M.L. 2020 Project Abstract
For the Period Ending June 30, 2022

PROJECT TITLE: Environmental Assessment of CWD Prions at the Beltrami County Deer Carcass Dump Site

PROJECT MANAGER: Peter A. Larsen
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FUNDING SOURCE: Environment and Natural Resources Trust Fund
LEGAL CITATION: M.L. 2018, Chp. 214, Art. 4, Sec. 02, Subd. 10 as extended by M.L. 2020, First Special Session, Chp. 4, Sec. 2

APPROPRIATION AMOUNT: $108,232
AMOUNT SPENT: $107,754.29
AMOUNT REMAINING: $477.71

Sound bite of Project Outcomes and Results
We confirmed CWD-positive deer remains within the dumpsite and that the positive remains came from the neighboring cervid farm. We recommend: 5 years of CWD surveillance in the region, monitoring water runoff, routine CWD-testing of deceased cervid-farm fawns, monitoring wild mammal health in the area due to documented CWD risks.

Overall Project Outcome and Results
In April 2021 we were notified by the DNR that deer carcasses from a CWD positive deer-farm in Beltrami County had been dumped on public land and were asked to help with CWD-testing of the remains. Our initial tests confirmed some remains were CWD positive. CWD-prions remain infectious within the environment for years. Therefore, the goals of our project were to complete testing of deer remains, collect samples of soil, water, and plants for future testing, and perform a CWD-prion risk assessment. We used RT-QuIC testing to identify CWD-prions in biological and ecological samples, and we performed DNA analyses to see if the dump-site carcasses came from the neighboring cervid farm. We collected deer remains, soil, plant, fungi, and water samples from the ~12-acre site. At least 11 deer were deposited, with carcasses subsequently pulled apart by scavengers. Forty-four locations had white-tailed deer remains and 58 carcass samples were suitable for RT-QuIC testing. Of these, 14 were statistically positive for CWD. Fly larvae and soil associated with the positive remains also tested positive for CWD. DNA analyses confirmed positive remains originated from the neighboring cervid farm. Based on our findings we recommend the state: conduct a total of 5 years of CWD surveillance in the region, perform routine testing of deceased fawns in cervid farms, and support research monitoring wildlife health in the region (e.g., recent data show raccoons and voles are susceptible to CWD-prions). Our team will continue monitoring water runoff from the site, as well as soil, plants, and fungi to help monitor CWD-prion contamination in the region. Our recommendations are based on the latest CWD science and will improve CWD monitoring of both wild and captive deer in Minnesota. Our research will ultimately help Minnesotans better understand the environmental risk of CWD prion contamination throughout the state.

Project Results Use and Dissemination
We presented a poster describing the biological sample-collection and assessment at the dumpsite during the 70th Annual International Conference of the Wildlife Disease Association in Madison, WI. A manuscript was published reporting results of our engagement with Tribal Nations in the region (available here) and a second paper reporting our research findings is to be submitted to a peer-reviewed journal in October 2022. Updates of the project have been made to the MN Legislature, three public information meetings, the MN Board of Animal Health work conference, and two University of Minnesota events. Additional updates will be provided to our state and tribal nation partners and at MNPRO outreach events in 2023 as well as on the MNPRO website.

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND	**Environment and Natural Resources Trust Fund (ENRTF)** **M.L. 2020 ENRTF Work Plan (Final Report)**

Today's Date: 18 January 2023

Date of Next Status Update Report: Final Report – Amended

Date of Work Plan Approval:

Project Completion Date: 6/30/2022

PROJECT TITLE: Environmental Assessment of CWD Prions at the Beltrami County Deer Carcass Dump Site

Project Manager: Peter Larsen

Organization: University of Minnesota

College, Department, or Division: College of Veterinary Medicine, Veterinary and Biomedical Sciences

Mailing Address: 1971 Commonwealth Avenue

City, State, Zip Code: St. Paul, MN 55108

Project Manager Direct Telephone Number: office: 612-626-1694; cell: 806-535-8926

Email Address: plarsen@umn.edu

Web Address: https://vetmed.umn.edu/bio/college-of-veterinary-medicine/peter-larsen

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Location: Statewide

Total Project Budget: $108,232

Amount Spent: $107,754

Balance: $478

Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 02, Subd. 10 as extended by M.L. 2020, First Special Session, Chp. 4, Sec. 2 as extended by M.L. 2021 First Special Session, Chp. 6, Art. 5, Sec. 3, Sub 19b.1 [to June 30, 2023]

Appropriation Language: $439,000 the second year is from the trust fund to an emerging issues account authorized in Minnesota Statutes, section 116P.08, subdivision 4, paragraph (d).

PROJECT STATEMENT:

Chronic Wasting Disease is a contagious, 100% fatal neurological disease affecting deer. On 28 April 2021 our team was notified by the MN Department of Natural Resources (DNR) that deer carcasses originating from a CWD-positive deer farm in Beltrami County 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 CWD detection. On 2 May 2021, our team traveled 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 Minnesota Center for Prion Research and Outreach (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 nervous tissues 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 proposes to perform additional RT-QuIC testing of the previously collected dump site carcass 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: 1) to inform the DNR as to the distribution of CWD-causing prions at the site; 2) with devising key mitigation strategies aimed at preventing CWD from spreading to wild white-tailed deer herds within the region; and 3) to understand the ecology of CWD in an environment such as the location of the dump site.

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.** 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.

II. OVERALL PROJECT STATUS UPDATES:

Amendment Request as of 01/18/2023

We are requesting a re-budgeting of funds relating to personnel, travel, equipment, and publication costs associated with the overall project. Specifically: Personnel originally budgeted for $86,687 is now requested to be $83,160; Equipment/Tools/Supplies line 26 originally budgted for $4,237 is now requested $8,881 and line 27 originally budgeted for $1,200 is now $2,219; Travel expenses line 30 originally budgeted for $7,608 is now $4,922; Publication costs on line 34 originally budgeted for $2,500 now revised to $3,050. Overall the final expenditures are $107,754 with an unspent balance of $478 to be returned to LCCMR.

Amendment Approved by LCCMR 2/2/2023

<u>Overall Project Outcome and Results</u>

In April 2021 we were notified by the DNR that deer carcasses from a CWD positive deer-farm in Beltrami County had been dumped on public land and were asked to help with CWD-testing of the remains. Our initial tests confirmed some remains were CWD positive. CWD-prions remain infectious within the environment for years. Therefore, the goals of our project were to complete testing of deer remains, collect samples of soil, water, and plants for future testing, and perform a CWD-prion risk assessment. We used RT-QuIC testing to identify CWD-prions in biological and ecological samples, and we performed DNA analyses to see if the dump-site carcasses came from the neighboring cervid farm. We collected deer remains, soil, plant, fungi, and water samples from the ~12-acre site. At least 11 deer were

deposited, with carcasses subsequently pulled apart by scavengers. Forty-four locations had white-tailed deer remains and 58 carcass samples were suitable for RT-QuIC testing. Of these, 14 were statistically positive for CWD. Fly larvae and soil associated with the positive remains also tested positive for CWD. DNA analyses confirmed positive remains originated from the neighboring cervid farm. Based on our findings we recommend the state: conduct a total of 5 years of CWD surveillance in the region, perform routine testing of deceased fawns in cervid farms, and support research monitoring wildlife health in the region (e.g., recent data show raccoons and voles are susceptible to CWD-prions). Our team will continue monitoring water runoff from the site, as well as soil, plants, and fungi to help monitor CWD-prion contamination in the region. Our recommendations are based on the latest CWD science and will improve CWD monitoring of both wild and captive deer in Minnesota. Our research will ultimately help Minnesotans better understand the environmental risk of CWD prion contamination throughout the state.

III. PROJECT ACTIVITIES AND OUTCOMES:

ACTIVITY 1 Title: Perform RT-QuIC testing of additional carcass remains secured from the Beltrami Co. dump site.

RT-QuIC is a CWD screening test that can detect prions in live animals, dead animals (including carcass remains) and the environment - samples such as plants, soil, and water. Initial RT-QuIC testing of remains collected from the Beltrami Co. farm dump site included 13 samples consisting of bone marrow and nervous tissue. We detected CWD prions in two of those samples. We currently have over 100 individual bone and hide samples yet to be sorted and screened for CWD. Testing of these samples would allow us to estimate the number of CWD-positive carcasses dumped and to characterize their distribution across the site. That information is essential to better understand the extent of prion contamination at this site.

ACTIVITY 1 ENRTF BUDGET:

Outcome	Completion Date
RT-QuIC testing of additional bone and tissue samples collected from the dump site.	*October 2021*
Estimation of number of and spatial distribution of CWD-positive carcasses at the Beltrami Co. dump site.	*December 2021*

Final Report Summary

We processed all available remains from the dump site by sampling biological materials for molecular analysis, identifying and recording anatomical descriptions of remains, and estimating age class. The remains discovered at the dump site were distributed across 45 sites within the 6-hectare exclosure and consisted of over 200 specimens of hair, skin, partial bones, single intact bones, multiple bones, and partial carcasses that included scant soft tissue material. We identified the remains of one horse by the morphology of several molars and a coffin bone (i.e., distal phalanx, third phalanx, P3). All other specimens were determined to be white-tailed deer (WTD) based on hair identification, anatomical and morphological structure of bones, and genetic analysis. We determined the remains at the 45 WTD sites included ten sites with adult remains, three sites with yearling remains, 19 sites with fawn remains, and 13 sites with remains from deer of unknown age. We estimated there were at least 11 WTD carcasses deposited across the dump site based solely on whole or partial maxilla or neurocranium (i.e., skulls); these included three adults, one yearling, six fawns, and one of unknown age. **The significance of these findings is that at least eleven white-tailed deer were disposed of within the dump site and their remains were found scattered throughout the region, indicating that scavengers pulled apart the carcasses, distributing them across at least 45 locations.**

Fifty-eight samples obtained from 40 distinct remains at 32 sites were suitable for RT-QuIC testing to identify presence or absence of CWD-causing prions. Fourteen of the 58 samples produced statistically significant prion seeding activity by RT-QuIC, indicating at least six CWD positive animals were deposited

in the dump site - two adults, one yearling, and three fawns (see Fig.1 for location of positive material within the dump site). **The significance of this finding is that our data indicate multiple (at least six) CWD positive deer were dumped at the site and these remains were distributed by scavengers across multiple locations (see Figure 1).**

Adequate DNA was extracted from five RT-QuIC positive samples from the dump site, as well as samples from the nearby captive cervid herd, and samples of hunter harvested and culled WTD to characterize the wild population in Minnesota. We utilized a panel of 11 microsatellite DNA markers to genetically evaluate the origin of deer found in the dump site. Analysis indicated that the CWD-positive remains at the dump site originated from the nearby CWD-positive deer farm population and not the wild population in Minnesota. **The significance of these findings is that we used DNA analyses to confirm that the CWD-positive deer remains within the dump site came from the CWD-positive deer farm.**

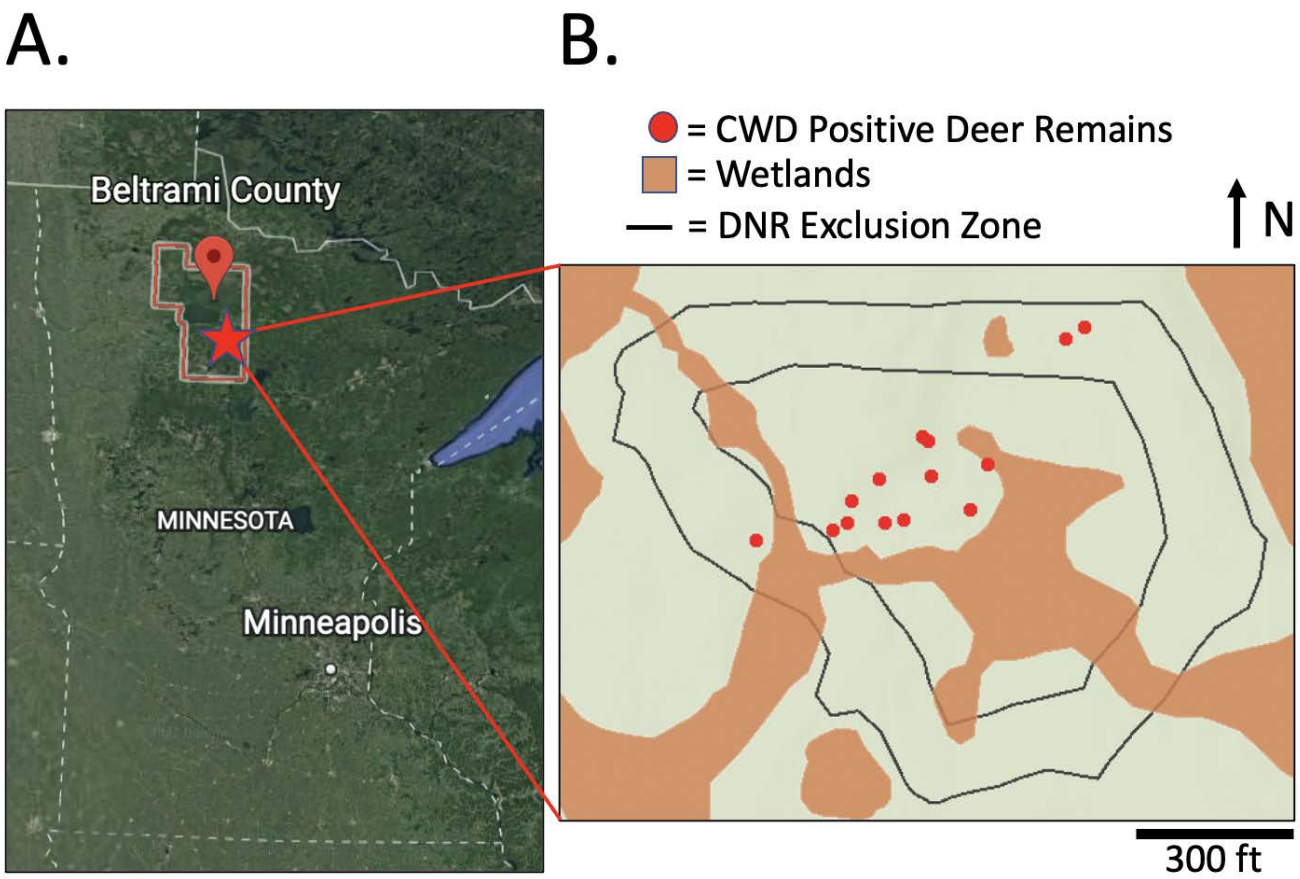

Figure 1. A: Map of Minnesota showing Beltrami County. Red star depicts approximate location of the study site. **B.** Locations of white-tailed deer remains that tested positive for CWD prions (red dots) within the study site. Black lines show DNR established exclusion zone, with areas between the black lines having been logged and an exclusion fence erected in 2021. Wetlands (shaded in brown) that intersect the carcass dump site represent potential accumulation points for CWD prions due to water runoff from the CWD positive locations.

ACTIVITY 2 Title: Perform an ecological assessment, including water runoff patterns, soil composition, and potential for prion persistence or transport.

CWD prions can remain infectious in the environment for years, and in some situations can be transported in water. Given that at least one CWD-positive was determined to have been dumped there, the Beltrami

Co. dump site represents a clear risk as a possible source for CWD transmission into wild deer in the area. To understand better the extent of that risk further environmental surveillance for prions in and around that site is needed. To begin that endeavor, we propose the collection of additional water and soil samples at key times of seasonal change over the next year to allow for future testing as additional funds become available. We are also proposing to perform an initial ecological assessment, including characterization of water runoff patterns and soil composition, paired with data from Activity 1, to better characterize risk and inform future monitoring and remediation efforts.

ACTIVITY 2 ENRTF BUDGET:

Outcome	Completion Date
Collect additional soil, plant, and water samples seasonally from the site for chemical analysis and future RT-QuIC testing. Collection trips will be performed summer and fall 2021 and early spring 2022.	*May 2022*
Provide a preliminary risk assessment regarding the potential extent of CWD prion contamination at the site, including recommendations for future monitoring and remediation.	*July 2022*

Final Report Summary

We made three visits to the dump site during the funding period - July 2021, September 2021, and May 2022. During the July and September visits, we collected additional biological samples identified at the dump site; plotted/marked sites where RT-QuIC positive biological specimens were collected during the May 2021 visit (Fig. 2); and collected soil, duff (leaf litter), fungi, insects, and plant samples at each site. Additionally, areas of similar soil types to those within the exclosure were identified on nearby public lands and control soil samples were collected. The May 2022 visit focused on collecting water samples in and around the dump site.

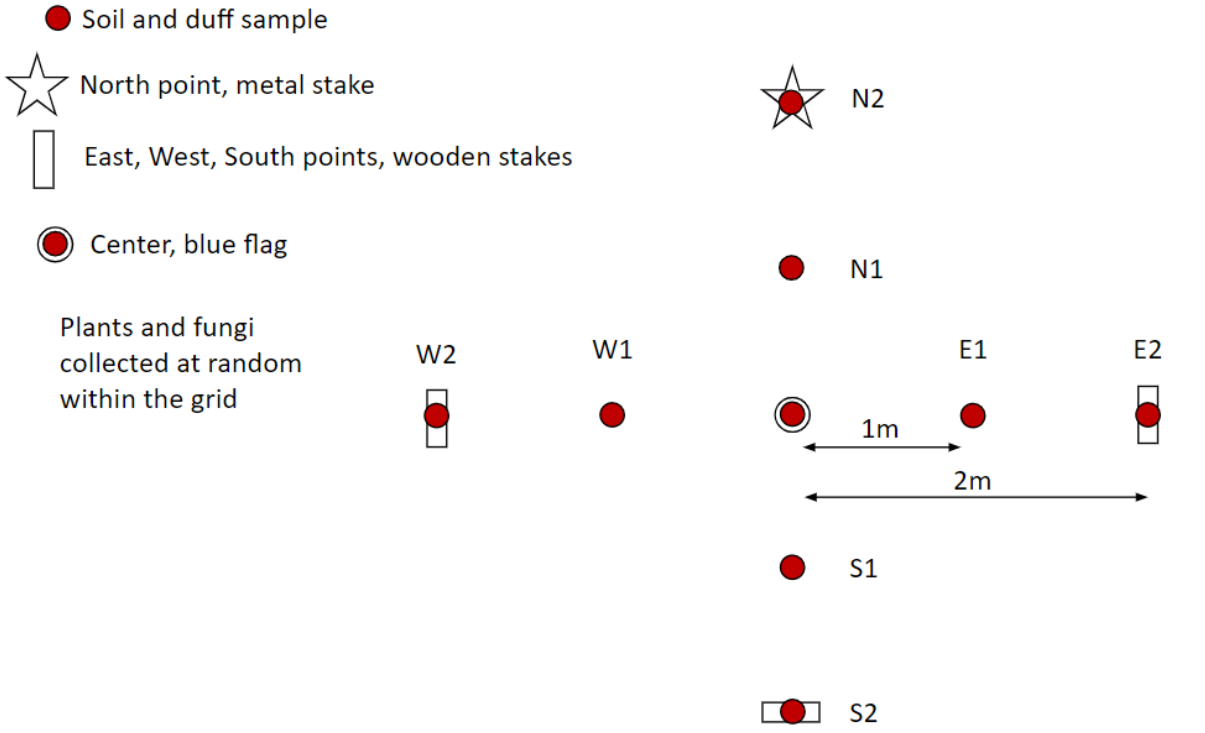

Figure 2. Plot marking sampling strategy for all sites associated with RT-QuIC positive materials within the Beltrami County exclosure. The Center location indicates an area where a CWD positive carcass remain was identified (i.e., the 14 CWD positive sites identified in Figure 1). Red dots represent a standardized location sampling grid wherein soil cores and leaf (duff) samples were collected at each of the 14 sites. A metal post was erected at true north, 2 meters from the Center location and wooden stakes were placed 2 meters West, East, and South of Center for all 14 CWD positive locations. Plants and fungi were collected throughout each of the 14 sampling grids. These sampling grids represent locations where seasonal samples can now be collected to monitor for the presence of CWD prions in the environment.

Risk assessment

Personal protective equipment (PPE; e.g., nitrile gloves, disposable boots, Tyvek suits, respirators) were worn by researchers while in the exclosure. Swabs and samples of the PPE were collected to understand potential prion adherence and movement within and outside of the dump site due to human access and foot traffic disturbance. These samples are awaiting RT-QuIC testing. To our knowledge, no similar RT-QuIC testing of environmentally exposed PPE has been conducted. For this reason, we must develop new RT-QuIC protocols that are appropriate for testing heterogeneous samples composed of dust, soil, plant material, etc. We anticipate these new protocols to be completed late December 2022 and will share with the LCCMR results of PPE testing once completed. **We placed stainless steel surface sentinels throughout the site during the July 2021 visit to investigate the potential for environmental CWD detection via surface swabbing. Sentinels were collected, swabbed, and tested by RT-QuIC in August 2022. All sentinels were RT-QuIC negative providing evidence that the prions are not likely to be naturally airborne within the dump site.**

Drs. Qi Yuan (left) and Tiffany Wolf (right) collecting swab samples from personal protective equipment (PPE).

The May 2022 visit focused on collecting water samples and observing water movement within and around the dump site exclosure during spring thaw and rains. Hydrology experts on the team utilized virtual tools and information to predict water movement prior to the on-site visit. These predictions were confirmed and were observed to include three points where water moved out of the exclosure (pourpoints) and into surrounding forest. These three areas represent areas of potential risk of exposure to surrounding deer / wildlife populations. We collected water samples at the pourpoints, and initial chemical analysis of the water samples has begun. This analysis will inform us as to whether or not there are specific compounds that might serve as inhibitors to RT-QuIC testing of water. We are currently developing water filtration methods to filter/concentrate particulates for RT-QuIC testing.

The significance of the work performed in Activity 2 is that we have successfully collected and preserved many soil, water, plant, and mushroom samples associated with the CWD positive remains in the dump site. These samples will allow us to determine the extent of ecological CWD-prion contamination within the site and can be used to quantify risk to wildlife in the region. Standardized sampling grids (see Figure 2) for each of the 14 CWD positive sites (shown in Figure 1 B) allow for multi-year ecological monitoring of CWD prion contamination within the exclusion zone.

<u>Regarding the overall risk of CWD prions associated with the carcass dumpsite, our assessment is as follows:</u>

- Based on the condition of the deer carcasses, it is likely surrounding deer and other wildlife had potential exposure events to CWD prions for months prior to the construction of the exclusion fence. The distribution of deer remains throughout the site indicates that scavengers pulled the carcasses apart. Prior to the fence construction, deer were observed bedding within the immediate vicinity by our team. Thus, it is possible sporadic ecological exposure events, or direct contact with CWD positive remains, occurred within the resident deer herd. **Given these observations, combined with known slow rates of prion accumulation within exposed white-tailed deer and providing time for deer-to-deer transmission, we recommend an additional two-years of targeted CWD surveillance of white-tailed deer in regions surrounding the exclosure.** This recommendation would be in addition to the current three-year surveillance plan conducted by the DNR, bringing MNPRO's recommended surveillance duration to 5 years in total.

- Our hydrological assessment of the dumpsite revealed three primary areas of water runoff from the site. These water-exit points represent locations where CWD prions associated with soil, vegetation, organic matter, etc. might flow out of the exclusion zone. **Risk to the surrounding deer and other wildlife populations due to water runoff from the site is unknown and we are developing new water-based RT-QuIC methods to test the runoff. We note that, given the geographic area and volume of water runoff, the overall risk to surrounding wildlife is likely extremely low.** We will update LCCMR and the State if our continued research suggests otherwise.

- **Our DNA analyses of carcass remains clearly show that they originated from the nearby CWD-positive captive white-tailed deer herd that was depopulated.** These analyses are supported by comparing DNA from the RT-QuIC positive remains at the dumpsite to DNA isolated from the depopulated herd as well as wild deer from the region and throughout the state. **Our results support the initial findings made by BAH, DNR, and USDA staff, regarding the disposal of carcasses from the nearby CWD positive farmed white-tailed deer herd.** We assume the state has since established additional mechanisms for ensuring safe disposal and CWD testing of carcasses emitting from cervid farms. Additionally, we assume the state has conducted interviews of both active cervid farming operations as well as historically CWD positive cervid farming operations within the state to identify the potential for similar events that occurred in Beltrami Co. If not, we recommend the state do so.

- Both IHC data (conducted independently by the USDA) and our RT-QuIC data reveal that fawns (<12 mo. of age) associated with the Beltrami Co. deer farm were positive for CWD. This observation, combined with recent data from Colorado State University showing CWD can be transmitted

mother to offspring, in utero, provides justification for the screening of fawns for CWD. **In light of the available data, it is possible screening fawns will serve as an early detection method for identifying CWD within a given herd. We recommend the state begin routine testing of deceased fawns from cervid farming operations.**

- Our initial RT-QuIC testing of soil beneath CWD positive remains provided evidence that CWD prions had entered the soil. We continue to refine our soil RT-QuIC protocols to confirm these preliminary results. We also tested fly larvae collected from CWD positive remains and confirmed CWD prions were associated with the fly larvae. **Collectively, based on our data as well as those from similar studies, we believe it is likely CWD prions are circulating within the micro-environments surrounding the CWD positive remains, as well as areas where CWD positive soft-tissues decomposed or were ultimately consumed by scavengers.** The broader extent of CWD prion contamination within and outside of the exclosure is currently unknown, however, samples collected throughout the duration of the project and into the future will ultimately help us answer this question.

- **Recent data from the USDA and as well as a Canadian research team reveal that raccoons and rodents, including voles and beavers, are potentially susceptible to CWD prions.** Raccoons and several species of voles likely inhabit the exclusion zone and likely scavenged CWD positive remains. Moreover, it is likely that rodents known to be susceptible to CWD are coming into contact with CWD-prions at the site, daily. **We cannot determine risk to these species based on our available data and we recommend future studies focused on identifying and testing raccoons and rodents for CWD prions within the exclusion zone.** Risk of CWD-prion exposure to any beavers downstream of the exclusion zone is likely very low due to the large geographic area and sheer volume of water runoff from the site (i.e., if present within water runoff from the site, CWD-prions will be very diluted). We will continue to monitor water runoff from the site for CWD-prions.

IV. DISSEMINATION:

Description:

The environmental dimension of CWD transmission is a critical area for CWD research. This unique project, combining forensics and environmental assessments, is a first of its kind. The methods and approach taken will be of broad interest to other management agencies tasked with characterizing the potential risks associated with CWD-positive carcasses left on the landscape, and the findings critical to the work of our own state and tribal agencies in protecting our wild deer herds and the surrounding ecosystem. Findings will be shared directly with state and tribal agencies (MN DNR, MN Board of Animal Health, MN Pollution Control Agency, Leech Lake Band of Ojibwe, Red Lake Band of Chippewa, White Earth Nation) through project reports. We will also use the following opportunities to share methods and findings more broadly:

- dissemination via the MNPRO website: https://mnpro.umn.edu/
- presentation at local, regional, and national scientific, management, and public/stakeholder meetings
- publication of findings in peer-reviewed scientific (e.g. Science of the Total Environment) and professional journals (e.g. The Wildlife Professional)
- dissemination to the media via press releases and UMN Research Briefs
- testimonials to LCCMR and other policy platforms

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines.

Final Report Summary

- Several Tribal Nations would be directly impacted by an outbreak of CWD in the Beltrami Co. area. To better understand how CWD might impact indigenous tribes in Minnesota, including the logistics of tribal outreach, surveillance, and management efforts, we conducted a series of interviews with tribal natural resource managers. The results of these interviews are now published within a peer-reviewed manuscript entitled "Upper Midwest tribal natural resource managers' perspective on chronic wasting disease outreach, surveillance, and management" in the journal of Conservation Science and Practice (available here). We acknowledge the support of the LCCMR in this manuscript.
- A poster describing the biological sample collection and assessment at the dump site was presented at the 70th Annual International Conference of the Wildlife Disease Association, Madison, WI. 23–29 July 2022.
- A manuscript compiling the findings of the biological sample collection and assessment is set to be submitted to a peer-reviewed journal in October 2022.
- A copy of the risk assessment presented herein will be shared with the MN DNR, MN Board of Animal Health, MN Pollution Control Agency, Leech Lake Band of Ojibwe, Red Lake Band of Chippewa, and White Earth Nation in October 2022.
- Updates of the project have been provided at the following events:
    - Minnesota House Environment and Natural Resources Finance and Policy Committee (9/14/2021, 3/15/2022)
    - CWD public information meeting - Bemidji, MN (9/28/2021)
    - CWD public information meeting - Kelliher, MN (9/29/2021)
    - Winona County commissioners' meeting (9/28/2021)
    - University of Minnesota SFEC Forestry Webinar Series (10/19/2021)
    - Minnesota Board of Animal Health work conference (11/16/2021)
    - University of Minnesota College of Veterinary Medicine current issues class (3/17/2022)

Marc Schwabenlander presenting at a CWD public outreach event in Bemidji in Sept of 2021.

V. ADDITIONAL BUDGET INFORMATION:

A. Personnel and Capital Expenditures

Explanation of Capital Expenditures Greater Than $5,000:

Explanation of Use of Classified Staff: NA

Total Number of Full-time Equivalents (FTE) Directly Funded with this ENRTF Appropriation:

Enter Total Estimated Personnel Hours for entire duration of project: ~1,415	Divide total personnel hours by 2,080 hours in 1 yr = TOTAL FTE: 0.68

Total Number of Full-time Equivalents (FTE) Estimated to Be Funded through Contracts with this ENRTF Appropriation:

Enter Total Estimated Contract Personnel Hours for entire duration of project: NA	Divide total contract hours by 2,080 hours in 1 yr = TOTAL FTE: NA

VI. PROJECT PARTNERS:

Name	Title	Affiliation	Role

Jason Bartz	Professor	Creighton University	Collaborator

A. Partners outside of project manager's organization receiving ENRTF funding
NA
B. Partners outside of project manager's organization NOT receiving ENRTF funding
Jason Bartz, Creighton University

VII. LONG-TERM- IMPLEMENTATION AND FUNDING:

VIII. REPORTING REQUIREMENTS:

- Project status update reports will be submitted January 1 and November 1 each year of the project
- A final report and associated products will be submitted between June 30 and August 15, 2022.

IX. SEE ADDITIONAL WORK PLAN COMPONENTS:

A. Budget Spreadsheet

Attachment A: Project Budget Spreadsheet
Environment and Natural Resources Trust Fund
M.L. 2020 Budget Spreadsheet-Final-amended
Legal Citation: M.L. 2018, Chp. 214, Art. 4, Sec. 02, Subd. 10-b as extended by M.L. 2021 First Special Session, Chp. 6, Art. 5, Sec. 3, Sub 19b.1
Project Manager: Peter Larsen
Project Title: Environmental Assessment of CWD Prions at the Beltrami County Deer Carcass Dump Site
Organization: University of Minnesota
Project Budget: $108,232
Project Length and Completion Date: 6/30/2022
Today's Date: 1/18/2023

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Revised Budget as of 2/2/23	Amount Spent	Balance
BUDGET ITEM				
Personnel (Wages and Benefits)		$ 83,160	$ 83,160	$ -
Peter Larsen, PI; 10% FTE for 1 yr ($13,972 salary + 35.6% fringe)	$ 18,947			
Diana Karwan, Co-PI; 10% FTE for 1 yr ($13,317 salary + 35.6% fringe)	$ 18,058			
Roxanne Larsen, Co-PI; 5% FTE for 1 yr ($5,900 salary + 35.6% fringe)	$ 15,710			
Tiffany Wolf, Co-PI; 10% FTE for 1 yr ($11,586 salary + 35.6% fringe)	$ 8,000			
Marc Schwabenlander, Co-I; 10% FTE for 1 yr ($9,500 salary + 35.6% fringe)	$ 12,882			
Gage Rowden, Lab tech; 20% FTE for 1 yr ($10,000 salary + 30.9% fringe)	$ 13,090			
Professional/Technical/Service Contracts				
				$ -
Equipment/Tools/Supplies				
Soil and water sampling equipment and lab analysis		$ 6,000	$ 6,000	$ -
Materials, Supplies for lab operations supporting RT-QuIC testing		$ 8,881	$ 8,881	$ -
RT-QuIC testing of approximately 100 samples (inital testing, re-tests and confirmatory testing)		$ 2,219	$ 2,219	$ -
Travel expenses in Minnesota				
Travel for environmental sample collection and evalutaion*		$ 4,922	$ 4,444	$ 478
*Lodging $96/night, M&E at $46/day for teams of 5, $42/day 2 vehicles rental, for ~4, 3-day trips				$ -
				$ -
Other				$ -
Publication costs		$ 3,050	$ 3,050	$ -
COLUMN TOTAL		$ 108,232	$ 107,754	$ 478

SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT	Status (secured or pending)		Spent	Balance
State:				
Non-State:				
In kind:				
In kind:				

Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS	Amount legally obligated but not yet spent		Spent	Balance
emerging concern in subsistence species used by Minnesota Chippewa, Project manager:		$ 400,000	$ 388,424	$ 11,576
benefits and limitations of using goats for invasive plant control, Project manager: Tiffany	$ 242,882	$ 445,533	$ 202,651	$ 242,882
Project Title: Development of advanced diagnostic tests for Chronic Wasting Disease, Project	$ 606,576	$ 1,804,000	$ 1,156,180	$ 647,820
2020, First Special Session, Chp. 4, Sec. 2, Project Title: Chronic Wasting Disease targeted		$ 270,469	$ 41,214	$ 229,255
Current appropriation: M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd.		$400,000	$191,826	$ 208,174