DEPARTMENT OF NATURAL RESOURCES

CWD Surveillance & Management in Minnesota: Implications for Solid Waste Disposal

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Wildlife Health Program

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The number 1 way to address wildlife disease?

PREVENTION! PREVENTION! PREVENTION!

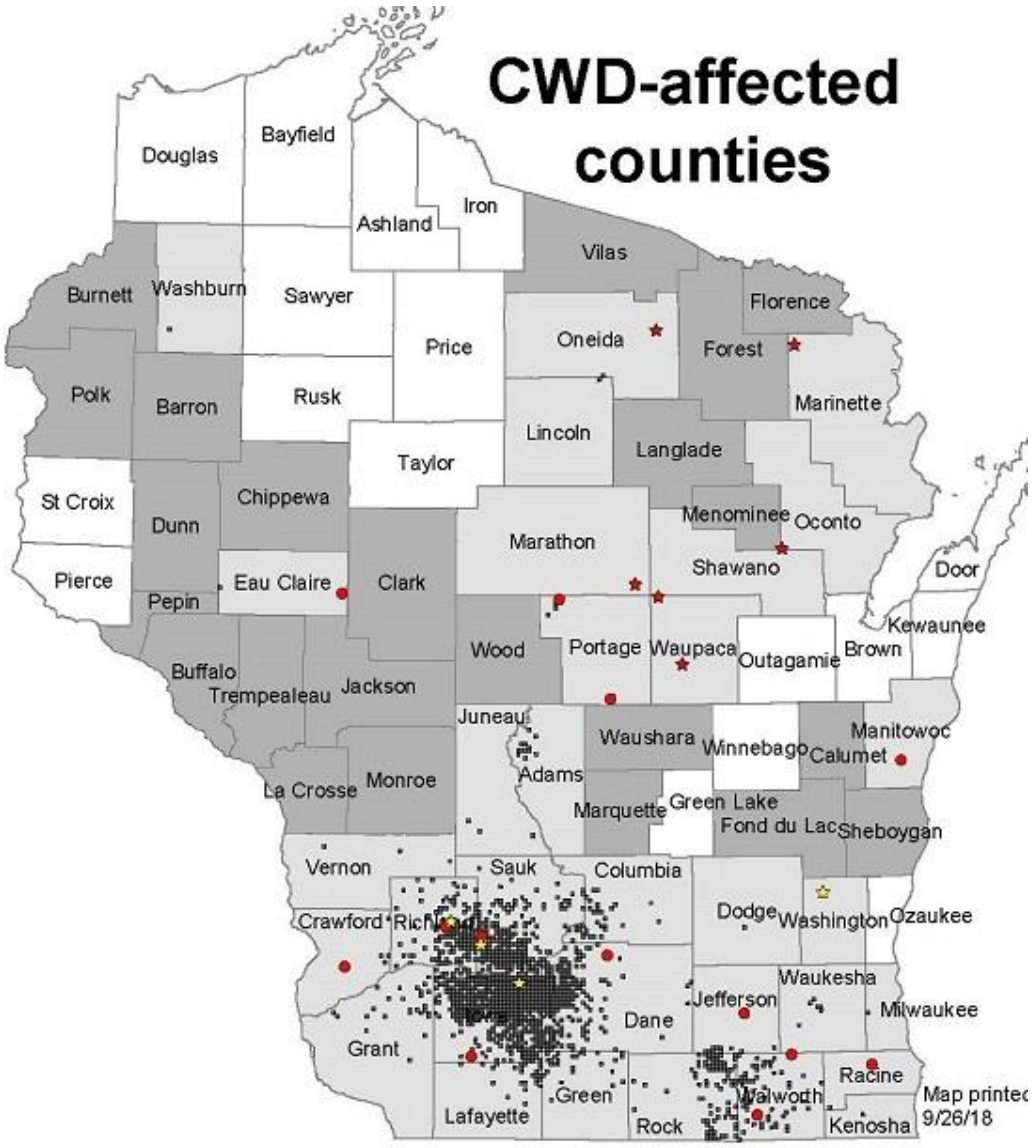
- Once a disease is established in a wild population of animals, it is nearly impossible to get rid of.

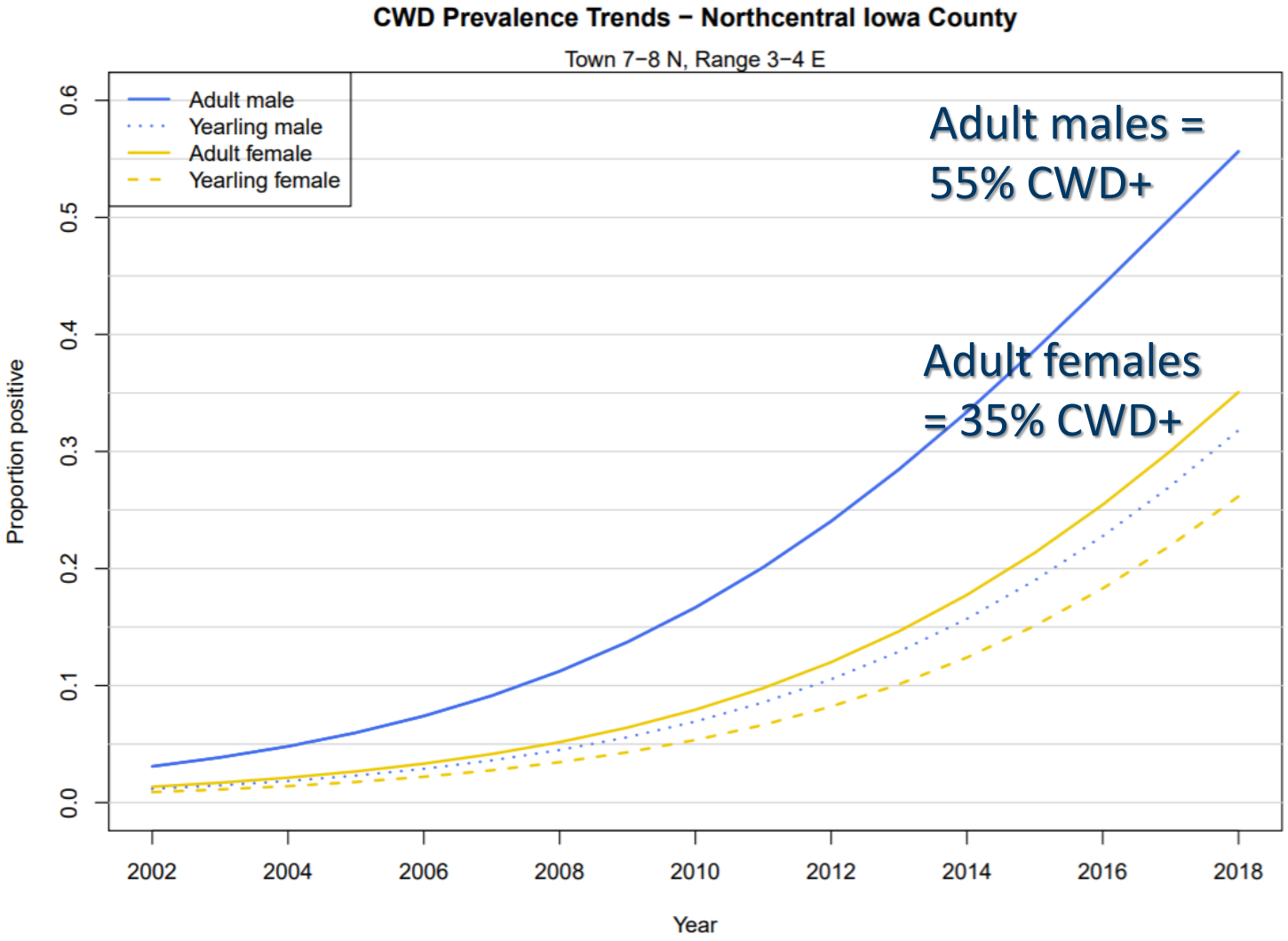
Things are NOT OK in areas with CWD

What we know …

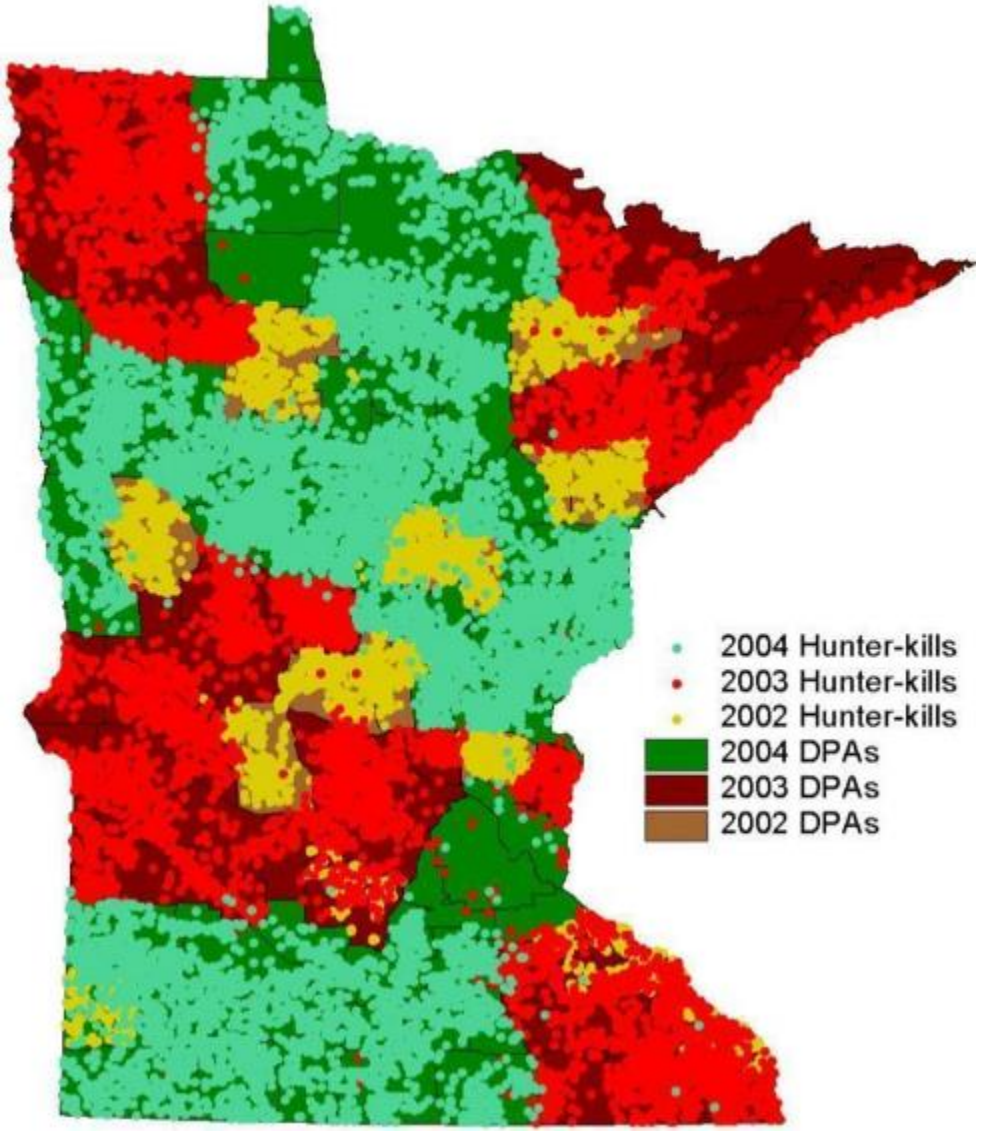
- Disease is 100% fatal
- Deer that are infected (but not symptomatic) have higher mortality rates than uninfected deer
- Bucks are 3x more likely to have the disease
- Yearling males are CWD delivery systems
- The percentage of infected deer increases annually, in addition to a larger geographic area
- The disease is having a negative effect on long-term deer densities in other states

We are trying to avoid this …





The History of DNR's CWD Surveillance Efforts

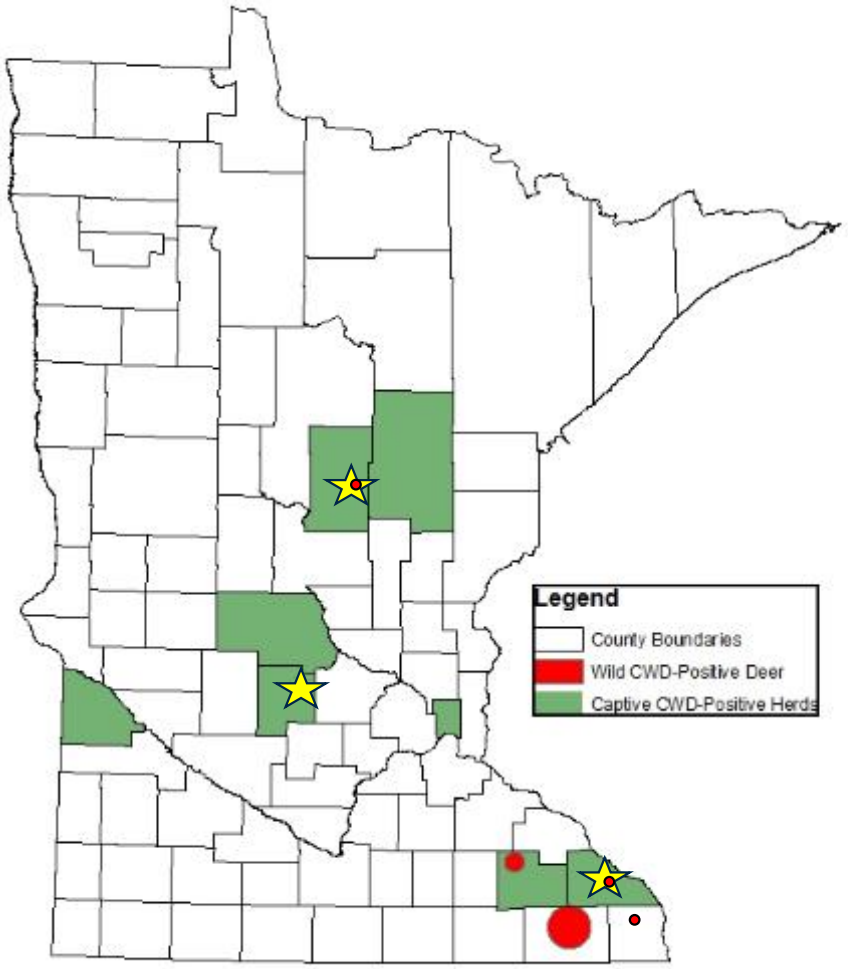


Statewide Surveillance

- Prompted by CWD discovery in Wisconsin and positive domestic elk farm in Aitkin, MN.
- 2002 - 2004
- 28,000 samples taken in statistically-based design
- No positives detected

MNDNR's CWD Surveillance-Focus on Risk

CWD-positive cervid farms in MN (n = 8)



★ **2017/2018 CWD+ Game Farms**

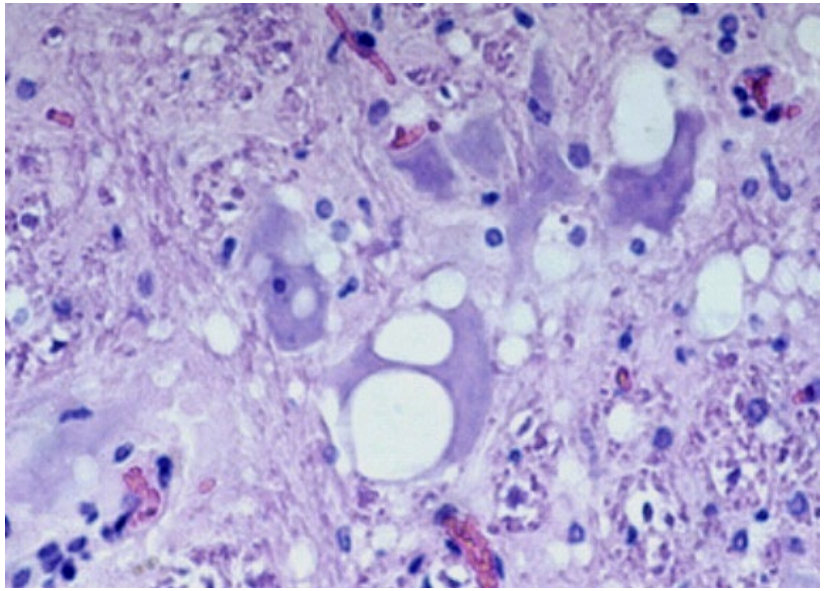
Risk-Based Surveillance

Since 2005, sampling triggers include:

1. **Suspect deer-** deer exhibiting CWD symptoms
2. **New infection found in adjacent state-** sampled several times for WI infections and northeast Iowa
3. **Association with positive captive cervid farm** - surveillance around areas known to have CWD (n = 8)
   - 3 elk, 4 white-tailed deer, and 1 red deer farm

How do we test for CWD?

- Extract retropharyngeal lymph nodes and ship to University of Colorado for testing.
  - ELISA takes 3-4 business days and will tell us if a deer is “suspect” or “not detected”
  - If suspect, sample is confirmed with the disease using immunohistochemistry (IHC), takes about a week
  - Confirmed CWD-positive deer carcasses & meat are recovered and brought to the alkaline digester at the UMN Veterinary Diagnostic Lab in St. Paul, whenever possible

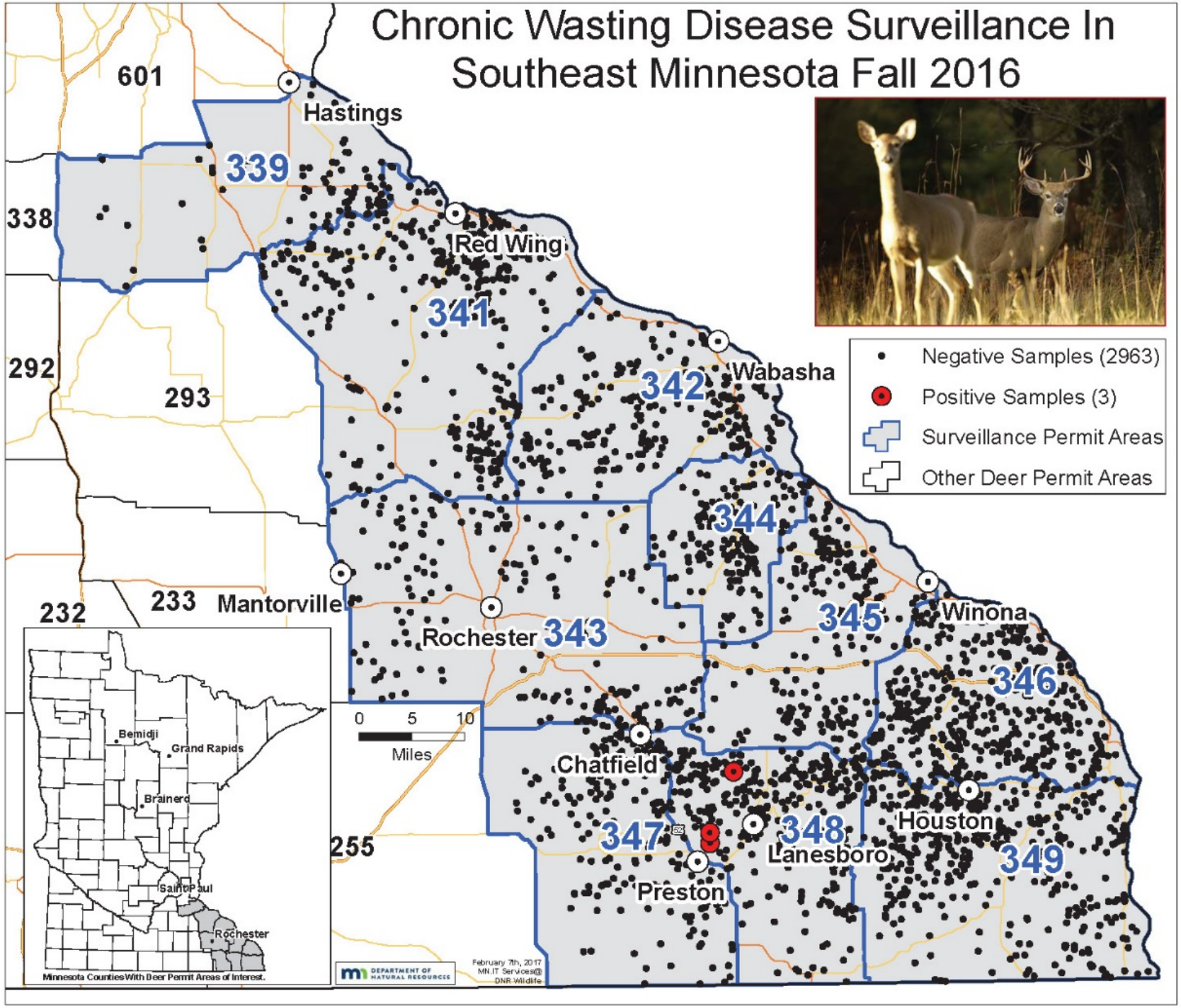


Pine Island: First case of CWD in a wild deer in MN

- CWD discovered in a captive elk facility near Pine Island in January 2009
  - CWD positive elk was found by slaughter surveillance
  - Herd depopulated and 3 more CWD positive elk identified
- Fit our “risk-based” surveillance and DNR started testing deer in the SE starting Nov. 2009
  - Tested broadly throughout southeast in 2009; no detections
  - Narrowed surveillance to within 25 miles of the infected elk farm in 2010; found 1 positive
  - Over the next 3 years, tested >4,000 deer in area, no additional positives were found

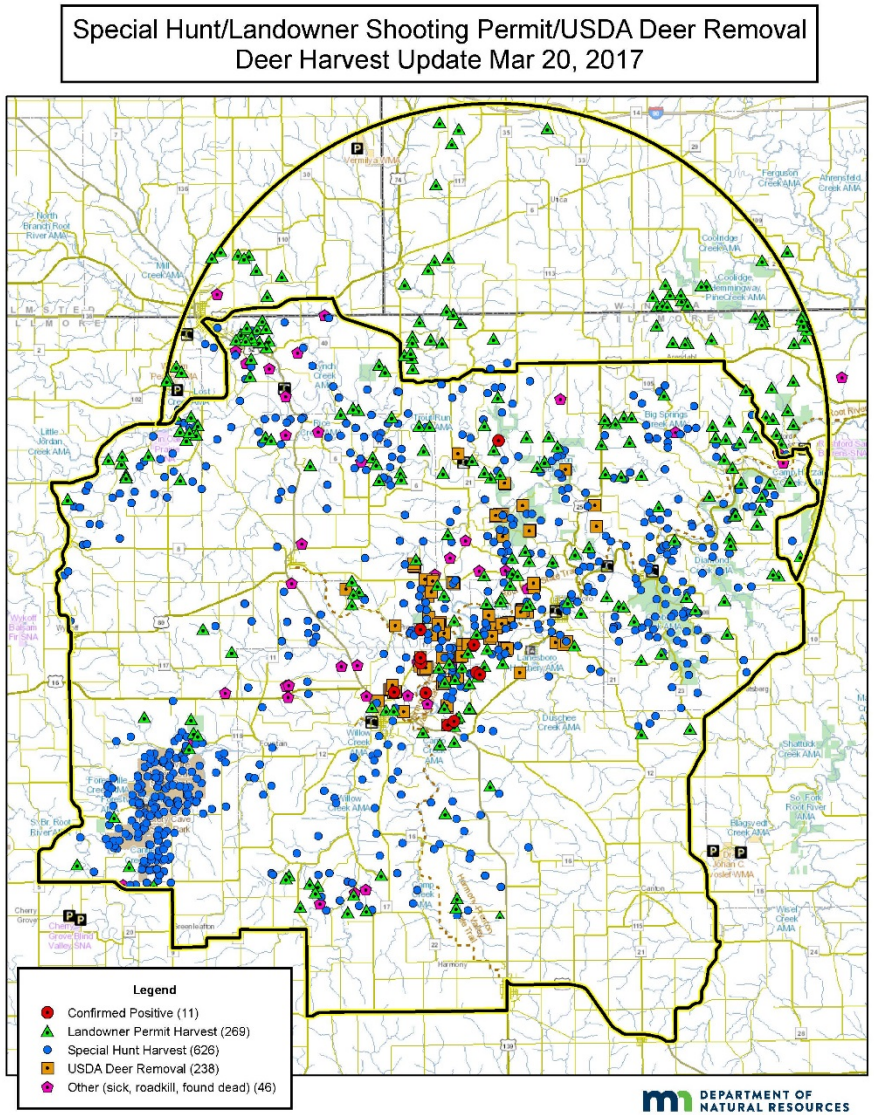
CWD Positive Deer – Pine Island - 2010

Fall 2016 CWD Testing



- Due to increase cases of CWD+ wild deer in WI and northeast IA, we conducted surveillance in SE MN; chance to revisit Pine Island also
- Found 3 CWD+ deer in Fillmore County, near Preston

Test results from the Special Hunt, Landowner Shooting Permits, and USDA Wildlife Services Deer Removal Phases, Winter 2017



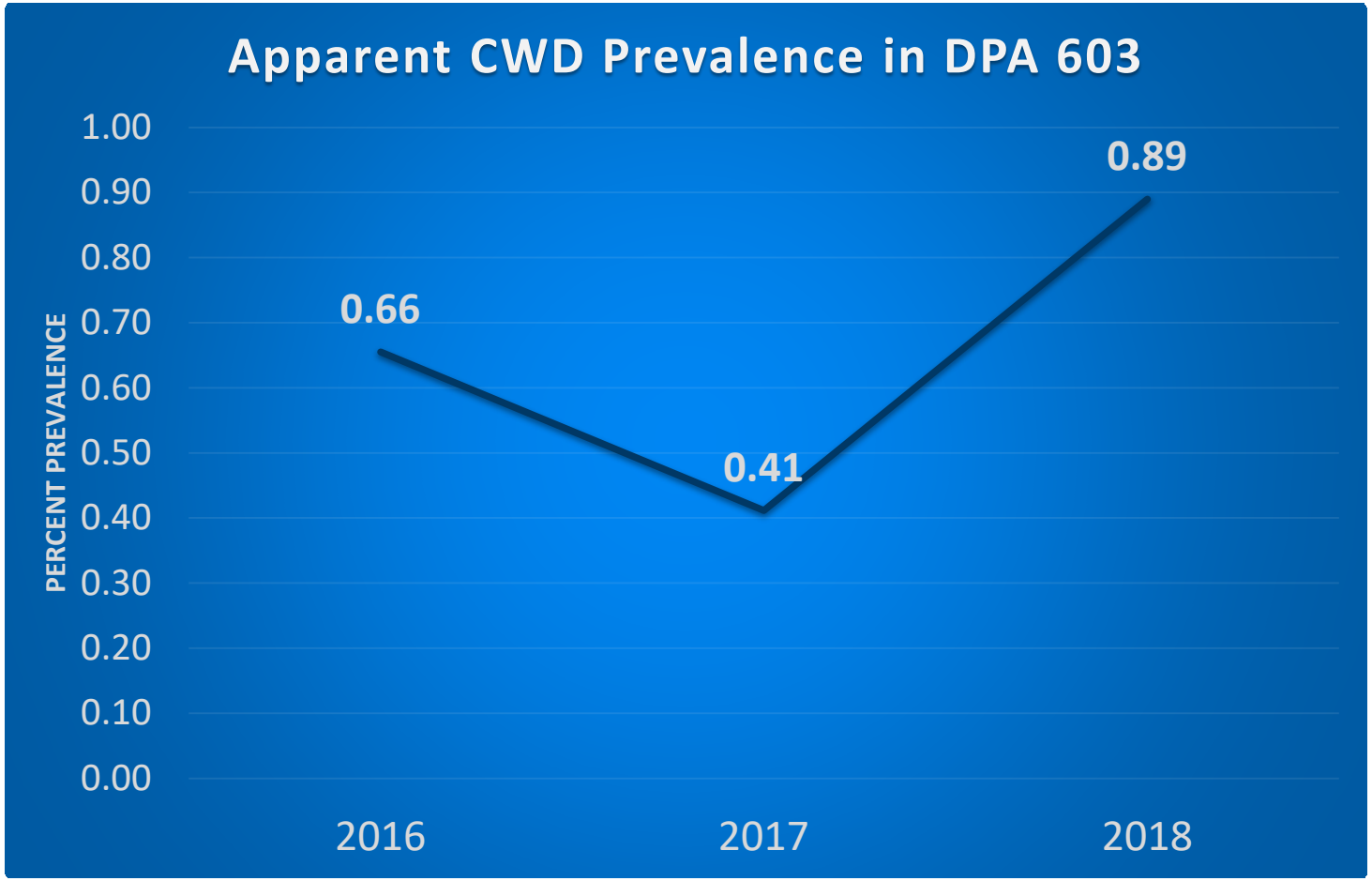
Cumulative test results from Dec. 31, 2016 to March 31, 2017

Sample Type	Samples Collected	CWD-Negative	Confirmed CWD-Positive
Landowner Shooting Permit Zone	269	267	2
Special Late Hunt, Zone 603	626	623	3
USDA Deer Removal	238	236	2
Road kill	30	30	0
Found dead	13	12	1
Sick/injured/euthanized	3	3	0
Totals	1179	1171	8 (plus 3 from fall 2016)

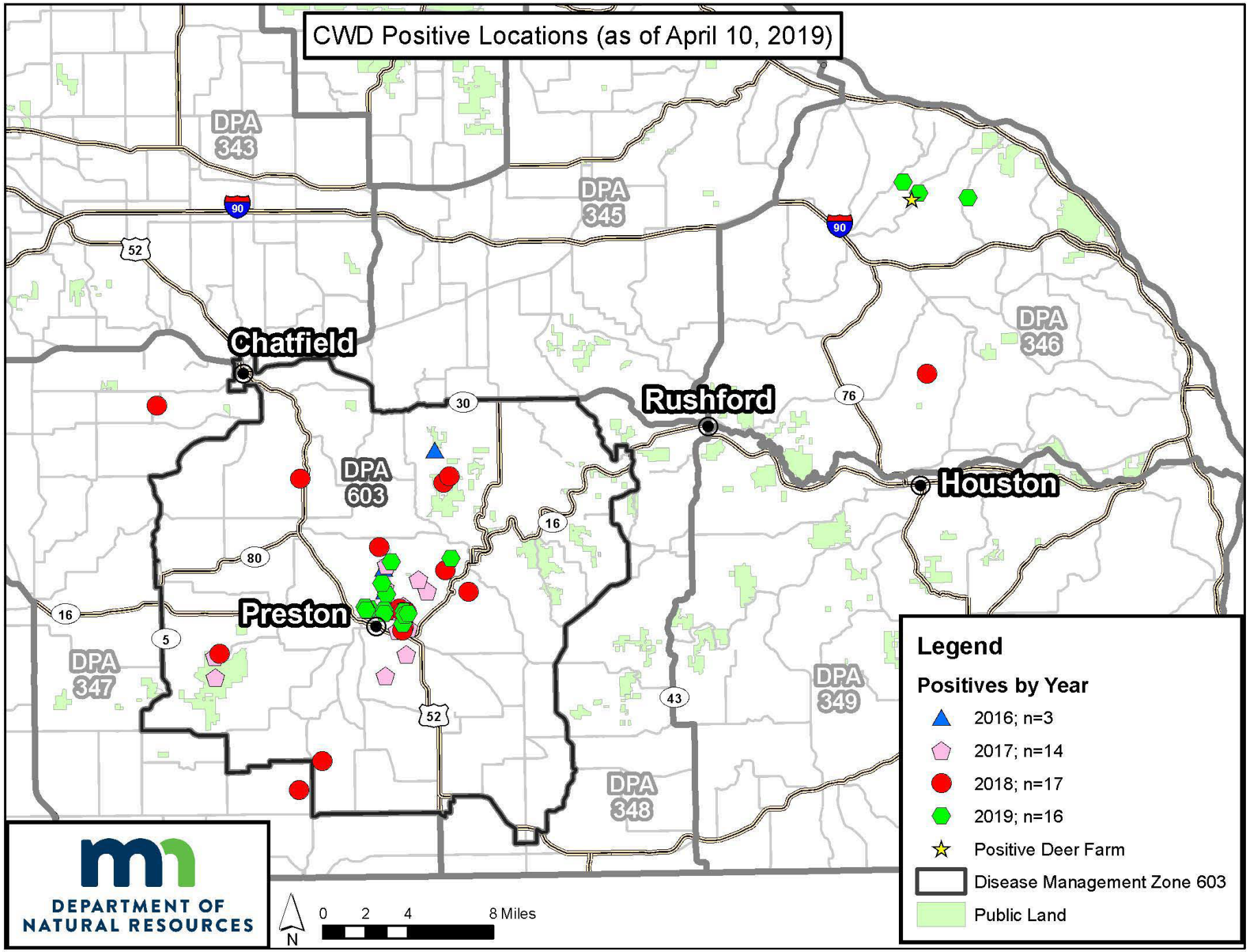
**** Additionally 252 and 105 fawns were harvested during the special hunt and by landowners, respectively. Fawns were not tested. Grand Total: 1,536 deer.**

****2016 apparent CWD prevalence estimate: 11/1,679 or 0.66%.**

CWD Prevalence in DPA 603

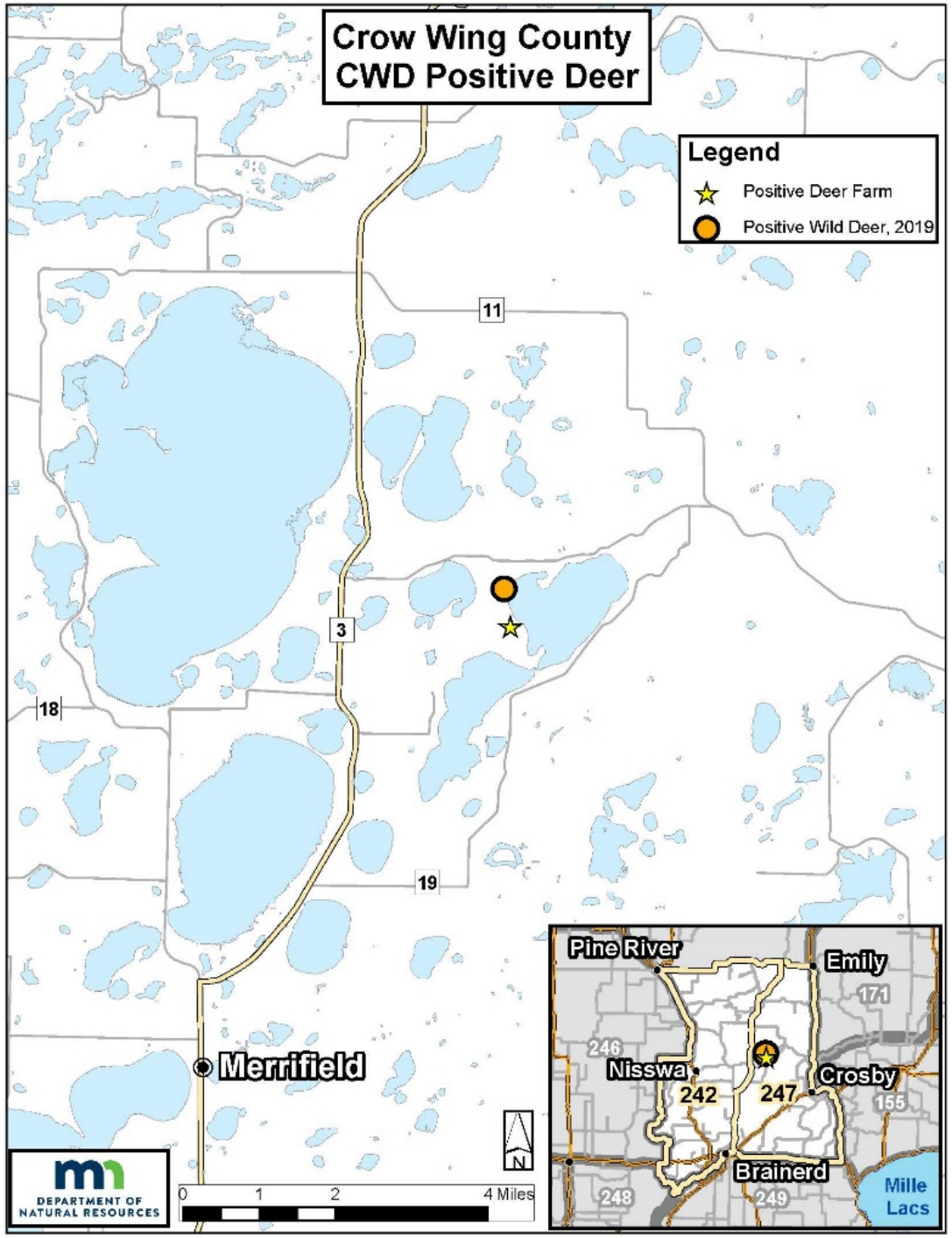


- CWD prevalence is still low in DPA 603; however, increased from 2017 to 2018
- This infection appears to be persisting in the Preston-Lanesboro area and spreading outward



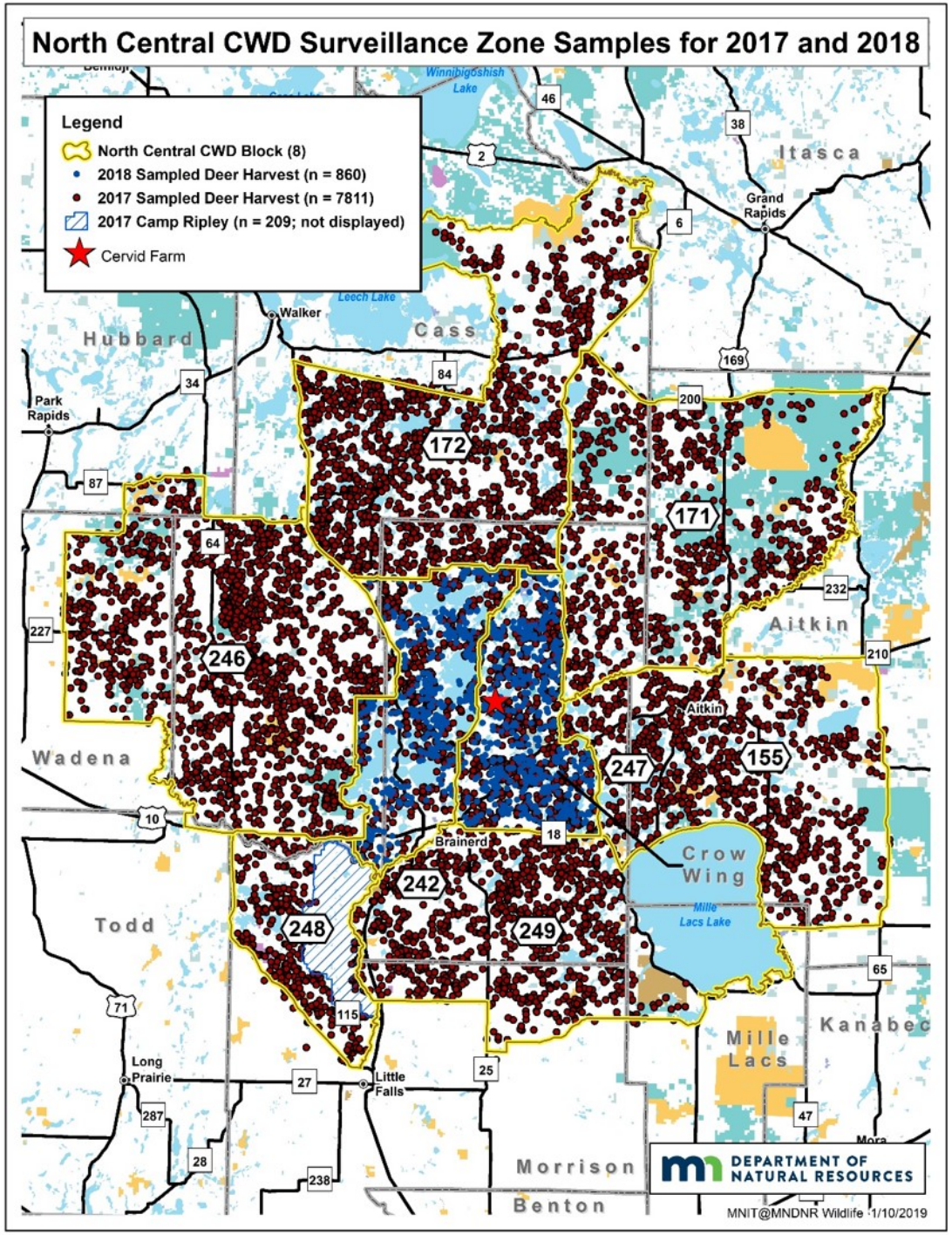
CWD in Southeast MN

- 50 cases of CWD found in wild deer in SE MN from 2016-present
- Counties affected include Fillmore, Winona, and Houston



First detection of CWD in a wild deer in Crow Wing County

- Jan 23rd, a deer was found dead by a cabin caretaker and reported to DNR
- Deer was an adult doe and very thin. Samples were collected to screen for CWD, as part of DNR's routine surveillance for clinical suspects
- Deer was confirmed to have CWD on Feb 14th
- Carcass as recovered and submitted to the University of MN for necropsy; CWD was determined to be primary cause of death
- Necropsy report posted on DNR Website

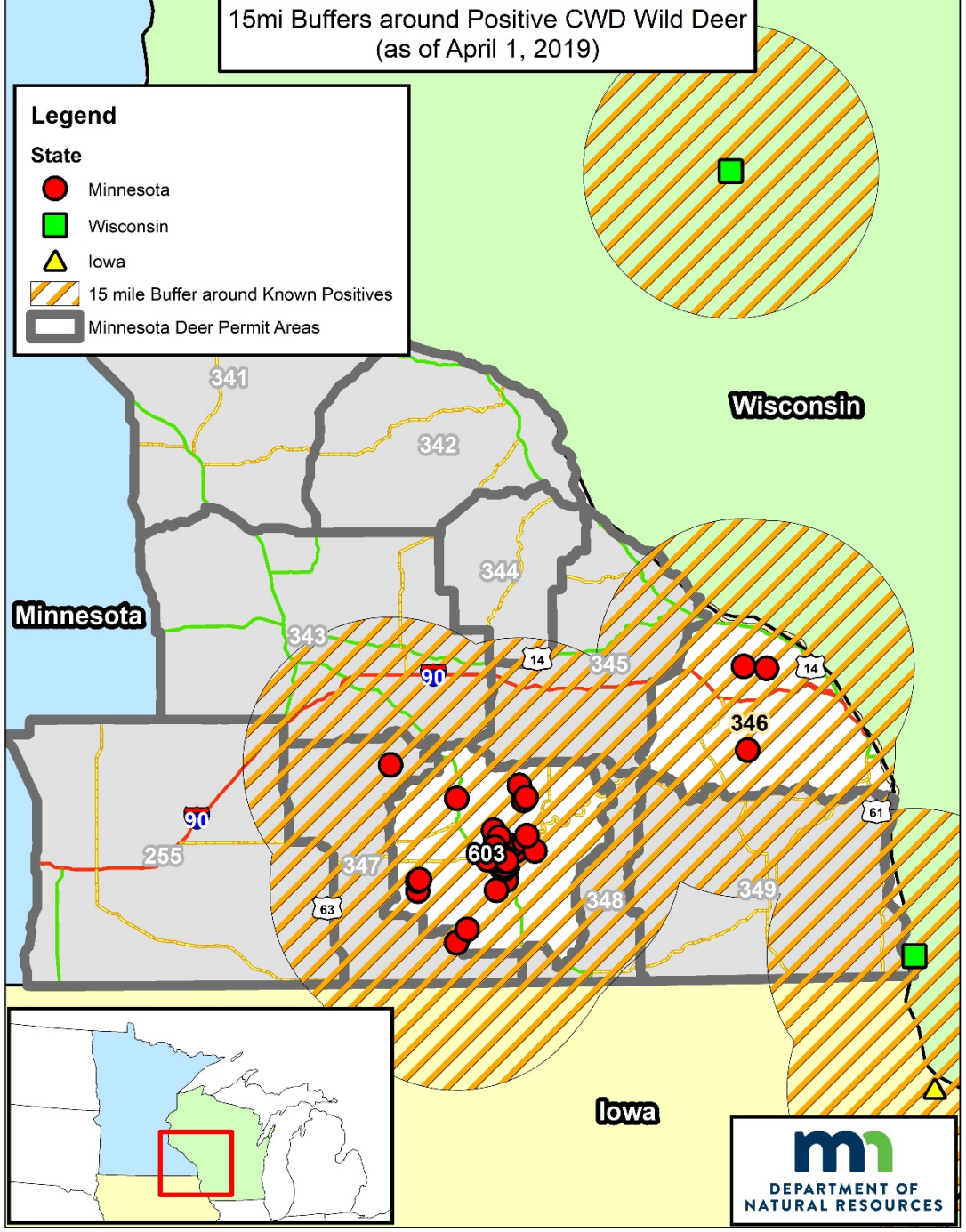


What does this CWD discovery mean?

- With over 8,800 deer sampled over the past 2 years and no detection of CWD, the disease not likely established in the local deer herd
- Given the infected deer was located <0.5 miles from a CWD-positive deer farm, it's the likely source of this disease in the wild
- If additional CWD-infected deer exists near this farm, it is necessary to remove them from the landscape now versus let them potentially transmit the disease to other deer.

Formulated Plans for Fall 2019

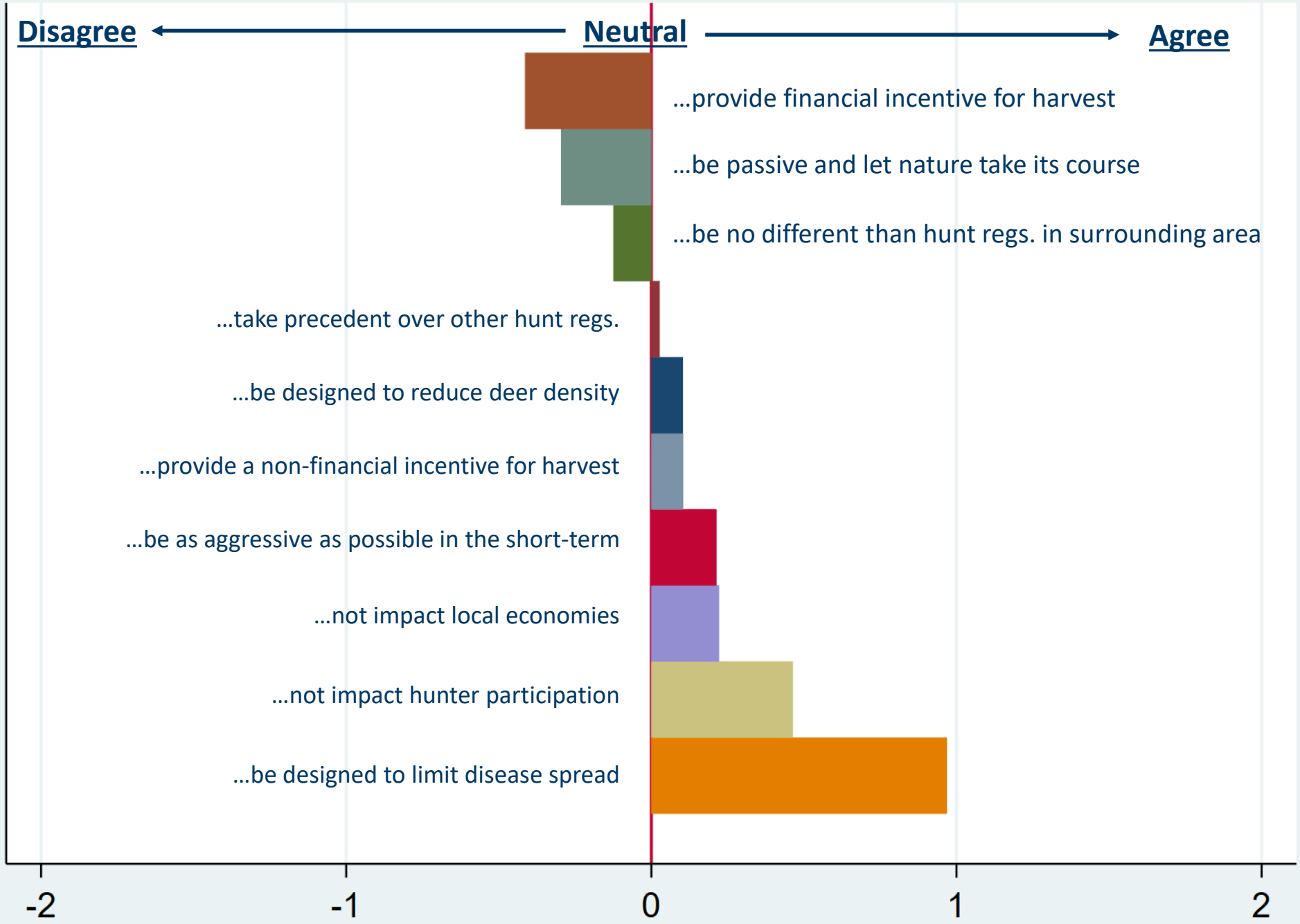
- Evaluated the data from all 3 area with CWD, as well as positives near borders (WI and IA)
- Drew new boundaries and formulated plans for fall 2019
- Implement strategies and actions laid out in our 2019 CWD Management Plan
- Public engagement and outreach



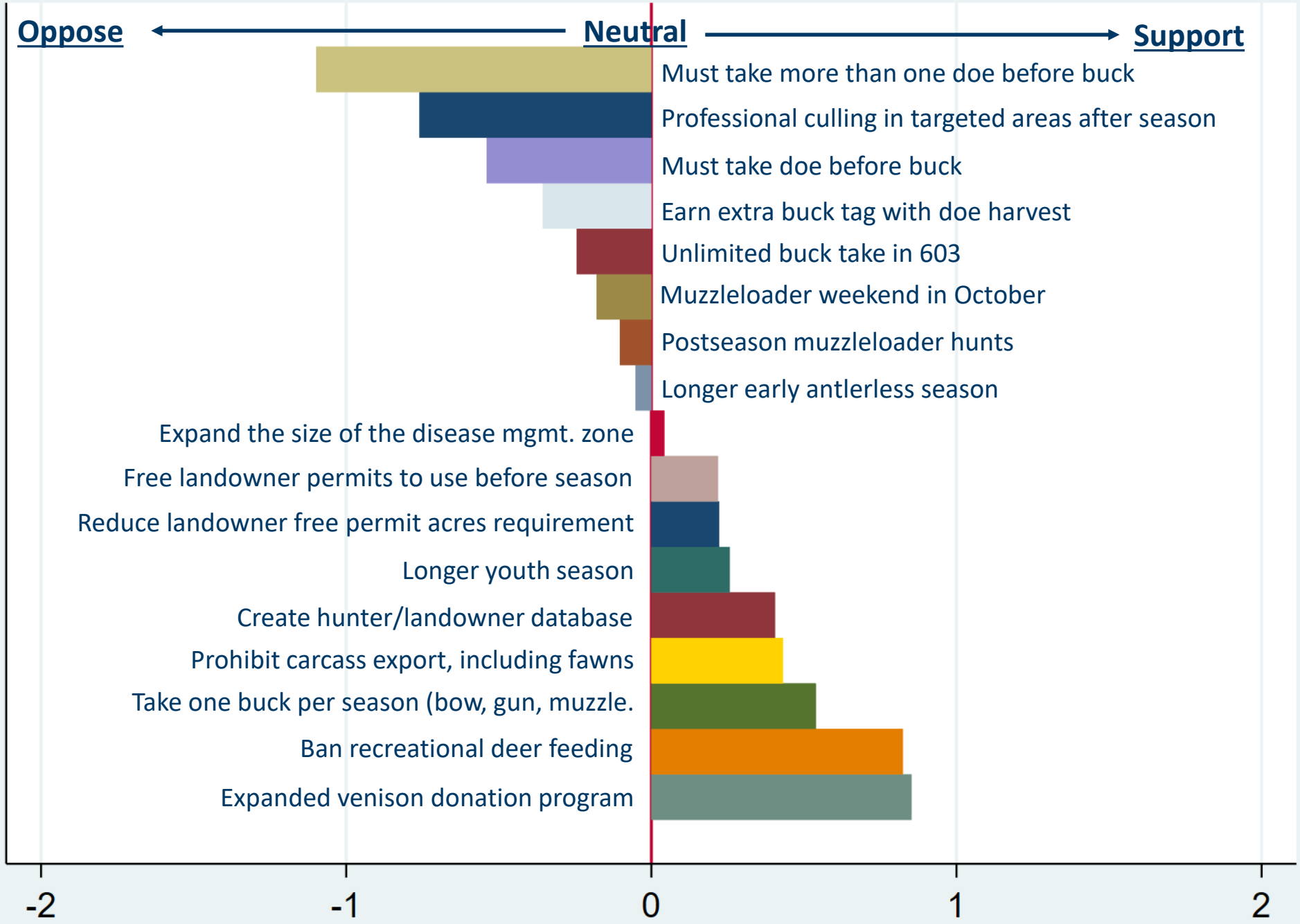
Human Dimensions Research

- 2018 SE hunter and landowner studies
  - Regulations
  - Potential use of incentives
  - Satisfaction
- 2019 – 2020
  - Lapsed deer hunter survey (losing them a variety of ways)
  - Statewide general public CWD survey
  - Statewide hunter CWD survey

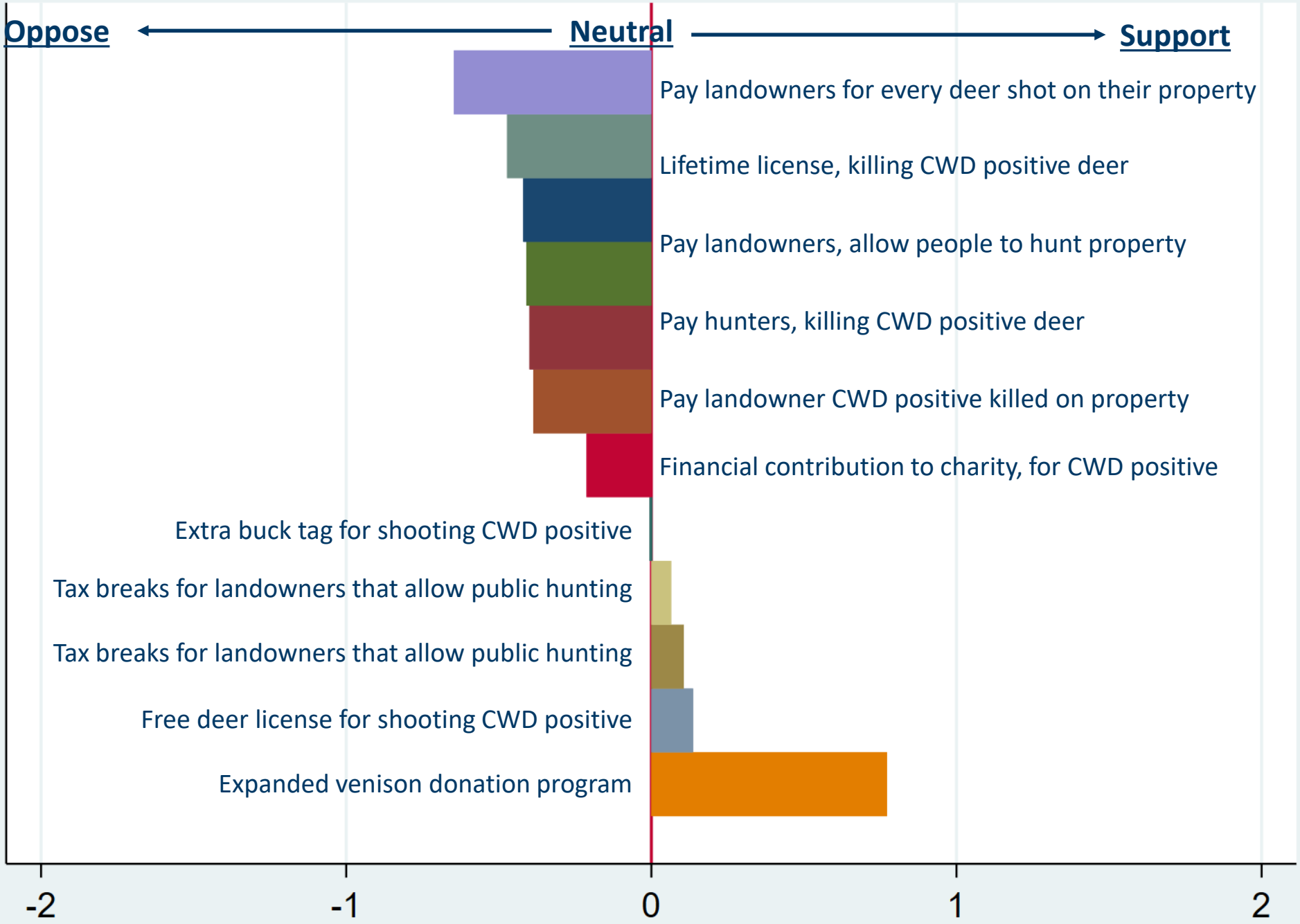
CWD regulations should…



Support for potential regulations to manage CWD



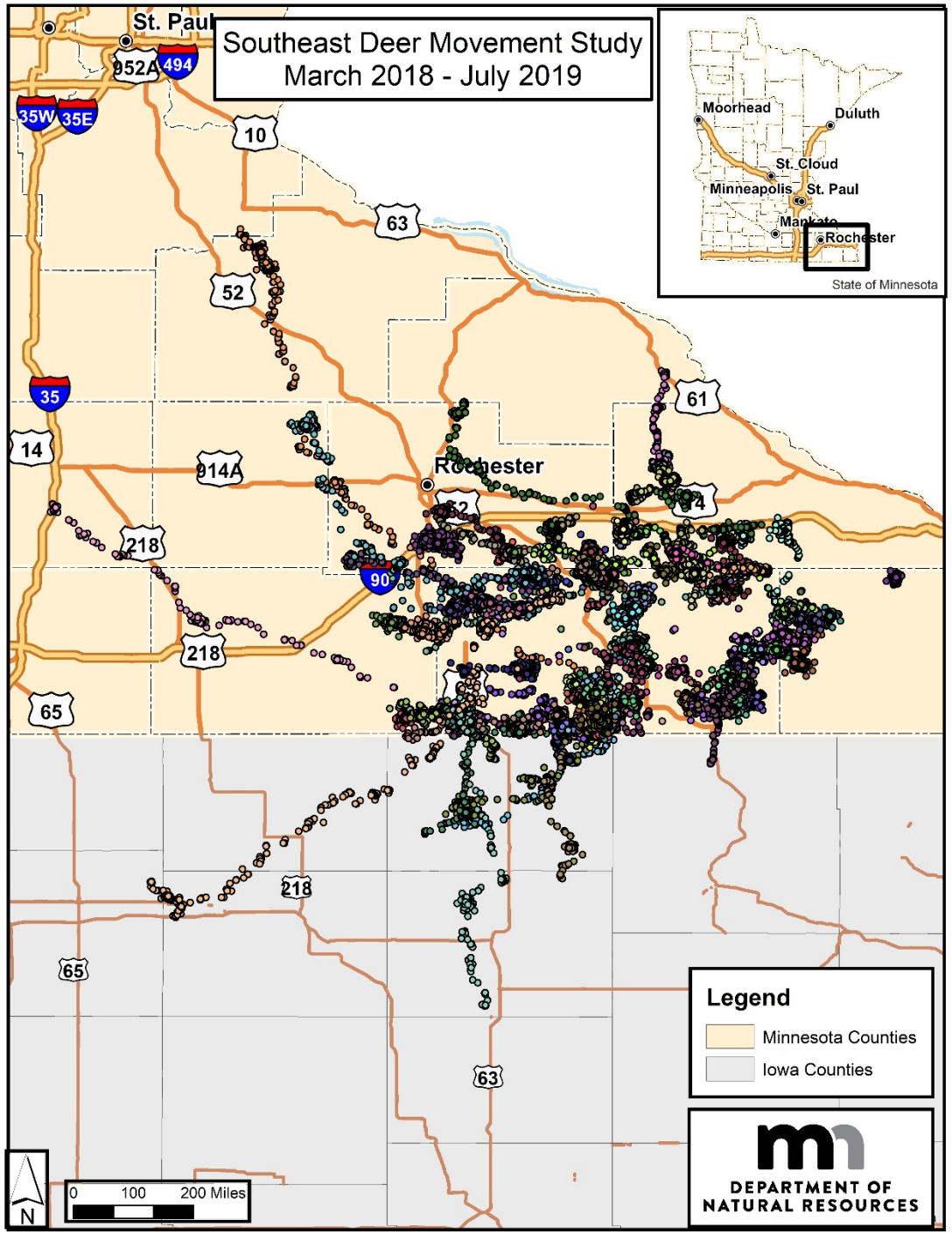
Support for financial incentives to manage CWD



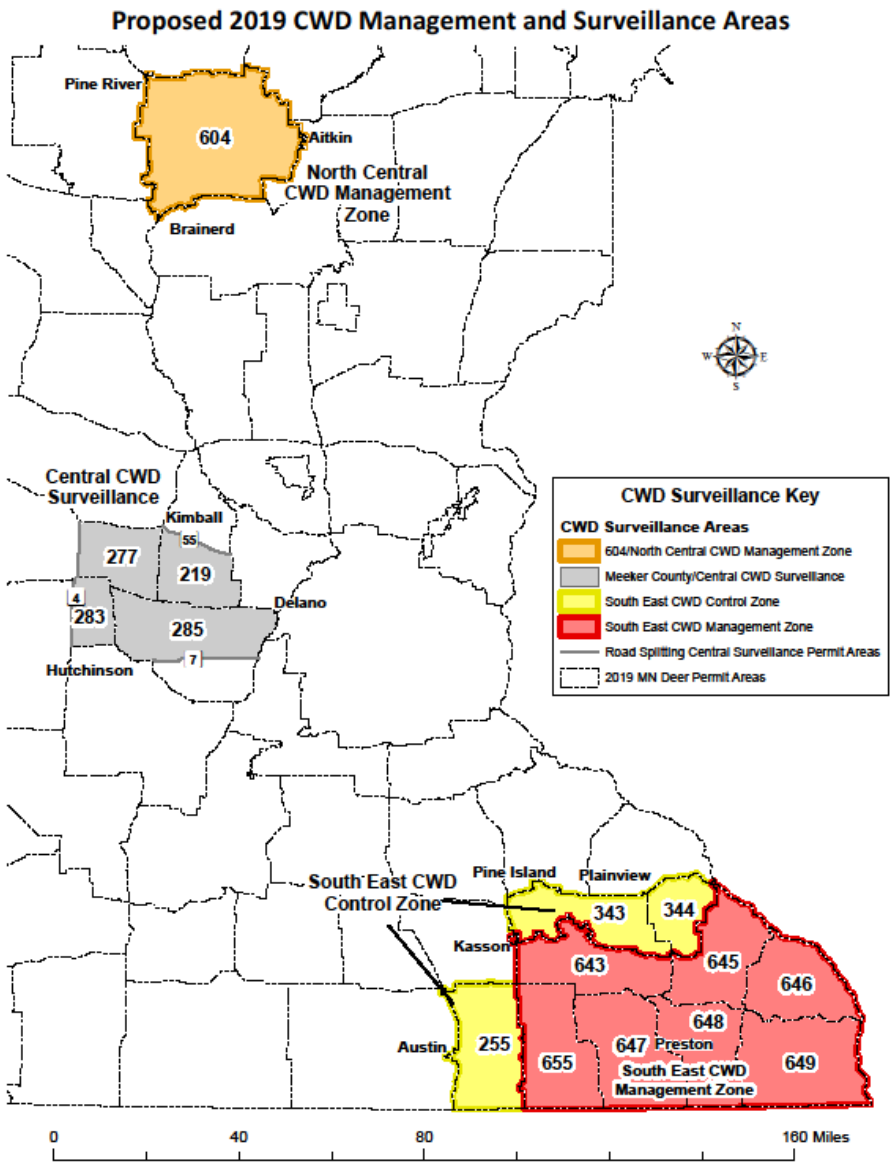
Southeast Deer Movement Study

Objectives

- Document dispersal patterns and estimate activity ranges of juvenile males and females (≈ 1-year-old), and adult males (>2-years-old).
- Utilize information on juvenile dispersal (in particular) to map and inform corridors of possible CWD spread.
- Determine general causes of mortality.
- Want more? Visit website: https://www.dnr.state.mn.us/cwd/deer-movement-study.html



Expanded Southeast CWD Management Zone
NEW – CWD Control Zone



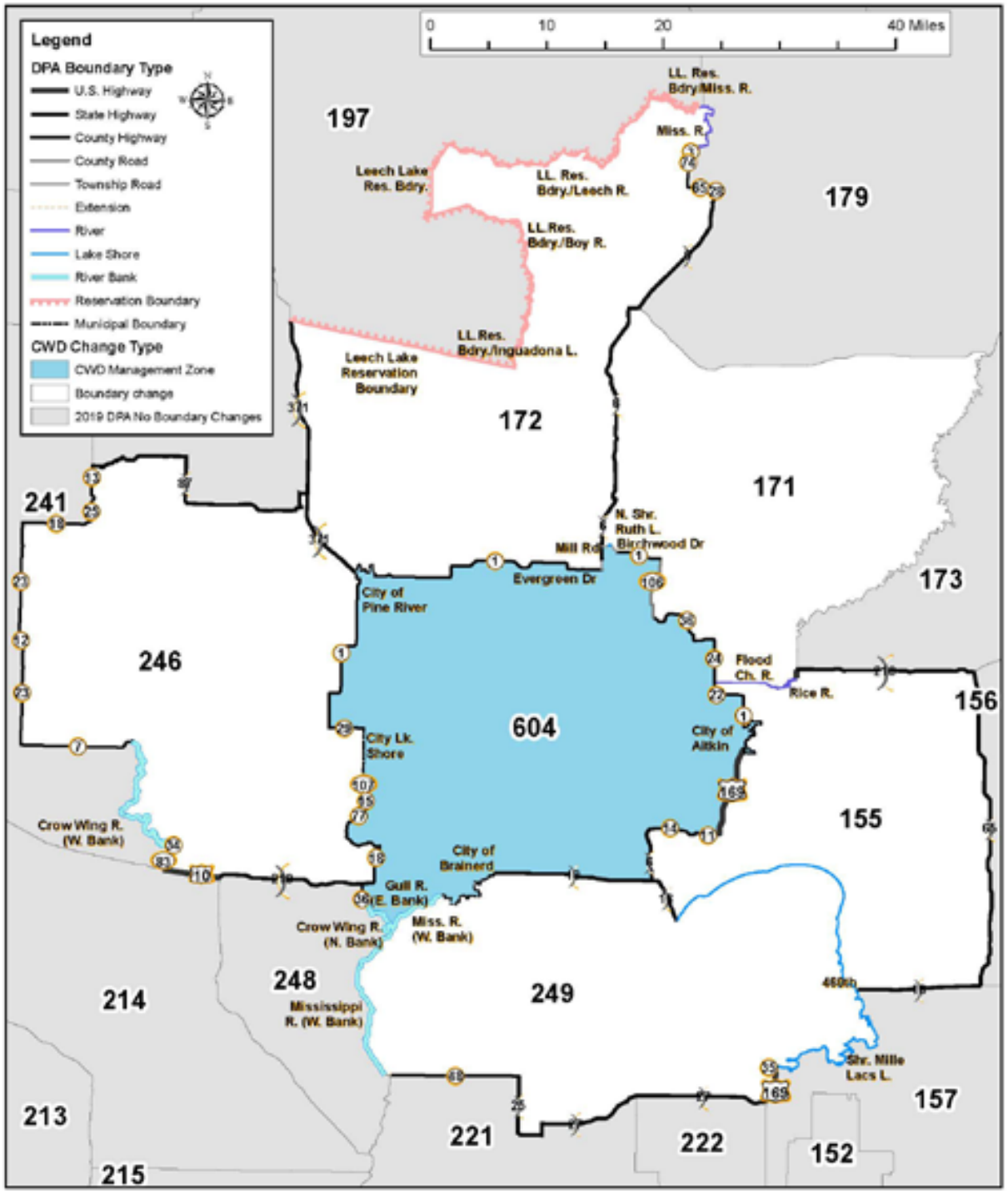
CWD Management Zone - Southeast

- Early-antlerless season
- No-limit antlerless ($2.50 disease management licenses)
- Late-season special hunts
- **Up to 3 legal bucks per hunter per year; 1 legal buck per licensed season – SE CWD Management Zone Only**
- No antler point restriction (APR)
- Cross-tagging bucks is allowed
- Mandatory testing during all seasons: all deer 1 year of age and older; fawns voluntarily
- **All deer carcasses including fawns cannot leave management zone until test results are confirmed; meat or quarters may leave immediately**

CWD Control Zone – Southeast

- No antler point restriction (APR)
- All deer carcasses including fawns cannot leave the control or management zones until a test result is confirmed; meat/quarters may leave immediately
- Mandatory testing of all deer 1 year of age and older during the first two days of the A and B firearms seasons

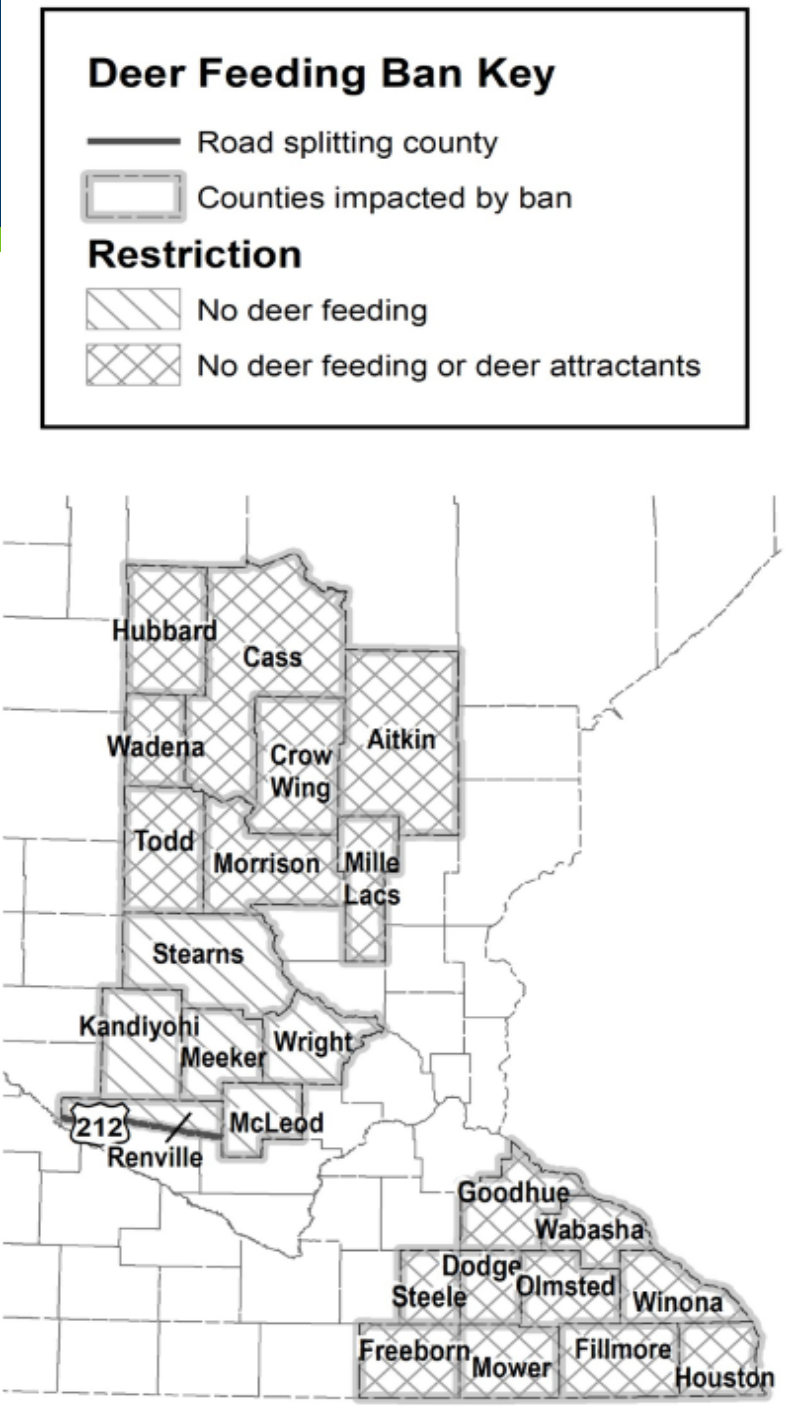
New Zone 604, North-central MN



New Regulations:

- Early- antlerless season
- No-limit antlerless for all seasons ($2.50 disease management licenses)
- Late-season special CWD hunts end of December; can use any unused tags
- 1 legal buck per hunter per year
- Mandatory CWD testing during all seasons
- Fawns voluntary tested
- Deer feeding and deer attractants ban in place and in surrounding counties
- Carcass movement restrictions in place within DPA 604 until test results are reported

Ban on recreational deer feeding

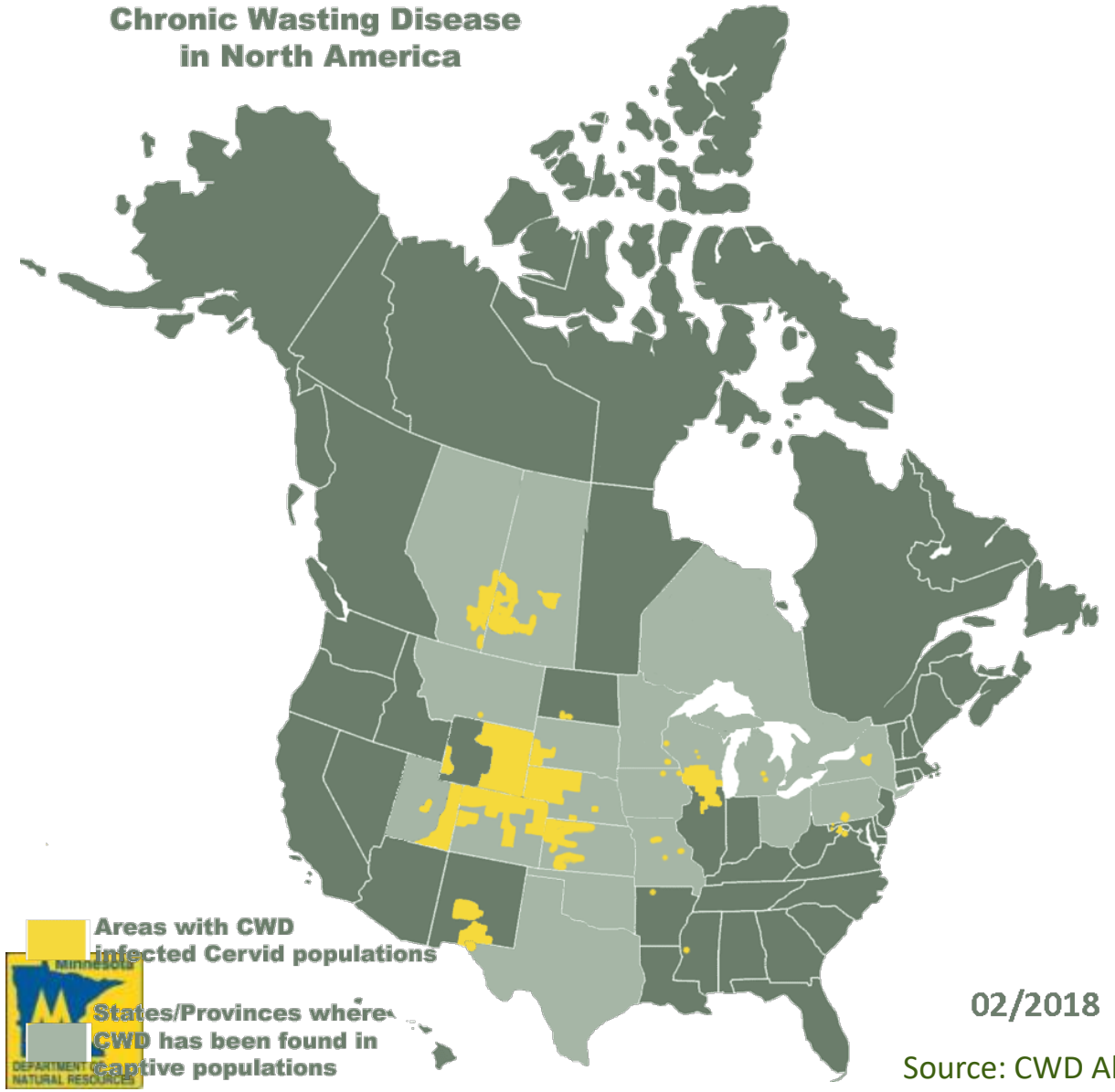


- Feeding deer and placing salt/mineral blocks is prohibited in the areas identified in the central counties on the map.
- In both the southeast and north central counties with feeding bans, not only is deer feeding prohibited, but so are attractants that are capable of attracting or enticing deer, including any product that contains or claims to contain cervid urine, blood, gland oil, feces or other bodily fluids.
- Food placed as a result of normal agricultural practices is generally exempted from this rule; however, cattle operators are advised to take steps that minimize contact between deer and cattle.

The 2 BIGGEST risks to spreading CWD across North America

- Movement of live cervids (both through the cervid industry and wildlife agencies)
- Movement of cervid carcasses and their parts

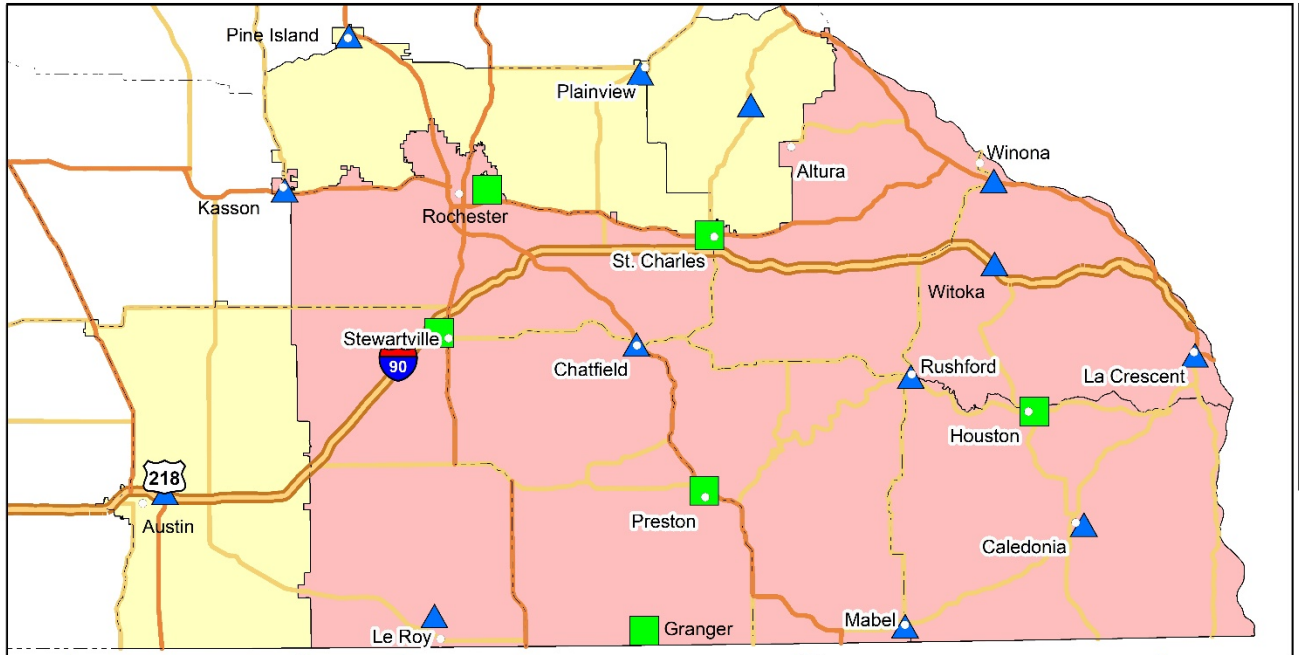
Cervid Carcass Import Ban, Blanket Rule 2016

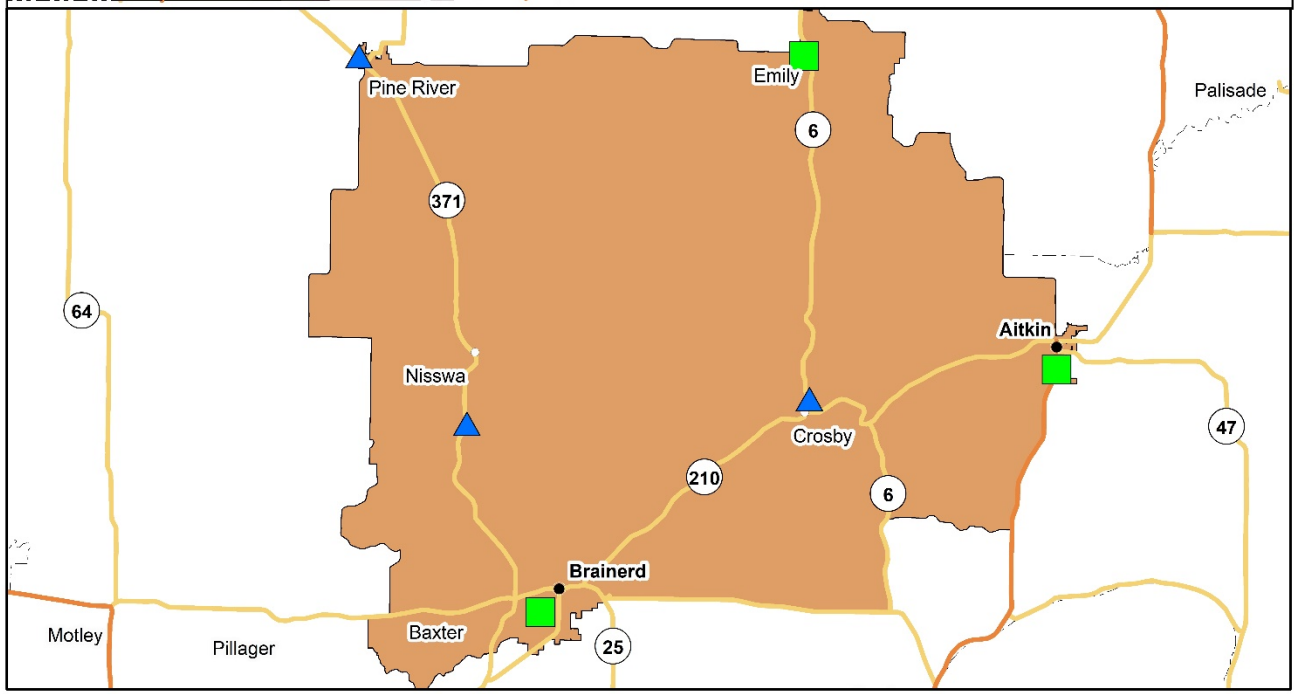


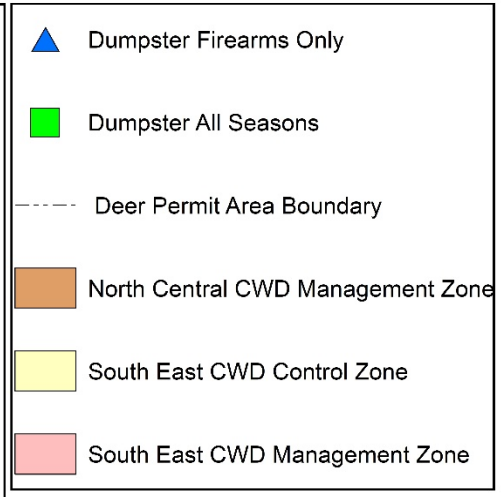
Source: CWD Alliance

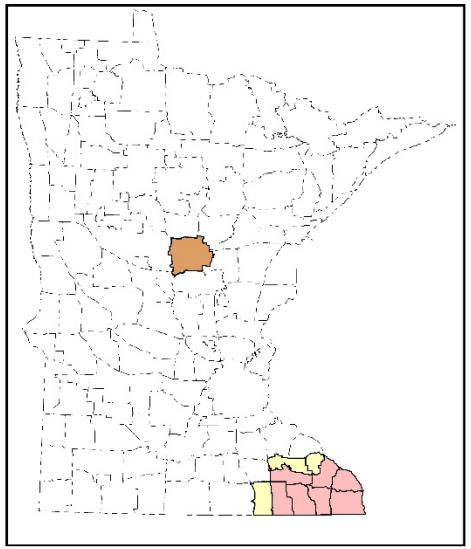
- No importation of whole cervid carcasses into MN from ANYWHERE in North America
  - Meat that is boned out or that is cut and wrapped (either commercially or privately).
  - Quarters or other portions of meat with no part of the spinal column or head attached.
  - Hides and teeth.
  - Antlers or clean (no brain tissue attached) skull plates with antlers attached.
  - Finished taxidermy mounts.
  - Nonresidents transporting whole or partial carcasses on a direct route through Minnesota are exempt from this restriction; however, importation restrictions exist in all surrounding states.

Adopt – A – Dumpster Program









0 5 10 20 Miles

- Legislature allocated $50k to establish program
- Goal is to reduce risk of CWD-infected carcass remains on the landscape
- Currently proposing 19-20 dumpsters in the SE and 6 in the NC zones this fall
- Seeking partnerships with sporting groups and private landowners currently

Not so fast! We don’t want those deer carcass remains at our landfill!

CWD & Landfills Working Group

- Working group formed in April 2019 to find a solution to handle deer carcass waste stream in Crow Wing County
- Members include:
  - DNR: Michelle Carstensen, Barb Keller, Rob Rabasco, Todd Kanienski (ENF)
  - MPCA: David Benke, Heidi Kroening, Steve Giddings
  - MDA: Andy Sirra, Levi Muhl
  - BAH: Linda Glaser
  - MDH: Joni Sheftel
  - Meat Processor/Taxidermist: Tracy Jones
  - Landfill Operators: Marvin Stroschein (CWC), Ryan Simonson (CWC), Mark St. Lawrence (SLC), David Fink (SLC)
  - Waste Hauler: Wayne Harting
  - Contract Engineering: Fred Doren (Burns & McDonnell)
  - County Highway Department: Lukas Marks
- Goal: Find a workable solution to allow deer carcass disposal at the landfill and reduce risk of disease spread

Managing the deer carcass waste streams of CWD-positive deer

- Approved methods for disposal of CWD-positive deer:
  - Alkaline digestion (University of Minnesota)
  - Lined landfills
  - Incineration (if temperatures exceed 1500°F)
- DNR has confirmed a total of 52 CWD+ wild deer since 2010, here's where carcasses went:
  - Whole carcass to digester: 19
  - Meat to digester and butcher remains to lined landfill: 26
    - includes 1 from metro, remainder SE MN (all hauled to Olmsted County Landfill)
  - Meat processor waste stream: 2
  - Left on the landscape and mostly scavenged, remains recovered and digested: 5

Deer Disposal in a CWD Surveillance Area

- Getting the carcass disposed of properly is the key.
  - If left on the landscape, an infected deer carcass becomes a source of disease; thus, the **landfill is the best solution to reduce these risks**!
- Testing can determine knowns and unknowns.
  - DNR will attempt to recover any confirmed CWD-positive deer and utilize the alkaline digester at UMN
- According to MPCA, for landfills that recirculate leachate and or use spray irrigation sites:
  - Place the deer above recirculation lines.
  - Use appropriate base soil some type of tight soil that can reduce the prions from migrating all the way through the waste mass.
  - Cover as soon as possible.
  - Consistent with research.

What About the Research?

Finding a solution and reducing risk

- Crow Wing County Landfill utilizes leachate recirculation and spray application of leachate on nearby field.
  - How do CWD prions move through this type of system, should they get in?
  - Concerned about deer that routinely feed in the spray fields
  - Science has demonstrated that landfills with clay liners are successful in keeping prions bound in the soils and not moving vertically in the column; not in the leachate
  - No research studies specifically geared at spray application methods
- How to best minimize risk of potential prion movement in this system?

Crow Wing County Landfill: 3-Step Method

Step 1: Incineration

Utilize an air-curtain incinerator to process all deer carcasses entering the landfill

Crow Wing County Landfill: 3-Step Method

Step 2: Ash Disposal

Place ash from incineration at the top of a cell that's being capped and cover with appropriate materials; thus, removed from the recirculation process

Crow Wing County Landfill: 3-Step Method

Step 3: Fence Field

Spray field will be entirely fenced with 9-ft, woven wire fencing to exclude deer from entering

Working together to find solutions

Thanks to the CWD & Landfills Working Group for coming together to exchange information, share ideas, and find an acceptable solution to the deer disposal issue!

Landfills are part of the solution in MN's battle with CWD!

If we go from here to……..

Here……..we are absolutely increasing the risk of CWD spread on the landscape!

Here……..we testing for CWD and properly disposing of butcher remains to reduce disease risk!

KEEP MINNESOTA'S DEER HERD HEALTHY

STOP THE SPREAD OF CWD

DEPARTMENT OF NATURAL RESOURCES