Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-360

Proposal Title: Health Assessment, Tracking, and Conservation of Wild Turkeys

Project Manager Information

Name: Elizabeth Baker

Organization: MN DNR - Fish and Wildlife Division

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Project Basic Information

Project Summary: Through a statewide community science and telemetry research project, MNDNR biologists will estimate disease prevalence and evaluate effects on wild turkey behavior, survival, and fecundity to inform management.

ENRTF Funds Requested: $2,111,000

Proposed Project Completion: June 30, 2031

LCCMR Funding Category: Fish and Wildlife (D)

Project Location

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

Statewide

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

Narrative

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

Minnesota's wild turkey population has expanded into new areas since trap-and-transplant efforts ended nearly two decades ago. However, public feedback is mixed, with reports of increasing numbers in some areas and perceived declines in others. At the same time, several states are experiencing turkey population declines and investigating disease as a potential driver. To manage for a healthy, sustainable statewide population, MNDNR needs current, science-based information to guide decision-making.

Disease monitoring is an important, but currently limited, component of wild turkey management in Minnesota. Results from our 2025 pilot health assessment, limited in scope to one area within central Minnesota, found undocumented pathogens and underscored the need for broader evaluation of disease impacts on survival and reproduction within the statewide turkey population. Without updated data, managers cannot determine whether disease is contributing to regional population differences or posing risks to long-term sustainability.

Expanding statewide disease surveillance and linking health data to behavior, survival, and fecundity will fill this critical knowledge gap. Developed in collaboration with multiple domestic and wild turkey stakeholders, this One Health approach supports proactive wildlife management, interagency coordination, and protection of both wild turkeys and the domestic poultry industry.

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.

Our integrative, multi-phase project will assess the health of wild turkeys throughout Minnesota and improve our understanding of the role diseases may play in the distribution, survival, and fecundity of the population. We will determine the prevalence of important wild turkey diseases statewide through community science in the first year of the study. These results will then inform study sites where we will assess wild turkey behavior, survival and fecundity in areas of low and high disease prevalence through monitoring reproductive success of females and brood survival during years 2-4. Our specific goals include:

1. Conduct a statewide turkey health assessment

2. Assess the population contributions of females with differing health status in areas of high and low prevalence of LPDV/REV by monitoring nesting and brood rearing parameters.

3. Develop a non-invasive methodology to monitor indicators of turkey health from feather and fecal samples

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?

Disease monitoring is an important but currently limited component of wild turkey management in Minnesota. Findings from our 2025 pilot health assessment underscored the need for expanded statewide disease surveillance alongside research evaluating potential disease impacts on wild turkey survival and reproduction. The pilot pathogen testing panel was developed with input from the Minnesota Board of Animal Health, reflecting a One Health approach that recognizes the interconnected health of wild turkeys, domestic poultry, and shared environments. Expanded statewide disease surveillance and population monitoring will support interagency collaboration, proactive wildlife health management, and the long-term sustainability of Minnesota's wild turkey population.

Activities and Milestones

Activity 1: Determine the estimated prevalence of important wild turkey diseases statewide through community science

Activity Budget: $553,000

Activity Description:
We will partner with licensed hunters and use community science to obtain samples from harvested turkeys submitted via mail-in kits, providing robust prevalence data to inform population-level understanding and further monitoring efforts. Hunter mail-in kits will be built based on the pilot kits and will include everything a turkey hunter needs to collect a sample and return to us. Hunters will be recruited statewide via direct mailings and outreach including news releases, radio interviews, and an announcement on the MNDNR turkey hunting webpage. The National Wild Turkey Federation (NWTF) has agreed to partner with us for this project and will assist with hunter recruitment and outreach activities. Samples will include a tarsus bone for bone marrow extraction and the turkey's head for oropharyngeal swabbing. Bone marrow will be tested for LPDV and REV, and the swab will be tested for avian influenza, avian metapneumovirus, and 3 species of Mycoplasma. Results will be disseminated to participating hunters along with a summary of project activities to date.

Activity Milestones:

Description	Approximate Completion Date
Develop recruitment plan for fall 2027 and spring 2028 hunting seasons and initiate partner outreach	September 30, 2027
Build hunter mail-in kits and finalize distribution mechanisms	September 30, 2027
Distribute kits to fall 2027 hunters, receive completed kits and send samples to participating laboratories	November 30, 2027
Interpret results and disseminate findings of fall harvest to participating hunters and partners	March 31, 2028
Distribute kits to spring 2028 hunters, receive completed kits and send samples to participating laboratories	July 31, 2028
Interpret results and disseminate findings of spring harvest to participating hunters and partners	December 31, 2028
Complete data analysis and begin manuscript preparation	March 31, 2029

Activity 2: Assess health, stress, behavior, and fecundity within variable disease prevalence or turkey abundance areas at 4 sites for 2 years

Activity Budget: $1,558,000

Activity Description:
We will use the statewide disease prevalence data to select four study areas (two high prevalence areas each paired with two low prevalence areas) to assess nesting and brood-rearing behavior and success. If disease prevalence does not vary, we will instead select two high- and two low-density populations instead. Turkeys will be captured in March and we will collect biological samples to assess their body condition and energy state, health, and stress hormone levels. We will outfit 30 females per site (120 birds total per year) with a backpack-style GPS transmitter which will allow us to follow them during the breeding season. This transmitter collects data on location, temperature, and movement that will allow us to monitor time on and off the nest, nesting home range size, and nest success. After nest hatch, we will continue to follow the female to determine her success in raising poults. The nesting and brood rearing data link individual health, body condition, and disease status with turkey reproduction and population demographics. We will also evaluate the feasibility of using stress and energy-related hormones in feathers and feces as a non-invasive method to assess turkey health.

Activity Milestones:

Description	Approximate Completion Date
Identify areas of variable LPDV prevalence and high or low population to inform study area	January 31, 2029
Capture birds, collect health condition and stress data, and outfit with transmitters	April 30, 2030
Monitor transmitter birds for nesting behavior, demographics, and success	July 31, 2030
Monitor transmitter birds for brood-rearing behavior and success	September 30, 2030
Conduct laboratory analysis of samples collected during health assessments	January 31, 2031
Interpret results from first and second breeding seasons and begin drafting manuscripts	January 31, 2031

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Clayton Lenk	National Wild Turkey Federation	Assist with outreach and hunter recruitment, incentivize sample collection, assist with sample collection through NWTF hunts, assist with trapping efforts and other project activities	Yes
Dr. Mandy Keogh	Bemidji State University	Collect and analyze stress hormone and metabolism samples, oversee graduate student	Yes
Stacy Pollock	Minnesota Poultry Testing Laboratory - UMN	Advise on sample collection, submission, and testing for turkey diseases	Yes
Dr. Diego Diel	Animal Health Diagnostic Center - Cornell University	Advise on sample collection, submission, and testing for turkey diseases	Yes

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.
Data generated through this project will be shared with partners and stakeholders to inform wildlife management and disease monitoring in Minnesota. Findings related to wild turkey disease status, fecundity, and survival will be communicated to MN DNR wildlife managers to support population monitoring and management decisions. Results will also be shared with partner agencies and organizations including the Minnesota Board of Animal Health and the Minnesota Turkey Grower's Association to support coordination on issues relevant to wildlife and domestic poultry health.
Project results will be presented at professional meetings and conferences including The Wildlife Society annual meeting and other wildlife health or management forums. Findings will be published in peer-reviewed scientific journals to ensure broader dissemination.
Project data and documentation will be maintained within MN DNR databases and records systems to ensure long-term accessibility for wildlife managers and researchers. Biological samples collected during the project will be archived according to MN DNR Wildlife Health Program protocols for potential future research or diagnostic testing.
Outreach materials summarizing project findings may be shared through MN DNR communications channels to provide accessible information to the public about wild turkey health and management in Minnesota. All publications, presentations, and outreach materials will acknowledge support from the Environmental and Natural Resources Trust Fund in accordance with ENRTF acknowledgement guidelines.

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?
Data collected on wild turkey disease status, behavior, fecundity, and survival will directly inform management decisions, including assessments of population demographics and disease impacts. Turkey research has not been conducted in Minnesota for more than 20 years, and so these data will provide baseline information on the state's turkey population. Several other states that are part of the Midwest Association of Fish and Wildlife Agencies have

expressed interest in a larger, collaborative effort to monitor turkey health, and additional grant opportunities with federal partners may be pursued to expand these efforts.

Project Manager and Organization Qualifications

Project Manager Name: Elizabeth Baker

Job Title: Wildlife Health Specialist

Provide description of the project manager's qualifications to manage the proposed project.
Elizabeth Baker holds a B.S. in Fisheries, Wildlife, and Conservation Biology (Wildlife emphasis) and an M.S. in Veterinary Medicine from the University of Minnesota. She has over ten years of experience conducting research and disease surveillance in avian populations, with increasing responsibility in project leadership and coordination. Her early career focused on avian influenza monitoring in Minnesota gull species at breeding colonies and migratory stopover sites. Over five field seasons, she progressed from technician to project lead for her graduate research, supervising two technicians, coordinating capture and sampling logistics, managing data, and ensuring compliance with animal care and permitting requirements. She later served as a Common Loon biologist with the Minnesota Department of Natural Resources (MN DNR), contributing to a joint MN DNR–USGS research initiative monitoring loon territories and evaluating factors influencing reproductive success. This role required coordination across agencies, field staff oversight, and rigorous data management. Within the MN DNR Wildlife Health Program, Baker leads disease surveillance efforts, database management, and applied research on Minnesota game species. Her work includes coordination of large-scale surveillance programs such as Chronic Wasting Disease and Highly Pathogenic Avian Influenza, which involve cross-divisional collaboration, stakeholder communication, laboratory coordination, and complex data tracking. She successfully designed and implemented the 2025 pilot wild turkey health assessment in central Minnesota. This experience positions her to manage the expanded health assessment component of the proposed project, including sampling design, field coordination, laboratory testing, data analysis, reporting, and compliance with regulatory and permitting requirements.

Organization: MN DNR - Fish and Wildlife Division

Organization Description:
A state natural resource agency dedicated to protecting and managing land, water, fish and wildlife, and providing access to outdoor recreation opportunities. The mission of the Minnesota Department of Natural Resources (DNR) is to "work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life."

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Temporary Natural Resource Technician		Support for four natural resource technicians. Technicians will assist with turkey capture, tracking, and monitoring. 4 NR technicians per season for 2 years = $430,326; housing at $57,600, parking fees at $7,200 for a total of $495,126 rounded to $496,000			41.69%	4.3		$496,000
							Sub Total	**$496,000**
Contracts and Services								
National Wild Turkey Federation - Clayton Lenk	Service Contract	NWTF will assist with hunter recruitment and outreach, incentivize hunter participation, and assist with sample collection at NWTF-sponsored hunts				0		$15,000
Bemidji State University - Dr. Mandy Keogh	Service Contract	Dr. Keogh will oversee graduate student and collect & analyze stress hormone & metabolism samples. Graduate student will assist with project activities. Salary @ 5% = $12,177; grad student tuition & salary for 2.5 years = $86,176, lab supplies = $26,800, travel and conferences = $29,286; total = $154,439 rounded to $155,000				0		$155,000
Animal Health Diagnostic Center, Cornell University - Dr. Diego Diel	Service Contract	Lymphoproliferative disease virus (LPDV) and Reticuloendotheliosis virus (REV) testing will occur at Cornell University's Animal Health Diagnostic Center. LPDV testing at $42.50/sample for 3500 samples = $148,750; REV testing at $42.50/sample for 3500 samples = $148,750 for a total of $297,500 rounded to $298,000.				0		$298,000
Minnesota Poultry Testing Laboratory; University of Minnesota -	Service Contract	Testing avian influenza (AIV), avian metapneumovirus (aMPV), and Mycoplasma. AIV @ 40.04/pool, 350 pools = $14,014; aMPV @ 36.40/pool, 350 pools = $12,740; Mycoplasma @ 109.20/pool, 350 pools = $38,220; individual testing for $15,798; media @ $9,100, total of $89,872 rounded to $90,000				0		$90,000

Stacy Pollock								
							Sub Total	**$558,000**
Equipment, Tools, and Supplies								
	Tools and Supplies	Shipping and Postage	Shipping and postage for shipping out hunter mail-in kits and receiving kits from successful hunters. Also includes charges for shipping samples to laboratories for disease testing.					$113,000
	Tools and Supplies	Hunter mail-in kit Supplies	These supplies will be used to construct hunter mail-in kits, process samples, and store samples. Supplies include kit contents (plastic bags, envelopes, gloves, etc.) and two 21 cubic foot freezers at $1,000 each					$34,000
	Tools and Supplies	Transmitters and peripherals	GPS backpack transmitters for 120 turkeys/year at $1,800 each, for 2 years = $432,000. Peripherals include downloading receiver at $2,000/unit for 4 units = $8,000; tag programmer at $400/unit for 4 units = $1,600; telemetry receivers at $1,500/unit for 4 units = $6,000, and temperature loggers at $50/unit for 120 units, for 2 years = $12,000 for a total of $459,600, rounded up to $460,000.					$460,000
	Tools and Supplies	Trapping Supplies	Supplies will be used to capture turkeys and take measurements. Drop nets at $4,000/unit for 4 units = $16,000; banding supplies at $2,000; cellular trail cameras at $550/unit for 4 units = $2,200, and miscellaneous trapping supplies at $16,000 = $36,200 total rounded up to $37,000.					$37,000
							Sub Total	**$644,000**
Capital Equipment								

							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
	Miles/ Meals/ Lodging	Fleet for hunter outreach, turkey capture, and monitoring seasons	Fleet including 1250 miles per month for 3 months of hunter outreach and recruitment activities at $3,750; fleet for NR technicians for 4 vehicles for 2000 miles per month for 6 months over 2 years at $96,000; fleet for trapping efforts for 4 vehicles at 4000 miles per month for 2 months per year at 2 years at $64,000; and fleet vehicle base monthly cost of $550 per unit for 2 units for 6 months per year for 2 years for $13,200, trapping crew hotels at $125/night at 10 rooms for 45 nights for 2 years = $112,500, and per diems of $50/unit at 12 people for 21 nights for 2 years = $25,200. This results in a total of $314,650, rounded up to $315,000.					$315,000
							Sub Total	**$315,000**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
	Publication	Publishing page charges	Publishing page charges at $3,500 per manuscript for 4 manuscripts = $14,000					$14,000
							Sub Total	**$14,000**

Other Expenses								
		Aircraft Time	Aircraft time to locate turkeys; plane use at $550/hour for 20 hours per year over 2 years = $22,000					$22,000
		Direct and Necessary Costs	DNR's direct and necessary costs pay for activities that are directly related to and necessary for accomplishing appropriated projects. People Support (~$10,430), Safety Support (~$1,368), Financial Support (~$18,061), Communication Support (~$2,086), IT Support (~$28,277), and Planning Support (~$1,543).					$62,000
							Sub Total	**$84,000**
							Grand Total	**$2,111,000**

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
In-Kind	Game and Fish Fund	MNDNR Wildlife Health Program: Elizabeth Baker, project management, sample disposition, data collection and analysis, outreach, fieldwork: 50% (years 1-2) and 15% (years 3-4)	Secured	$79,000
In-Kind	Game and Fish Fund	MNDNR staff support for kit building and distribution, sample processing, and capture operations: 5-8 staff, 12 months, 5% effort	Secured	$20,000
In-Kind	Game and Fish Fund	MNDNR Wildlife Populations and Regulations Group: Roy Churchwell, project management, project design and methodologies, technician training, field work, data analysis, and writing of reports and manuscripts: 25% (year 1), 33% (years 2-4)	Secured	$142,008
In-Kind	Game and Fish Fund	MNDNR Farmland Wildlife Populations and Research Group: Upland Game Research Scientist 2 (TBD; currently posted for hiring), project design and methodologies, fieldwork and data collection (all aspects), data management and analyses, report and manuscript writing @ 10% (year 1), 30% (years 2-4)	Secured	$114,234
In-Kind	Game and Fish Fund	MNDNR Farmland Wildlife Populations and Research Group: Nicole Davros, project design and methodologies, fieldwork (trapping efforts only), editorial reviews on reports and manuscripts @ 3% (year 1), 10% (years 2-3), 3% (year 4)	Secured	$35,412
In-Kind	Game and Fish Fund	MNDNR Farmland Wildlife Populations and Research Group: 1 supporting Biologist to assist with fieldwork @ 15% (years 2-3)	Secured	$29,422
			State Sub Total	**$420,076**
Non-State				
			Non State Sub Total	**-**
			Funds Total	**$420,076**

Total Project Cost: $2,531,076

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: df5ff266-fc5.pdf

Alternate Text for Visual Component

This flyer shows an image of a wild turkey tom fanning its tail feathers. There is a map of Minnesota with areas to the north showing increasing population trends and areas in the southeast showing declining trends. There is an image of a NWTF youth hunt....

Supplemental Attachments

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

Title	File
National Wild Turkey Federation Letter of Support	a081dd00-ef9.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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 proposal:

Dr. Roy Churchwell, MN DNR

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