Environment and Natural Resources Trust Fund

M.L. 2026 Draft Work Plan

General Information

ID Number: 2026-332

Staff Lead: Mike Campana

Date this document submitted to LCCMR: November 20, 2025

Project Title: Survival and Movement of Deer in Minnesota's Prairies

Project Budget: $1,000,000

Project Manager Information

Name: Tyler Obermoller

Organization: MN DNR - Fish and Wildlife Division

Office Telephone: (507) 578-8919

Email: tyler.obermoller@state.mn.us

Web Address: https://www.dnr.state.mn.us/fishwildlife/index.html

Project Reporting

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: June 30, 2031

Final Report Due Date: August 14, 2031

Legal Information

Legal Citation:

Appropriation Language:

Appropriation End Date: June 30, 2031

Narrative

Project Summary: Monitoring GPS-collared deer and examining survival, causes of mortality, predator impacts, seasonal movements, and habitat selection to determine deer herd health and inform both annual harvest regulations and CWD management.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

White-tailed deer are an important game species in Minnesota, providing recreational and economic opportunities. Statewide monitoring and management are critical to maintaining herd health. However, vital rate and cause-specific mortality studies in Minnesota's northern farmland and transition (mix of forest and farmland) zones are outdated, with no previous collaring studies conducted in this region. Life history studies can also help us determine factors influencing survival and enhance our understanding of population dynamics of Minnesota's deer. Since Minnesota manages deer using a harvest-based population model, up-to-date vital rate estimates are essential for setting accurate harvest regulations. Life history studies can also help assess population growth potential and identify limiting factors such as disease and predation.

Additionally, chronic wasting disease (CWD) has recently expanded into new sections of Minnesota's western border. Little is known about the source of this expansion or how deer move throughout the region, making research-based management decisions difficult.

Public concern over predator impacts, particularly from canids (e.g., coyotes, wolves) has also increased. Understanding specific causes of mortality and predator dynamics is of great interest to Minnesota's residents.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

We propose a multi-study area with white-tailed deer of multiple age classes to update vital rate estimates in the farmland and transition zones. We propose GPS-collaring adults, juveniles, and newborn fawns to obtain critical life history information for deer population modeling. This project will determine survival and causes of mortality for all age groups (adults, juveniles, fawns), identify factors influencing survival and the impact of predators, and examine seasonal habitat use and movements for deer in Minnesota's prairies.

Additionally, we will determine seasonal movements (i.e., dispersal, migrations) and identify wintering areas, informing areas for future CWD management. Determining seasonal movements and habitat selection by zone will improve our understanding of deer ecology and habitat requirements. We will also assess specific causes of mortality (e.g., predation, disease, vehicle-collision, hunting) and evaluate predator impacts on population dynamics.

Specifically, we will capture adult and juvenile male and female deer using a helicopter capture crew. Pregnant adult females will receive a vaginal implant transmitter to track birthing events and aid in GPS-collaring newborn fawns. Newborn fawns are especially vulnerable to predation, therefore we will closely monitor newborn fawns for mortality events to provide insight on predator impacts in this region.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

We will determine survival rates, pregnancy rates, movement (e.g., dispersal, migration), and habitat use of juvenile and adult white-tailed deer. Results will improve the DNR's harvest-based population model and determine proper harvest regulations to meet population goals. We will also determine deer travel corridors and identify key wintering areas to inform DNR CWD management. We will determine causes of mortality and assess the impacts predators have on our deer populations in the understudied farmland and transition zones. This project will improve DNR deer management essential for the health and preservation of white-tailed deer in Minnesota.

Project Location

What is the best scale for describing where your work will take place?

Region(s): NW, Central,

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Estimate movement, habitat use, survival and causes of mortality of white-tailed deer in northwestern Minnesota

Activity Budget: $1,000,000

Activity Description:
We will contract with a helicopter capture company to locate and GPS collar 115 adult and juvenile (8 months of age) white-tailed deer each January–February for two years. We will collect biological samples and morphological measurements at capture to assess overall health and body size. We will also use vaginal implant transmitters on pregnant adult females to determine birth events and subsequently locate and GPS collar 60 newborns fawns each May–June for two years and monitor for survival. The GPS collars will be equipped with mortality sensors and send a notification for investigators and determination of specific causes of mortality (e.g., health-related, predator, exposure/starvation). We will use the GPS collar location information to estimate seasonal movement and habitat use to inform chronic wasting disease (CWD) management efforts.

Activity Milestones:

Description	Approximate Completion Date
Capture and collar adult and juvenile (8 months of age) white-tailed deer (January-February 2027, 2028)	February 28, 2028
Capture and collar newborn deer fawns (May-June 2027, 2028)	June 30, 2028
Monitor all deer for survival and investigate mortalities and determine cause of death	June 30, 2030
Perform survival and cause-specific mortality analyses to assess predator impacts and update the population model	June 30, 2030
Conduct habitat/movement analyses to identify key travel corridors and wintering areas for CWD management	December 31, 2030
Complete survival and movement analysis, submit manuscripts for peer-reviewed publication	June 30, 2031

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Dr. Michelle Carstensen	MNDNR - Fish and Wildlife Division	Advise on project design, provide consultation on CWD management	No
Erik Hildebrand	MNDNR - Fish and Wildlife Division	Provide consultation on CWD management	No
Dr. Mary Wood	MNDNR - Fish and Wildlife Division	MNDNR Veterinarian, assist with capture logistics, animal welfare, capture drugs	No
Dr. John Erb	MNDNR - Fish and Wildlife Division	Project consultation, DNR canid biologist, assist with canid capture and monitoring logistics.	No
Dr. Amanda McGraw	MNDNR - Fish and Wildlife Division	Project consultation, MNDNR ungulate research scientist - Forest Region, help with capture and monitoring logistics	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.
The target audience for results from this research will be professionals in the fields of wildlife ecology and wildlife management. We will publish the results of this research internally with the MNDNR via progress reports and research summaries. We will also publish these results in peer-reviewed journals such as the Journal of Wildlife Management, Movement Ecology, and the Journal of Applied Ecology. We will present the results from this research at state conferences such as the Minnesota Wildlife Society Conference, regional conferences such as the Midwest Fish and Wildlife Conference and the Midwest Deer and Wild Turkey Study Group, and national conferences such as the National Wildlife Society Conference. We will also engage with the media via radio and television interviews. The information gained from this research will improve our understanding of deer ecology in Minnesota. We will acknowledge the Minnesota environment and natural resources trust fund (ENTRF) in all project publications, public communications, and outreach related work through the use of a logo or attribution language.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?
Survival results will be directly implemented into the MNDNR deer population model to inform the annual deer season harvest setting. We will analyze survival and cause-specific mortality results to determine overall population dynamics and increase our understanding on predator impacts. This work will also help determine the best areas for future CWD management and monitoring efforts for MNDNR's Wildlife Health Program. Multiple manuscripts will be published on deer survival and causes of mortality, movement and habitat use, and predator-prey relationships. This project will improve DNR deer management essential for the health and preservation of white-tailed deer in Minnesota.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
TBD	Service Contract	A helicopter capture company will capture and collar 115 deer per year for 2 years, at $1000/deer				0		$230,000
USDA National Genomics Center	Service Contract	We will take saliva swabs from predator bite wounds to DNA test for specific predators ($30/swab @30 swabs/3 years)		X		0		$2,700
							Sub Total	**$232,700**
Equipment, Tools, and Supplies								
	Equipment	Adult White-tailed deer GPS collars for 110 deer over 2 years $2607/each (includes data transmission charges)	Monitoring movements of deer for survival, fawning, and investigating cause of death					$286,850
	Equipment	GPS collars for 120 newborn fawns over 2 years at $745/each (includes data transmission charges), for 2 years	Monitoring movements of deer fawns for survival and investigating cause of death					$89,400
	Equipment	Vaginal implant transmitters identify fawn birthing events, 80 total over 2 years at $260 each	temperature and movement sensor to identify fawn birthing events					$20,800
	Equipment	Capture supplies (e.g., drugs, capture tools, shipping, mortality supplies, sleds, land access supplies (letters, stamps), etc.)	Chemically immobilize deer and canids during captures, supplies to conduct captures, mortality investigations and collect biological samples, canid diet composition.					$42,600
	Equipment	Juvenile GPS collars (105 total deer over 2 years; 2 years $2197/each (includes data transmission charges)	GPS collars for monitoring survival, movement, and causes of mortality					$230,650
							Sub Total	**$670,300**
Capital Expenditures								

							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Fleet costs for project team (25,000, $0.94/mile, 2 years; 10,000, $0.94/mile, 1 year)	Travel to conduct deer capture operations, respond to mortalities and collect biological samples or transport carcasses to the laboratory					$56,400
	Miles/ Meals/ Lodging	Lodging (hotels) and meals for project team during field capture deployments	Project team will be deployed during deer and canid capture operations and mortality responses that will require overnight lodging and meal reimbursements					$20,000
							Sub Total	**$76,400**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
	Publication	Publishing charges for peer reviewed articles 3 total at a cost of $2,000 per article	Publishing scientific results of the project.					$6,000
							Sub Total	**$6,000**
Other Expenses								
		Direct and Necessary Costs (only applies to DNR portion of the funding)	HR Support ($2,048), Safety Support ($325), Financial Support ($11,263), Communication Support ($1,902), and Planning Support ($1,371), Extra rounding ($64)					$14,600
							Sub Total	**$14,600**
							Grand Total	**$1,000,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - USDA National Genomics Center	Service Contract	We will take saliva swabs from predator bite wounds to DNA test for specific predators ($30/swab @30 swabs/3 years)	The work is to swab predator bite wounds from white-tailed deer during mortality events. I have done this exact type of work on 2 previous studies, and have done an extensive in-state search (as is required by Minnesota Department of Natural Resources contracting) and there are no alternative labs that can complete this work. The work is specialized, and this lab has the expertise to identify DNA from the saliva, and identify the correct predator.

Non ENRTF Funds

Category	Specific Source	Use	Status	$ Amount
State				
In-Kind	Game and Fish Fund	MNDNR Farmland Research Group: Dr. Tyler Obermoller, project management, fieldwork, data analysis, writing, outreach; 36 mos, 50% effort	Secured	$118,500
In-Kind	Game and Fish Fund	MNDNR Farmland Research Group: Rachael Wiedmeier, project management, fieldwork, data analysis; 36 mos, 50% effort	Secured	$90,000
In-Kind	Game and Fish Fund	MNDNR Wildlife Health Program: Dr. Michelle Carstensen, project consultation, health screening and necropsy support, analyses; 36 mos, 5% effort	Secured	$17,100
In-Kind	Game and Fish Fund	MNDNR Wildlife Health Program, Dr. Mary Wood, Veterinarian, project consultation	Secured	$15,000
			State Sub Total	**$240,600**
Non-State				
			Non State Sub Total	**-**
			Funds Total	**$240,600**

Total Project Cost: $1,240,600

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: 43ada9ff-574.pdf

Alternate Text for Visual Component

The visual graphic highlights the key objectives the study will achieve and include: inform chronic wasting disease monitoring and management, determine survival for all age classes to inform DNR population modeling, identify causes of mortality and potential predator impacts, and estimate pregnancy rates and fawn survival....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
Letter of Support Sisseton-Wahpeton Oyate Lake Traverse Reservation (1)	3fefab76-5a2.pdf
Letter of Support Sisseton-Wahpeton Oyate Lake Traverse Reservation (2)	a3242da1-2c2.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

We removed all salary for personnel (3-year NR specialist, technicians), the master's student, and statistical consultation to help reduce the budget. The Minnesota Department of Natural Resources will conduct all necessary work with existing employees. We also removed the spotter plane, food and lodging, and removed the seasonal housing. Furthermore, we also reduced the scope of our project by removing GPS-collaring predators. We will attempt to seek internal funding for additional personnel and to answer questions on chronic wasting disease. Therefore, this project will focus on survival and movement of deer in Minnesota's agricultural prairies, while also determining causes of mortality and better understanding the risk of predators on different age classes of white-tailed deer.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the Commissioner's Plan applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing $10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this project:

Tyler R. Obermoller

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand