

MINNESOTA CENTER FOR PRION RESEARCH AND OUTREACH

LCCMR Emerging Issues Proposal: **Environmental Assessment of CWD Prions at the Beltrami County Deer Carcass Dump Site**

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On 28 April 2021 our team was notified by the MN DNR that deer carcasses originating from the CWD-positive deer farm in Beltrami Co. had been dumped on public land. We were asked by the DNR to visit the carcass dump site in order to recover deer remains for subsequent chronic wasting disease (CWD) detection. On 2 May 2021, our team travelled to the dump site and surveyed the location. We identified the remains of approximately 10 to 12 deer spread across an area of ~10 acres. We secured many samples, including bones, hides, soil cores, and plants from the location. Our MNPRO laboratory has RT-QuIC testing functionality, a highly advanced and sensitive prion detection assay that can be used for forensics research of biological and environmental samples. We have completed an initial RT-QuIC analysis of select bone marrow and spinal cords collected from the site and have identified at least one carcass that is CWD positive. These results indicate CWD prions are at the dump

site. In light of these results, our team is requesting emergency funds to perform additional RT-QuIC testing of the dump site material as well as to secure soil and water samples for future characterization of the level of prion contamination at the site. These efforts will help to inform the DNR as to the distribution of CWD-causing prions at the site and will help with devising key mitigation strategies aimed at preventing CWD from spreading to wild white-tailed deer herds within the region.

Emerging Wildlife Health Issue: CWD is a contagious, 100% fatal neurological disease affecting deer. **CWD prions are resistant to degradation and can remain infectious in the environment for years.** Therefore, it is critical that we determine the extent of CWD prion contamination across the Beltrami Co. carcass dump site as soon as possible to inform remediation and exclusion processes. **These prions have the potential to be transmitted to wild white-tailed deer herds on private, public and tribal lands in the region through contact with contaminated deer carcass remains, soil, plants, and/or water.**



A portion of the samples collected from the Beltrami Co. deer

Marc Schwabenlander)



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Emergency Funds Justification:

- An outbreak of CWD in wild white-tailed deer herds in northern Minnesota would negatively impact all deer related activities in the region, especially culturally and traditionally important recreational and subsistence hunting. We must act with urgency to prevent CWD from spreading to wild herds.
- Our team successfully recovered the remains of ~10 to 12 deer from the Beltrami Co. carcass dump site. We tested a portion of these samples using the RT-QuIC prion detection assay. One carcass was found to be CWD positive. Additional testing must be performed on the remaining samples.
- The identification of a positive carcass provides evidence of CWD prions at the dump site location. These prions can remain infectious in the environment for years. We must work to determine the extent of CWD-prion contamination at the site, perform a risk assessment, and assist the state with mitigation strategies.

What we propose to do:

- Perform RT-QuIC testing of additional carcass remains secured from the Beltrami Co. site.
- Travel to the dump site and secure additional soil, plant, and water samples for RT-QuIC testing.
- Perform an ecological assessment, including water runoff patterns, receiving water bodies, soil composition, and potential for prion persistence and/or transport.

Deliverables:

- Provide an estimate of the total number of CWD positive carcasses at the site.
- Collect additional soil, plant, and water samples from the site for future RT-QuIC testing.
- Provide a preliminary risk assessment regarding the potential extent of CWD prion contamination at the site.
- Provide recommendations for environmental remediation strategies aimed at preventing the transmission of CWD to resident white-tailed deer herds.

Budget:

Item	Unit cost	Qty	Estimated cost
<i>UMN Personnel</i>			
Faculty and Project staff	\$15,580	5	\$85,924
<i>RT-QuIC Testing</i>			
Dump site carcass remains	\$12.00	100	\$1,200
<i>Supplies and expenses</i>			
Laboratory and field consumables (PPE, tubes, etc.)	\$5,000	1	\$5,000
Soil and water sampling equipment and lab analysis	\$6,000	1	\$6,000
Open Access Publication fees	\$2,500	1	\$2,500
MN Travel*	\$1,521	5	\$7,608
Total			\$108,232

*Includes lodging \$96/night and M&E at \$46/day for teams of 5, \$42/day 2 university vehicles rental, for ~4 trips (3 days each) to Beltrami Co.

College of Veterinary Medicine



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