



PennVet
UNIVERSITY of PENNSYLVANIA

Wildlife
Futures
Program

WILDLIFE FUTURES PROGRAM
ANNUAL REPORT



2024 - 2025



ANNUAL REPORT // 2024–2025

MESSAGE FROM THE DIRECTOR

The Wildlife Futures Program (WFP) is an ongoing partnership between the Pennsylvania Game Commission (PGC) and the University of Pennsylvania's School of Veterinary Medicine (Penn Vet).

This year, WFP faculty, staff, and students presented their research and published peer-reviewed journal articles on several applied research projects, covering topics such as novel eyeworms found in black bears, SARS-CoV-2 in white-tailed deer, and highly pathogenic avian influenza (HPAI) in wild canids. Wildlife health technicians provided crucial response capacity for the ongoing HPAI outbreak, in addition to supporting a variety of research and surveillance projects. Our veterinarians offered expert field support that ensured wildlife health and welfare and shared valuable insights into wildlife disease through diagnostic testing and associated research. Veterinarians, staff, and students contributed to an updated Pennsylvania Wildlife Action Plan, identifying priority health threats, potential management actions, and key knowledge gaps for over 600 Species of Greatest Conservation Need in Pennsylvania.

Outreach activities included continued WFP presence at well-attended stakeholder events such as the Pennsylvania Farm Show, the Pennsylvania Trappers Association Rendezvous, and the Keystone Elk Country Alliance Elk Expo. We hosted and attended additional events throughout the Commonwealth, focusing on wildlife careers, bat conservation, wild bird health, and more.

As always, thank you to our team, collaborators, and supporters. These partnerships gave us opportunities and inspiration to continue to ensure that all wildlife species, in Pennsylvania and beyond, can thrive.

LISA MURPHY, VMD, DABT

Director, Wildlife Futures Program

WILDLIFE FUTURES TO DATE

66,000+

CWD diagnostic
tests conducted

7,300+

Animals sampled for
ongoing research projects

5,661

Wildlife health reports
responded to

5,304

Animals sampled for
disease diagnostics

1,000+

Pathology cases finalized

40+

Ongoing or completed
research projects

MISSION

The Wildlife Futures Program is committed to discovering innovative and proactive solutions to a variety of complex wildlife health challenges. We are a collaborative, supportive, and inclusive team that educates the next generation of wildlife professionals and empowers our stakeholders to make educated management decisions.

PROFESSIONAL SERVICES



WFP team members are highly trained and passionate wildlife health professionals. As experts from a wide array of backgrounds and disciplines, we are strongly equipped to respond to wildlife health concerns, conduct groundbreaking research, inform management decisions, and educate the next generation of wildlife professionals.

1. Wildlife Health Technicians

Stationed in every region in Pennsylvania, wildlife health technicians (WHTs) are our boots on the ground, responding to wildlife health events across the Commonwealth.

Our WHTs have maintained an active surveillance network for HPAI since 2022. WHTs from the southeast, northeast, and Harrisburg regions were on the front lines during the HPAI outbreak in late December 2024, and additional WHTs joined the action when cases were identified in the northwest and southcentral regions of the Commonwealth in late January 2025. WHTs shared their time, expertise, and resources to safeguard human and animal health.

2. Wildlife Veterinary Support

WFP veterinarians offer a wide array of animal health support in Pennsylvania and beyond. Our veterinarians assist PGC with the safe capture of wildlife, field personnel training, protocol establishment, and more.

Drs. Erica Miller and Jennifer Høy-Petersen, both wildlife veterinarians, have assisted on countless field captures, research projects, and protocol developments, ensuring the best care and treatment for wildlife handled for research throughout the Commonwealth.

3. Wildlife Pathology Service

Since its inception in August 2022, the Wildlife Pathology Service has examined over 1,000 wildlife mortality cases, giving expert insights into the causes of wildlife death in the Commonwealth and beyond.

Cases investigated by the Wildlife Pathology Service have aided in wildlife management, health surveillance, and even animal cruelty investigations. Our pathologists have also provided education opportunities to game wardens, regional biologists, veterinary students, and more.

4. Diagnostic Testing

WFP and New Bolton Center's Pennsylvania Animal Diagnostic Laboratory System perform critical diagnostic testing for wildlife viruses and other diseases, including chronic wasting disease, HPAI, West Nile virus, and more.

WFP has Pennsylvania's only dedicated, wildlife-focused CWD team, which tests thousands of samples from Pennsylvania and surrounding states.

5. Wildlife Expertise

Employing a diverse team of veterinarians, wildlife health researchers, ecologists, and technicians, WFP offers expertise on a variety of health issues. Our scientists are members of multiple wildlife health boards, including the U.S. Department of Agriculture's National Wildlife Services Advisory Committee, the Pennsylvania Governor's Invasive Species Council, and more.

WFP personnel led a landmark project to directly embed wildlife health into the 2025–2035 Pennsylvania Wildlife Action Plan (PA WAP). An 11-page wildlife health section has been added to the PA WAP, highlighting health priorities and recommendations for over 250 Species of Greatest Conservation Need, including the Eastern Hellbender.

PREPAREDNESS AND MONITORING

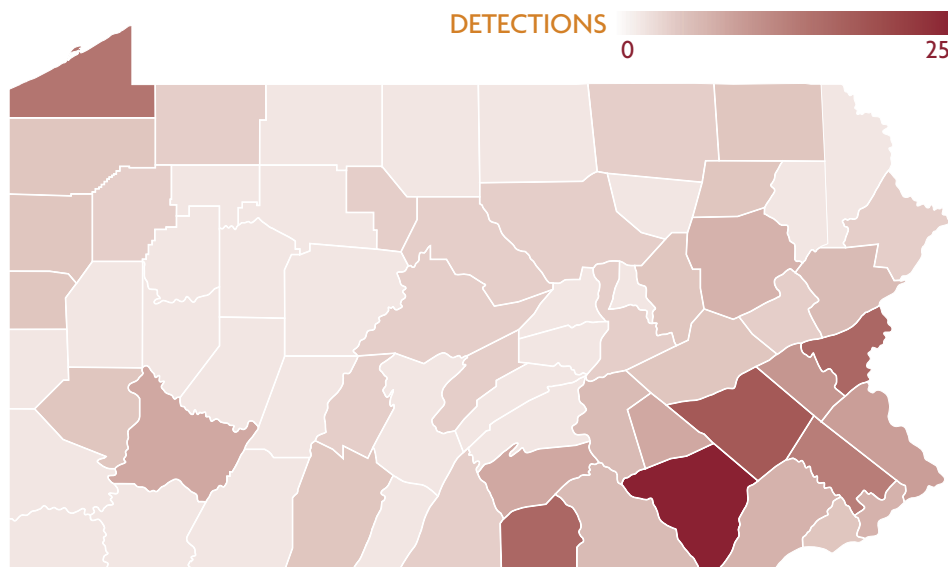
WFP relies on our trained technicians, state-of-the-art laboratory equipment, and expert researchers to analyze samples, review data, and accurately report results. Our findings inform the strategic allocation of resources for priority wildlife health issues.

HIGHLY PATHOGENIC AVIAN INFLUENZA

Between early 2022 and June 30, 2025, more than 174.8 million U.S. domestic birds and an unknown number of wild birds and mammals were affected by highly pathogenic avian influenza (HPAI). As an accredited laboratory and a member of the USDA's National Animal Health Laboratory Network, New Bolton Center's Pennsylvania Animal Diagnostic Laboratory System (PADLS) is among the 65 laboratories nationwide that are approved to conduct this regulatory infectious disease testing. By early June, PADLS had tested nearly 24,000 samples collected from wild and domestic birds and mammals. In addition to providing critical disease information to the PGC, wildlife rehabilitators, other partners, and federal agencies, the results of the wild bird and mammal samples collected by WHTs and pathologists help inform animal agriculture decision making and build awareness among the general public and other stakeholders.

This fiscal year, our WHTs submitted swabs from 934 animals to test for HPAI. Of these, the HPAI H5N1 subtype

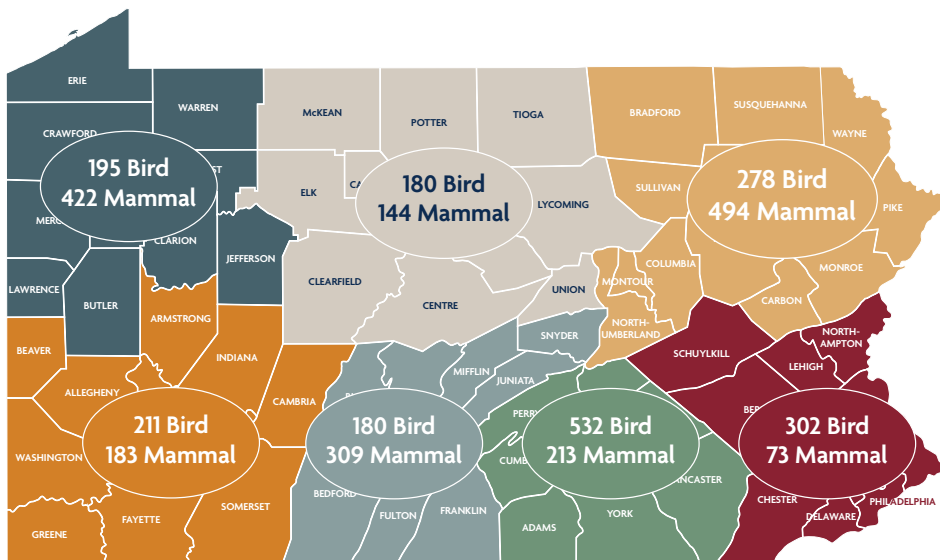
HPAI H5N1 DETECTIONS FY2025



This map shows only the samples collected and tested by WFP, not the total number of animals impacted. When large flocks of birds were affected (e.g., thousands of snow geese and hundreds of black vultures), only a few birds from each incident were tested to confirm that HPAI was the cause.

was detected in 192 samples, including in two red foxes from Lehigh and Montgomery Counties. In addition, four Canada geese in Westmoreland County were found to have less virulent strains of avian influenza virus. Since the beginning of this disease outbreak, over 30 species of birds have been affected in Pennsylvania, as well as several red foxes.





● NORTHWEST REGION ● NORTHCENTRAL REGION ● NORTHEAST REGION ● SOUTHWEST REGION
 ● SOUTHCENTRAL REGION ● GREATER HARRISBURG AREA ● SOUTHEAST REGION

These numbers do not include all HPAI-suspect specimens handled and removed from the landscape. In HPAI-suspect cases with multiple carcasses, only a few are sampled for diagnostic testing.

WILDLIFE HEALTH TECHNICIANS

Comprehensive surveillance begins with boots on the ground. Working in the field, our WHTs are integral to our wildlife health surveillance efforts. They respond to wildlife health concerns across the Commonwealth, gather samples for chronic wasting disease and other diagnostic testing, and help manage a repository of samples for future research in our biobank. With seven WHTs now working out of every region in Pennsylvania, WFP has a finger on the pulse of wildlife health across the Commonwealth.

CHRONIC WASTING DISEASE

Chronic wasting disease (CWD) is a contagious, always-fatal disorder that has been affecting Pennsylvania's wild deer population since 2012. WFP continues to conduct and improve critical CWD testing for the state, utilizing the "gold standard" process of enzyme-linked immunosorbent

assay (ELISA) as the initial test, and confirmatory testing via immunohistochemistry (IHC).

This fiscal year, WFP performed 10,313 ELISA tests and 3,232 IHC tests for Pennsylvania and surrounding states. Most of these tests were processed in a few months, during hunting season. Turnaround times for individual tests continue to be excellent, with an average of only four to five days from receipt of a sample in the lab to reporting preliminary results during the height of hunting season.

WILDLIFE PATHOLOGY SERVICE

With a dedicated wildlife pathologist, pathology fellow, and wildlife necropsy technician on the team, WFP provides in-depth analyses and diagnostics for submitted wildlife cases, giving agencies key insights into the health concerns of the region's wildlife.

This year, the service finalized 395 cases. Notable cases include parvoviral encephalopathy in a bobcat, dermal trematode infection in an American crow, fungal

pneumonia in deer, follicular dysplasia in deer, congenital anophthalmia in a deer, hepatozoonosis in mink, trichomoniasis in house finches and American goldfinches, eyeworm infection in a black bear, and Eastern equine encephalitis in a wild turkey, among many others.

SHARED WILDLIFE HEALTH INFORMATION SYSTEM

The Shared Wildlife Health Information System (SWHIS) is an online database designed to help agencies with their day-to-day collection and management of wildlife health data. Since launch, state agencies have been onboarded from Arkansas, Colorado, Delaware, Maine, Nebraska, New Jersey, North Carolina, Oregon, Texas, and Washington.

This year, the SWHIS project team welcomed Johannes Nelson as the new data analyst at WFP. In his new role, Nelson will serve as a data-minded liaison between state agencies and WFP.

SWHIS also released several new features, including enhanced mapping functionalities, real-time administration table updates, and an advanced filter and search tool.

In partnership with the Caesar Kleberg Wildlife Research Institute at Texas A&M University at Kingsville, the SWHIS project team is further developing a dedicated module to capture data specific to CWD surveillance. As part of this collaborative project, SWHIS aims to integrate with both the Laboratory Information Management Systems used by the Texas A&M Veterinary Medical Diagnostic Laboratory and the CWD Data Warehouse, an online platform for CWD surveillance planning.



RESEARCH

WFP conducts research to improve diagnostic capacities, understand disease effects on wildlife populations, and guide disease management efforts. Our team leverages innovative approaches and collaboration with expertise across the University of Pennsylvania and beyond to take a proactive approach to wildlife health threats.

WHITE-TAILED DEER Chronic Wasting Disease

Collaring Study

Since this study started in 2023, nearly 300 deer have been captured in Bedford and Fulton counties, providing thousands of valuable samples and data that contribute to both local and national research projects. Conducted in collaboration with the PGC and the USGS Cooperative Fish and Wildlife Research Unit at Penn State, the project aims to inform models on the spread and effect of pathogens such as SARS-CoV-2 and CWD. In addition, the research will deepen our understanding of CWD-associated mortality in Pennsylvania's deer populations that live within the CWD-endemic zone. During this year's field season, teams captured, sampled, and collared over 110 deer. Cause-of-death data has so far been collected from more than 75 collared deer, and this data will improve our understanding of overall deer health and mortality patterns within the CWD-endemic



area of Pennsylvania. Additionally, samples collected for this study are supporting several ongoing research initiatives, as described below, further expanding the impact of this work.

Real-Time Quaking-Induced Conversion

Real-time quaking-induced conversion (RT-QuIC) is a diagnostic tool that can detect CWD in a wide variety of sample types beyond the cervid lymph nodes and obex routinely used for CWD testing. The goal of this work is to identify sample

types that are easy to collect, or can be obtained from live animals, provide confident results, and be batched to facilitate rapid testing of larger numbers of animals. WFP can detect CWD using RT-QuIC on preserved lymph tissues (tissues fixed in formalin and/or embedded in paraffin wax), ear punches, third eyelids, and feces. This novel testing approach will facilitate increased CWD surveillance and monitoring in the Commonwealth and surrounding regions.

CWD Summit

In June 2025, WFP partnered with the PGC to host the Interstate CWD Meeting and Research Summit, a meeting of disease researchers and state wildlife biologists to discuss the current and future management of CWD. The summit drew participants from multiple state agencies in the mid-Atlantic region and consisted of two days of problem-solving, collaboration, and sharing of critical information to enhance CWD management.

Metagenomics

As part of a national collaboration, WFP is leading an effort to characterize the viral communities present in the upper respiratory tracts of white-tailed and mule deer across the United States. Using metagenomics, WFP analyzed the viral RNA on nasal swabs collected from 210 deer across nine states and 14 locations representing various landscapes. The first results confirm the presence of viruses, such as SARS-CoV-2, known to infect deer populations. However, they also reveal the presence of viruses previously not reported in deer. Notably, a new virus related to a bovine rhinitis virus and belonging to the Aphthovirus genus was detected in seven states and ten locations. These findings will be shared with state wildlife agencies to better inform disease and deer management strategies.

CONSERVATION K9s

After three and a half impressive years marked by challenges, successes, and novel research, WFP's Conservation K9 program has completed its CWD detection pilot study. The human and canine team members invested countless hours into this project, demonstrating that Conservation K9s can be effective for wildlife disease surveillance applications. We are incredibly proud of this team and all they've accomplished, as their research will surely be an aid to working dog programs facing similar wildlife disease concerns in other regions.

As this chapter closes, the Conservation K9 program will pivot from disease detection to wildlife conservation efforts. Two of our

handlers, Elle Battista and Robyn Strong, will be moving on to pursue other endeavors, and we are confident that they will continue to make a positive impact. Conservation K9 Supervisor Brenna Aizen and handler Anne Hong, along with K9s Ukee and Vara, will remain in Pennsylvania to work on conservation projects throughout the mid-Atlantic region.



WILD TURKEYS

WFP has partnered with the PGC and Penn State on the Wild Turkey Project, a five-year study of wild turkey populations in Pennsylvania. This project involves the live capture of turkeys, obtaining biological samples for testing, and tagging the birds with radio transmitters to record their movements, habitat use, nest success, and survival rates. WFP is leading the effort to determine the effects of pathogens on turkey populations.

This year marked the last year of field captures, and WFP has completed lab analysis of all collected samples. Preliminary results show the presence of lymphoproliferative disease virus (LPDV), reticuloendotheliosis virus, and avian *Mycoplasma* species in

Pennsylvania wild turkey populations. Additionally, gastrointestinal parasites were found in the majority of turkeys, and 40% of the study birds had a coinfection of both gastrointestinal parasites and LPDV. Collaborators at Penn State are investigating the effects of these coinfections on wild turkey populations.

EASTERN COTTONTAILS

WFP is partnering with the PGC on a landscape genetics study of Eastern cottontails to better understand population structure and identify landscape features that influence population connectivity across Pennsylvania. This project will provide key insights into how rabbit hemorrhagic disease virus-2, a highly contagious disease, could spread in the event of an outbreak in the wild, enabling the PGC to take proactive measures to mitigate its impact. This past winter, WFP staff collected tissue samples and communicated with hunters at rabbit hunt tournaments, significantly advancing the project and adding hundreds of new samples to our dataset. To date, more than 1,400 genetic samples have been collected from rabbits statewide.





BARN OWLS

Barn owls are an Species of Greatest Conservation Need (SGCN), having faced a 53% population decline in recent years. WFP recently completed a multiyear study to investigate the effects of pesticides on the Pennsylvania barn owl population. Preliminary results demonstrate relatively low exposures to anticoagulant rodenticides compared to similar data obtained for other wild birds and mammals in Pennsylvania and the surrounding region. Additional analyses to assess exposures to neonicotinoids, a newer pesticide, are underway.

BIRD POPULATIONS

WFP recently completed the first stage of research on the persistent effects of West Nile virus (WNV) on Pennsylvania's breeding bird populations, providing the first multispecies, landscape-scale assessment of WNV impacts in over 15 years. These updated findings are needed to improve future health outcomes for both wildlife and humans.

Of the 155 bird species assessed, 20% showed some signature of WNV

response at local and state levels, including American woodcocks, killdeer, and red-tailed hawks. The work represents one of the first applications of novel methods developed by collaborators at the Canadian Wildlife Service and National Audubon Society, and leverages 20 years of North American Breeding Bird Survey and Pennsylvania mosquito surveillance data to model how conditions favorable to WNV occurrence affected bird abundance. Ongoing work will include cross-species comparisons of traits, behaviors, and habitats that predict WNV response, and motivate more field-based efforts to manage the virus.

ALL SPECIES

Biorepository

WFP is working to establish a biorepository that will contribute to research and facilitate interinstitutional collaboration. Over the past year, we made several significant enhancements to the biorepository to support our growing research needs, including the purchase and installation of the Insight monitoring system, which safeguards these valuable samples. To accommodate our increasing number of samples, a new -20°C freezer was installed, and new -80°C units were purchased and current units upgraded to energy-efficient Thermo Scientific TSX Universal models. In addition to infrastructure upgrades, we successfully piloted our new standard operating procedures and submission documentation with the PGC. We currently have nearly 6,000 biorepository samples, and over 20,000 research samples.



Pennsylvania Wildlife Action Plan

This project embeds fish and wildlife health into Pennsylvania's Wildlife Action Plan (PA WAP) revision for the next decade, 2025–2035. As threats from disease, contaminants, and climate change grow, health is now recognized as a core pillar in protecting SGCN and maintaining resilient ecosystems. Led by the WFP in partnership with the PGC and the Pennsylvania Fish and Boat Commission, the project assessed health threats to more than 250 SGCN. Threats were prioritized based on current presence, potential to spread, and level of uncertainty. Expert input, literature reviews, and stakeholder engagement helped identify priority needs and evidence-based actions. The outputs from this project are the first standalone wildlife health section of the PA WAP, a comprehensive appendix mapping specific threats and actions across more than 250 species, and health priorities and recommendations integrating into individual species accounts throughout the plan. The full PA WAP will be released for public comment and finalized later this year. No other state in the region has incorporated health to this extent, positioning Pennsylvania as a regional leader in forward-thinking, science-based conservation.



ACADEMIC AND PUBLIC EDUCATION

Uniquely positioned within Pennsylvania's only veterinary school, WFP provides education, training, and outreach opportunities for the public and future wildlife researchers, veterinary practitioners, and other stakeholders. Training the next generation of wildlife health professionals is crucial for preserving biodiversity and safeguarding ecosystems against emerging diseases.

VETERINARY STUDENT OPPORTUNITIES

This year, we expanded our research opportunities to veterinary, master's, and undergraduate students, with topics ranging from tick-borne pathogens to the impact of climate change on wildlife health metrics. WFP faculty provide lectures and hands-on labs in the core curriculum to first- and second-year veterinary students on a variety of topics, from stabilization techniques for wildlife patients, to parasites, viruses, and toxins.

Beginning in spring 2025, WFP veterinarians offered two wildlife elective courses for third-year students, with lectures addressing wildlife diseases, diagnostics, capture and handling, and hands-on labs to practice clinical techniques and diagnostic procedures. Twenty-three students enrolled in one or both of these courses, making the inaugural year a success.

COMMUNITY AND SCHOOL EVENTS

WFP participated in multiple educational outreach activities for the public this year, including the Pennsylvania Trappers Association Rendezvous, the Elk Expo, and the Pennsylvania Farm Show. Wildlife health technicians provided wildlife education to their regions through disease presentations, speaking with students at career days, and assisting with wildlife health lessons at the Wildlife Leadership Academy.

WFP assisted with Penn Vet's fall and spring BioBlitzes, two-hour wildlife surveys in Philadelphia's James G. Kaskey Memorial Park and BioPond.

In October 2024, WFP partnered with other Penn offices to host the Bat Bonanza, an event highlighting the importance of bat conservation. The event included the construction of five large bat boxes, which have been erected across Penn's Philadelphia campus to increase urban bat habitats.

ACCESSING URBAN NATURE INITIATIVE

WFP team members were awarded an inaugural Draw Down the Lightning grant from the University of Pennsylvania to support the Accessing Urban Nature Initiative. This project uses trail cameras placed along a gradient of urbanization to monitor wildlife populations living in Philadelphia. The data collected will be shared with our outreach partners in the southeast region to educate and promote curiosity among urban residents about the wildlife that inhabits cities.

NATIONAL DEER ASSOCIATION

In collaboration with the National Deer Association, we produced a video and two podcasts to promote wildlife health and provide research updates to a broad audience. The podcasts covered our CWD mortality study and WFP's first five years, and the video showed hunters the "journey" their deer heads take while being tested for CWD.

PUBLICATIONS & NEW STAFF

PUBLICATIONS

Adcock K, Weyna AAW, Yabsley MJ, Back RE, Garrett KB, **Niedringhaus KD**, Kunkel MR, Fenton HMA, Keel MK, Bahnson CS, Elsmo E, Nemeth NM. Trichomonad disease in wild turkeys (*Meleagris gallopavo*): pathology and molecular characterization of *Histomonas*, *Tetratrichomonas*, *Tritrichomonas*, and *Simplicimonas* spp. *J Wildl Dis* 2024;61(1):131-147. <https://doi.org/10.7589/JWD-D-24-00050>.

Dayan DB, Hanley BJ, Stiller J, Richter W, Gregg ♦ ID, Huck ♦ NR, Huang MT, Nichols TC, Spliethoff HM, Becker JC, **Murphy LA**, Schuler KL. Environmental contaminants assessment for frequently harvested migratory waterfowl in the Northeast Atlantic flyway. *Sci Total Environ* 2025;963(1):178474 <https://doi.org/10.1016/j.scitotenv.2025.178474>.

Greening SS, Ellis JC, Lewis NL, Needle DB, Tato CM, Knowles S, Shearn-Bochsler V, Miller JL, Grear DA, Lorch JM, Blehert DS, Burrell C, **Murphy LA, Miller EA**, Ogbunugafor CB, Ayala AJ, Thomas WK, Sevigny JL, Gordon LM, Baillargeon T, Mwakibete L, Kirchgessner M, Casey CL, Barton E, Yabsley MJ, **Anis E, Gagne RB**, Klein P, Driscoll C, Sykes CA, Poppenga RH, Nemeth NM. An enigmatic wild passerine mortality event in the Eastern United States. *Vet Sci* 2025;12(1):48-60. <https://doi.org/10.3390/vetsci12010048>.

Greening SS, Pascarosia LR ♦, Munster AL ♦, **Gagne RB, Ellis JC**. 2025. Climate change as a wildlife health threat: A scoping review. *BMC Vet Res* 2025;21:60. <https://doi.org/10.1186/s12917-025-04516-2>.

Høy-Petersen J, Niedringhaus K., Henderson D.M., **Armstrong J.P.**, Livengood J., Tewari D., **Gagne R.B., Gibison M.** RT-QulC detection of chronic wasting disease prions in third eyelids from white-tailed deer. *Sci Rep* 2025;15:8946. <https://doi.org/10.1038/s41598-025-94146-3>

Hewitt J, Wilson-Henjum G, Chandler JC, Philips AT, Diel DG, Walter WD, Baker A, **Høy-Petersen J**, Bastille-Rousseau G, Kishimoto T, Wittemyer G, Alder J, Hathaway S, Manlove K, Gallo T, Mullinax J, Coriell C, Payne M, Craft ME, Garwood MC, Plimpton LD, Wilber MQ, Grove D, Koseiwska J, Muller L, Pepin KM. Evaluation of SARS-CoV-2 antibody detection methods for wild Cervidae. *J Prev Vet Med* 2025;241:106522. <https://doi.org/10.1016/j.prevetmed.2025.106522>

Mallikarjun A, Wilson C, Charendoff I, Moore MB, Nguyen E, Hendrzak AJ, **Gibison M**, Otto CM ♦. Dogs can generalize from cotton training aids to fecal matter in chronic wasting disease detection. *J Wildl Dis* 2025;61(3):600-608. <https://doi.org/10.7589/JWD-D-24-00093>.

Marques AD ♦, Hogenauer M ♦, Bauer N ♦, **Gibison M**, DeMarco B ♦, Sherrill-Mix S ♦, Merenstein C ♦, Collman RG ♦, **Gagne RB**, Bushman FD. (2025) Evolution of SARS-CoV-2 in white-tailed deer in Pennsylvania 2021–2024. *PLOS Pathogens* 21(1):e1012883. <https://doi.org/10.1371/journal.ppat.1012883>

McCabe RA, Aarvak T, Aebischer A, Bates K, Bety J, Bollache L, Brinker D, Driscoll C, Elliot KH, Fitzgerald G, Fuller M, Gauthier G, Gilg O, Holt D, Jacobsen KO, Johnson D, Kulikova O, Lang J, Lecomte N, McClure C, McDonald T, Menyushina I, **Miller EA**, Morozov VV, Øien IJ, Robillard A, Rolek B, Sittler B, Smith N, Sokolov A, Sokolova N, Solheim R, Soloviev M, Stoffel M, Weidensaul S, Wiebe KL, Zazelenchuck D, Therrien JF. Status assessment and conservation priorities for a circumpolar raptor: the Snowy Owl *Bubo scandiacus*. *Bird Conserv Int* 2024;34:e41. <https://doi.org/10.1017/S0959270924000248>

Niedringhaus KD, Chan TC, McDowell A, Maxwell L, Stevens M, Potts L, Miller E, Anis E, Van Why K, Keller T ♦, Stallknecht D, Poulson RL, Bahrs K, Brown JD. Surveillance of Highly Pathogenic Avian Influenza Virus in Wild Canids from Pennsylvania, USA. *Animals*. 2024;14(24):3700. <https://doi.org/10.3390/ani14243700>

Pacheco, MA, Cepeda, A.S., **Miller, EA**, Beckerman, S., Oswald, M., London, E., Mateus-Pinilla, N.E. and Escalante, A.A., 2024. A new long-read mitochondrial-genome protocol (PacBio HiFi) for haemosporidian parasites: a tool for population and biodiversity studies. *Malar J* 2024;23(1):134. <https://doi.org/10.1186/s12936-024-04961-8>.

Pepin KM, Combs MA, Bastille-Rousseau G, Craft ME, Cross P, Diuk-Wasser MA, **Gagne RB**, Gallo T, Garwood T, Heale JD, Hewitt J, **Høy-Petersen J**, Malmberg J, Mullinax J, Plimpton L, Smith L, VanAcker MC, Chandler JC, Walter WD, Wilson-Henjum G, Wittemyer G, Manlove K. Expanding national-scale wildlife disease surveillance systems with research networks. *Ecol Evol* 2025;15:e71492. <https://doi.org/10.1002/ece3.71492>

Potts L, Gereg I, Garrett KB, Yabsley MJ, **Niedringhaus KD**. Hepatozoonosis in free-ranging American mink (*Neovison vison*) in Pennsylvania, USA: Case Series. *J Wildl Dis* 2025;61(3):732-735. <https://doi.org/10.7589/JWD-D-24-00172>.

Rebollada-Merino A, **Chan TC**, Guarino C, Taylor RP, Hitchener GR. Pyovagina and sepsis due to *Streptococcus didelphis* in a Virginia opossum. *J Vet Diagn Invest* 2025;37(3):479-481. <https://doi.org/10.1177/10406387251319266>.

Sobotyk C ♦, Dietrich J ♦, Verocai GG, **Maxwell L, Niedringhaus K.** *Thelazia callipaeda* eyeworms in American black bear, Pennsylvania, USA, 2023. *J Emerg*

NEW STAFF

Infect Dis 2024;30(9):1961-1964. <https://doi.org/10.3201/eid3009.240679>

Stilz CR, Kunkel MR, Keel MK, Fenton H, Weyna AAW, **Niedringhaus KD**, Andreasen VA, McKinney AS, Maboni GM, Nemeth NM. 2025. Aspergillosis in 41 wild bird species in the eastern United States: a 22-year retrospective review. *J Vet Diagn Invest* 2025;37(2):305-316. <https://doi.org/10.1177/10406387241313484>.

Timmons J, **Shaub M**, **Scherer L**, **Gereg I**, **Maxwell L**, **Potts L**, **Stevens M**, **Vile M**, **Miller EA**, **Niedringhaus KD**. 2025. Pathologic findings of cranial abscesses involving the pituitary gland in free-ranging white-tailed deer (*Odocoileus virginianus*) in Pennsylvania. *Animals* 2025;15(3):409. <https://doi.org/10.3390/ani15030409>

Weyna A, Luley E, Brown JD, **Niedringhaus KD**, Gibbs S, Nemeth NM. Hypertrophic osteopathy in 4 white-tailed deer (*Odocoileus virginianus*) with review of the literature. *J Vet Diagn Invest* 2025;37(2): 340-344. <https://doi.org/10.1177/10406387251318413>.

White RT, Bakker S, Bloomfield M, Burton M, Elvy J, Eustace A, French NP, Grant J, **Greening SS**, Grinberg A, Harland C, Hutton S, Karkaba A, Martin J, Matthews B, Miller H, Straub C, Tarring C, Taylor W, Ussher J, Velasco C, Voss EM and Dyet K. 20 years later: Unravelling the genomic success of New Zealand's home-grown AK3 community-associated methicillin-resistant *Staphylococcus aureus*. *Microb Genom* 2025; 11(7). <https://doi.org/10.1099/mgen.0.001452>.

Xu X^{*}, **Murphy LA**. Targeted quantification of per- and polyfluoroalkyl substances (PFASs) in livestock serum by liquid chromatography–high-resolution mass spectrometry. *J Vet Diagn Invest* 2024;36(6):902-906. <https://doi.org/10.1177/10406387241268224>.



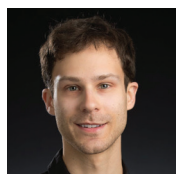
Taylor Chan, diagnostic pathology fellow, holds a DVM from the University of California–Davis and is a Diplomate of the American College of Veterinary Pathology, having completed an anatomic pathology residency at Penn Vet. As a postdoctoral fellow working with both the mammalian pathology service of PADLS and the wildlife pathology service with WFP, she provides diagnostic services and utilizes her unique position to study diseases in agriculture, companion animals, and wildlife.



Madison Davis, chronic wasting disease research technician, holds an MS in animal and veterinary sciences. During her thesis work, Davis specialized in utilizing the prion amplification assay, RT-QuIC, to determine the role scavenger animals may play in CWD ecology by assessing prion activity in bobcat feces. She also has an extensive background in molecular biology research, specifically with the bacterium *Coxiella burnetii*, the causative agent of Q fever. At WFP, Davis conducts CWD research using RT-QuIC to optimize novel cervid tissues for diagnostics and works on CWD genetic projects for white-tailed deer in Pennsylvania.



Anne Hong, conservation K9 handler, holds a PSM in wildlife management. She brings over 20 years of experience in field biology and ecology to WFP. Hong and K9 Vara combine their passion and skills in conservation, dog training, and odor detection work.



Ryan Koch, postdoctoral researcher, holds an MS and a PhD in parasitology. His work at WFP aims to investigate the dynamics of pathogen and parasite coinfection in Pennsylvania wild turkeys, with the broader goal of understanding how diseases affect turkey populations. This work is part of a larger collaboration with the PGC and researchers at Penn State.



Brianna Micsky, wildlife health technician, holds a BS in animal science with a pre-veterinary emphasis and a chemistry minor, and has experience in both clinical and field settings working with a variety of domestic and wildlife animal species. She is stationed in the north central region of the Commonwealth and works closely with the PGC to respond to wildlife health incidents, conduct wildlife disease research, and assist with ongoing fieldwork.

NEW STAFF



Johannes Nelson, data analyst, has a master's degree in environmental studies from the University of Pennsylvania, where he specialized in conservation biology and data science. His work bridges ecology and technology, with expertise in machine learning, bioacoustics, and data engineering. At WFP, Nelson manages the development of data integration pipelines and analytics tools for SWHIS. He collaborates closely with software developers to enhance system functionality and supports state agencies with data onboarding, validation, and dashboard design, thereby improving wildlife disease monitoring and reporting.



Elizabeth Signore, wildlife health technician, has a background in field and laboratory necropsies across many species. She holds an MS in biology, with a focus on tickborne diseases in Pennsylvania, and effectively communicates her passion for ecology and physiology to the public. Working closely with the PGC, local rehabilitation centers, and the public, she responds to reports of sick wildlife. She conducts wildlife disease surveillance in the southeast region of Pennsylvania.



Sarah Tomke, postdoctoral researcher, has a PhD in wildlife sciences, with expertise in aquatic ecology and conservation genetics. Her diverse professional background in herpetology, population genetics, and environmental DNA brings unique contributions to WFP, where she utilizes landscape resistance modeling and population genetics to predict how infectious diseases are likely to spread throughout wild populations.



Sarah Way, wildlife administrative technician, has a BS in environmental biology from Millersville University. Her previous experience includes data management for Hawaii's state game program, hawk watching in Pennsylvania, and working as a microbiology lab technician. She accession samples for CWD testing and research projects and helps with the biorepository at WFP.

