Environment and Natural Resources Trust Fund

2026 Request for Proposal

General Information

Proposal ID: 2026-271

Proposal Title: Highly Pathogenic Avian Influenza's Impacts on Minnesota Raptors

Project Manager Information

Name: Dana Franzen-Klein

Organization: U of MN - Raptor Center

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Project Basic Information

Project Summary: Continuing surveillance for current infection and past exposure to highly pathogenic avian influenza in Minnesota's wild raptors to understand population level impacts and aid the community during this ongoing outbreak.

ENRTF Funds Requested: $298,000

Proposed Project Completion: June 30, 2028

LCCMR Funding Category: Small Projects (G)

Secondary 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.

Highly pathogenic avian influenza (HPAI) is having substantial impacts on Minnesota's wildlife and agriculture industry. As a hospital for injured and sick wild raptors admitting over 1,000 birds per year, The Raptor Center (TRC) is uniquely positioned to collect wildlife health data, and has been conducting crucial HPAI surveillance since the outbreak began. From March 2022 through February 2025, TRC tested over 3,500 raptors admitted to our hospital for active infection with HPAI, contributing significantly to Minnesota's wildlife disease surveillance. TRC provides real-time data on disease presence within our state, which is publicly available on our website. Additionally, we have screened more than 1,380 raptors for serological evidence of past exposure to HPAI. This serosurveillance work revealed an unexpected finding - many bald eagles are surviving exposure to HPAI, which contradicts the belief that HPAI is often fatal in raptors. In addition to testing injured, sick and orphaned raptors at TRC's hospital, we have partnered with Hawk Ridge Bird Observatory (HRBO) in Duluth to sample healthy raptors during fall migration. This two-pronged approach, sampling both injured and healthy raptors, generates a comprehensive dataset to fully understand the impacts of this unprecedented disease outbreak on Minnesota's raptors.

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 to continue our valuable HPAI surveillance in Minnesota's raptors. Data collected from 2022 to 2025 has been relied upon by many stakeholders throughout Minnesota, including state agencies, the agriculture industry, wildlife professionals, and the general public. By collecting samples from injured, sick and orphaned raptors admitted to TRC's hospital, and healthy raptors trapped for banding at HRBO, we are gathering comprehensive information on raptor health. Along with sampling two raptor populations, we are also gathering two types of information from each bird - is the bird currently infected with HPAI, and were they previously exposed to HPAI. We are seeking funding for both polymerase chain reaction (PCR) testing to look for virus in currently infected birds, and serology testing which looks for antibodies to HPAI in the blood, indicating that the bird was previously exposed to the virus and survived the infection. TRC has a public facing website that shares disease detection (PCR) data real time, and we propose to expand this website to include geographical information such as disease detection maps. Gathering data over multiple years provides insight into the long-term outlook for Minnesota's raptor populations, and is valuable to local stakeholders impacted by this ongoing outbreak.

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?

This disease surveillance work will continue to provide important information on the prevalence of HPAI in our state, while simultaneously gathering data on the potential impacts of this unparalleled infectious disease outbreak on our native wild raptor populations. We will share the disease prevalence (PCR) data real-time with our local stakeholders via a public facing website. Disease detections in wild birds can be a warning to local farmers, prompting them to take additional precautions to prevent disease introduction into their farms. Additionally, we will share both the PCR and serology results via multiple written and verbal venues.

Activities and Milestones

Activity 1: Testing Minnesota's raptors for active/current HPAI infections, which are representative of current disease transmission in Minnesota's wild birds.

Activity Budget: $114,064

Activity Description:
Every raptor admitted to TRC (over 1,000 per year), as well as a subset of birds trapped for bird banding at HRBO (estimated 50 per year), will be tested for active HPAI infection. Because samples are collected shortly after arrival at TRC's raptor hospital, and immediately after being trapped for banding, the results accurately represent what is happening in Minnesota's wild raptor populations. Swabs of the mouth and vent will be collected and tested for avian influenza viruses (AIV) via a polymerase chain reaction (PCR) test. If AIV is detected, the sample is sent to the National Veterinary Services Laboratory for confirmatory testing to determine pathogenicity and further characterize virus strains with genetic testing. This testing provides vital information for the medical care of the individual bird, and data about disease transmission in the area where the bird came from. Being able to collect continuous data over several years will provide invaluable information about how viral transmission is changing in wildlife populations. Because HPAI is so infectious and deadly to raptors, and can cause disease in humans, extensive personal protective equipment (PPE) and biosecurity protocols must be used to prevent unintentional disease spread when managing potentially infected birds.

Activity Milestones:

Description	Approximate Completion Date
Begin sample collection and testing	July 31, 2026
Complete 900-1,100 PCR tests	July 31, 2027
Complete PCR sample collection from wild raptors from TRC's hospital and HRBO banding station	May 31, 2028
Complete in-house PCR laboratory analysis from sampled raptors	June 30, 2028

Activity 2: Identify Minnesota raptors that are HPAI survivors through long-term serology testing

Activity Budget: $135,343

Activity Description:
By conducting serology testing on approximately 550-700 raptors per year, we can monitor how disease immunity is changing over time, which provides insight into possible future population level impacts on Minnesota's raptors. To obtain this information about disease immunity and survival, we will collect blood to test for the presence of avian influenza antibodies. The majority of raptors admitted to TRC's hospital will be sampled within their first few weeks of care. At HRBO, blood is collected from a subset of birds at the time of banding during fall migration and they are released the same day. Samples will be analyzed with an enzyme-linked immunosorbent assay (ELISA; IDEXX® AI MultiS-Screen) to test for antibodies to avian influenza viruses. A positive result on this ELISA test indicates that the bird has been exposed to some type of avian influenza virus - either a low pathogenic strain or a highly pathogenic strain. Additional testing conducted by our collaborators at the University of Georgia can confirm if that bird has been exposed to a highly pathogenic strain of avian influenza. When analyzed together, PCR, serology, and demographic surveillance data provides a long-term temporal and regional picture of this disease outbreak in Minnesota's raptors.

Activity Milestones:

Description	Approximate Completion Date
Begin sample collection at TRC's hospital	July 31, 2026
Begin sample collection at HRBO banding station	September 30, 2026
Blood sample collection from wild raptors admitted to TRC's hospital completed	December 31, 2027

Blood sample collection from wild raptors during banding at HRBO completed	December 31, 2027

Activity 3: Share surveillance data with collaborators and stakeholders to increase knowledge and improve response strategies to protect and preserve Minnesota wildlife

Activity Budget: $48,593

Activity Description:

Avian influenza response efforts involve a multitude of stakeholders including the Minnesota Department of Natural Resources, Minnesota Board of Animal Health, Minnesota's agriculture industry, and the general public. TRC has been sharing data with these stakeholders since the HPAI outbreak began. We plan to continue to engage with stakeholders and collaborators in three ways so that the data generated can help improve overall disease knowledge and response strategies. First, we will continue to maintain our public facing website, summarizing data so that Minnesotans can better understand what is happening with our native wildlife. Currently this website includes the number of HPAI detections at TRC per week and the species affected. We propose to expand the website to include geographical details about where birds were found, including the date of detection. Second, we will provide updates on our findings to stakeholders, including governmental and industry partners, so that we can better integrate wild bird data into overall agriculture, human, and wildlife health outbreak response efforts. Third, we will share the data in scientific settings to advance the overall understanding of HPAI in raptors. These efforts will help protect Minnesota's wildlife, and place Minnesota at the forefront of HPAI research.

Activity Milestones:

Description	Approximate Completion Date
Update the public facing website to include geographical information	December 31, 2026
Maintain summary data (monthly) on the public facing website	June 30, 2028
Share data with governmental and industry stakeholders	June 30, 2028
Present findings to a wildlife and/or scientific audience	June 30, 2028
Provide written report(s) that include research findings	June 30, 2028

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Emily Pavlovic	Hawk Ridge Bird Observatory	Collect PCR and serology samples from healthy wild raptors trapped for banding during fall migration	No
Dr. Rebecca Poulson	Southeastern Cooperative Wildlife Disease Study	Conduct advanced serology testing specific to H5 and N1 Highly Pathogenic Avian Influenza	No

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?

The results of this project will provide real-time data that can be used by Minnesota's state wildlife and agriculture agencies to direct outbreak response. This research will continue to provide invaluable data about this virus's impacts on wild raptor populations in Minnesota, and can aid predictions on future impacts to our wildlife populations as this outbreak continues into the foreseeable future. The information will be shared via multiple venues with stakeholders in the scientific community, wildlife rehabilitation community, agriculture industry, regulatory agencies, and the general public.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Highly Pathogenic Avian Influenza and Minnesota Raptors	M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 03v	$187,000

Project Manager and Organization Qualifications

Project Manager Name: Dana Franzen-Klein

Job Title: Instructor - College of Veterinary Medicine; Medical Director at The Raptor Center

Provide description of the project manager's qualifications to manage the proposed project.

Dr. Dana Franzen-Klein has extensive experience in the field of wildlife health. She is an instructor at the University of Minnesota College of Veterinary Medicine, and has been working at The Raptor Center since 2016. She has knowledge in clinical veterinary medicine and research, holding both a Doctor of Veterinary Medicine (DVM) degree, as well as a Master's of Science degree. She has significant experience in wildlife rehabilitation medicine, scientific research, scientific presentations, and publishing in the peer reviewed literature. To date she has contributed to 15 scientific publications, 9 as senior author, and 3 textbook chapters. Dr. Dana and The Raptor Center have been recognized as leading experts on the topic of highly pathogenic avian influenza (HPAI) in raptors and wildlife rehabilitation, both by conducting prospective research and by generating biosecurity recommendations that have been adopted broadly by the wildlife rehabilitation industry. She is currently the project manager on the 2024 LCCMR grant titled "Highly Pathogenic Avian Influenza and Minnesota Raptors".

Publications completed on HPAI to date:

- Rayment K, Franzen-Klein D, et al. Serosurvey for Highly Pathogenic Avian Influenza Antibodies in Wild Raptor Species from the Upper Midwest During an Ongoing Outbreak – September 2022 through April 2023. Sci Rep. 2025.

https://doi.org/10.1038/s41598-025-90806-6
- Hall V, Cardona C, Mendoza K, Torchetti M, Lantz K, Bueno I, Franzen-Klein D. Surveillance for highly pathogenic avian influenza A (H5N1) in a raptor rehabilitation center – 2022. PLOS ONE. 29 April 2024. https://doi.org/10.1371/journal.pone.0299330
- Wuenschmann A, Franzen-Klein D, et al. Lesions and viral antigen distribution in bald eagles, red-tailed hawks, and great horned owls naturally infected with H5N1 clade 2.3.4.4b highly pathogenic avian influenza virus. Vet Path. 2024. https://doi.org/10.1177/030098582312222

Organization: U of MN - Raptor Center

Organization Description:
The Raptor Center (TRC) is a University research and outreach center focused on raptor medicine, conservation, environmental education, and one-health issues that impact our local ecosystem and beyond. TRC provides medical care for over 1,000 injured and ill raptors each year, trains veterinarians and veterinary students from around the world in conservation medicine, and has extensive experience in outreach and environmental education, averaging over 1,000 programs reaching more than 200,000 people throughout Minnesota, Wisconsin, and Iowa annually. For over 30 years, staff at TRC has studied health issues in raptors. In addition, the veterinarians at The Raptor Center have appointments in the College of Veterinary Medicine, University of Minnesota, a research university.

The University of Minnesota is a highly ranked public research university with a mission that encompasses research and discovery, teaching and learning, and outreach and public service. A land-grant university, it supports research and discovery benefiting the conservation and management of Minnesota's natural resources. It has well-established systems and processes for management of research awards and financial oversight of grants.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	$ Amount
Personnel								
Project manager		Project oversight, public outreach, leading publications, conducts sample collection at TRC during busy season			36.6%	0.4		$66,879
Wildlife veterinary researcher		Coordinating and conducting sample collection, data management, contribute to scientific pubs			36.6%	0.3		$50,160
Veterinary technician		Sample processing, data management, working with lab tech to coordinate data and sample submission			32.3%	0.2		$15,799
Laboratory technician		Sample preparation, processing, and laboratory testing for PCR and serology tests			36.6%	0.6		$79,659
							Sub Total	**$212,497**
Contracts and Services								
UMN Veterinary Diagnostic Lab	Internal services or fees (uncommon)	Testing to confirm positive PCR results from TRC research lab at the official state diagnostic lab. Because this is a federally reportable disease, the UMN diagnostic lab must receive all positive samples to confirmatory test and to send positive samples to USDA National Veterinary Services Laboratory.				0		$7,000
University of Georgia SCWDS	Internal services or fees (uncommon)	Serology samples that test positive on the general screening test will be sent to the University of Georgia for additional, advanced testing to confirm if the antibodies that were detected are specific to highly pathogenic avian influenza (HPAI H5 and N1). This budget line covers supply costs.				0		$21,782
							Sub Total	**$28,782**
Equipment, Tools, and Supplies								
	Tools and Supplies	Personal protective equipment (PPE) and biosecurity supplies	Supplies needed to maintain biosecurity protocols and PPE for staff working with potentially infected birds for two years. Supplies may include but are not limited to: tyvex suits,					$17,000

			respirators, gloves, and disinfection supplies.					
	Tools and Supplies	Testing and research laboratory supplies	Materials to collect and process samples, as well as supplies needed to conduct both the PCR and serology (bELISA) tests at the TRC research lab.					$39,721
							Sub Total	**$56,721**
Capital Expenditures								
							Sub Total	**-**
Acquisitions and Stewardship								
							Sub Total	**-**
Travel In Minnesota								
							Sub Total	**-**
Travel Outside Minnesota								
							Sub Total	**-**
Printing and Publication								
							Sub Total	**-**
Other Expenses								
							Sub Total	**-**
							Grand Total	**$298,000**

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				
			State Sub Total	**-**
Non-State				
In-Kind	University of Georgia Southeastern Cooperative Wildlife Disease Study (SCWDS)	Staff time to complete the advanced serology testing outlined in activity 2	Secured	$12,000
In-Kind	Hawk Ridge Bird Observatory	Staff time to collect PCR (activity 1) and serology (activity 2) samples	Secured	$900
			Non State Sub Total	**$12,900**
			Funds Total	**$12,900**

Total Project Cost: $310,900

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: d3d8a938-6cb.pdf

Alternate Text for Visual Component

A veterinarian holds a bald eagle while wearing personal protective equipment to keep safe from HPAI. A graph showing the number of individual birds that have tested positive for highly pathogenic avian influenza by species at The Raptor Center from March 28, 2022 through February 25, 2025....

Supplemental Attachments

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

Title	File
University of Minnesota Cover Letter	4776f585-b5e.pdf
990 Exemption Form	467d829a-38b.pdf
Secretary of State Good Standing	137ad04c-6f4.pdf
Audit Report	edb0c867-9d5.pdf
Exposure and survival of raptors to HPAI 2022-2023 - Scientific publication on the HPAI serology data collected at TRC prior to securing the 2024 ENRTF grant funding, results of this research are referenced in the narrative	660eca22-1ad.pdf
Surveillance for HPAI in raptor rehab 2022 - Scientific publication on HPAI surveillance data collected at TRC in 2022 documenting the benefit of disease surveillance in TRC's raptor hospital	f464e7e6-88e.pdf
Hawk Ridge Bird Observatory Letter of Support	4fe2fa47-439.pdf
University of Georgia SCWDS Letter of Support	4c60a1bd-076.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?

N/A

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?

Yes, Sponsored Projects Administration

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:

Tibor Kisel - University of Minnesota

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

N/A