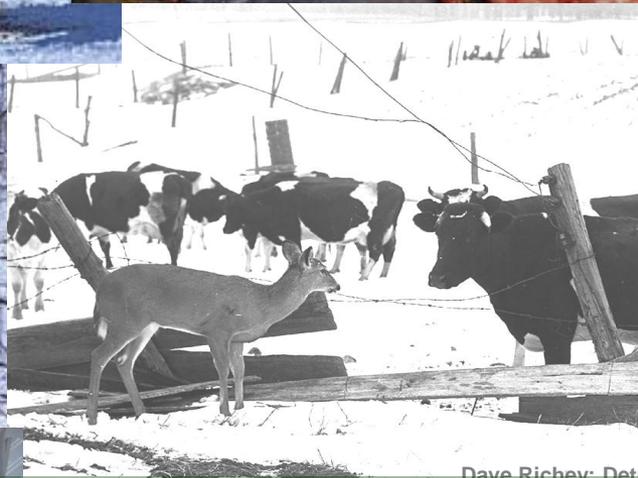


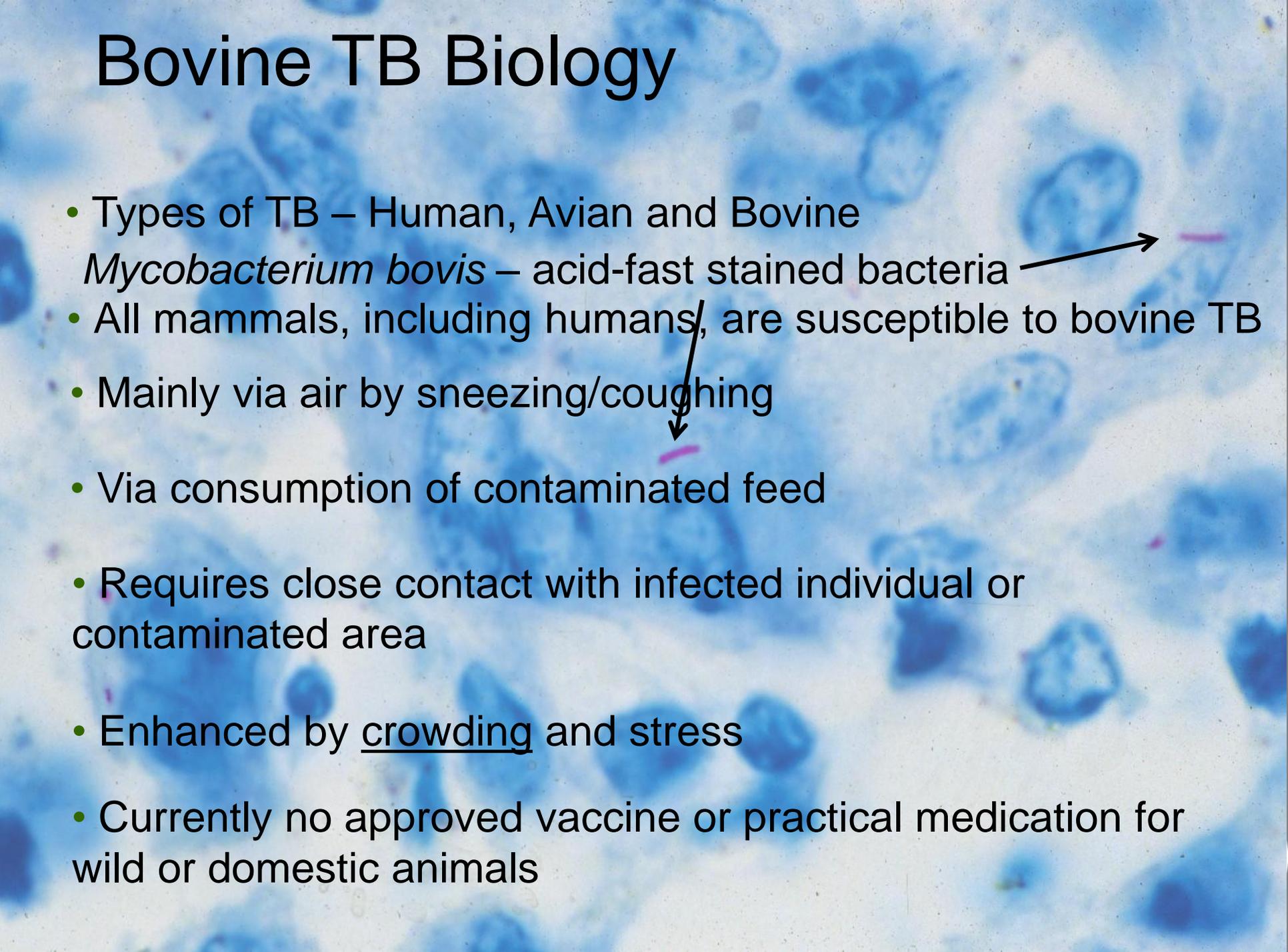
2012 Bovine TB Surveillance



Dr. Steve Schmitt
Dr. Dan O'Brien
Wildlife Health Section
Michigan Department of Natural Resources



Bovine TB Biology

- Types of TB – Human, Avian and Bovine
Mycobacterium bovis – acid-fast stained bacteria  
- All mammals, including humans, are susceptible to bovine TB 
- Mainly via air by sneezing/coughing
- Via consumption of contaminated feed
- Requires close contact with infected individual or contaminated area
- Enhanced by crowding and stress
- Currently no approved vaccine or practical medication for wild or domestic animals

M. Bovis in free-ranging WTD

- TB not native to N. American wildlife; introduced by cattle
- Rare, sporadic in wild deer
- Eight previous occurrences prior to the current outbreak
- Michigan is the first recorded self-sustaining North American outbreak in wild deer



Why has TB persisted in Northeastern Michigan WTD? High deer densities



Why has TB persisted in Northeastern Michigan WTD? Focal concentrations due to feeding and baiting



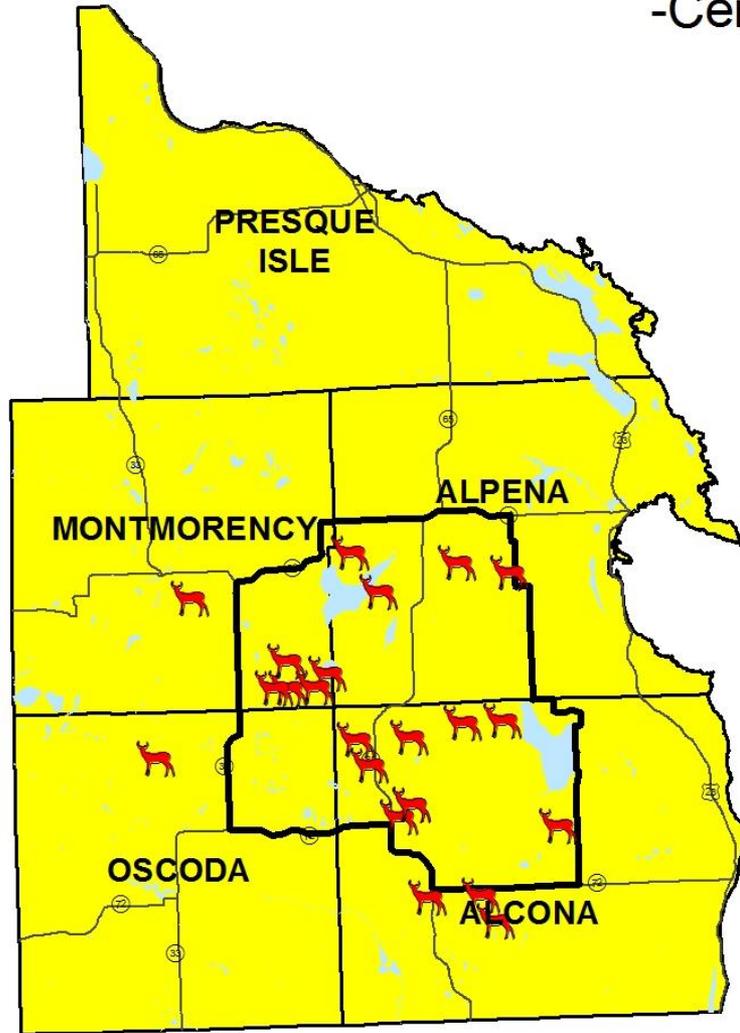
Michigan White-tailed Deer Surveillance



Year	Positive	Total Deer Tested
1975 & 1994	2	2
1995	18	403
1996	56	4,966
1997	73	3,720
1998	78	9,057
1999	58	19,499
2000	53	25,855
2001	61	24,278
2002	51	18,100
2003	32	17,307
2004	28	15,131
2005	16	7,364
2006	41	7,914
2007	27	8,316
2008	37	16,309
2009	31	5,723
2010	24	4,974
2011	17	6,026
2012	23	4,716
Grand Total	726	199,660



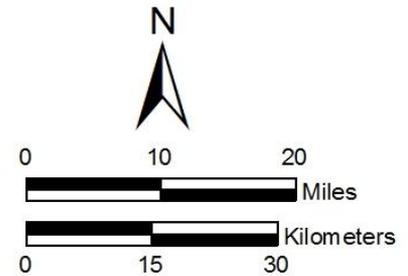
2012 Bovine Tuberculosis Survey Results -Cervids-



Legend

-  TB Positive Deer
-  DMU 452
-  County Line
-  Water
-  Highway
-  County with Positive Deer 1975-2012

Total Positive Deer
23



Michigan Elk Surveillance

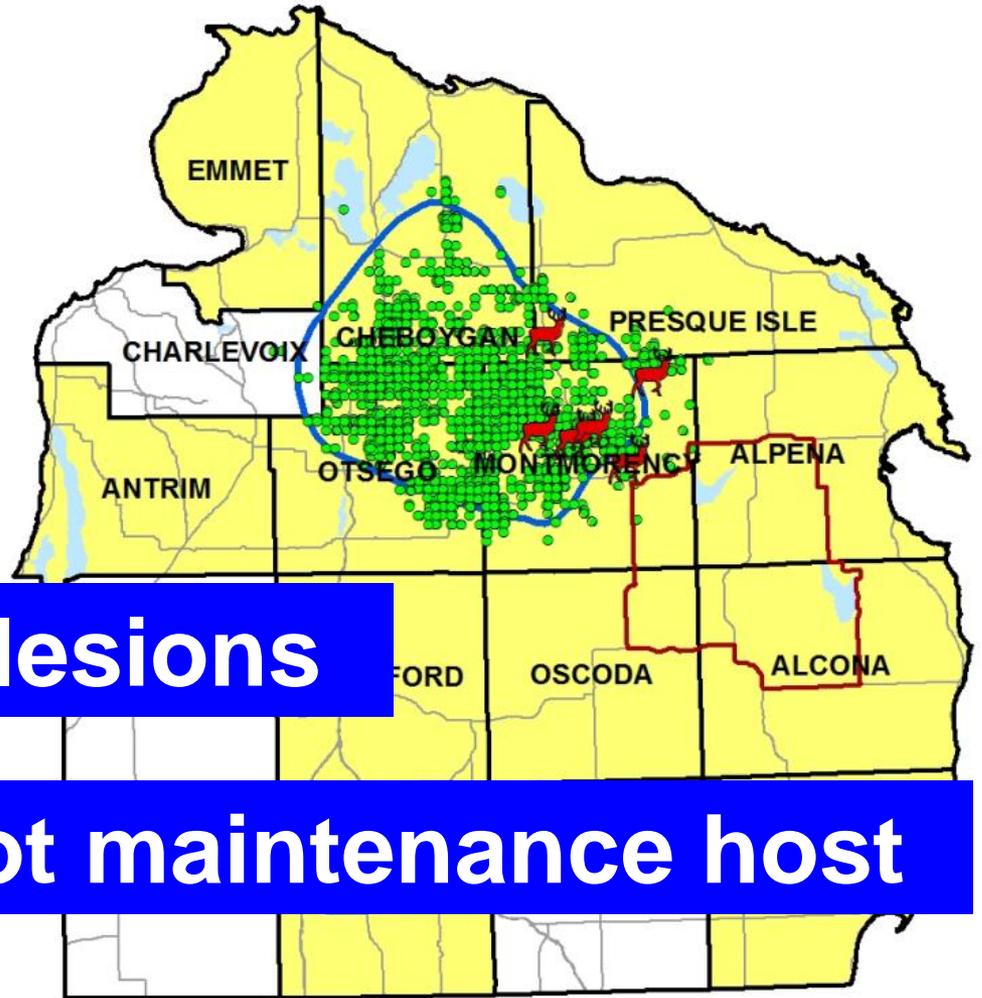
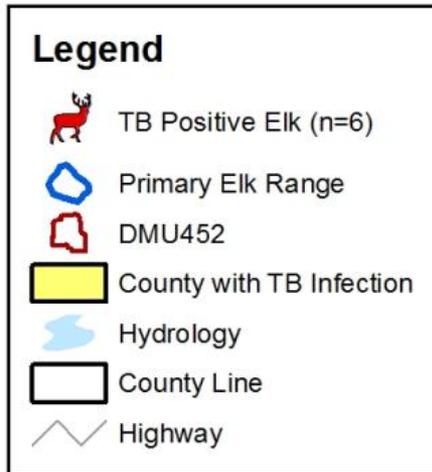


Photo: D. O'Brien, MDNR

Year	Positive	Total Elk Tested
1996	0	79
1997	0	109
1998	0	224
1999	0	179
2000	1	247
2001	1	216
2002	0	130
2003	2	97
2004	0	110
2005	0	130
2006	1	161
2007	0	198
2008	0	271
2009	0	324
2010	0	200
2011	0	138
2012	1	171
Grand Total	6	2,984

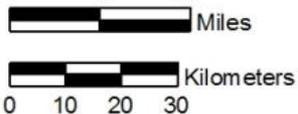


Elk Submitted for Bovine Tuberculosis Testing 1996 - 2012



No extensive lesions

Spillover, not maintenance host



Bovine TB Eradication Strategies

Strategy 1

- Keep deer from concentrating by eliminating supplemental feeding and baiting

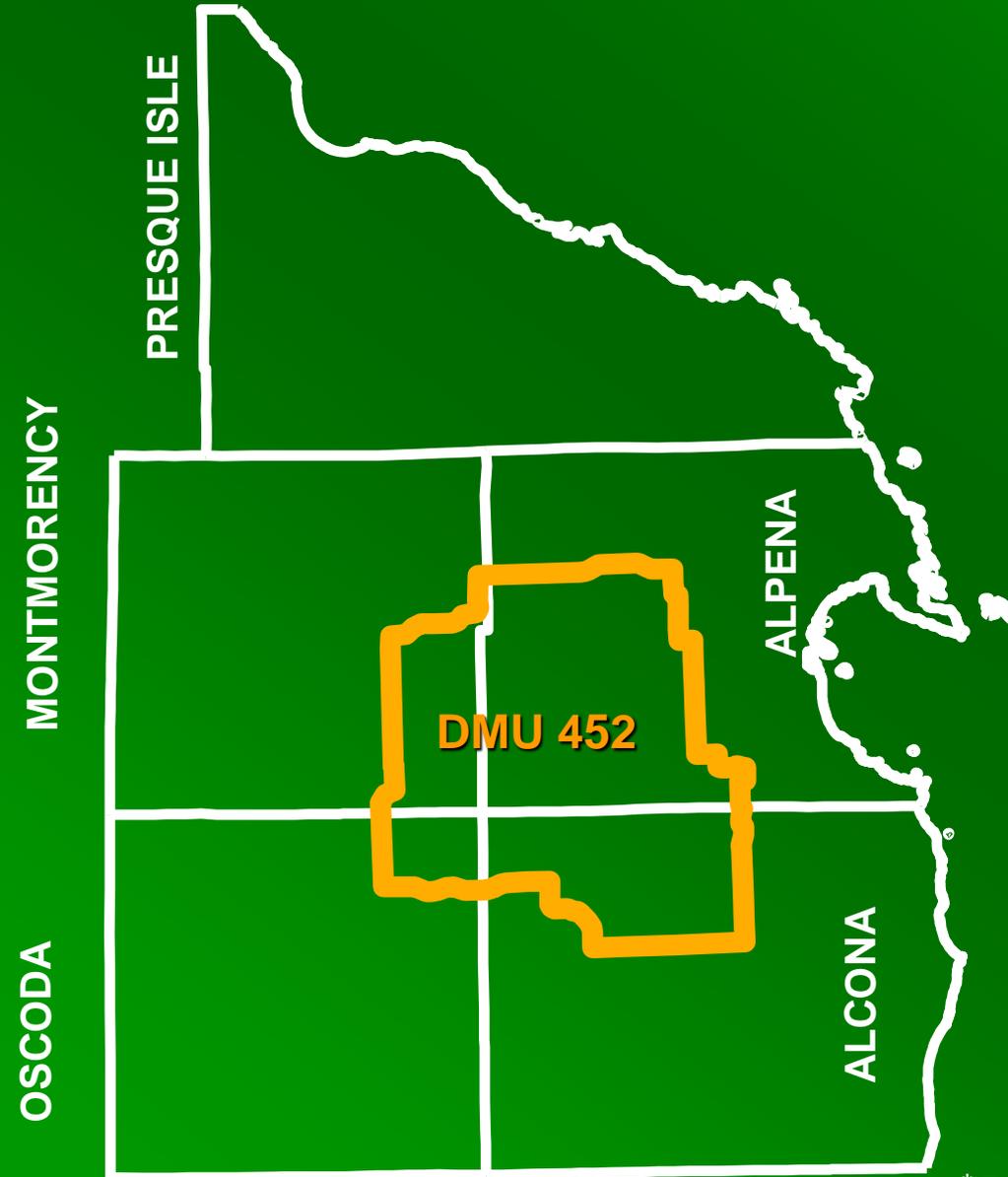


Strategy 2

- Reduce deer numbers through hunting to a level supported by the natural vegetation.



Apparent TB Prevalence in White-tailed Deer



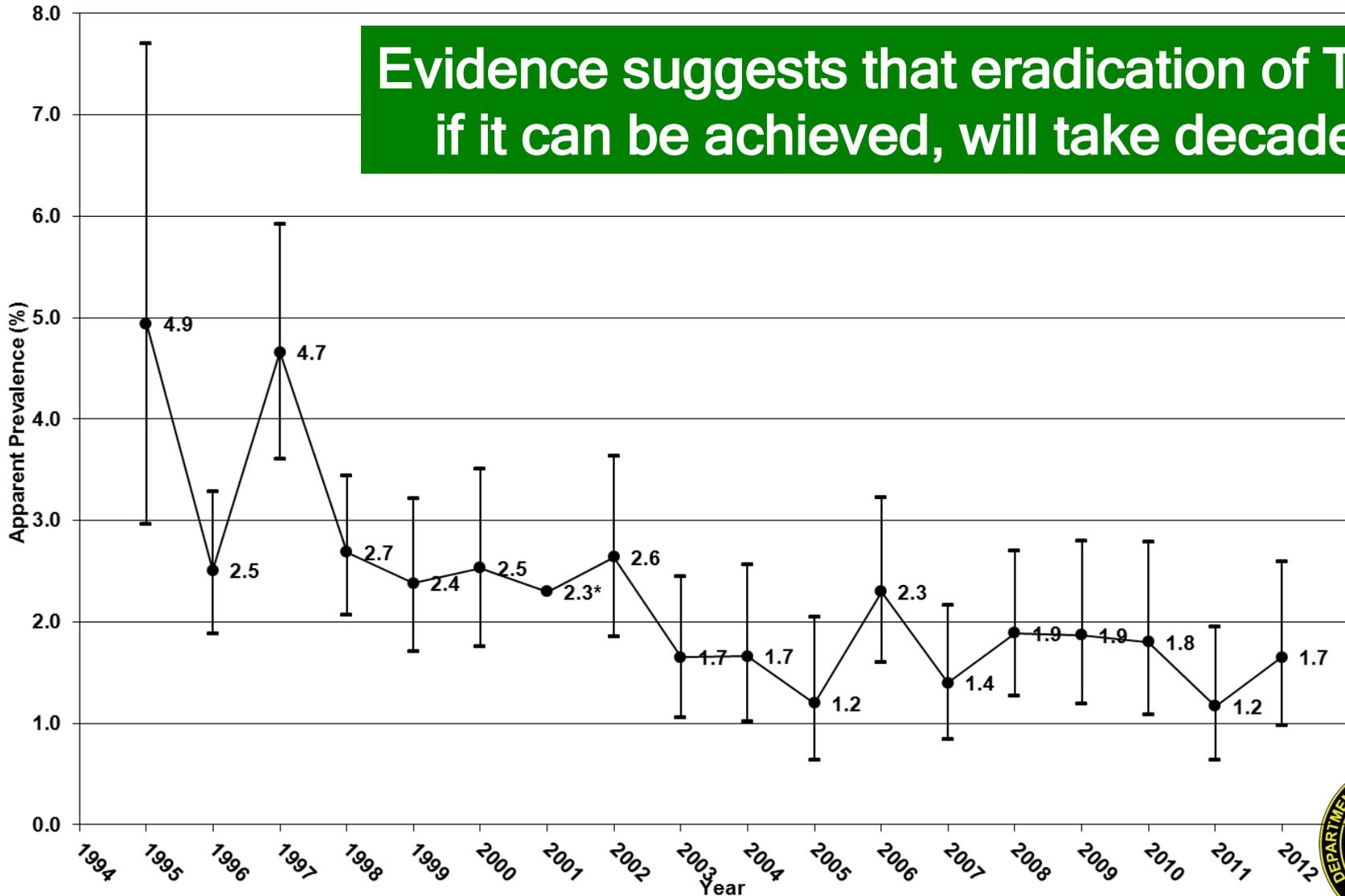
Year	Inside DMU452	5-County Outside DMU452
1995	4.9%	(no testing)
1996	2.5%	0.2%
1997	4.7%	0.4%
1998	2.7%	0.3%
1999	2.4%	0.2%
2000	2.5%	0.4%
2001	2.3%*	0.5%
2002	2.6%	0.5%
2003	1.7%	0.2%
2004	1.7%	0.2%
2005	1.2%	0.1%
2006	2.3%	0.3%
2007	1.4%	0.2%
2008	1.9%	0.3%
2009	1.9%	0.4%
2010	1.8%	0.2%
2011	1.2%	0.1%
2012	1.7%	0.3%

* Extrapolated from head-only apparent prevalence; Mandatory head testing.

Apparent Prevalence of Bovine Tuberculosis (^w/95% Confid. Limits), Adult White-tailed Deer, DMU 452, 1995-2012

(Cochran-Armitage test for trend, two-tailed, $p < 0.0001$)

Evidence suggests that eradication of TB,
if it can be achieved, will take decades.



* Extrapolated from head-only apparent prevalence: Mandatory testing.



Moving Forward

Future Deer Management TB Strategies

1. Continue working to develop an oral TB vaccine
2. Joint MDNR/ MDARD Bovine Tuberculosis Plan
 - a. Increase hunter access to private land in the TB area
 - b. Improve habitat on public land / food plots
 - c. Ensure that Disease Control Permits easy to obtain
3. Pilot Project to see if neighbors can work together to improve TB management



Thank You

www.michigan.gov/emergingdiseases



Michigan's Bovine Tuberculosis Program



Michigan Department Agriculture
and Rural Development

Dr. Rick Smith

FY 2012 Bovine Tuberculosis

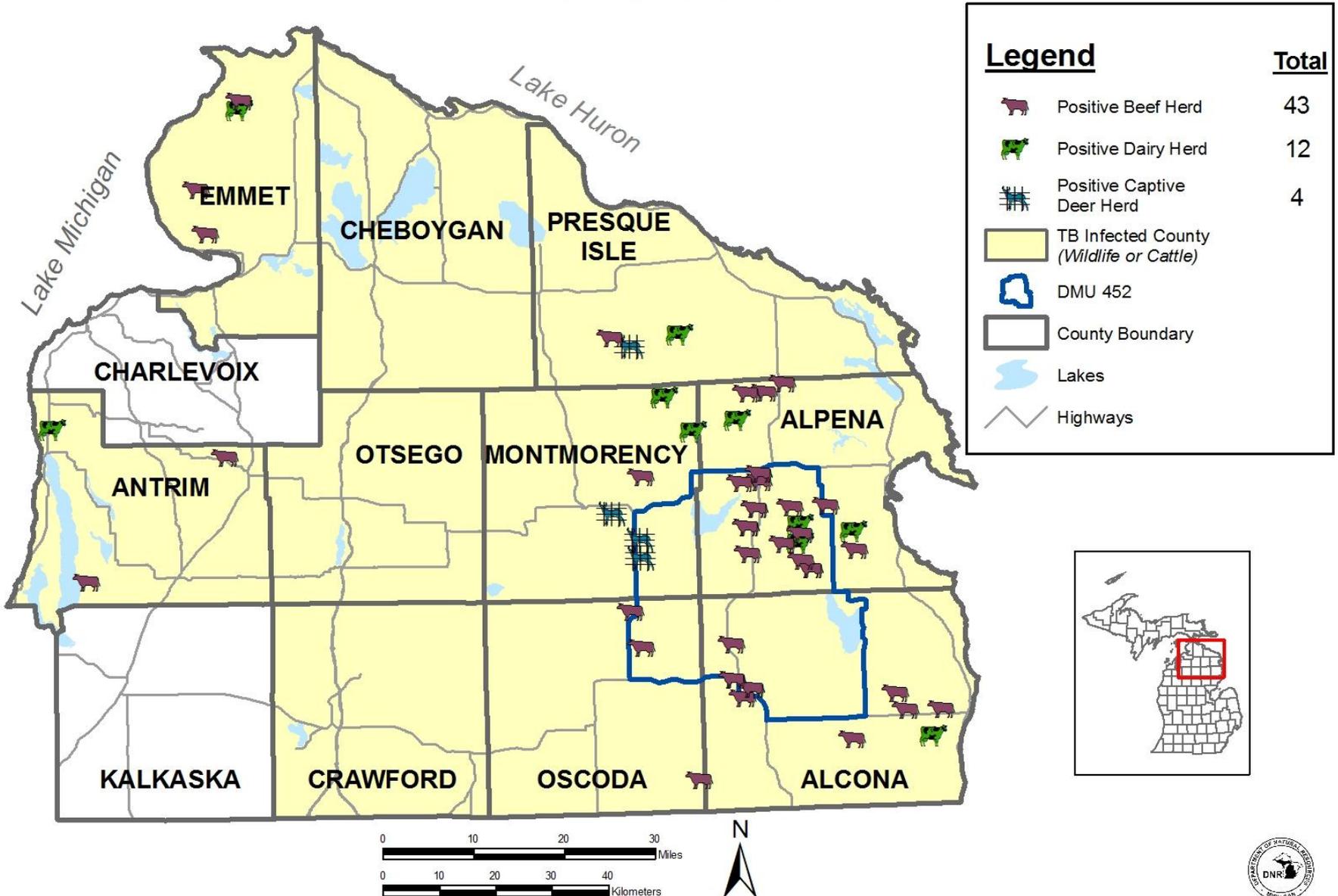
Surveillance Summary for Michigan

	Herds Tested (n)	Cattle Tested (n)	CFT Suspects (n)
MAZ	425	19,526	470
MAAZ	344	10,565	217
TB Free	83	8,534	166
Total	852	38,625	853
2012 Totals	825	35,383	1,015

Three TB Affected Farms in 2012

- **Herd #53** – Alpena County Beef Herd
 - Second Infection (first was 2006)
 - State indemnity – depopulation in process
- **Herd #54** – Alpena County Dairy Herd
 - Second Infection (first was 2003)
 - Test-and-Remove process
 - Quarantine released March 4, 2013
- **Herd #55** – Alpena County Dairy Herd
 - Test-and-Remove process

Bovine Tuberculosis Positive Cattle and Captive Cervid Herds 1998 - 2012

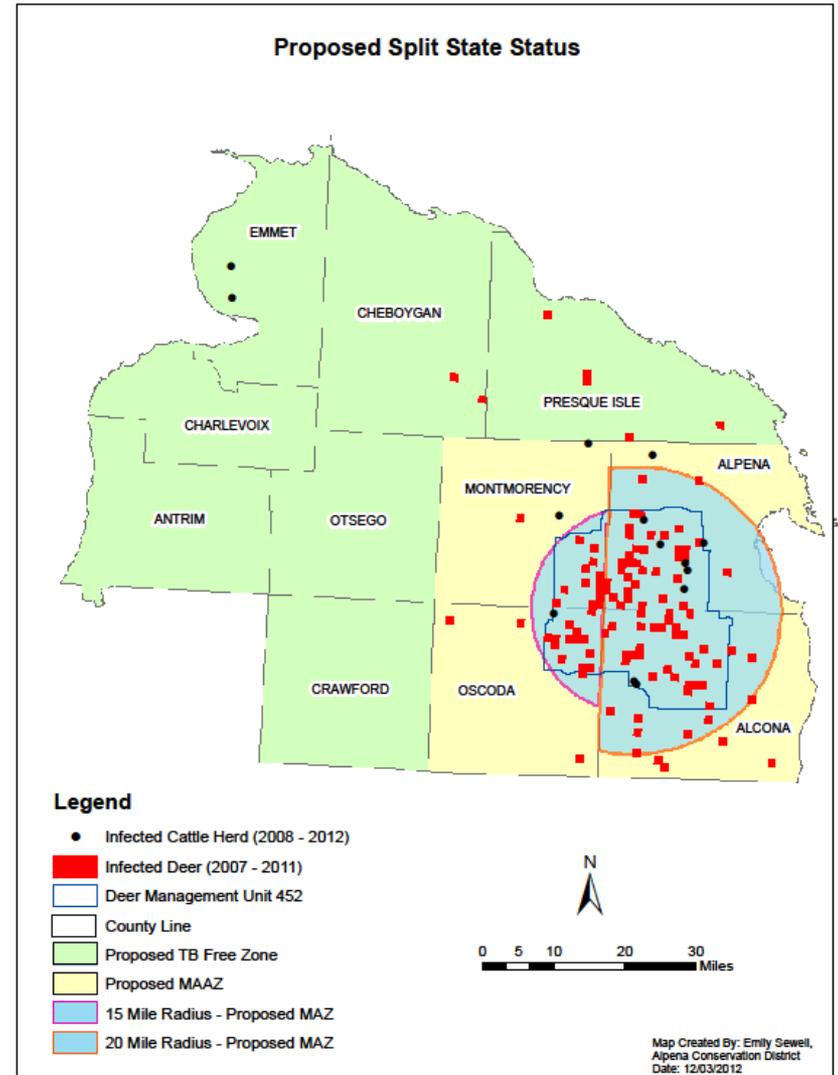


Wildlife Risk Mitigation Project Update

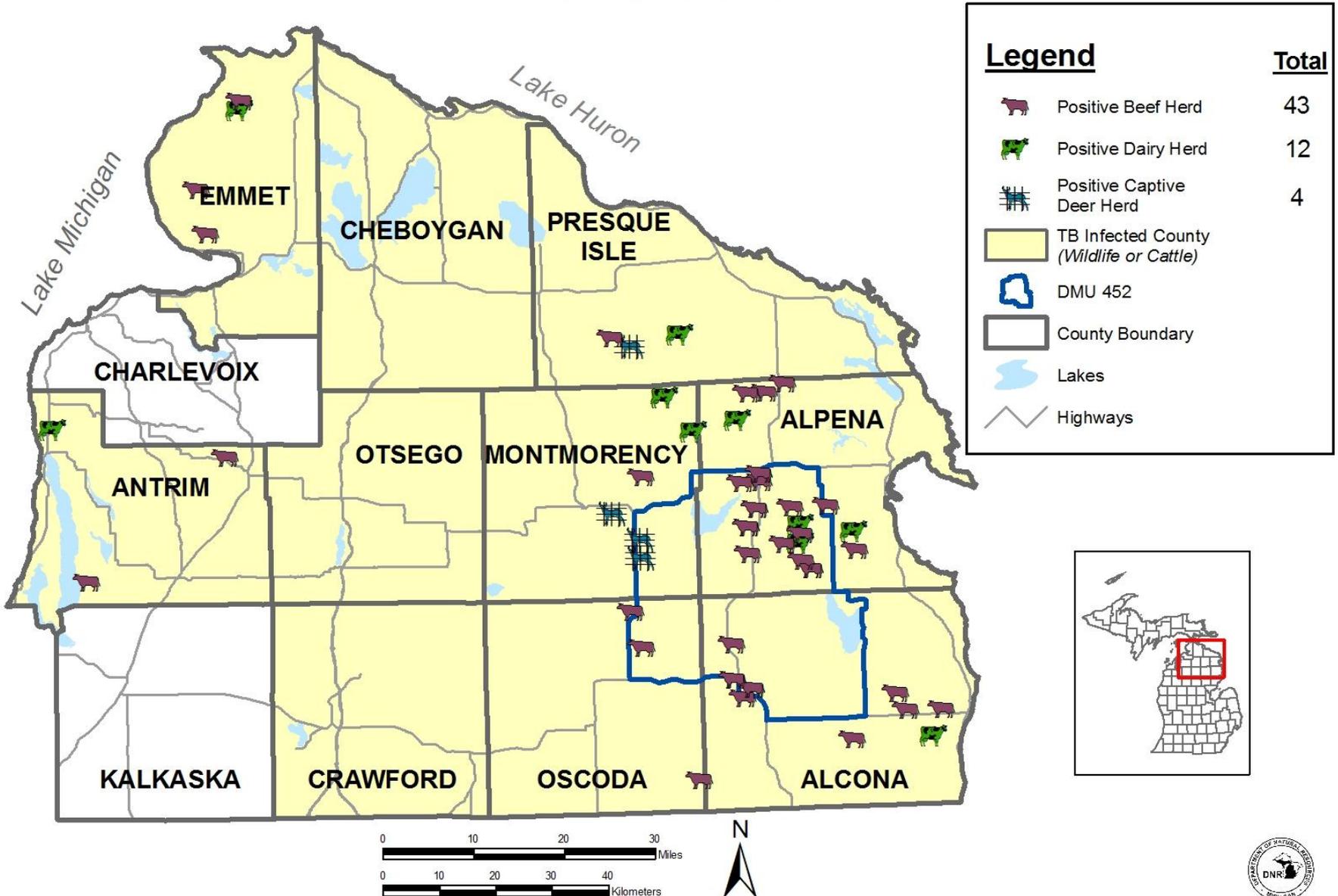
Round	# Participating Farms	# WRM Verified Farms	% of Farms Verified
Round 1 (2009)	340	339	99%
Round 2 (2010)	349	346	99%
Round 3 (2011)	187	181	97%
Round 4 (2012)	87	79	91%
Total	963	945	98%
2012-2013 Winter Verifications		889 Assignments	

MDARD's Proposal to USDA- VS

- Successful TB Review in August.
- Began MOU/Split State Status
 - Move 7 MAAZ Counties (green) to TB Free Status.
 - Move outer portions of 4 MAZ Counties (yellow) to MAAZ Status.
 - Risk assessment being done by USDA – to be completed by end of April 2013



Bovine Tuberculosis Positive Cattle and Captive Cervid Herds 1998 - 2012

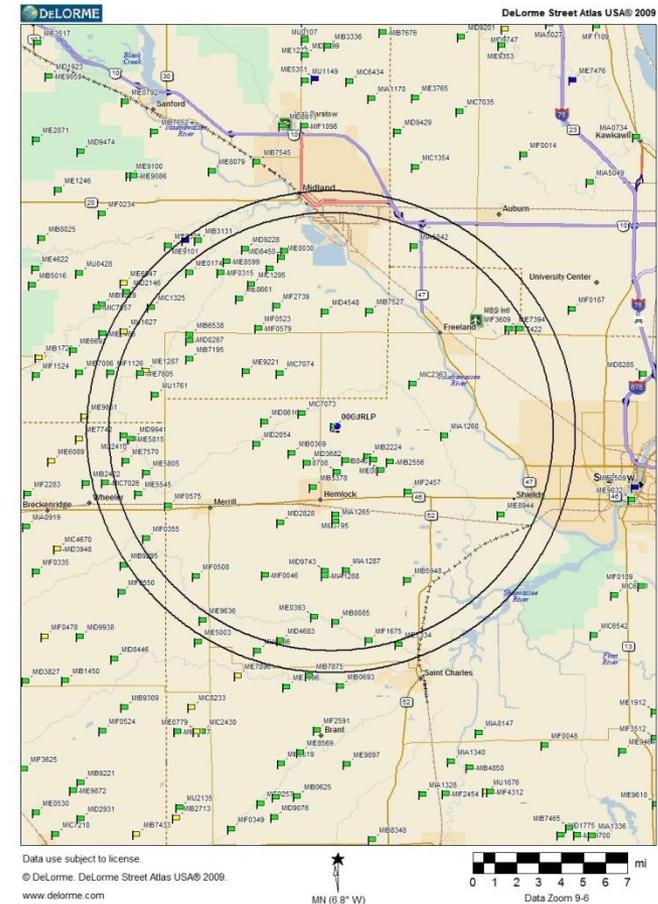


Legend		Total
	Positive Beef Herd	43
	Positive Dairy Herd	12
	Positive Captive Deer Herd	4
	TB Infected County (Wildlife or Cattle)	
	DMU 452	
	County Boundary	
	Lakes	
	Highways	

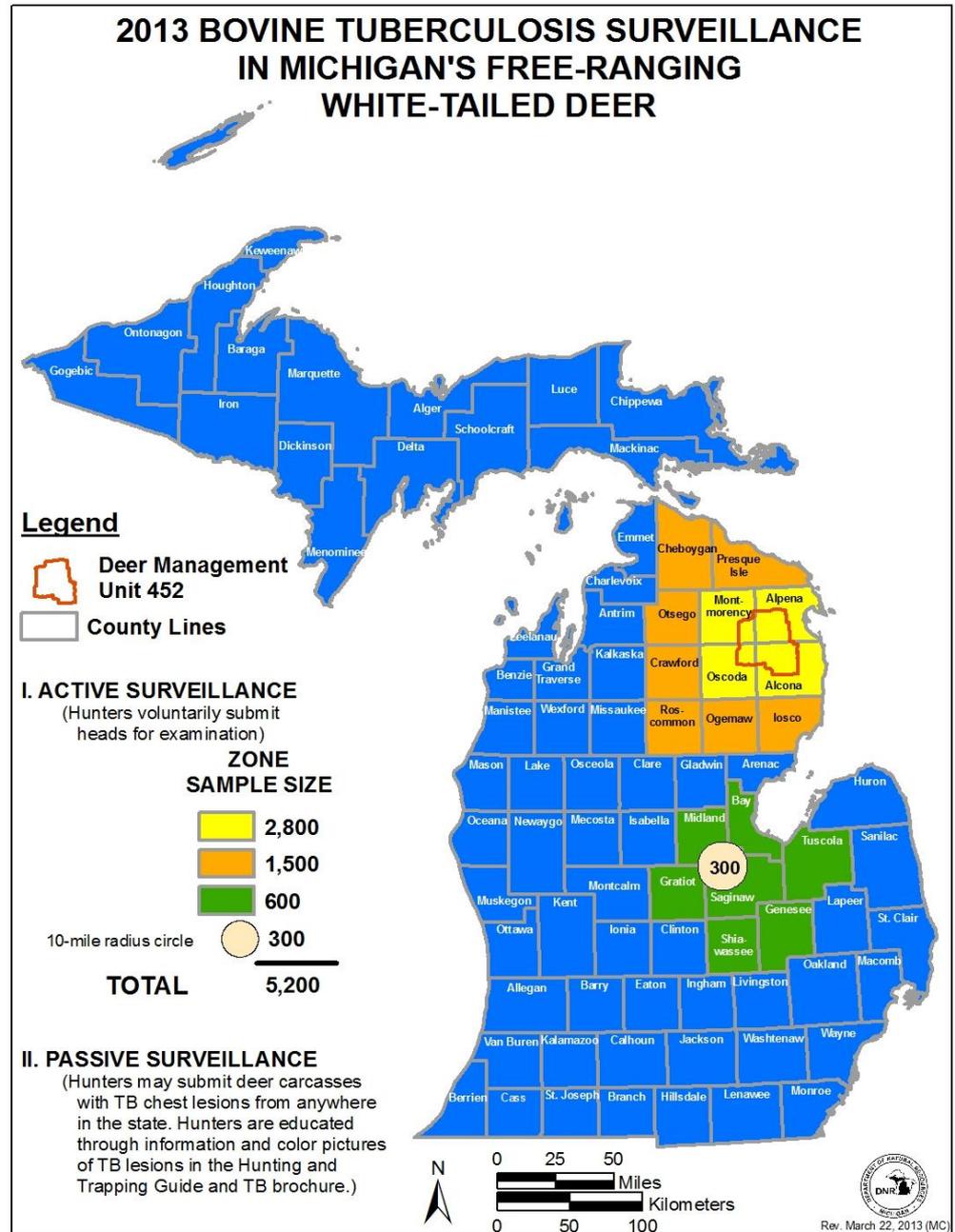


Saginaw County Herd & Circle

- Slaughter trace – TB positive (2/28/13).
- Michigan strain of TB (3/12/13).
- Large Saginaw County Dairy tested (3/4/13).
- Herd designated as Michigan's 56th affected herd (3/25/13).
- Special surveillance zone designated – 10 mile circle (3/26/13).



- Enhanced surveillance to detect TB in the Deer Herd
- If TB is found, the DNR will respond appropriately



Questions?