

LCCMR EMERGING ISSUES PROPOSAL: Movement dynamics of white-tailed deer and potential prion transmission from a chronic wasting disease outbreak in SE Minnesota

C. Jennelle (Project Manager), A. Norton (Co-Principal Investigator), M. Carstensen (Collaborator), L. Cornicelli (Collaborator)

Emerging Wildlife Health Issue: In November 2016, CWD was discovered in wild white-tailed deer in Fillmore County, MN. Through March 2017 in SE MN, 4,141 deer were sampled and 11 tested positive. The positive deer are clustered in a small area, which suggests CWD in the early invasion phase. This is a key opportunity to learn how CWD can potentially spread across the Minnesota landscape.

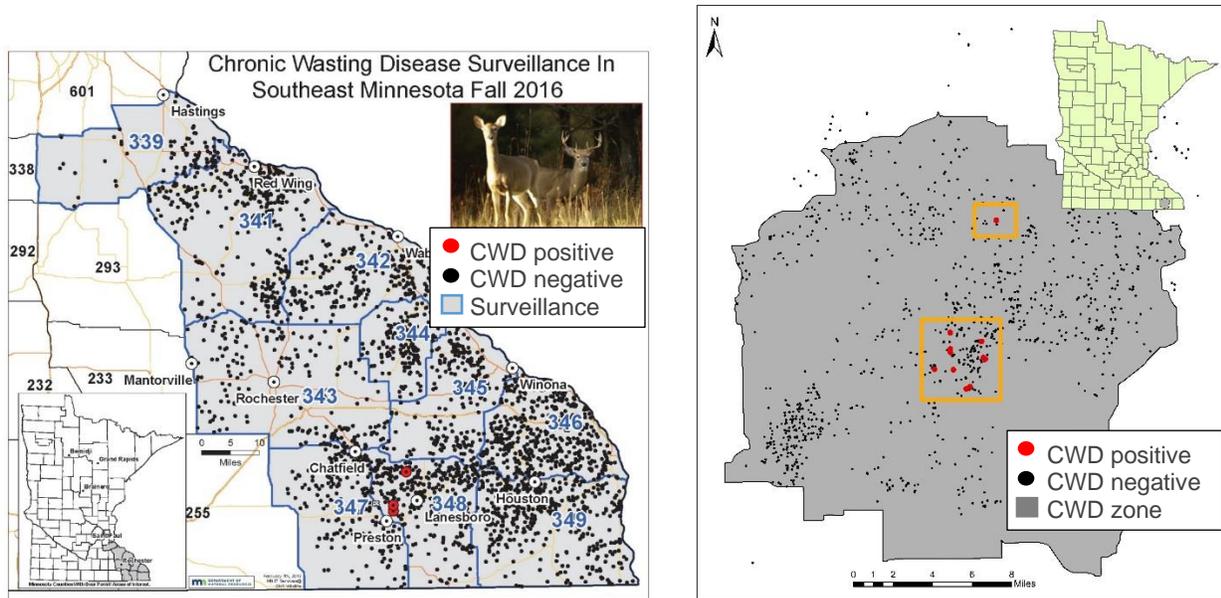


Figure 1. 2016 hunt season surveillance in select DPAs. Figure 2. Zone 603, post-hunt samples, and CWD positives.

Emergency Funds Justification:

- Given CWD is in its early epidemic phase, this is a rare chance to understand pathways of potential CWD spread and have the best odds of successful management and containment
- CWD is always fatal and results in population decline in the long-term
- Older deer and bucks in particular (3x does) have a higher risk of being infected
- Dispersing yearlings likely spread CWD long distances across landscape
- No evidence of human infection, but macaques were recently infected by eating infected meat

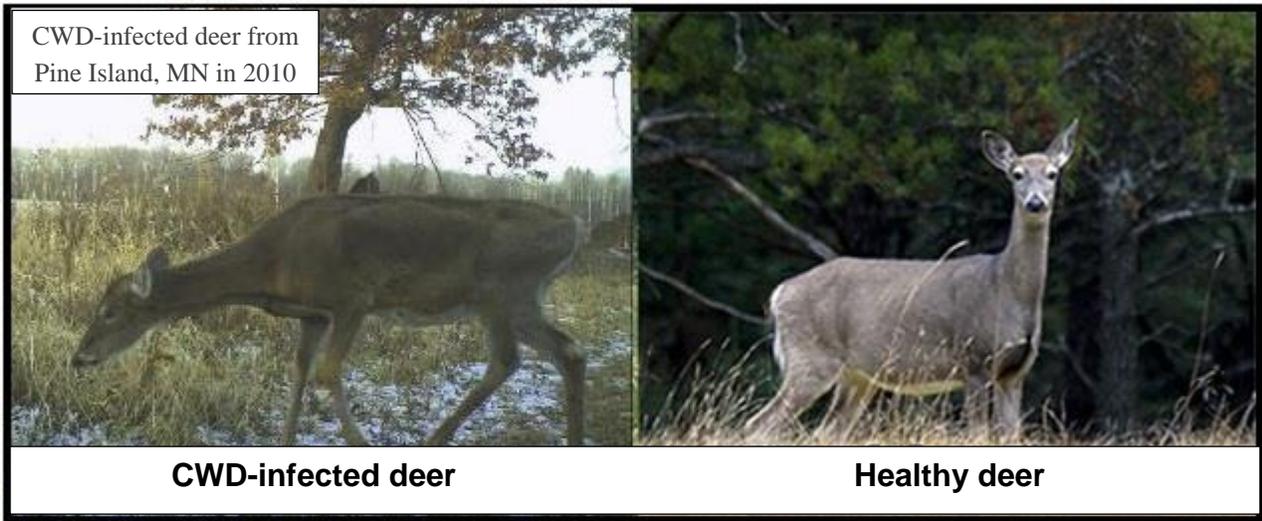
What are we proposing to do?

- Capture and radiocollar 90 yearling deer (60 male and 30 female) and 25 adult male deer (highest risk groups for prion spread)
- Track daily movements for as long as animals survive or collars function
- Respond within 24 hours to mortality signals and categorize sources of mortality



Deliverables:

- Estimate dispersal patterns, activity ranges, and identify movement corridors in southeastern MN that can be generalized to the population
- Create a predictive model of deer population movement and potential CWD spread on the SE MN landscape
- Inform surveillance and management activities aimed at detecting and minimizing CWD spread in MN
- Inform CWD risk to Houston County from Wisconsin and Iowa
- Determine cause-specific mortality rates for future deer population modeling



Budget:

BUDGET ITEM	AMOUNT
GPS collars (n=115; \$1500 per collar)	\$172,500
Helicopter capture (\$800 per deer)	\$92,000
Satellite data acquisition (\$500 per deer)	\$57,500
Spotter plane for capture (\$250/hour)	\$8,000
Capture-crew expenses ¹	\$6,538
Direct and necessary (4%) ²	\$13,462
TOTAL	\$350,000

¹ \$0.55/mile allocated for 6 vehicles (740 miles each), travel expenses for capture field crew for 7 days

² Includes Department support services (Human Resources, IT, Safety, Financial, Communications, and Planning)

April 11, 2017

Ms. Susan Thornton
Director, LCCMR
Room 65 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, Minnesota 55155

Dear Susan:

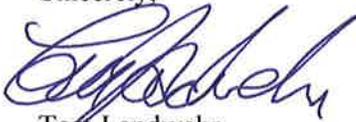
Thank you for working with my research staff to assist us in obtaining critical funding from the emerging issues account to examine possible prion transmission pathways for chronic wasting disease (CWD) in white-tailed deer. We are very interested in pursuing this project and believe it meets the intent of the emerging issues account. With the recent discovery of CWD in southeastern Minnesota, the Department of Natural Resources (DNR) has responded swiftly and aggressively to minimize the opportunity for the disease to become established. Equally important, however, is elucidating the risk of prion transmission on the landscape due to such things as deer movement and interactions among individuals. The emerging issues account provides an excellent opportunity to examine these relationships from the perspective of disease transmission.

At the Minnesota DNR, we have staff expertise and experience, field equipment, and staff support to achieve the project objectives. Specifically, Drs. Jenelle, Norton, Carstensen, and Cornicelli all have extensive experience in research design, white-tailed deer biology, and disease ecology. I would offer their time as in-kind support for the duration of the project.

As you can see from the proposal, staff are asking for \$350,000 from the emerging issues account and the rest of the project will be submitted as a regular LCCMR project. Certainly, if more funds are available from emerging issues, we can reframe the budget.

Thank you for the time you and your staff have spent on this proposal and for consideration of this request. If you have any questions, please contact Dr. Lou Cornicelli, Wildlife Research Manager at 651-259-5202 or lou.cornicelli@state.mn.us.

Sincerely,



Tom Landwehr
Commissioner

c: Sarah Strommen, Assistant Commissioner
Jason Tidemann, Grants Specialist
Jim Leach, Director, Fish and Wildlife
Lou Cornicelli, PhD, Wildlife Research Manager
Chris Jennelle, PhD, Wildlife Research Scientist