Bovine tuberculosis in Indiana: Is the End in Sight? A Wildlife Perspective
Supporting State bTB Eradication Efforts

Natural Resources Commission Meeting, Nov 13, 2018

Nancy Boedeker, DVM
Wildlife Veterinarian
Indiana Department of Natural Resources
What is Bovine Tuberculosis (bTB)?

- Bacterial disease caused by *Mycobacterium bovis*
- Primarily affects the respiratory tract
  - Nodular lesions
  - Chest cavity, lungs, lymph nodes
- Primarily infects cattle, but most mammals susceptible
  - Deer, humans
- US Eradication Program in place > 100 years
- State bTB accredited free status important to cattle industry, economy
  - Trade limitations
  - Testing requirements
  - Quarantine
In Indiana bTB almost only found in livestock – in a few SE IN farms since 2008

Due to risk of transmission between cattle and deer, DNR initiated surveillance in 2009
  - Hunter harvested sampling
  - Deer lymph nodes submitted for testing

From 2009-2018, ~4000 deer tested, >50% 2016-18

Only one positive wild deer – from affected farm

2 total positive raccoons – both from affected farms

Genetic analysis showed transmission from livestock to wildlife (deer, raccoons)

Suspect bTB, if present in wild deer, is at low prevalence (<0.2-0.4%) in surveillance area
Bovine Tuberculosis in Wildlife in Michigan – An Overview

- In contrast to IN, bTB is established in wild deer herds in parts of MI
- Ongoing risk of transmission from deer to cattle in MI
- bTB in MI originated in cattle imported from Great Britain
- At some point btb transmitted from cattle to deer in NE Lower Peninsula
  - 1st wild deer found with bTB 1975
  - 2nd wild deer found with bTB 1994
- MI battling bTB in cattle and deer for over 2 decades since 1995
  - Prevalence in deer reduced with intensive management in MI
Bovine Tuberculosis in Wildlife in Michigan – An Overview

- Not certain bTB can be eradicated from deer in MI; cattle farms remain at risk
  - 29 wild deer, 6 cattle farms positive in 2016
- MI given “split status” for bTB accreditation
- MI has tested 230,000 wild deer 1995-2018
  - Avg 10,000/yr in MI vs avg 400/yr in IN
  - 900 positive deer found in MI (Straka, 2018) vs I in IN
- Contrast to IN
  - Known risk of transmission from deer in MI
  - bTB endemic (self sustaining at low level) in MI deer
  - Possible permanent $$$ management needed in MI
bTB Surveillance History in IN Deer:

- 2008-2011 Bovine TB in Livestock
  - 2 cattle + 1 cervid farm
  - Franklin + Dearborn Cos.
  - All depopulated
- Surveillance in white-tailed deer
  - 2009-2015; Franklin, Fayette, Dearborn Cos.
  - 1415 hunter harvested deer: all negative
  - DNR, BOAH, USDA APHIS VS & WS
- 2015 – the end is in sight!
  - No positives in wild deer
  - Last positive farm 2011
Bovine TB in Indiana in 2016:  
A Year of Surprises

- Positive farm, Franklin Co, April 2016
  - 2 premises
  - Depopulation, increased cattle testing
  - Wildlife culling from affected premises
    - One wild deer, one raccoon positive

- Positive wildlife > expanded cattle testing zone

- Positive farm, Franklin Co, Dec 2016
  - Not immediately depopulated – a new twist
  - Test and removal (thru summer 2018), quarantine
  - Positive raccoon culled from premises 2017
DNR Bovine TB Surveillance 2016-2018: A Change in Plans

- Increased surveillance in deer
  - Primarily hunter-harvested
  - Mostly voluntary
  - Incentives
  - ~2500 deer tested – all negative
Current and Future Wildlife-Related Management

- September 2018 wildlife removal/testing completed from on/around Dec 2016 farm
  - Funded by USDA APHIS VS
  - Conducted by USDA APHIS WS
  - Deer and small mammals at high risk of exposure due to location
  - Test results pending – hopefully negative!

- Recommendations for future
  - Removal and testing wildlife at high risk of exposure from on/around Dec 2016 farm
  - Repeat Sept 2018 wildlife removal effort on/around farm every 6 months until all tests are negative twice
    - VS to fund, WS to conduct
Current and Future Deer bTB Surveillance

- 2018-19 hunting season
  - Voluntary, low level, hunter harvest surveillance around Dec 2016 farm and in 2017-18 surveillance area
  - Service to concerned hunters
  - Addition to surveillance efforts
  - DNR funded - single staff person throughout season

Proposal to repeat intensive btb surveillance in deer in SE IN in ~ 3-5 years

- Purpose: ensure bTB has not risen to detectable levels in wild deer population
- Allow for shift towards CWD surveillance in interim
- Funding: likely federal (USDA-APHIS)
  - Saving sportsmen's dollars for other high priority deer and wildlife management responsibilities
DNR Bovine TB Surveillance: Funding Sources

- **75%** from Pittman-Robertson Act fund
  - From tax on hunting equipment
  - USFWS distributes to states based on state size and number of licensed hunters
- **25%** from State hunting and trapping licenses
- P-R Funds support many state wildlife programs
  - Habitat and species restoration
  - Hunter access and education
  - Land acquisition
  - Research
  - Facilities maintenance and construction
  - Archery and shooting ranges
DNR Bovine TB Deer Surveillance: Historic Expenditures

- 2008-2012: $100,900
- As response to positive cattle farms in 2016
  - 2016-2017 hunting season: $292,425
  - 2017-2018 hunting season estimated: ~$150,000
- 2016-18 deer management budget:
  - Planned: $336,000 total; $140,000 disease
  - Actual: ~$650,000 total; ~$450,000 disease
- Difference in planned and actual disease funds (~$310,000) taken from other plans
- Future deer surveillance - USDA funding likely
- 2005-2010: $3.5 million (~$600,000/yr) spent by MN DNR on successful response to bTB (Carstensen, 2011)
Questions?