

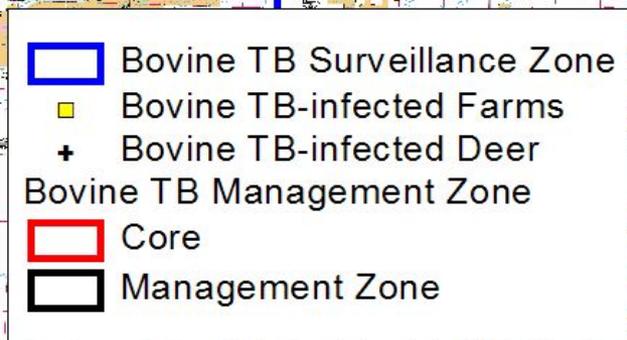
Management of Bovine Tuberculosis in Minnesota's Wild Deer



Dr. Michelle Carstensen, Wildlife Health Program Coordinator
Minnesota Department of Natural Resources

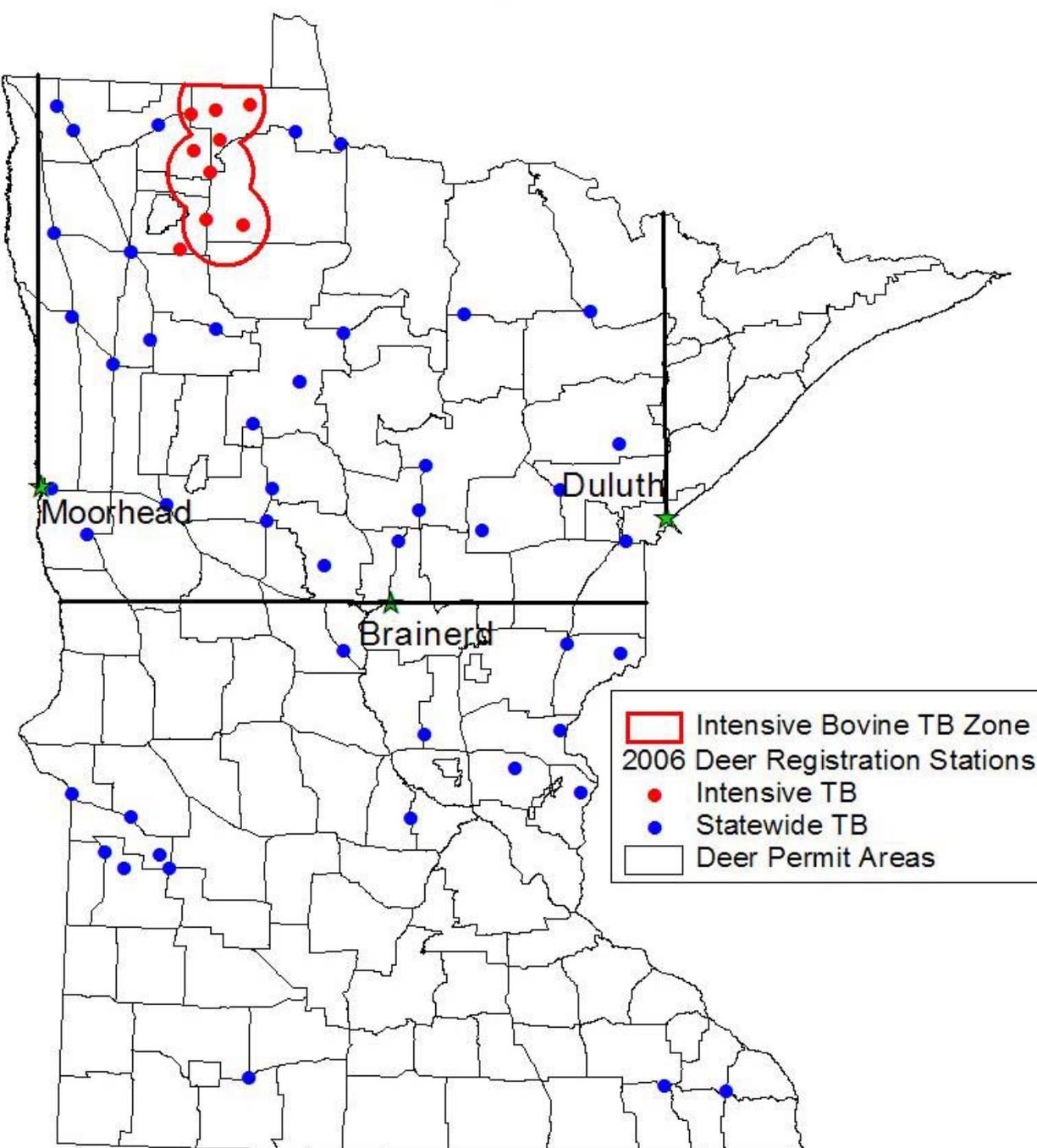
Where do we have TB in deer?

- 3,077 deer sampled in surveillance zone in northwestern MN from 2005 to 2007
- 18 TB-positive deer found
- Annual prevalence remains low (0.2-0.5% +/- 0.2%)
- Geographic distribution of positives contained within 164 sq-mi core area



2006 Statewide Bovine TB Surveillance

- USDA required sampling of 3,000 hunter-harvested deer north of Brainerd and 1,000 south
- Sampling design based on deer density & distribution, as well as proximity to intensive TB zone
- Staffed 58 stations; \$400k pricetag



Statewide Surveillance

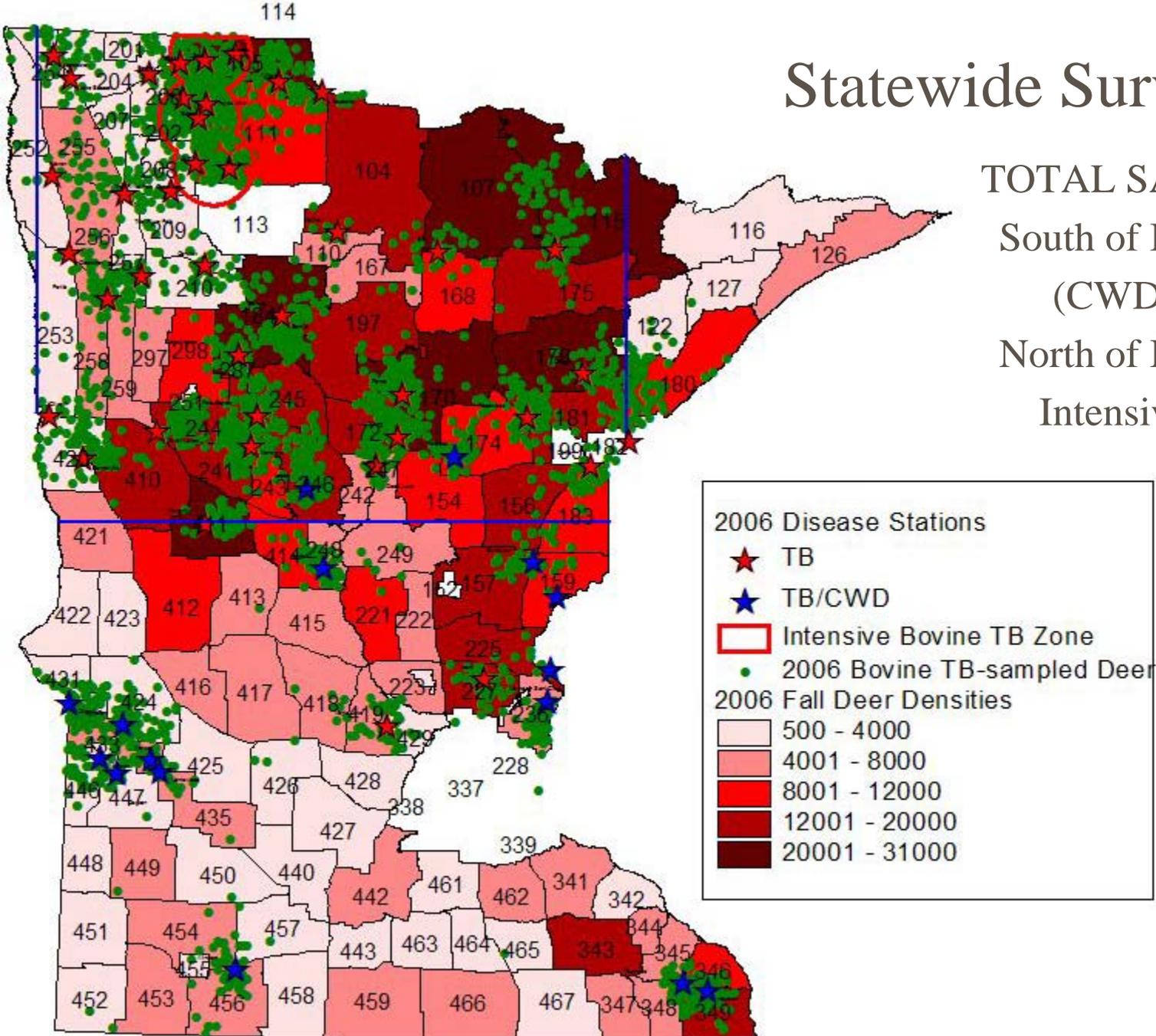
TOTAL SAMPLES: 5,000

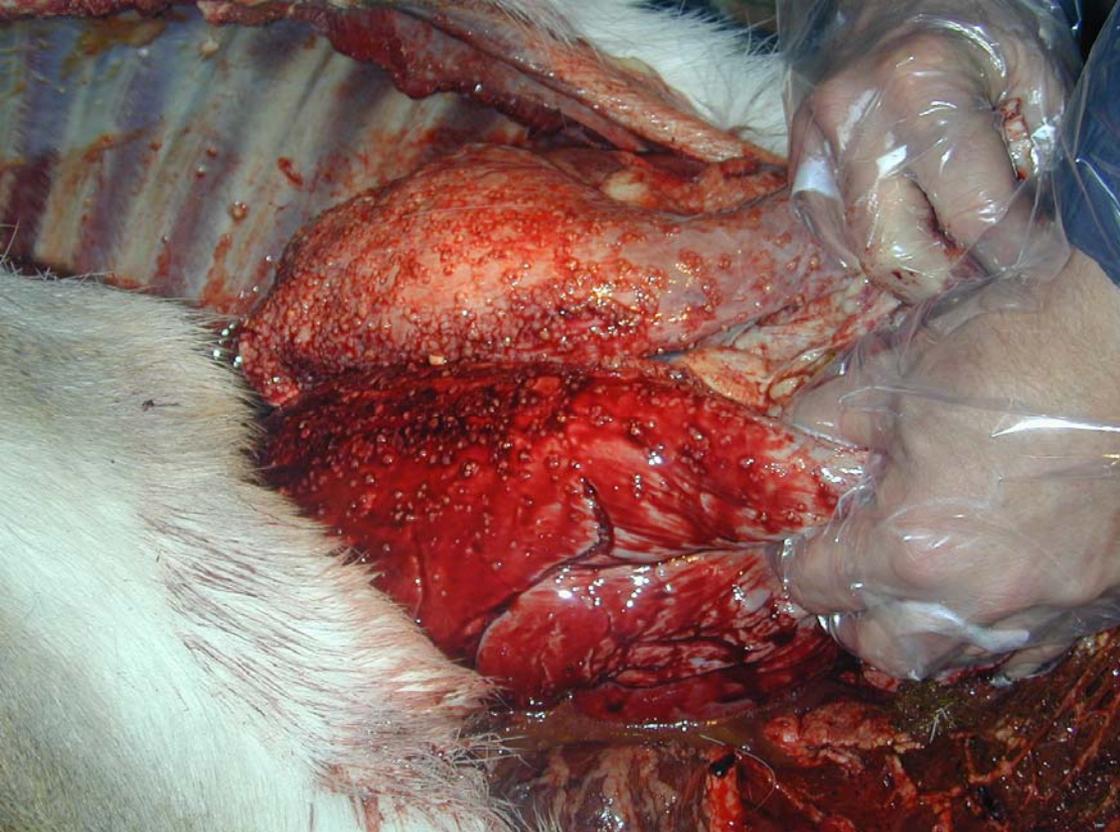
South of Brainerd: 1,164

(CWD Zone: 376)

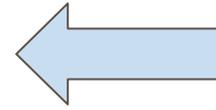
North of Brainerd: 2,874

Intensive Zone: 942





Pus-filled nodules on
lungs of a deer infected
with bovine TB

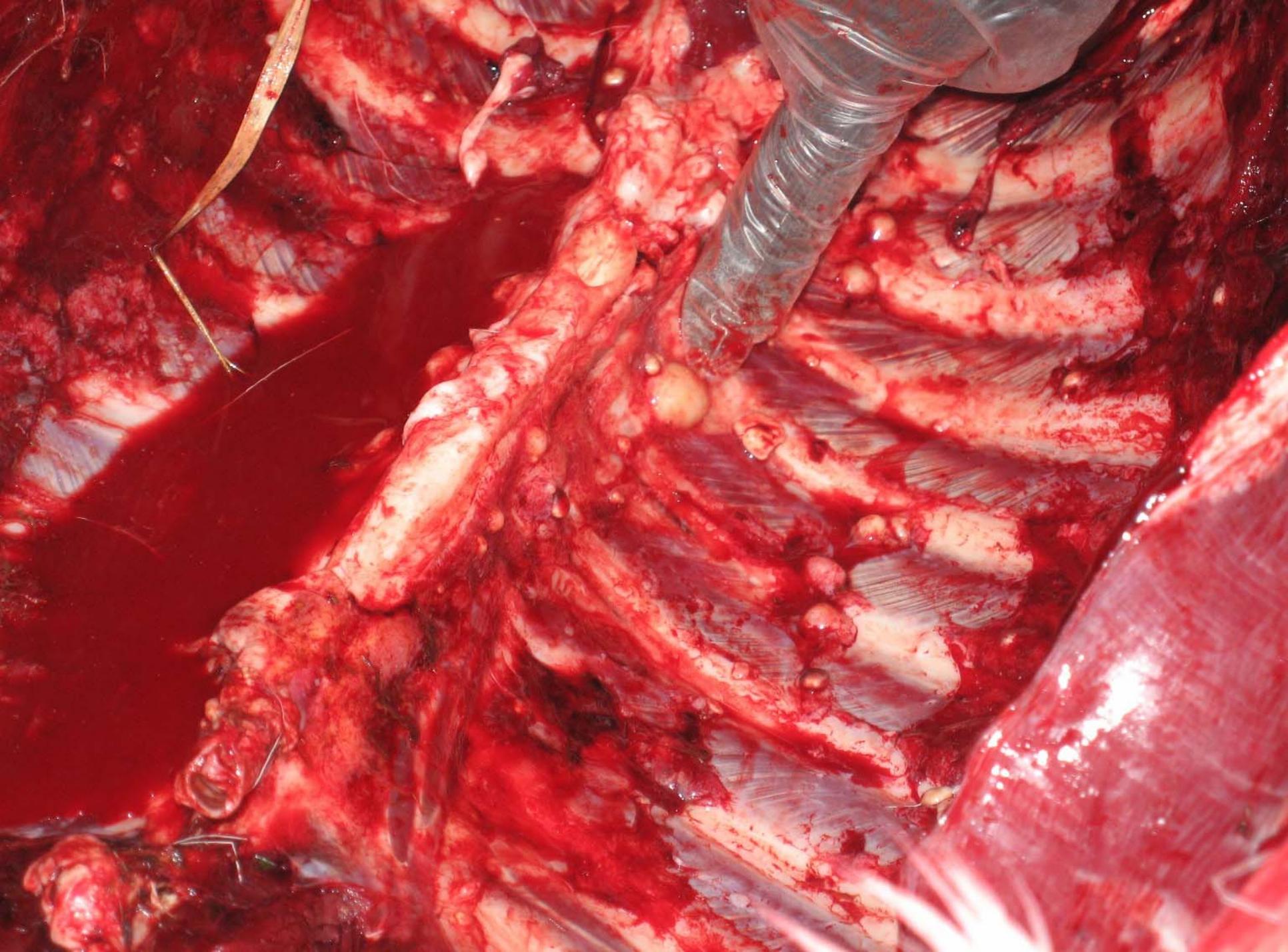


Close-up of infected lungs











Grygla

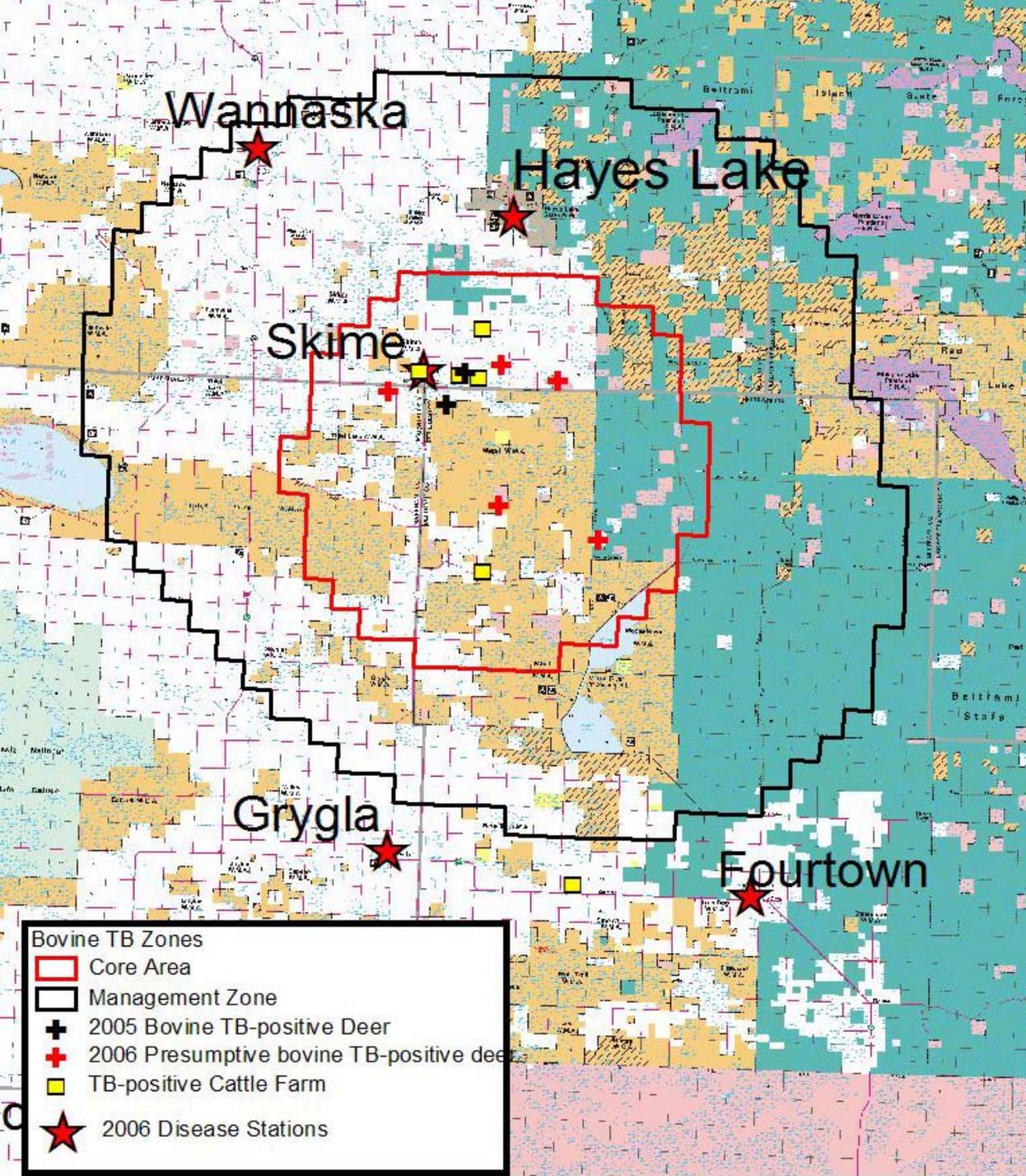


Skime



How is MNDNR Managing Bovine TB in Deer?

- Reduce deer densities
 - Special hunts, sharpshooting, landowner shooting permits, aerial gunning
- Restrict recreational feeding of deer
 - Ban recreational feeding
- Address risk mitigation at the cattle-deer interface
 - Deer-proof fencing program



New Bovine TB Management Zone:

Outer circle: 605mi²

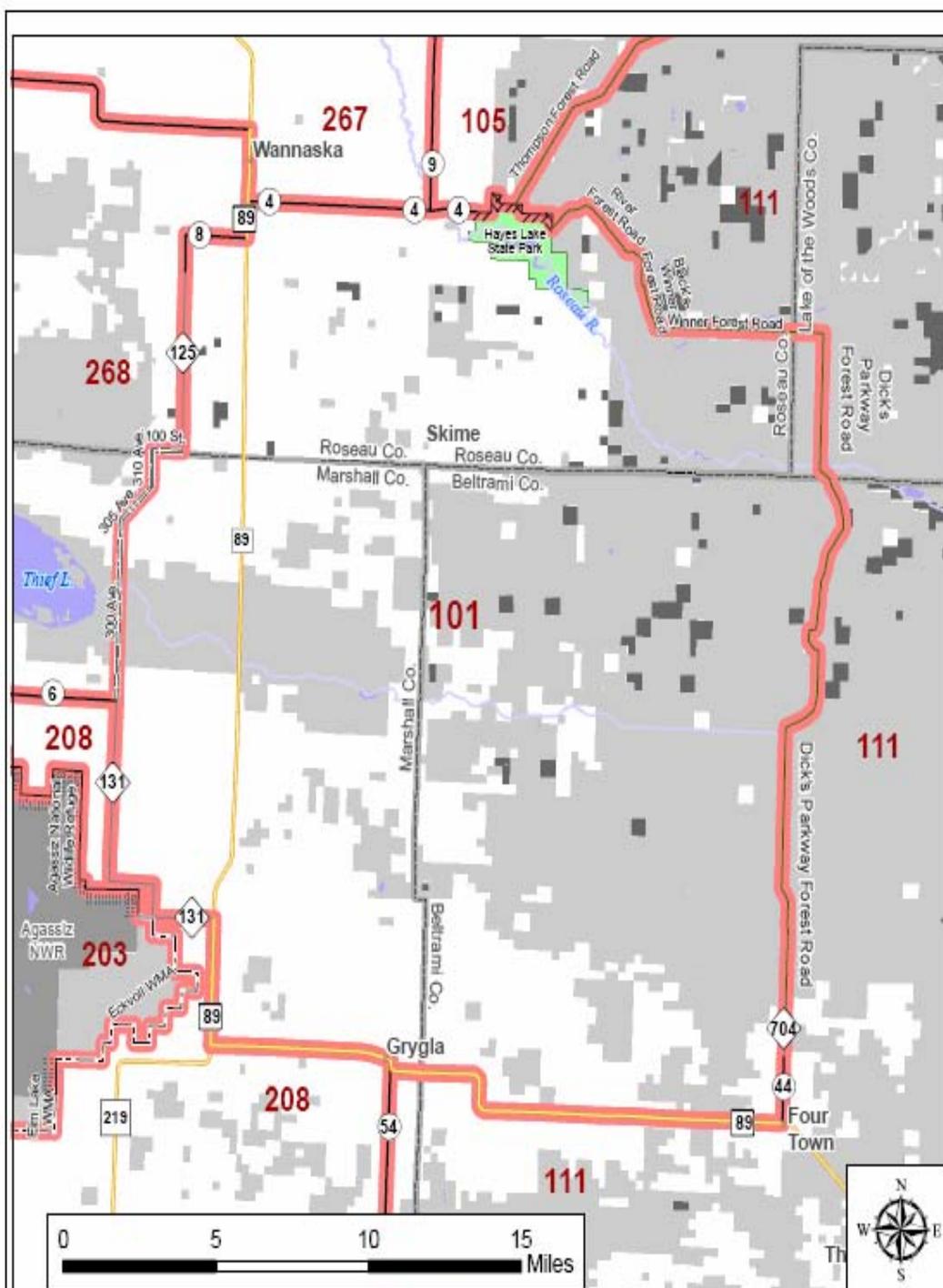
- Encompasses a 10-mile radius around TB-positive deer from 2005-2006

Inner core: 140mi²

- Encompasses a 2-mile radius around each TB-positive deer and included 5 formerly TB-positive farms

Fall 2007 Hunting Seasons

- New Bovine TB permit area
 - Reduce deer densities in critical areas
 - Early Antlerless Hunt:
Oct 13-14th, 2007
- Issue unlimited \$2.50 bonus permits for antlerless deer
- Venison donation program
- Special January Hunt:
Dec 29, 2007-Jan 13, 2008



Aerial Survey of Deer in the Core Area of the Bovine TB Management Zone February 12-14 2007

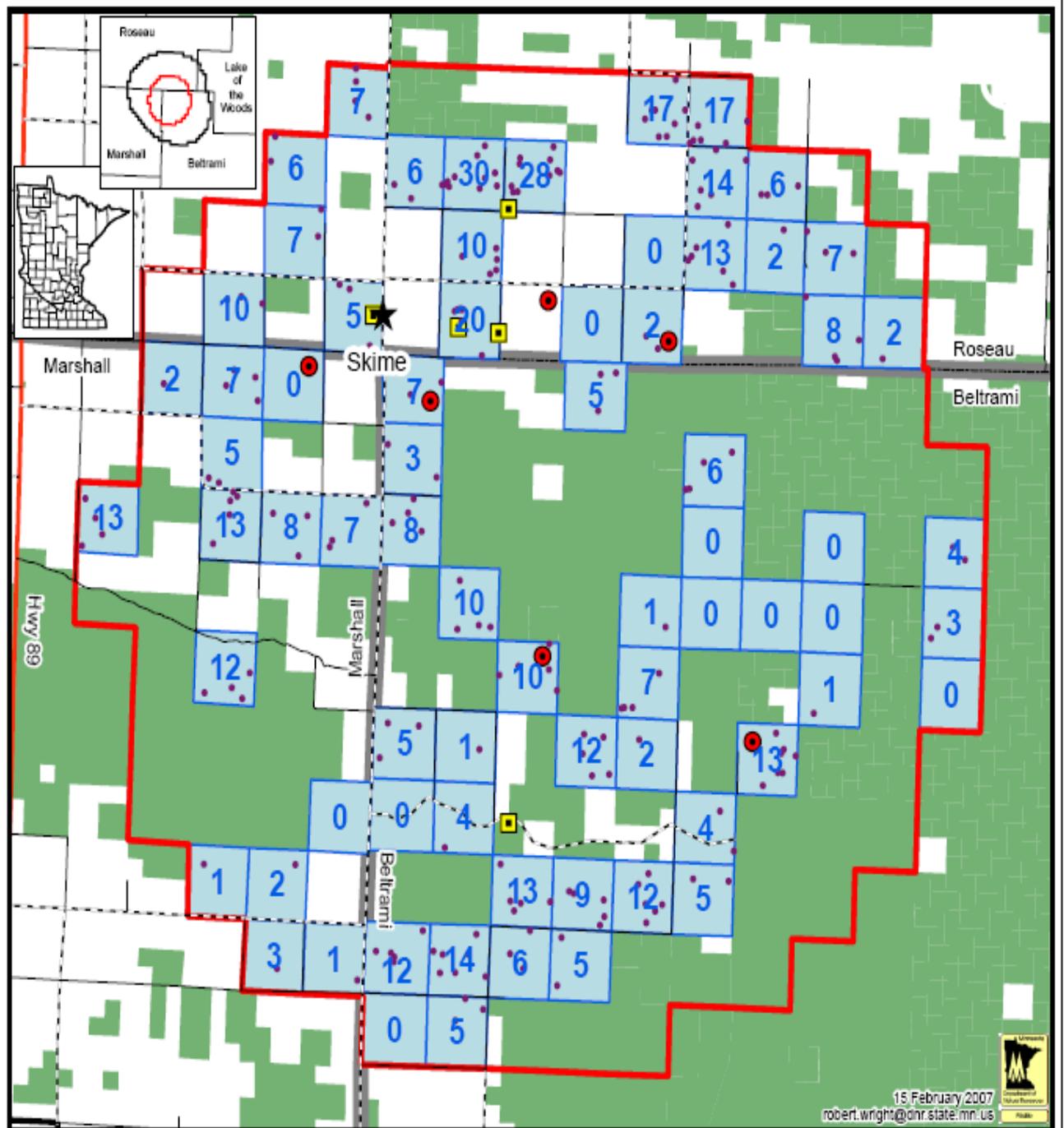
Legend



About This Map

Randomly selected PLS sections in the Bovine TB Management Zone were surveyed via helicopter to estimate the deer population of the Core Area, where management efforts are focused.

Deer per section ranged from 0 to 30, averaged 6.6 and summed to 478 for 72 sections. Using this information, the population in the Core Area is estimated to be at least 935 +/- 150 deer. This is necessarily a minimum estimate because the number of deer undetected during the survey is unknown.

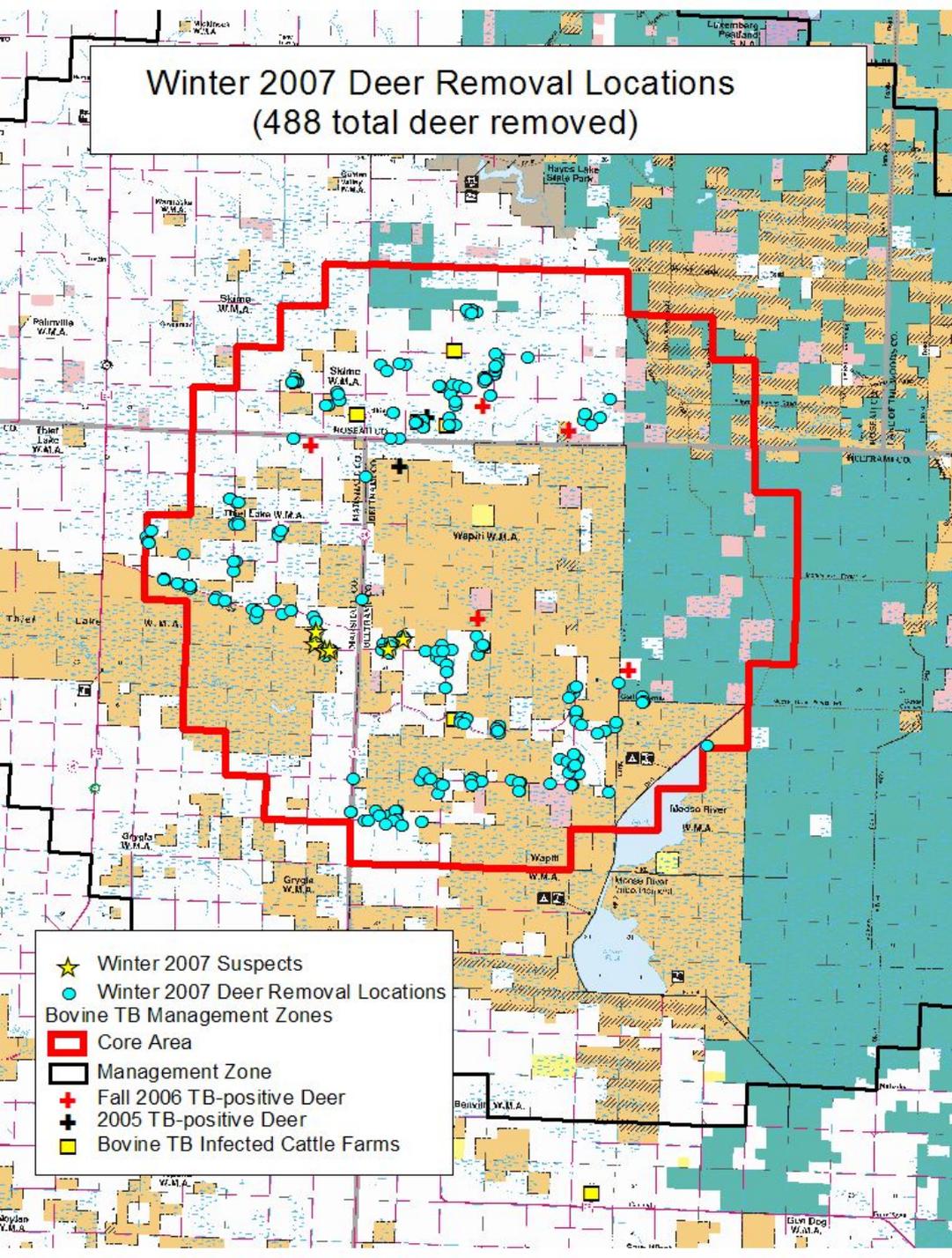




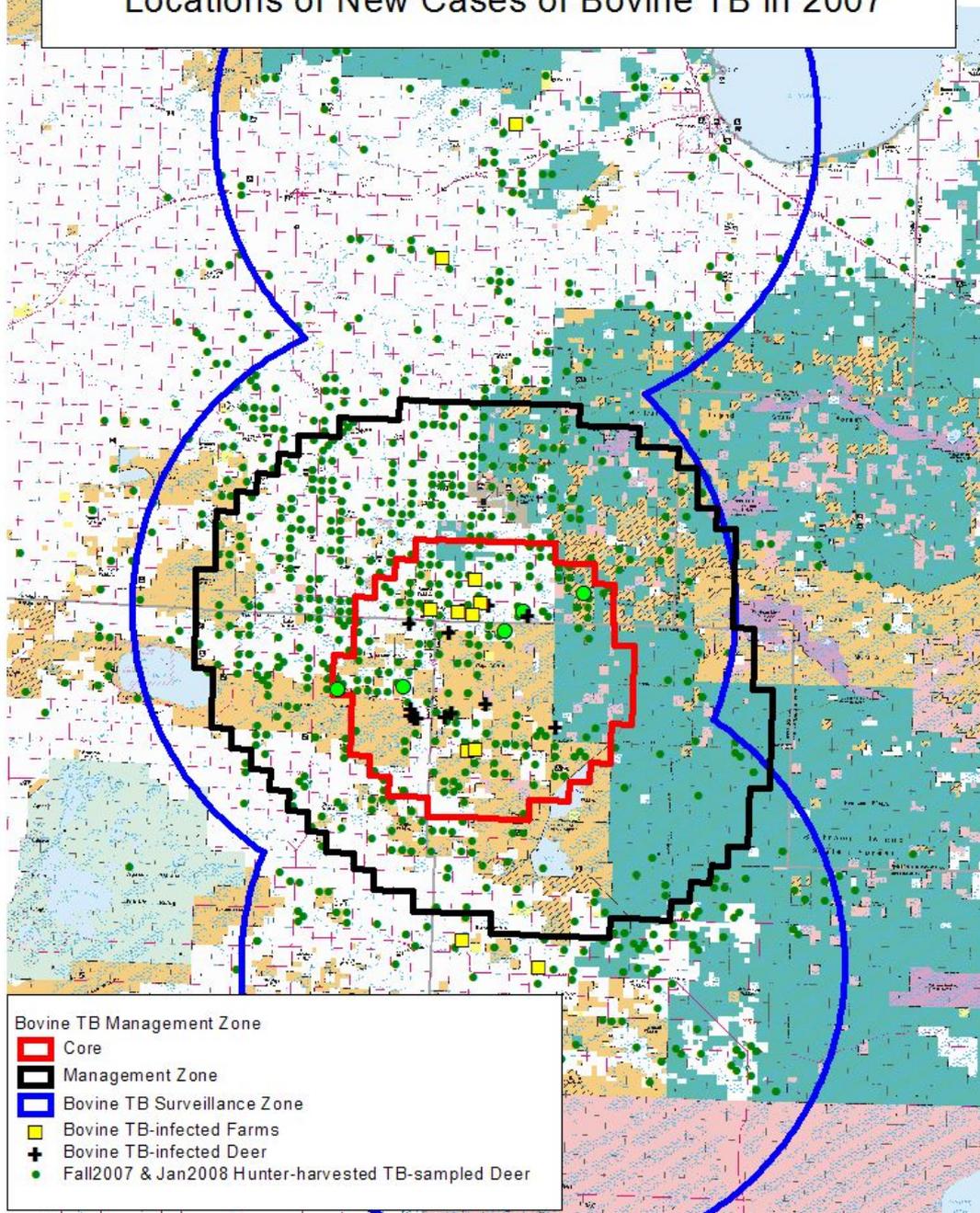
Winter 2007 Deer Removal Locations (488 total deer removed)

Winter (Feb-Apr) 2007 Deer Removal Project

- 488 deer removed (42-63% of deer population in core area)
- All deer were tested for bovine TB
- 6 positives identified

- 
- The map displays the distribution of deer removal locations and TB management zones in a region of Washington state. A red outline defines the 'Core Area', which contains the majority of the 488 deer removed. Blue circles indicate the specific locations where deer were removed. Yellow stars mark 'Winter 2007 Suspects'. Red and black crosses indicate 'Fall 2006 TB-positive Deer' and '2005 TB-positive Deer' respectively. Yellow squares represent 'Bovine TB Infected Cattle Farms'. The map is overlaid with a grid of 'Bovine TB Management Zones' (W.M.A.s) and larger 'Management Zones'. Key geographical features include the Iddo River and the Moses Lake Silco Project. County names such as Grant, Wapiti, and Benewah are also visible.
- ★ Winter 2007 Suspects
 - Winter 2007 Deer Removal Locations
 - Bovine TB Management Zones
 - ▭ Core Area
 - ▭ Management Zone
 - + Fall 2006 TB-positive Deer
 - + 2005 TB-positive Deer
 - Bovine TB Infected Cattle Farms

Locations of New Cases of Bovine TB in 2007

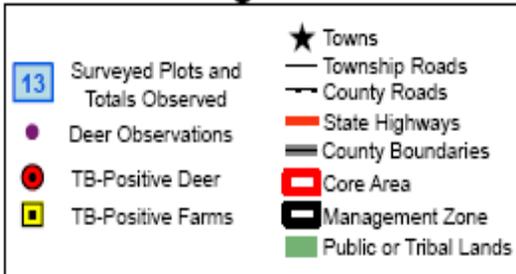


Results from Fall 2007 and Special Hunt

- 1,166 deer sampled
- 5 TB-suspects identified
 - 3 adult males, 2 female
 - All within the core
- Prevalence remains low (0.4%)
- Geographic distribution did not change

Aerial Survey of Deer in the Core Area of the Bovine TB Management Zone January 23-25 2008

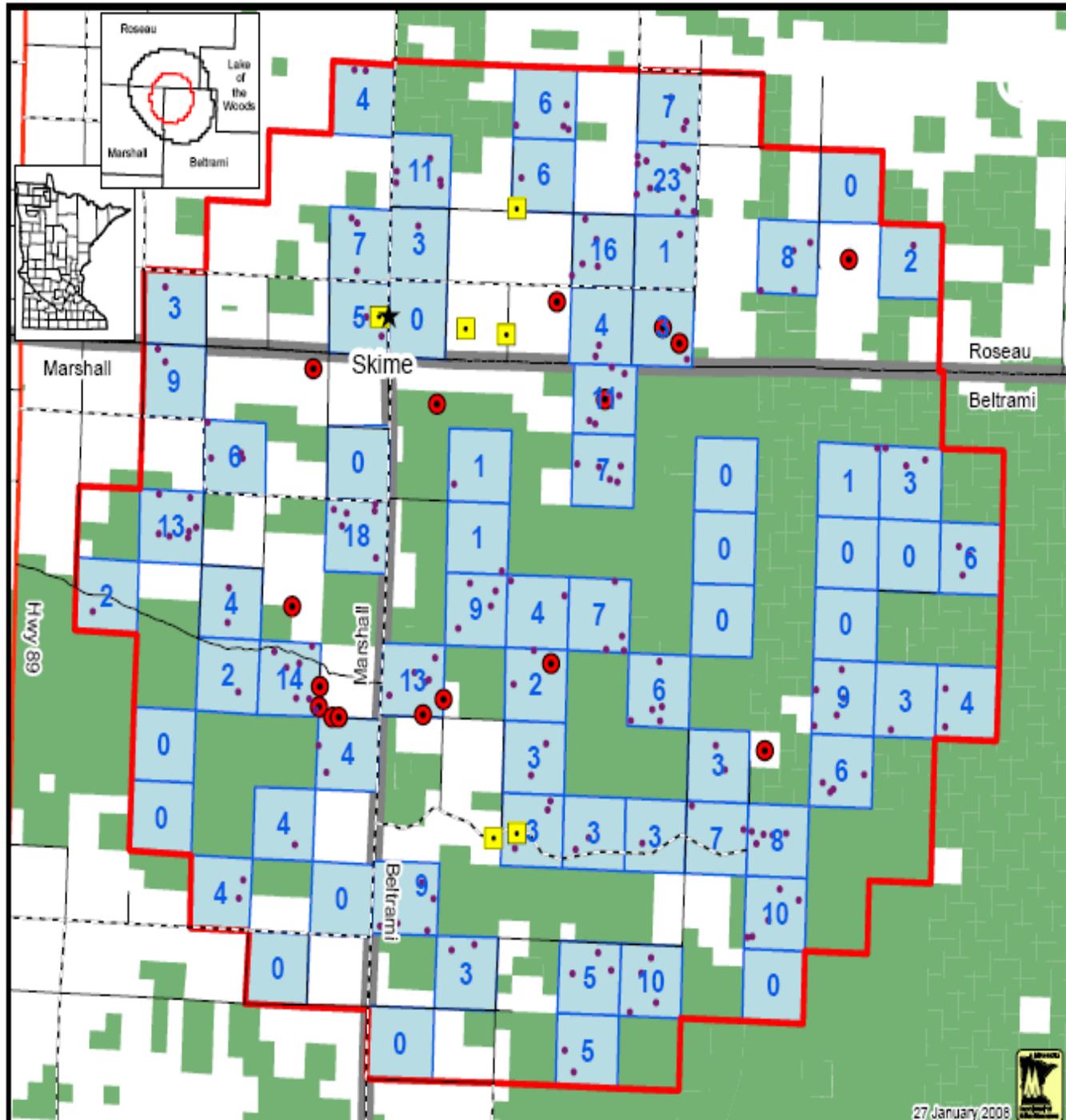
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About This Map

Randomly selected PLS sections in the Bovine TB Management Zone were surveyed via helicopter to estimate the deer population of the Core Area, where management efforts are focused.

Deer per section ranged from 0 to 23, averaged 4.9 and summed to 354 for 72 sections. Using this information, the population in the Core Area is estimated to be at least 806+/-133 deer. This is necessarily a minimum estimate because the number of deer undetected during the survey is unknown.





Interpretation of Deer Survey Results from 2007 to 2008

- Feb 12-14, 2007 Survey

- 639 deer observations; population estimate of 950 deer (± 150). Deer numbers ranged 0–30 in a PLS section, averaged 6.6 deer/section

- Jan 23-25, 2008 Survey

- 354 deer observations; population estimate of 806 deer (± 133). Deer numbers ranged 0–23 in a PLS section, averaged 4.9 deer/section

- Why are deer numbers not statistically different in the core?

- Mild winter 2007 did not significantly impact survival or reproduction

- Deer recruitment and immigration into the core was likely high

- Feeding ban likely resulted in redistribution of deer on the landscape

- Continued pressure on deer herd within the core is needed to reduce overall deer densities and yield a significant long-term reduction in the local population



Sharpshooting and Aerial Deer Removal Project

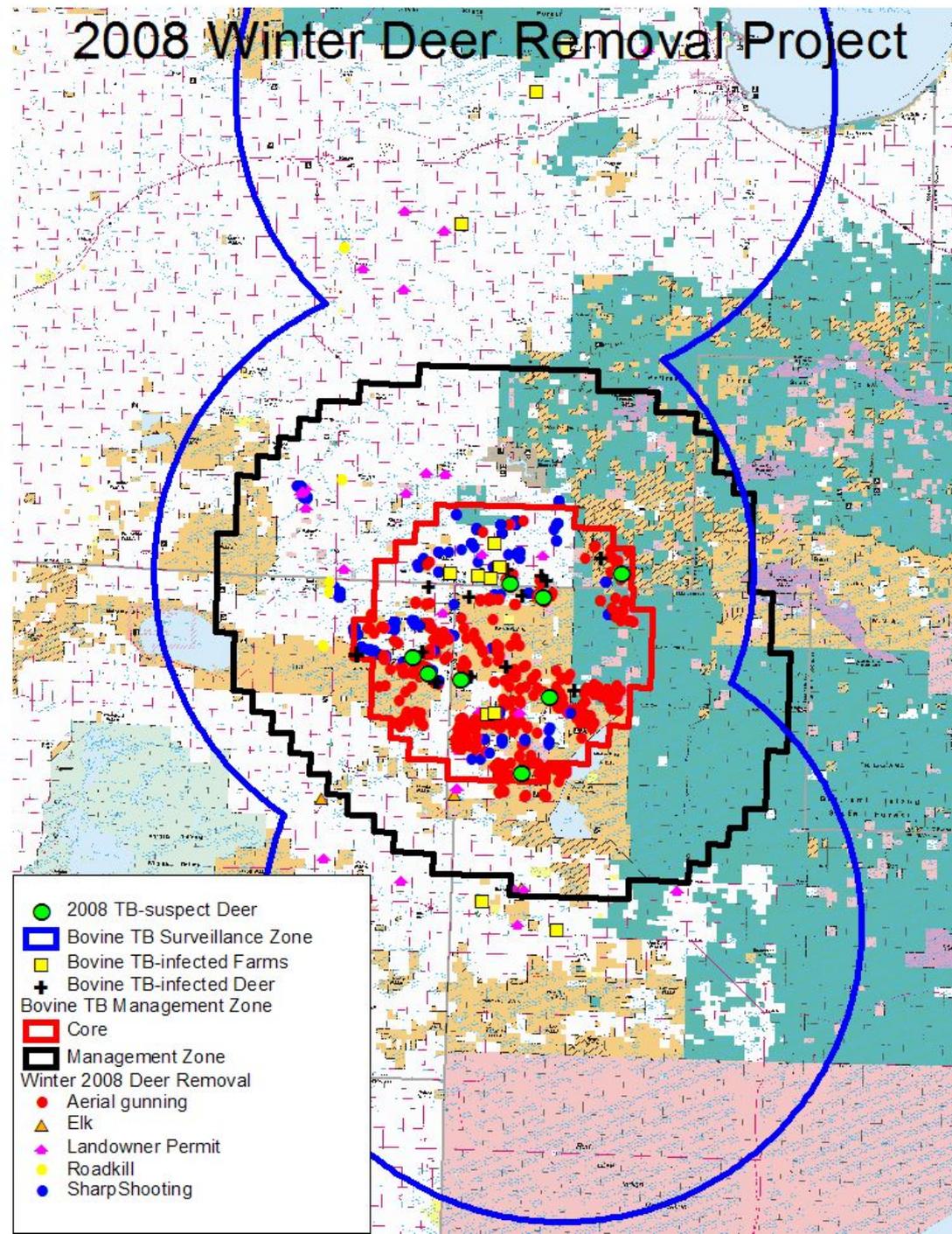
Winter 2008



2008 Winter Deer Removal Project

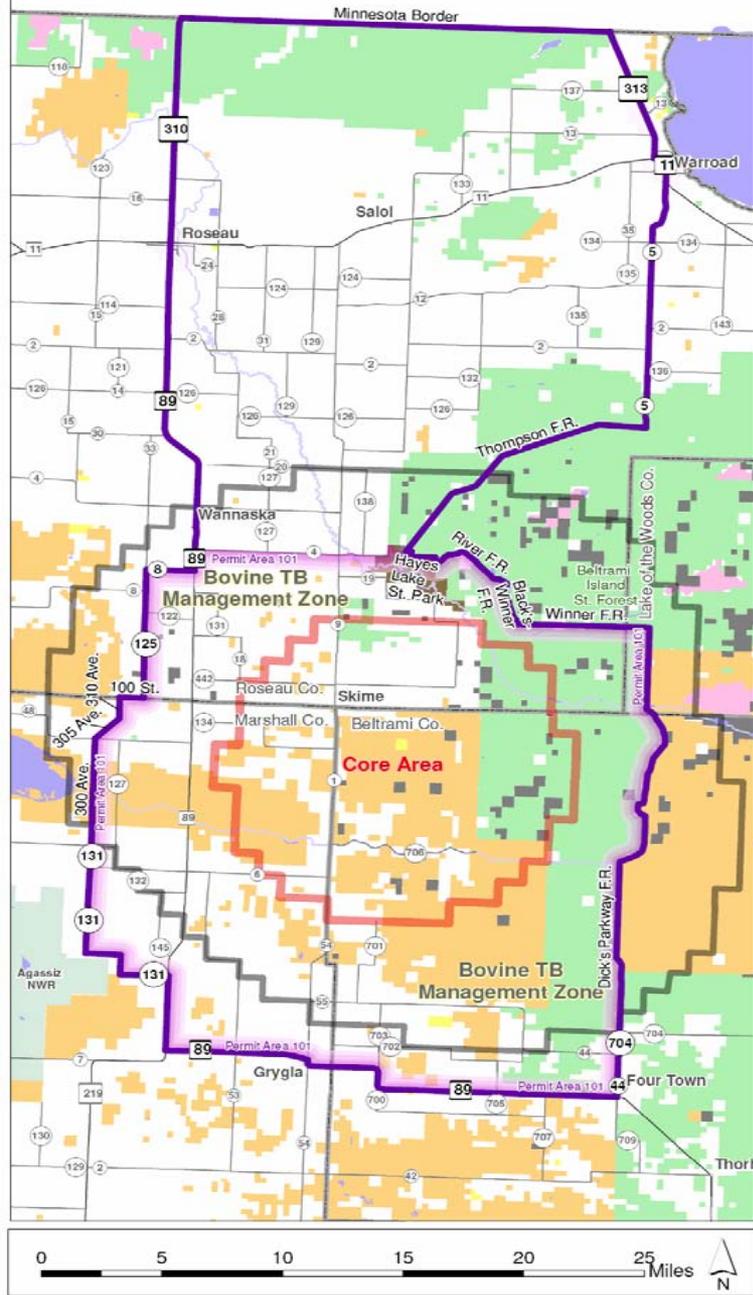
Winter Deer Removal Project Report

- 546 deer removed by sharpshooters
- 416 deer removed by aerial gunning
- 125 deer removed by land owners
- All deer sampled for bovine TB
- 8 suspects identified (6 clinical suspects, 2 nonclinical suspects)
- Carcasses salvaged for venison or landfilled
- Test results pending.....



2008 Disease Management Landowner/Tenant Shooting Zone

Landowner Shooting Permits



Legend

- Landowner/Tenant Shooting Zone (Total 934 sq. miles)
- Deer Permit Area 101 Boundary within Shooting Zone (496 sq. miles of Total)
- TB Management Zone (Total 600 sq. miles)
- Core of TB Management Zone (164 sq. miles of Total)

Reservation and Public Lands

- Red Lake Reservation Land
- Agassiz National Wildlife Refuge
- County Administered Land
- State Park
- Scientific and Natural Area
- Wildlife Management Area
- State Forest

Roads

- 89 State Hwy.
- 17 County Road
- F.R. Forest Road

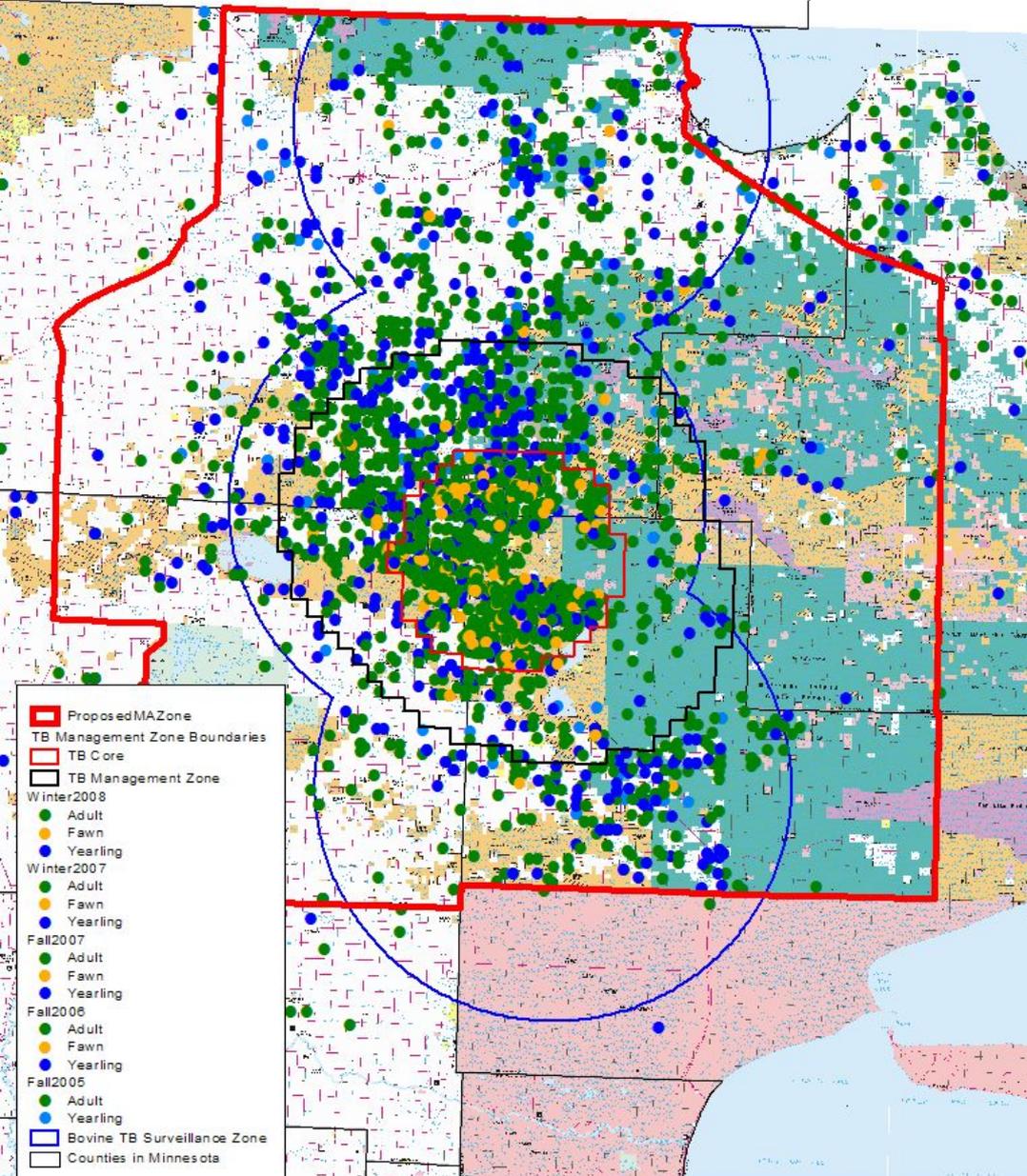
Lakes

- Major Rivers
- County Borders



- Landowners/tenants can shoot unlimited number of deer on private land from March 31st through August 31st, 2008
- All deer must be tested for bovine TB
- Carcasses must be utilized
- Thus far, about 125 deer sampled.

Sampling Distribution by Age Class of Deer Tested for Bovine TB 2005-2008



2005-2008

Adults: 4,946

Yearlings: 2,572

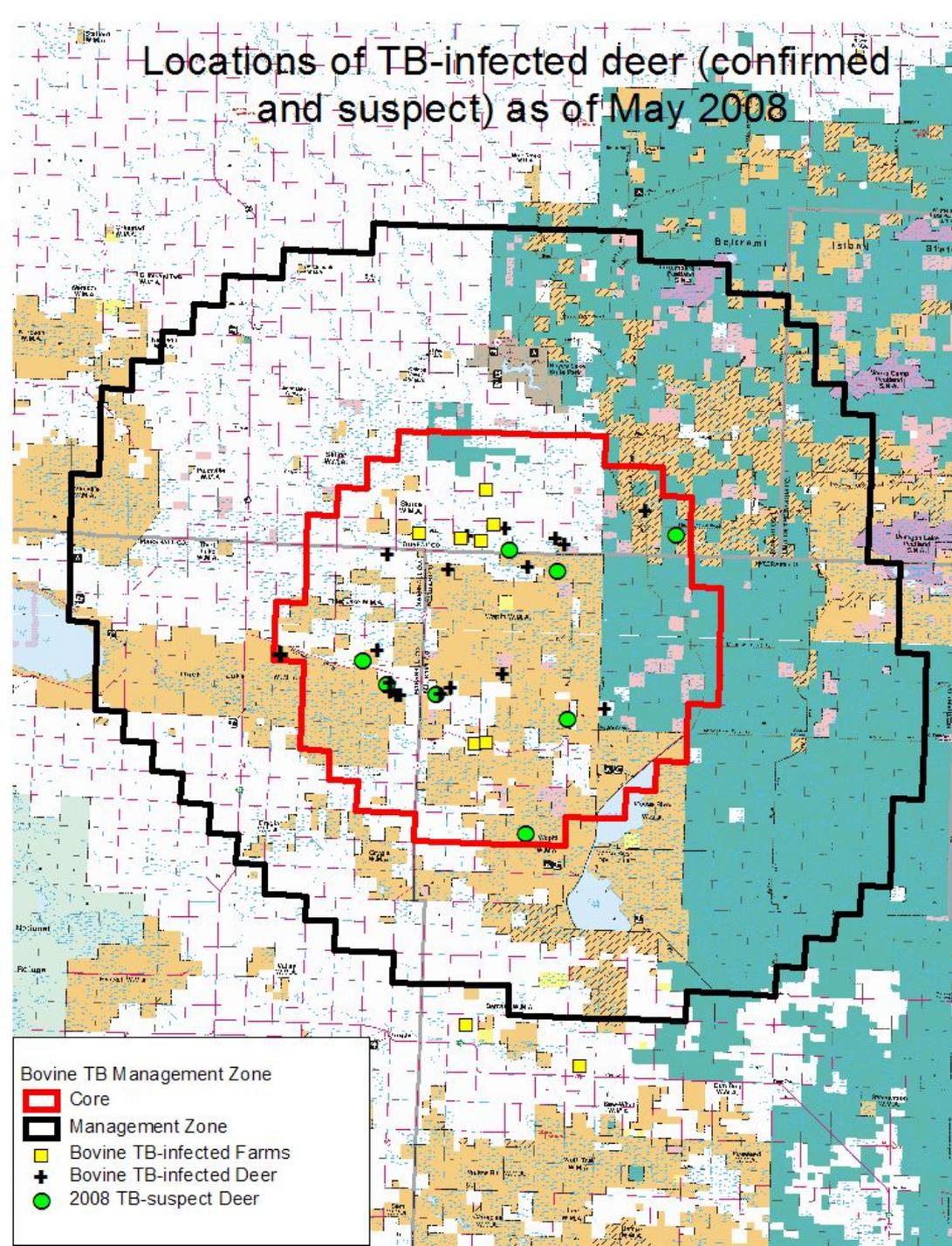
Fawns: 448

Unknowns: 232

Total: 8,198

(includes statewide surveillance)

Locations of TB-infected deer (confirmed and suspect) as of May 2008



Alive in 2005

- 18 confirmed TB cases, all would have been born by June 2005:

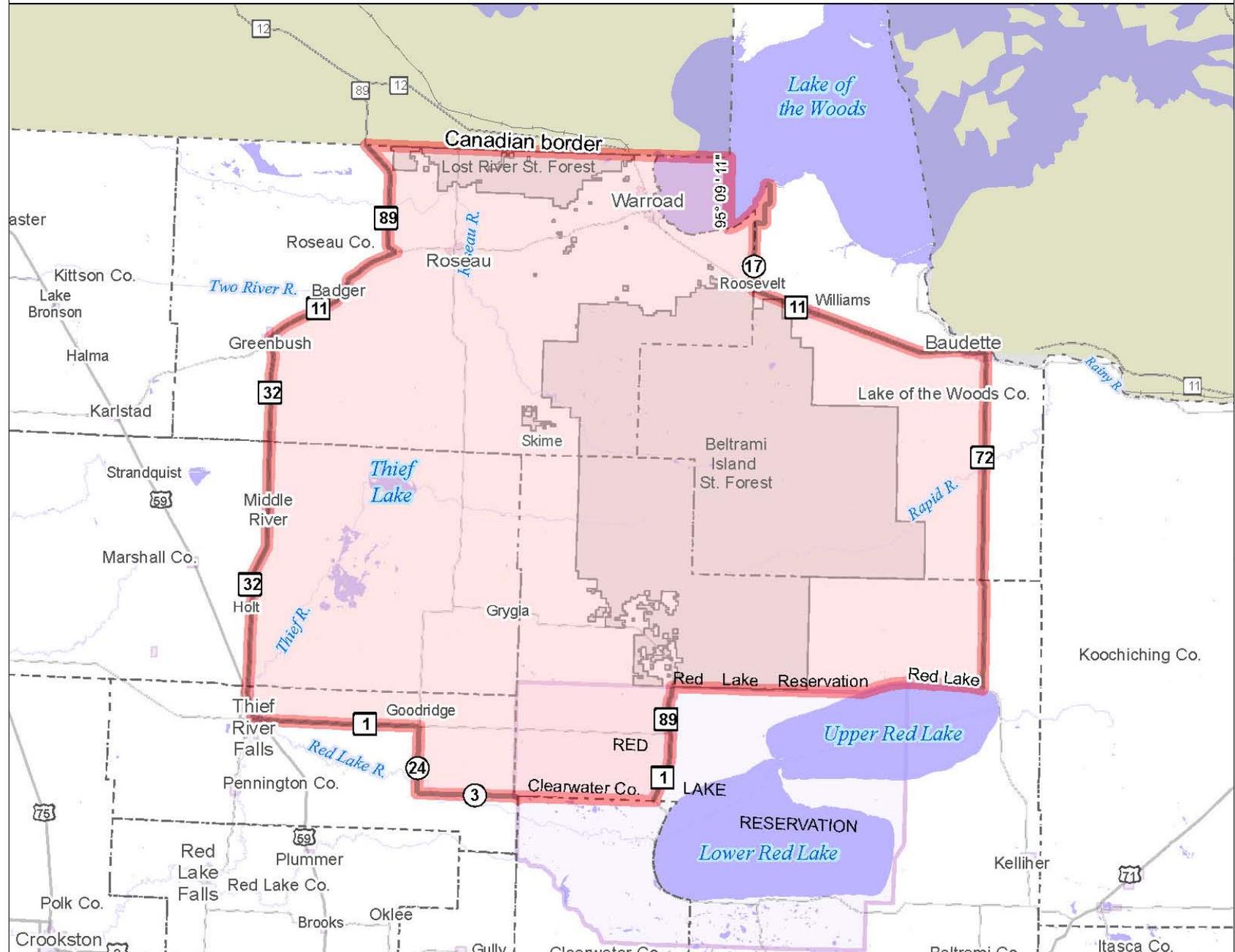
- 16 deer >2.5 years old

- 2 deer 1.5 years old in 2006

- 8 suspect TB cases from 2008:

- 7 adults, 1 yearling

NW MN Deer and Elk Feeding Ban









Managing the Deer-Cattle Interface is KEY!!











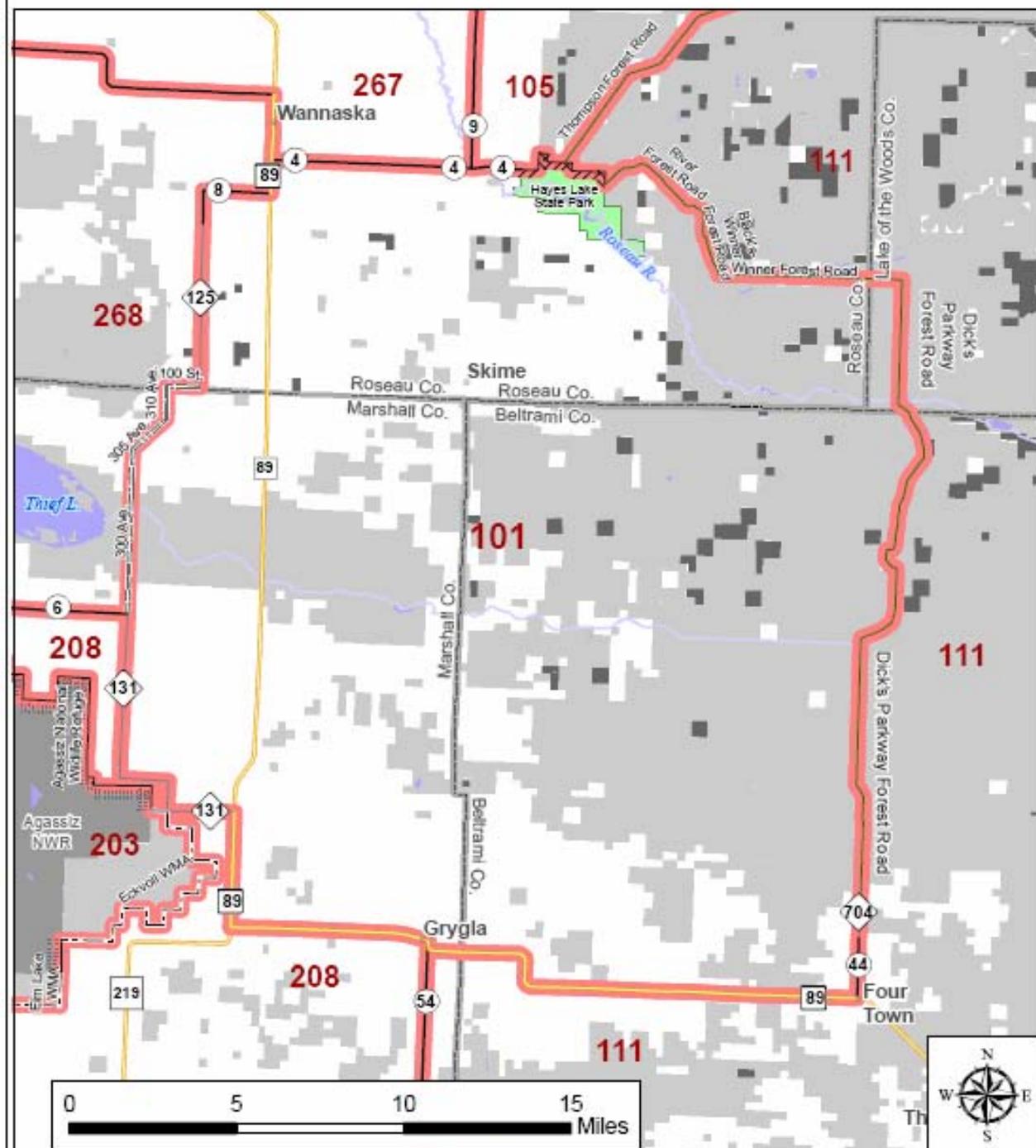


Next steps for DNR....

- Stay the course!
 - Keep pressure on deer to keep densities low through liberalized hunting this fall
 - Conduct surveillance in TB zone and wherever else USDA might require for Split-State-Status
 - Conduct another survey of deer numbers in the TB core in Jan 09
 - Depending on outcomes of deer sampling in fall and survey results, another intensive deer removal effort may begin in winter 2009
 - Continue to enforce the recreational feeding ban
 - Continue to coordinate all efforts with BAH, MDA, and USDA

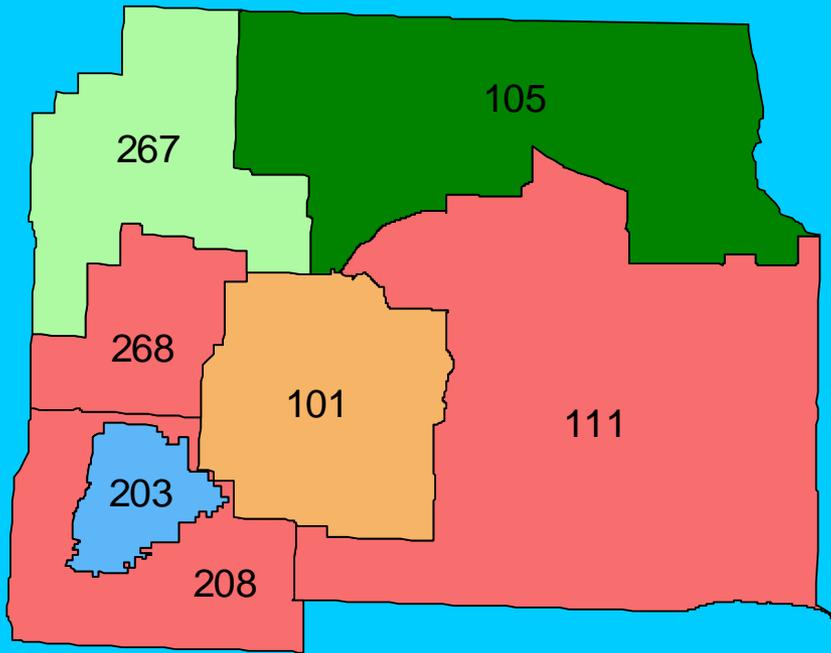
2007 and 2008 Hunting Seasons

- New Deer Area 101 (Bovine TB permit area)
- Help reduce deer densities
- Early antlerless hunt - October
- Unlimited disease management permits for antlerless deer
- Special late-season hunt

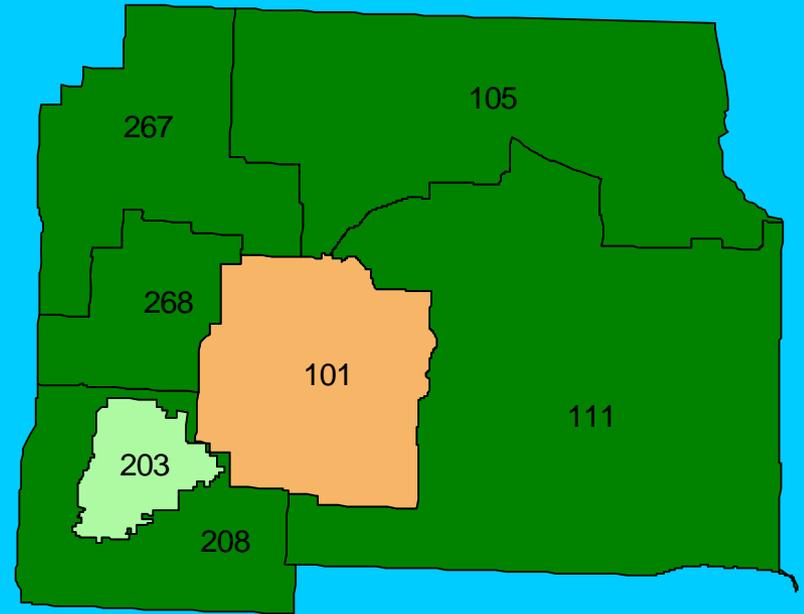


2007 vs 2008 Deer Permit Area Designations

2007

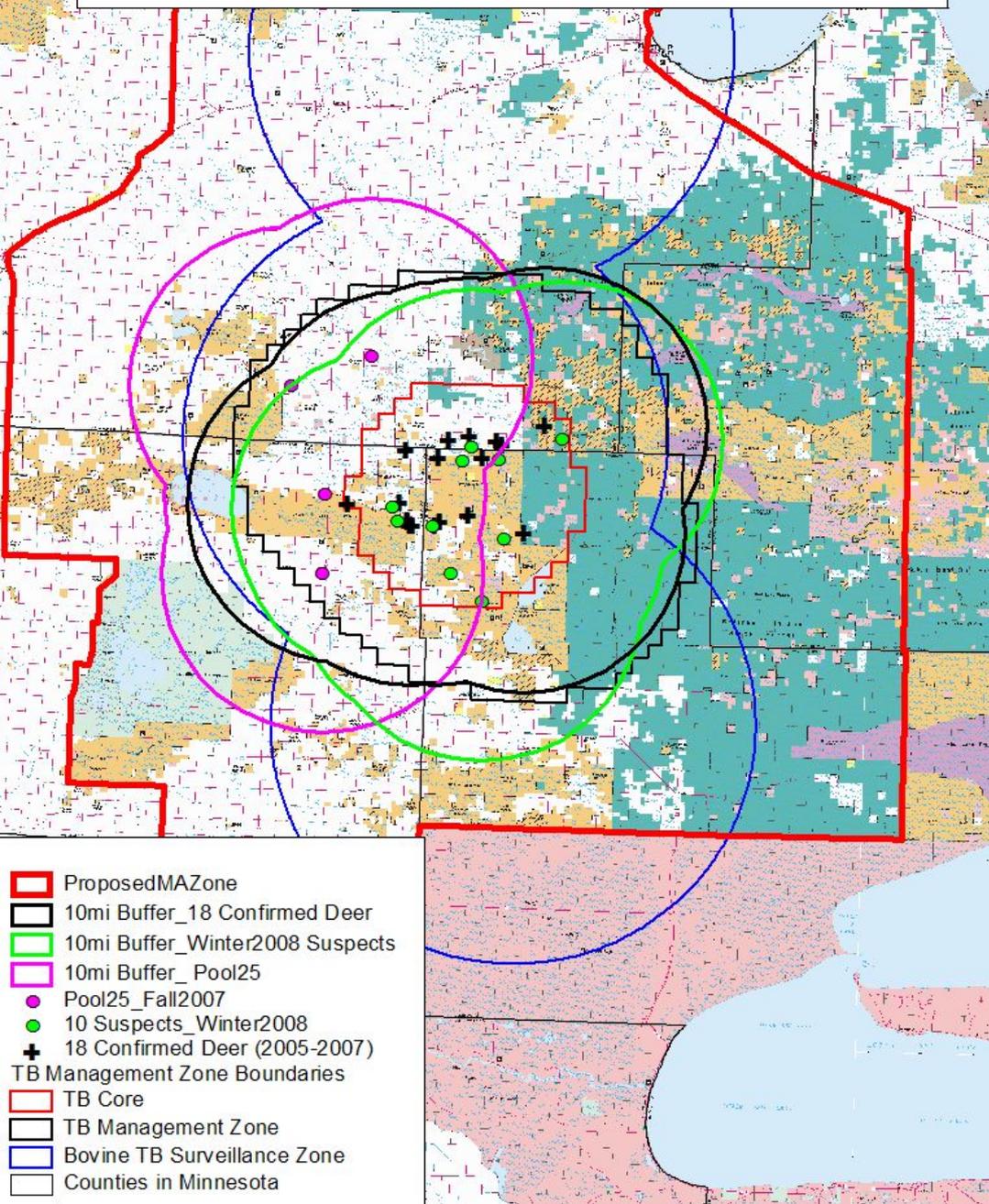


2008



-  Early Antlerless - 7 deer
-  Intensive - 5 deer
-  Lottery - 1 deer
-  Managed - 2 deer
-  No Limit Antlerless

10-mi Buffers around all Confirmed & Suspect Deer



Fall 2008 Surveillance

- Goal is 1,000 samples within the bovine TB surveillance zone
- Given the proposed MA zone, additional samples will be collected on the western and southern boundaries

QUESTIONS??



For More Information

Visit the MN DNR website at:

<http://www.dnr.state.mn.us>