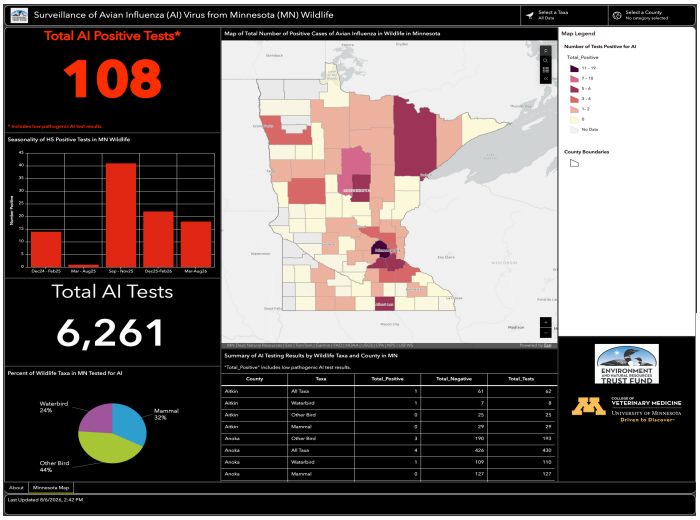
LCCMR Emerging Issue Proposal: In depth analysis of a hotspot of highly pathogenic avian influenza virus activity in Minnesota.

PI: Schroeder (dcschroe@umn.edu)

Justification: Highly pathogenic avian influenza (HPAI) virus is an emerging and ongoing disease threat to the health of MN wildlife, poultry, livestock and humans. The current H5N1 HPAI outbreak continues as best evidenced by the detection of two HPAI virus variants in 108 free-ranging animals (summary as of 08/06/2026) in Minnesota in 2025 and 2026 (Figure 1A). Thankfully, spillover of HPAI to humans and cattle from wildlife did not occur in 2025 or 2026 in Minnesota, but 10 new poultry premises turned positive as of 08/25 in 2026 and 31 turned positive in 2025. Therefore, this virus is not going away, and the threat to Minnesotans remains real.

A



B

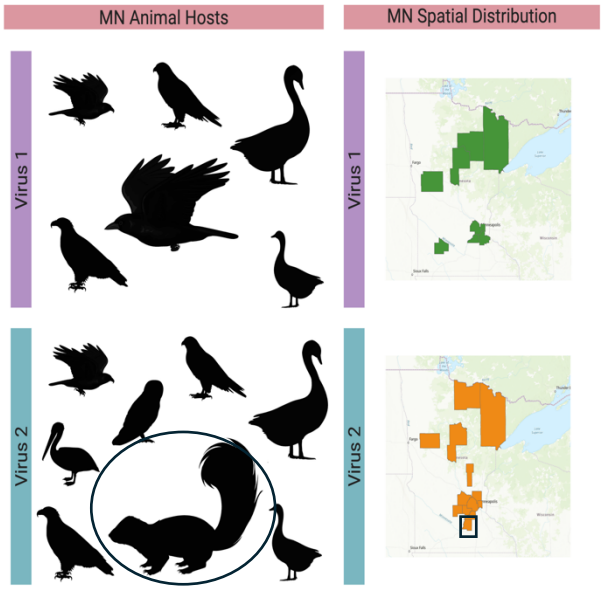


Figure 1: Summary of the status of HPAI in Minnesota wildlife as funded by LCCMR 2023-260/2024-306. **A**) data available on our website (QR code) showing the samples positive for HPAI virus (108) across the Minnesota map from 6,261 samples tested, **B**) the animal species found infected with two HPAI variants circulating in Minnesota. skunks (circle) in a prairie co-inhabited with captive bison (square) were infected with virus 2.

While most cases in wildlife were in birds, 8 cases occurred mammals, five of which were skunks from a single location, a prairie shared with captive bison on the land of a tribal nation (Figure 1B). These cases occurred between November 2025 and March 2026. **Of concern, is the recent discovery of a HPAI virus positive water sample collected in June 2026 (after the March 18, 2026, LCCMR funding deadline) provided corroborative evidence of ongoing HPAI virus activity in this location.** The location provides a unique opportunity to study the epidemiology and genetic make up of the HPAI virus at the interface of the environment, wildlife, and captive bisons. Where is the virus persisting? Is water a proxy for or a source of the infection? Will the bison become infected? How do skunks become infected? Will the skunks die out in this region or will they eventually become reservoirs and superspreaders?

After we have established a biobank of HPAI virus isolates in the previous 16 months via the ongoing LCCMR study 2023-260 and 2024-306, continued knowledge of the genetic makeup of the virus in the environment and skunks (and other avian and potential mammalian wildlife) with the possibility to monitor a potential susceptible ruminant species exits. This resource may reveal the specific genetic mutations and/or reassortments by which the currently circulating HPAI virus variants have been able to persist and find new hosts and niches. The University of Minnesota is uniquely positioned to study the diversity of HPAI viruses because it has one of only very few Select Agent Biosecurity Level 3 (BSL-3) labs in the nation permitted to work with HPAI viruses. **The time is now to establish a surveillance system at the confirmed hotspot by utilizing environmental samples and deceased free-ranging wild animals.**

Proposed Action:
Activity 1: Workshop with local biologists & tribal partners to set up protocols for the study. ***Activity 2:*** Monthly collection and testing of environmental samples from the hotspot by UMN staff and tribal partners for NGS metagenomics analysis at the Schroeder lab. ***Activity 3:*** Active collecting and testing of deceased free-ranging birds and mammals from the hotspot via NGS metagenomics of oropharyngeal and/or cloacal swabs (Schroeder Lab) and HPAI RT-PCR testing and necropsies at the Minnesota Veterinary Diagnostic Laboratory (coordinated by Wuenschmann). ***Activity 4:*** Reporting results to the local biologists and indigenous partners.

Dissemination: Targeted podcasts, website posts and publications in peer reviewed journals.

Summary: The proposed study aims at leveraging the knowledge, expertise and resources established by our unprecedented and continued success from the LCCMR 2023-260 and 2024-306 funded projects. Here we seek to establish a study site with a known hotspot HPAI infecting found in free-ranging skunks and the water resource that they use and share with other species such as small rodents, wild birds and bison. By starting a 2027 time-series at this location, we can educate local communities as to the threats HPAI pose on wildlife and help us hypothesizing the key biotic and abiotic epidemiological factors supporting the maintainance and spread of HPAI virus at this site in Minnesota. Knowledge gained will help us come up with stategies that can be applied Statewide to keep Minnesotans and our animals safe for future generations.

A description of the organization:

The University of Minnesota System is driven by a singular vision of excellence. We are proud of our land-grant mission of world-class education, groundbreaking research, and community-engaged outreach, and we are unified in our drive to serve Minnesota.

A description of the organization's capacity to manage funds:

The University of Minnesota System has a long unblemished history of managing large awards including those awarded my ENTRF and managed by LCCMR.

Budget:

BUDGET ITEM		Budget	Justification for Generally Ineligible Expenses (if applicable)
Personnel (Wages and Benefits)		$ -	
Declan Schroeder, Co-PI, Associate Professor, 16%/year for 1 years		*$ 55,977*	Dr. Declan Schroeder will serve as PM on this project. As PI, he will train the TBN Researcher 6 for BSL3 work, design the experiments, co-ordinate the final NGS metagenomic data analysis, work with Co-PI and partners and assist Co-PI in reporting the results.
Arno Wuenschmann, PI, Professor, 10%/year for 1 years		*$ 27,857*	Dr. Arno Wuenschmann will serve as Co-PI on this project. As Co-PI, he will oversee the animal collection and necropsies, and assist in the reporting the results.
TBN Researcher 6, 100%/year for 1 years		$ 92,342	**To co-ordinate the collection and NGS sequencing of HPAI positive samples in the BSL3 facilities. Finally, to write the first draft of the BSL-3 focused manuscripts.**
Services and Subawards			
Subaward to Medwankaton Sioux community to host training workshop (at start of the project)		*$ 10,000*	In collaboration with the UMN Veterinary Diagnostic Lab (VDL), Medwankaton Sioux community will assist in the collection of Highly Pathogenic Avian Influenza (HPAI) samples on their site. They will are host the training workshop in their conference facilites (rental & catering)
Equipment/Tools/Supplies			
RT-qPCR tests (700 @ $40/each)		$ 28,000	Vessels required for sample collection
Culturette swabs		$ 600	
BHI broth powder for swabs		$ 40	
5ml tubes		$ 100	
Labels for tubes		$ 40	
Necropsies		$ 3,000	equipment & room use
Car rental		$ 5,000	Car rental for staff and students to transfer samples to lab over the year, muiltiple trips
NGS metagenomics (ONT): 5x4 flow cell packs		$ 24,000	Consumables for NGS Oxford Nanopore sequencing
DNA/RNA extraction consumables		$ 18,000	Consumables for extarcting DNA/RNA from tissue, water, wab or soil sample for NGS Oxford Nanopore sequencing
Sequencing reagnets (ONT kit and 3rd party chemistry)		$ 5,000	Consumable to make libraries for sequencing will be carried out in the BSL-3 lab using the Oxford Nanopore Technologies sequencer.
BSL-3 lab usage fee to work on HPAI in the lab ($400 per week) - 8 weeks per year		$ 15,600	This is the standard rental and usage maintainance fee for the MN VIF BSL-3 labs. These fees ensure that the high biosecurity status of the facility is maintained.
500 animal tissue tubes (with & without formalin)		$ 5,000	Vessels required for sample collection during necropsies
Books & pens for workshop		$ 1,500	Supplies for workshop
Capital Equipment Over $5,000			
		$ -	
Printing and Publication			
Printing of methods handbook workshop ($50 per book, 20 in total)		*$ 1,000*	A detailed step-by-steop methods handbook on how to collect samples for NGS metagenomic analysis
		$	
Travel Expenses In Minnesota			
		$ -	
		$ -	**Status (secured, pending, or potential)**
		$ -	
Travel Expenses Outside Minnesota			
Travel to field sites for checking swabs & deceased animals, est 50trips @ 60 mi each = 2,100 miles @0.73 per mile		*$ 2,190*	$0.73 per miles UMN reimbursement rate
		$ -	
Other			**Amount Spent**
		$ -	$ -
		$ -	$ -
		$ -	
COLUMN TOTAL		**$ 295,246**	

Environment and Natural Resources Trust Fund
Emerging Issues Budget Addendum



Legal Citation:	M.L. 2025, 1st Special Session, Chapter 1, Article 2, Section 2, Subd. 10a
Project Manager:	Declan Schroeder
Project Manager Email:	dcschroe@umn.edu
Project Manager Office Phone:	613-413-0030
Project Title:	Emerging Issue Proposal: In depth analysis of a hotspot of highly pathogenic avian influenza virus activity in Minnesota
Project Budget:	$295,250
Project Completion Date:	~~**DEC. 31.2028**~~ **June 30, 2028 (updated 9/29/26 by LCCMR staff with confirmation from PM)**
Current Date:	AUG.26.2026

BUDGET ITEM	Budget	Justification for Generally Ineligible Expenses (if applicable)
Personnel (Wages and Benefits)	$ -	
Declan Schroeder, Co-PI, Associate Professor, 16%/year for 1 years	*$ 55,977*	Dr. Declan Schroeder will serve as PM on this project. As PI, he will train the TBN Researcher 6 for BSL3 work, design the experiments, co-ordinate the final NGS metagenomic data analysis, work with Co-PI and partners and assist Co-PI in reporting the results.
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Capital Equipment Over $5,000		
	$ -	
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Other		
	$ -	
COLUMN TOTAL	**$ 295,246**	

SOURCE AND USE OF NON-ENRTF FUNDS CONTRIBUTED TO THE PROJECT		Budget	Status (secured, pending, or potential)
Non-State Cash:		$ -	
Non-State In kind:		$ -	
State Cash:		$ -	
State In kind:		$ -	
OTHER ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS		**Budget**	**Amount Spent**
		$ -	$ -