



CANADIAN
**WILDLIFE HEALTH
COOPERATIVE**



**IMPACT
THROUGH
ENGAGEMENT**
ANNUAL REPORT
2024-2025



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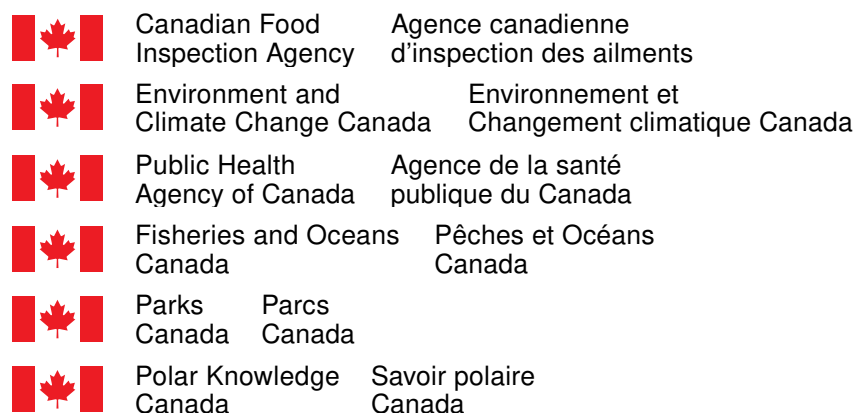
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MESSAGE FROM THE CEO

The Canadian Wildlife Health Cooperative (CWHC), in collaboration with our federal, provincial, and territorial partners, serves as the backbone of Canada's wildlife health surveillance system for wildlife health, providing critical insight into existing and emerging wildlife health issues through scanning and targeted surveillance. Whether it's detecting shifts in endemic pathogens, alerting the public to rising risks, or flagging the first signs of novel threats, our surveillance systems translate wildlife health data into actionable intelligence. In 2024, the CWHC remained a national leader in tracking the ongoing spread of Highly Pathogenic Avian Influenza (HPAI) in wild species, working alongside our federal, provincial, territorial and academic partners in a unique and successful Pan-Canadian collaboration. In addition to our core work to monitor the health of wildlife in Canada, we also maintained programs on critical concerns such as bat health, health of species at risk such as caribou, bison, and sage grouse, marine mammal health, and continued to expand our work in Nunavut. In parallel, we continued to advance Canada's wildlife health intelligence infrastructure, pioneering web-based tools to improve how information is shared across jurisdictions and disciplines.

DAMIEN JOLY, PhD
CWHC CHIEF EXECUTIVE OFFICER

PARTNER ACKNOWLEDGEMENT





IMPACT THROUGH ENGAGEMENT





IMPACT THROUGH ENGAGEMENT

The theme for this year's report is "Impact Through Engagement": how the CWHC provides additional critical value to federal, provincial, and territorial partners, industry, academia, and the general public through a series of engagement activities made possible by the expertise and experience we have developed over the past three decades plus.

The traditional cornerstone of the CWHC continues to be both general and targeted surveillance, with our continued diagnostic work being a vital component in Canada's ability to detect changes in wildlife health populations due to disease, environmental factors, and human activity.

However, the true strength of the network lies in a commitment to transforming data into decisions. The diagnostic and surveillance activities we conduct across Canada generate a wealth of information about wildlife health, emerging diseases, and ecosystem change. But data alone are not enough. Through detailed interpretation, synthesis, and expert contextualization, we convert raw findings into actionable intelligence—guiding policy, informing management decisions, and shaping research priorities at the federal, provincial, and territorial levels. This knowledge translation is complemented by our proactive efforts to communicate key findings and broader wildlife health narratives to diverse audiences. Whether through targeted briefings, public events, media engagement, or digital outreach, we ensure that the results of our work reach beyond technical circles to support a well-informed public and responsive decision-making across sectors.

Throughout this report, we highlight how the CWHC amplifies the value of its core surveillance and diagnostic work by engaging meaningfully with diverse audiences across Canada. Our activities extend far beyond the lab, encompassing a wide range of collaborative and communicative efforts. These include public outreach initiatives like Ontario's participation in the Heroes for Wildlife weekend; academic engagement through the unique wildlife pathology residency program and regular wildlife clinical rounds; and targeted social media campaigns such as our highly interactive Bat Week. We also showcase community-driven projects like the Vancouver Rat Project, and explore the importance of Indigenous engagement, including work in Nunavut and connections to environmental stewardship in regions like Namaska.

Our role in managing and responding to media inquiries - particularly under tight deadlines and in coordination with governmental stakeholders - underscores the CWHC's function as a trusted public communicator. Together, these efforts illustrate how we extend the impact of our surveillance results, ensuring that knowledge generated is both applied in decision-making and shared across the broader landscape of public, academic, and governmental audiences.

ONLINE ACTIVITY

73,597 WEBSITE PAGE VIEWS

21,672 UNIQUE WEBSITE VISITORS

18,781 SOCIAL MEDIA REACH

104 SOCIAL MEDIA POSTS

OVER 2000 PHONE CALLS AND EMAILS





SOCIAL MEDIA

BAT WEEK

Bat Week is an annual, international celebration of the role of bats in nature, designed to raise awareness about the need for bat conservation. The CWHC has been an active participant on the Bat Week organizing committee since 2015, delivering in-person and online events, providing public outreach sessions, and bringing outreach and celebration resources to our extensive network of partners across Canada and beyond.

Bats are a taxon of animals that are often misunderstood by the public. Misconceptions about these animals cause fear and inappropriate actions that are a real threat to the conservation of species at risk. The misconception that all bats spread diseases or that they reproduce quickly and chew holes in our houses limits our ability to protect bats when colonies or individual animals are living near human residences. People tend to fear what they don't understand, but knowledge is power, and when people understand bats and their role in nature better, people become empowered to help bats in need, rather than fear and hurt what they do not know.

Bat Week puts the figurative spotlight on bats (as bats don't like literal spotlights) to bust myths, represent bats as the amazing and important animals that they are, and encourage people to participate in conservation actions. CWHC contributes to the annual organization of Bat Week by serving on the organizing committee. We help create and refresh digital resources on www.batweek.org and social media and update educational tools. We have expanded Canadian partnerships to join the organizing committee and ensure continued Canadian representation in Bat Week activities and outreach materials. We help distribute information on outreach programs and materials to our Canadian network.

CWHC's direct impact through Bat Week social media posts reaches over 10,000 people with posts shared by partners including the Western Canada Bat Conservation Program, the Alberta Community Bat Program, the BC Community Bat Project, and the Canadian Wildlife Federation. Through our professional network, we reach over 300 people representing across Canada and the United States at least 18 academic institutions, 19 NGOs and Indigenous groups, and 22 governmental agencies.

Through this, we help to broaden community participation in Canada that reaches far beyond that of our direct partners and network. All of these contributions help to increase media coverage of Bat Week and subsequently bring bat conservation topics and opportunities to the attention of even more people.

CWHC remains committed to stay engaged in the annual organization of Bat Week and bring education about bats to the Canadian people.

PUBLIC OUTREACH

HEROES 4 WILDLIFE'S ENVIRONMENTAL AWARENESS FESTIVAL

The CWHC was well represented at Heroes 4 Wildlife's Environmental Awareness Festival in Oshawa, Ontario on October 15-17. The Ontario/Nunavut region's Communications Coordinator, Jenna Matsuba (left) and Co-op student, Abby Irwin (right) spoke with several hundred families about the work being done at the CWHC and the importance of wildlife health surveillance.

Abby and Jenna showed parents and kids alike wildlife specimens up close, including various skulls and parasites, distributed brochures on proper bird-feeder cleaning procedures, and facilitated a bird identification game to introduce people to common Ontario species. Events like this are a great way to spread awareness about the organization, while equipping fairgoers with resources on how to handle various wildlife situations and contribute to current research as citizen scientists. We hope to have made new connections with both those attending the festival and the other vendors for future monitoring efforts!





ACADEMIC INTEGRATION

61 PEER-REVIEWED PUBLICATIONS
12 TECHNICAL PUBLICATIONS
105 PRESENTATIONS, WORKSHOPS,
AND COMMITTEES
23 EDUCATION AND
CAPACITY BUILDING
ENGAGEMENTS

ACADEMIC INTEGRATION

TRAINING THE NEXT GENERATION: VETERINARY RESIDENCY IN WILDLIFE HEALTH MANAGEMENT

Education, whether in formal training programs or more informal public forums/outreach, is of primary importance to the CWHC. To help further this goal, the CWHC-Quebec (Centre québécois sur la santé des animaux sauvages) at the Faculté de médecine vétérinaire, Université de Montréal, trains graduate veterinarians in wildlife health management through a 3-year clinical/paraclinical residency program, being one of the few in North America and completely unique in Canada. Upon completion, the resident is eligible to sit for the specialty medical board examination by the American College of Zoological Medicine in wildlife health. A concurrent M.Sc. in wildlife epidemiology is often done in parallel with the residency, expanding the technical skills and expertise to work within both academia and government.

To familiarize the resident with population health, applied research, policy decision making, and education outreach, the program partners with numerous agencies and organizations, such as the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Québec), Fisheries and Oceans Canada, Environment and Climate Change Canada, Nunavik Research Centre, Zoo de Granby, Parcs Canada, l'Union québécoise de réhabilitation des oiseaux de proie, and the Réseau québécois d'urgences pour les mammifères marins. Frequently, field research projects designed by these partners require veterinary medical input/assistance which helps to mold the practical field experience and training of the resident. Routine rotations through partner institutions such as the Zoo de Granby offer the resident a structured and secure environment to improve their clinical knowledge and competency that can be applied to wildlife populations in the future. In addition, mortality investigations, mostly in the form of necropsies, or addressing questions about specific pathogen issues in disease outbreaks form another prong of crucial development for the resident and the team of CWHC-Quebec, leading to improvements in the health of both provincial and federal wildlife populations.

By attending international and international conferences on wildlife health such as the Wildlife Disease Association or the International Association of Aquatic Animal Medicine, residents share the results of their individual research projects, strengthening the growing knowledge base of wildlife medicine, often specific or relevant to Canada. Finally, education outreach is routinely provided to local interested groups or indigenous communities by the resident through conferences at the Faculté de médecine vétérinaire and/or within their respective physical localities, giving important public health information/updates on infectious diseases such as Lyme's disease or food safety for hunters.

Previous residents from the program are employed in government agencies and/or private

institutions here in Canada and internationally, focusing on the improvement of wildlife health. These include: Guylaine Séguin (2007 – 2009) - Veterinarian for the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Québec) ; Sylvain Larrat (2009 – 2012) - Wildlife veterinary consultant in France ; Marion Jalenques (2017 – 2020) - Wildlife rehabilitation veterinarian in France, and Benjamin Jakobek (2021 – 2024) - Veterinarian for the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (Québec).



ACADEMIC INTEGRATION

WESTERN/NORTHERN ACADEMIC CONTRIBUTIONS

CWHC Western/Northern played an important role in training veterinary graduate students in the anatomic pathology and the zoo, exotics, and wildlife education streams at the Western College of Veterinary Medicine (WCVN). Weekly wildlife rounds were held during the academic year from September to April in a hybrid format (in-person and online). These weekly meetings consisted of detailed discussions and interactive sessions on interesting wildlife diagnostic cases and included case histories, gross pathology, and histopathology. Additionally, on several occasions, pathologists presented the gross lesions from newly submitted diagnostic cases at end-of-day seminars, which were attended by students and faculty at the WCVN.

During the school year, a senior pathologist with Western/Northern offers several courses to undergraduate and graduate veterinary students: two third-year electives, one on wildlife health and diseases and one on fish health, a two-week rotation for fourth-year WCVN students offered three times per academic year, and two graduate level courses, one on diagnostic pathology that is offered throughout the year, and one that consists of training clinical residents in wildlife diagnostic pathology for one week.

Senior pathologists supervised and trained a 3rd year veterinary anatomic pathology resident/post-doctoral fellow from the WCVN in wildlife pathology, helping her receive a one-year post-doctoral training position and gain eligibility to take the American College of Veterinary Pathologists (ACVP) board exam.

In November 2024, pathologists and staff held a teaching lab for the WCVN's student chapter of the Wildlife Disease Association (WDA). Ten students, the maximum capacity for the event, attended the half-day lab. They were given their own bird carcass to work on and were guided through an avian necropsy, with a pathologist demonstrating one concurrently. Students had the opportunity to ask questions and receive assistance while they conducted external and internal exams, collected tissues, and wrote postmortem notes on their findings. Twelve different bird species were included in the lab.

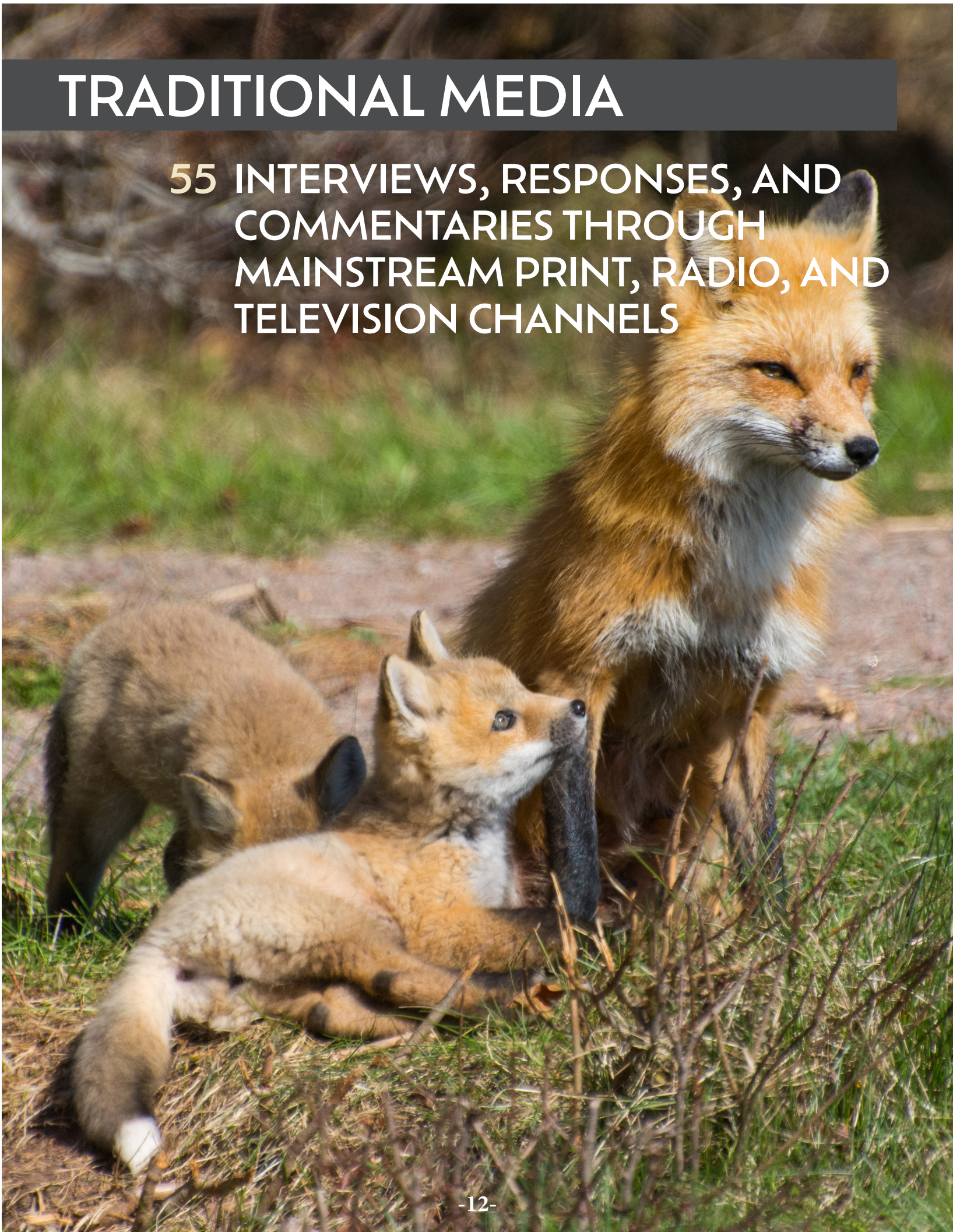
In December 2024, the Western/Northern node hosted two 4th year veterinary students from the Atlantic Veterinary College for a two-week wildlife diagnostics rotation. The rotation included training in mammal and avian necropsy techniques, gross pathology, and histopathology discussions.

In early 2025, trauma/discard wildlife cases were donated to WCVN Zoo and Exotics faculty members for use in veterinary undergraduate student teaching labs. The first-year lab usually focuses on pathology, and students perform a physical exam, go over some injections, and then perform a necropsy. This year, the pathology lab was conducted during the Students of the Canadian Veterinary Medical Association (SCVMA) Symposium and was attended by local students, as well as students from the Ontario Veterinary College and the University of Calgary's Veterinary Medicine program.



TRADITIONAL MEDIA

55 INTERVIEWS, RESPONSES, AND
COMMENTARIES THROUGH
MAINSTREAM PRINT, RADIO, AND
TELEVISION CHANNELS





TRADITIONAL MEDIA

SPEAKING UP FOR WILDLIFE: THE STRATEGIC ROLE OF MEDIA ENGAGEMENT

In an age of rapid news cycles and growing public concern about zoonotic diseases, environmental change, and biodiversity loss, communicating credible wildlife health information to the public has never been more important. The CWHC plays a vital role in helping Federal, Provincial, and Territorial agencies augment their capacity to provide timely, accurate information to the media.

Over the past year, our professional staff have been featured in over 50 media engagements, ranging from local radio interviews and national television spots to investigative features in major outlets such as The New York Times, CBC, and The Toronto Star. They have provided context on topics as varied as avian influenza in migratory birds, the detection of White-Nose Syndrome in bats, and unusual marine mammal mortalities. These appearances ensure that timely, scientifically sound information reaches the public and informs policy discourse. This response capacity is supported by the network of professionals embedded in research, diagnostics, and field surveillance who are equipped to respond on short notice with clarity and authority. For instance, in response to outbreaks of HPAI in multiple provinces, CWHC staff were able to offer nuanced insights into disease transmission, risks to domestic animals and people, and guidance for reporting and response. In doing so, we help alleviate pressure on our partner agencies as well as ensure that the public knows that Canada has a responsive wildlife health program.

CWHC staff routinely coordinate with federal and provincial agencies before and after interviews, providing heads-ups and post-engagement briefings to ensure alignment and situational awareness. This collaborative media strategy reinforces intergovernmental trust and underscores the value of having a national wildlife health network that bridges science, policy, and public communication.

Media engagement is not just about visibility—it's about responsibility. When CWHC speaks to the public, we are not only communicating what we know, but also reinforcing the importance of wildlife as sentinels of ecosystem health, helping Canadians understand the connections between animal health, environmental stability, and their own wellbeing. In doing so, we fulfill a role that would otherwise remain vacant, translating the results of our surveillance into knowledge that informs, reassures, and empowers the public.

INDIGENOUS ENGAGEMENT

STRENGTHENING COMMUNITY-BASED WILDLIFE HEALTH SURVEILLANCE IN THE NORTH: A HANDS-ON WORKSHOP

In March 2025, the CWHC partnered with the Kutz Research Group and the University of Calgary's Diagnostic Services Unit to deliver a hands-on wildlife health workshop for community members from across Nunavut's Kitikmeot Region and beyond. Led by Dr. Fabien Mavrot, the workshop focused on disease recognition, safe sample collection, and community-based monitoring—skills critical to food safety, public health, and local decision-making in the North.

Participants included guardians, harvesters, wildlife officers, and biologists, who engaged in peer-to-peer learning, necropsy demonstrations, and lab tours. Special attention was given to marine mammal health and zoonotic diseases such as avian influenza. The workshop emphasized the value of integrating Indigenous knowledge with Western science, while also reinforcing the importance of relationships, trust, and timely communication between researchers and communities.

By investing in these partnerships, the CWHC supports a growing network of northern experts empowered to respond to wildlife health concerns that directly affect their communities. This work not only builds local capacity, but strengthens Canada's broader wildlife health surveillance system.

Read the full article on our blog: <https://healthywildlife.ca/strengthening-community-based-wildlife-health-surveillance-in-the-north-a-hands-on-workshop/>



CWHC INNOVATION IN RESEARCH AND COLLABORATION AWARD



2024 RECIPIENT

DR. KAYLEE BYERS

CWHC INNOVATION IN RESEARCH AND COLLABORATION AWARD

Congratulations to Dr. Kaylee Byers on being awarded the **CWHC Innovation in Research and Collaboration Award** at our 2024 annual general meeting. She is a deserving winner for the award due to her significant and multifaceted contributions to wildlife health. Her success in securing grant funding from diverse agencies underscores the scientific merit and impact of her research. This funding has directly supported projects that demonstrate innovative solutions to challenges in wildlife health surveillance and innovation in disease and pathogen surveillance.

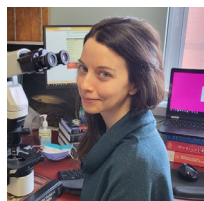
One of Dr. Byers' strengths lies in her commitment to promoting collaboration with CWHC stakeholders. Her partnerships with the BC Wildlife Health Program, various levels of government, and international organizations highlight her ability to forge meaningful connections and work across different sectors. Her dedication extends to wildlife surveillance outreach in rural and Indigenous communities, where she actively works to build capacity and incorporate local knowledge, addressing critical gaps in traditional surveillance methods.

Dr. Byers is a leader in communicating with the public on wildlife health matters. Her number of publications, podcasts, public talks, media appearances, and science communication training initiatives demonstrates her exceptional ability to translate complex scientific information into accessible and engaging formats for diverse audiences.

ABOUT THE AWARD

The **CWHC Innovation in Collaboration and Research Award** recognizes individuals associated with the Canadian Wildlife Health Cooperative who have demonstrated exceptional contributions to wildlife health through innovative research and collaborative efforts. Open to collaborators, researchers, diagnosticians, and conservation partners, this award honours achievements that advance wildlife diagnostics, conservation, and surveillance. Recipients will have meaningfully contributed in one or more of the following areas: fostering collaboration across CWHC nodes or with external stakeholders; securing grants for wildlife health research; developing innovative tools or approaches to disease surveillance, diagnostics, or conservation; engaging the public or Indigenous and rural communities in wildlife health initiatives; and leading efforts in identifying emerging threats or protecting endangered species.

PREVIOUS RECIPIENTS



Dr. Laura Bourque

2023

Establishment of CWHC Wildlife Rounds which bring together researchers from inside and outside the CWHC to review and discuss incidence of wildlife mortality and morbidity across North America.



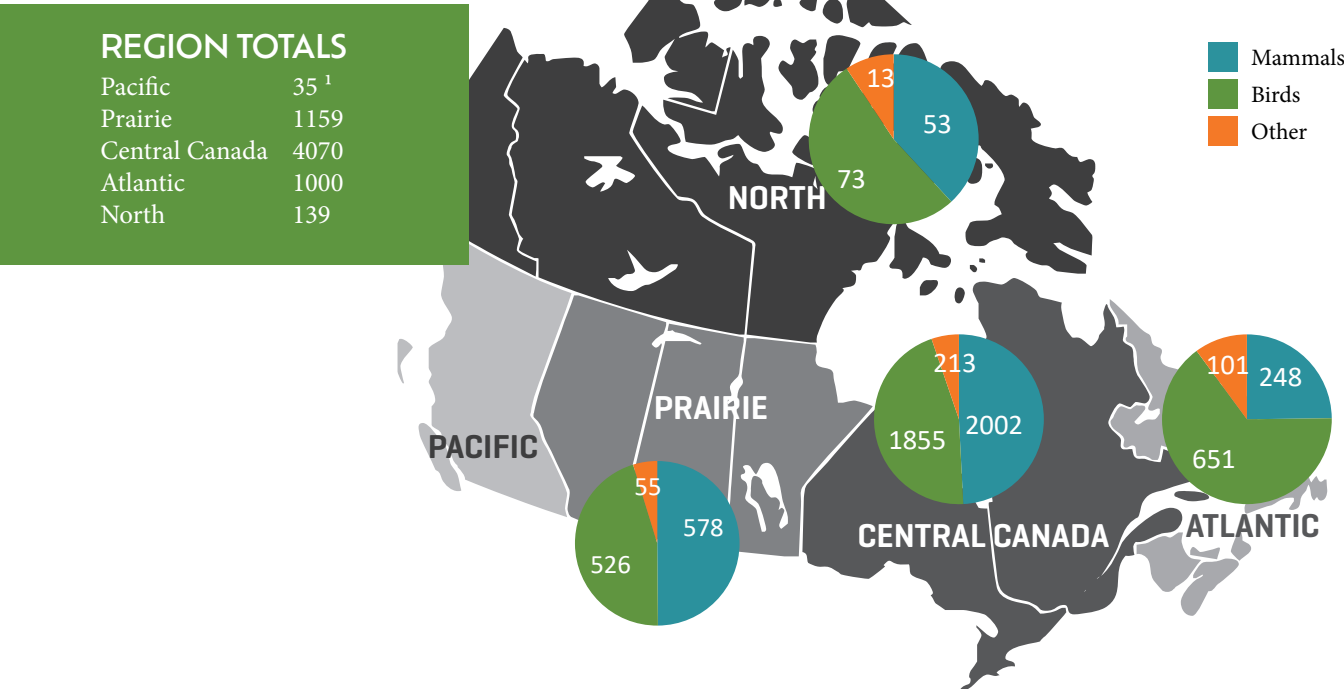
AROUND THE CWHC

6,403 ANIMALS REPRESENTING
308 UNIQUE SPECIES
5000+ INDIVIDUAL DIAGNOSTIC REPORTS

NATIONAL SURVEILLANCE

ANIMALS SUBMITTED BY REGION

²6,403 ANIMALS TOTAL
2024-04-01 to 2025-03-31



¹ Data captured and stored by the BC Government is not stored in the CWHC central database
² Numbers have changed since the preliminary executive summary was distributed as data not stored in the CWHC central database were integrated

SELECTED DISEASES

Project	Number of animals	
	Examined	Positive
Avian botulism	692	1
Avian cholera	692	0
Avian influenza	3212	364
Bovine tuberculosis	248	0
Canine distemper	1302	42
Chronic wasting disease	244	25
Newcastle disease	1237	1
Rabies	2740	57
Snake fungal disease	24	3
West Nile virus	3010	418
White-nose syndrome	297	3

REGIONAL HIGHLIGHTS

TAKING A CLOSER LOOK: A SELECTION OF CASES WITH SEEMINGLY OBVIOUS CAUSES OF DEATH WHERE CLOSER EXAMINATION LED TO THE DISCOVERY OF MORE SERIOUS UNDERLYING DISEASES

Due to time and budget constraints, cases where the direct cause of death is apparent may only receive a cursory postmortem examination. Further examination may not be done unless the pathologist believes the history and findings suggest an underlying condition. Using this triage/algorithmic judgment, however, do we miss important diseases more often than we should? The following cases from the past year illustrate this concern.

A bald eagle was found last fall on a highway with what appeared to be a broken wing and a cut on the side of its head. It is unclear if it was euthanized or died en route, but the presumed cause of death was trauma from being hit by a car. Several abnormalities were seen during necropsy, including changes to the kidney and a dark liver, but no broken wing. The thin condition and lack of fracture suggested to the pathologist another cause was involved. Histopathology was done and the liver was tested for lead. The results confirmed lead toxicity. Lead poisoning is a common diagnosis in bald and golden eagles in Saskatchewan, with three out of sixteen eagles received in the past year having died of it; another two died of other causes but had elevated lead levels which may have been a factor in their subsequent death. Toxicities in general may be missed without necropsies, especially when deaths do not cause mass mortality or leave few, if any, changes.

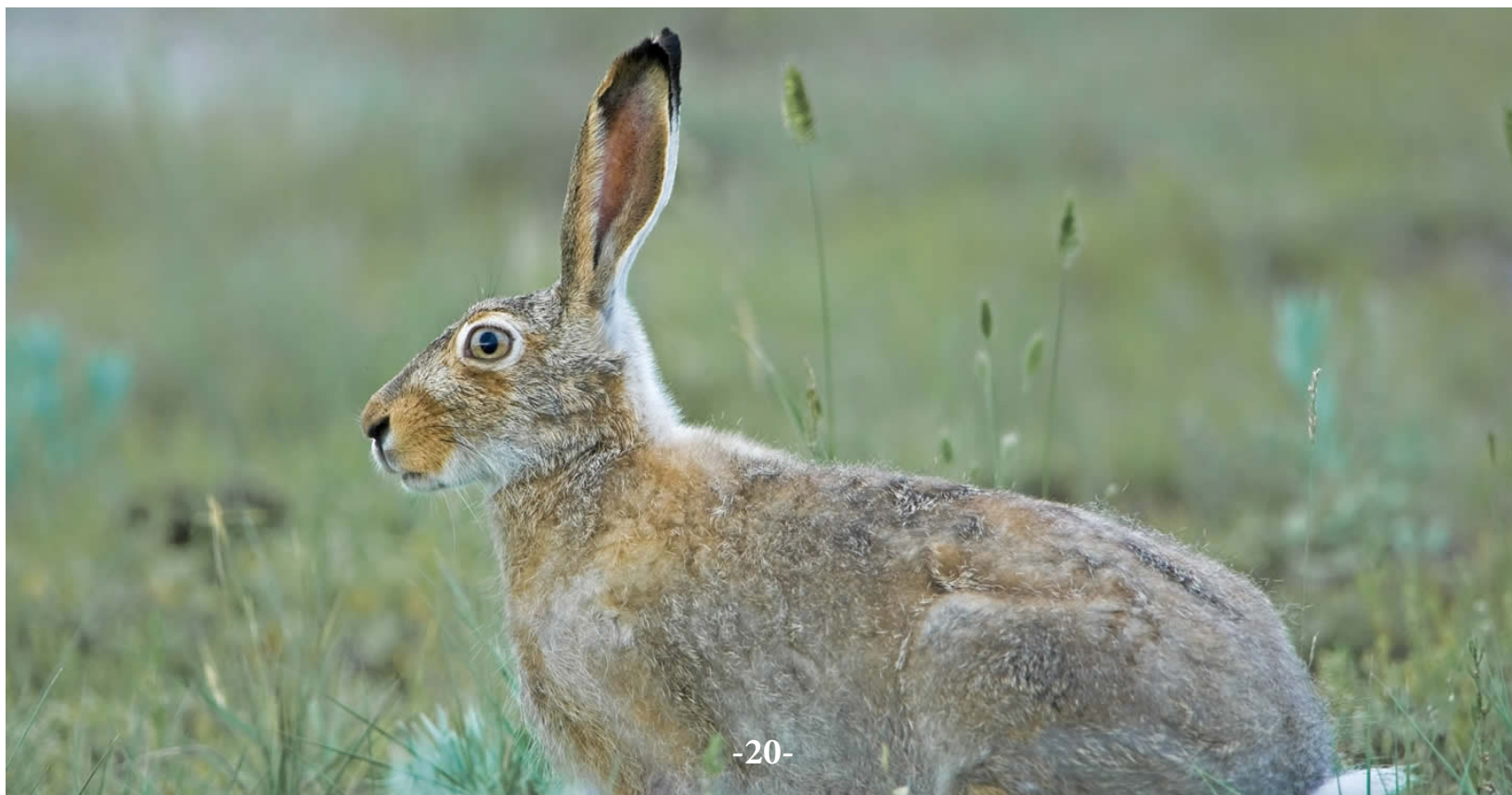
A tundra swan was submitted to our diagnostic program in November with a fractured wing and a large wound on its lower back. Routine cloacal and pharyngeal swabs for avian influenza virus (AIV) were taken, which later returned a negative PCR result. On examination, trauma to the wing was confirmed. A closer look revealed, however, pale areas in the brain and heart. After histological examination found further changes to the pancreas and liver, another AIV PCR test using tissue samples was done, which returned a positive result. Highly pathogenic H5N1 avian influenza viral infection was determined to be the cause of death. In the past year, highly pathogenic H5N1 avian influenza has become a prominent human health issue in North America, causing one confirmed human death in the United States in January 2025.

A white-tailed jackrabbit in late summer became the first confirmed case of Tularemia in Saskatoon since 2017. It was found after a lethargic and pregnant female rabbit was taken to the WCVS Small Animal Clinic where it was examined and died a short time later. Complications from the birthing process were presumed to be the cause of death. However, since this is an unusual diagnosis, a full postmortem examination was conducted to look for an underlying infectious cause. Histopathological examination prompted a test for Tularemia, which returned

a positive result. Tularemia, caused by the bacterium *Francisella tularensis*, causes severe illness and death in rabbits, hares, and rodents, and can infect other wild and domestic animals. It is a zoonotic disease that can be transmitted to humans through tick or deer fly bites or through handling infected animal carcasses. Human cases of tularemia are rare in Canada, but the disease can cause severe illness and even death if left untreated.

Another female white-tailed jackrabbit was found injured in Saskatoon in late summer and died en route to a rehabilitation center. On external examination, both hind legs were fractured, which could have ended the exam. However, this rabbit was submitted the same week that we received the rabbit mentioned above and a closer look was deemed important. After bacterial culture, it became clear that the rabbit was infected with *Listeria monocytogenes*, a zoonotic bacterium that can affect a wide variety of animals. Humans are typically infected by consuming food that has passed through food production or manufacturing environments contaminated with *L. monocytogenes*. Listeriosis symptoms in humans can range from mild flu-like illness to severe complications, with the severity of the infection and its effects depending on individual health. Pathologists at CWHC W/N have previously shown that this bacterium can cause septicemia and abortion in wild rabbits (Jamie L. Rothenburger, Katarina R. Bennett, Lorraine Bryan, Trent K. Bollinger; Septicemic Listeriosis in Wild Hares from Saskatchewan, Canada. J Wildl Dis 1 April 2015; 51 (2): 503–508. doi: <https://doi.org/10.7589/2014-06-159>).

The underlying causes in these cases could have been missed had the animals been discarded after a brief examination. As much as one would like to investigate every case, when time and budgets are limited, the triage process helps to use resources more efficiently. However, using this process, it is suspected that underlying causes are missed. How important this is to wildlife and human health may be limited but should be a consideration when reviewing data or developing retrospective and prospective studies.

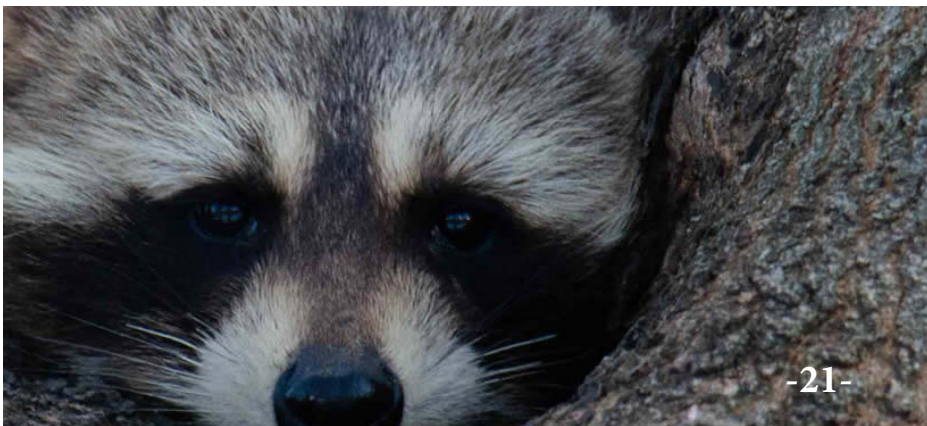


REGIONAL HIGHLIGHTS

TWO CASES OF RABIES IN QUEBEC WILDLIFE IN DECEMBER 2024

Two cases of rabies were diagnosed by the CWHC-Québec (CQSAS) in December 2024. The first case was observed on December 17 in a raccoon exhibiting neurological signs in Saint-Armand, less than 2 km from the United States border (Vermont). The animal was retrieved by a technician from the rabies surveillance program of the Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP), and submitted for analysis. A post-mortem examination of the animal revealed that this animal was affected by encephalitis (inflammation of the brain) with the presence of Negri bodies, suggesting an infection with the rabies virus (Figure 1). Rabies was confirmed in this animal by the Canadian Food Inspection Agency (CFIA), which identified the virus as belonging to the raccoon variant. The raccoon variant of rabies is primarily found in raccoons and striped skunks in the eastern United States. Cases of this variant have also been documented in Quebec, Ontario, and New Brunswick. Since rabies cases had been reported in recent weeks in Vermont, a few kilometres from the Quebec border, the rabies surveillance program had been intensified in this area. This case is of public health concern as it is the first documented case of the raccoon variant of rabies in Quebec since 2015. This variant presents a risk of spreading in Montérégie and Estrie. The MELCCFP, in collaboration with its partners, is currently exploring actions to limit the spread of this variant in Quebec. Potential measures may include enhancing the raccoon vaccination program in the spring.

A second case of rabies was diagnosed in a red fox observed on December 19 in northern Quebec. This fox, which also displayed neurological symptoms, was euthanized and submitted for analysis. As for the raccoon, rabies was confirmed in this animal by the CFIA. In this case, the Arctic fox variant was involved. Arctic fox rabies is endemic (present continuously) in northern Canada, including northern Quebec, with cycles that vary depending on factors such as the density of Arctic fox populations. It appears that the Arctic fox population is very abundant in northern Quebec this winter, which may explain the occurrence of an outbreak of rabies cases in this area. In Quebec, during Arctic fox rabies outbreaks, cases may be observed in Nunavik, but also in Abitibi-Témiscamingue, Côte-Nord, and Baie-James.





THANKS!

A HUGE THANKS TO OUR VERY OWN BAT MAN,
JORDI SEGERS, FOR HIS EXCEPTIONAL WILDLIFE
PHOTOGRAPHY, USED THROUGHOUT THIS REPORT

ALL FULL-PAGE WILDLIFE IMAGES ARE COURTESY OF
JORDI'S QUEST TO PHOTOGRAPH WILDLIFE IN EACH
CANADIAN PROVINCE AND TERRITORY!

EXCEPT

PAGE 15

PHOTO COURTESY OF GRADY MITCHELL

PAGE 8

PHOTO COURTESY OF AMÉLIA DALPÉ

REGIONAL HIGHLIGHTS

TRAUMATIC RETICULOPERITONITIS IN A WHITE-TAILED DEER

On June 7th, 2025 a white-tailed deer was found stumbling around and convulsing in a Toronto Cemetery. She unfortunately passed away later the same day. Toronto Animal Services and the Ministry of Natural Resources worked together to bring the deer to the CWHC for postmortem diagnostic testing. During the necropsy, the doe was found to be carrying a full-term fetus and had an abscess approximately 20 cm in diameter between the forestomachs and liver. Upon further investigation, a thin nail 3-5 cm in length was penetrating through the wall of the reticulum (stomach chamber) into the lumen of the abscess. Examination of her forestomachs revealed several similarly sized nails within the reticulum wall. The size and appearance of the abscess indicates that the doe was likely living with the infection for multiple weeks, and it is possible that stress from early stages of labour resulted in her sudden death. This type of infection, caused by a puncture in the reticulum due to a sharp metallic object, is known as traumatic reticuloperitonitis, or more commonly, Hardware Disease.

Hardware Disease is a condition most commonly seen in cattle. Cows are indiscriminate eaters, and are known to accidentally ingest foreign objects, such as nails, wires, and staples. Unlike sheep, goats, and horses who use their teeth and lips, cows use their tongue to sweep grass into their mouths. It is easy for small metallic objects to be swept up alongside the grass (Jones, 2020). The weight of these objects in combination with the anatomy of the reticulum, causes them to remain in the reticulum (Jones, 2020). These objects can penetrate or perforate the reticulum wall as it contracts, which allows leakage of ingesta and bacteria, contaminating the peritoneal cavity- the space between the major organs and the intestine (Braun, 2022). In severe cases an abscess can develop as a result.

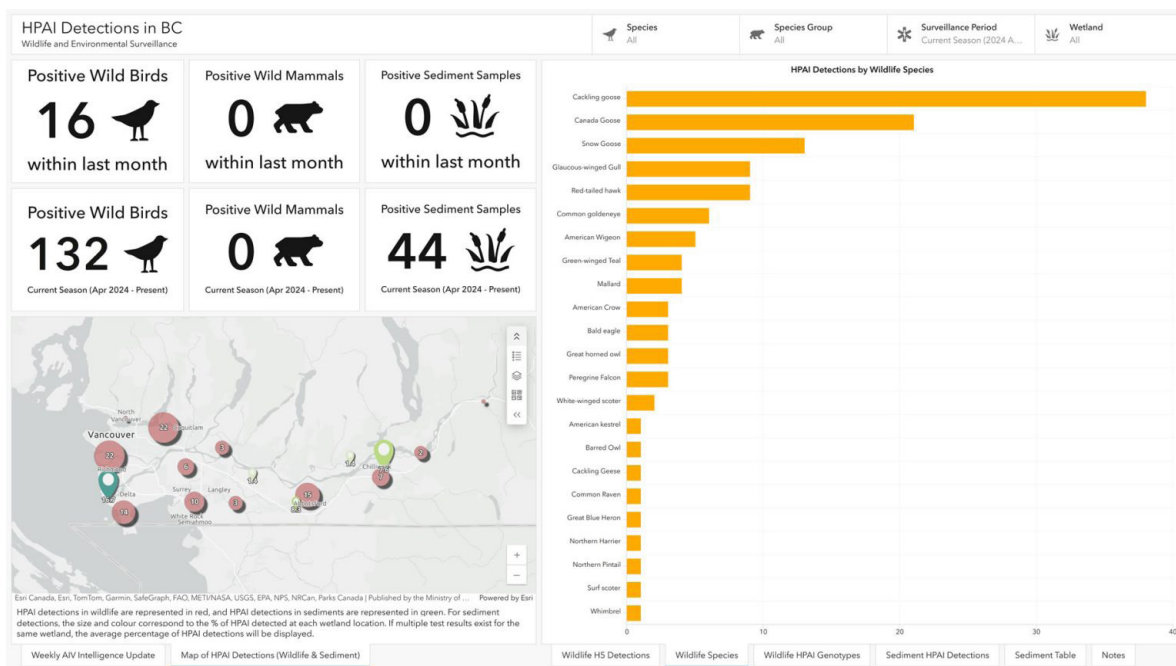
The unfortunate circumstances surrounding the death of this white-tailed deer serve as a reminder that humans can impact wildlife in unexpected ways. While nails are not part of a white-tailed deer's typical diet, they were in the environment where she was eating and were ingested regardless. The best way to prevent instances like this in wildlife is to always leave nature as we found it – taking with us all our garbage, including nails!



REGIONAL HIGHLIGHTS

BC WILDLIFE AVIAN INFLUENZA (AIV) SURVEILLANCE DASHBOARD: A POWERFUL TOOL FOR PROTECTING POULTRY AND WILDLIFE

British Columbia's rich wildlife and vital migratory bird habitats make it a key region for avian influenza virus (AIV) monitoring. To support these efforts, the BC Wildlife AIV Surveillance Dashboard was launched—an interactive platform that visualizes real-time data from passive surveillance (sick or dead wild birds and mammals) and environmental sampling (wetland sediments). With over 2,000 wildlife and 1,600 sediment samples tested since 2022, the dashboard offers accessible insights into trends, high-risk areas, and geospatial patterns of AIV across the province.



As waterfowl can carry and spread highly pathogenic AIV strains like H5N1 over long distances, this tool plays a critical role in early detection, risk assessment, and response. Its development reflects collaboration among provincial ministries, the Canadian Wildlife Service, and the BC Centre for Disease Control. By engaging communities and encouraging public reporting of dead or sick birds, the program strengthens both poultry protection and wildlife conservation. The dashboard is a prime example of how innovative, data-driven tools can translate complex surveillance into meaningful action.

For more information, please see the following blog article: <https://healthywildlife.ca/bc-wildlife-avian-influenza-aiv-surveillance-dashboard-a-powerful-tool-for-protecting-poultry-and-wildlife/>

REGIONAL HIGHLIGHTS

SNAPS IN 2024

Salamanders aren't just adorable, they also make a major contribution to ecosystem health and integrity. Sadly, many of our Salamanders in Canada are in trouble. Salamander species at risk in Canada include the Small-mouthed Salamander, Jefferson Salamander, Northern and Allegheny Mountain Dusky Salamanders, Eastern and Western Tiger Salamanders, Coastal Giant Salamander, Spring Salamander, Coeur d'Alene Salamander, and the Wandering Salamander.

With so many salamander species already at risk, the last thing we need is another dangerous disease that targets salamanders, like *Batrachochytrium salamandrivorans* (*Bsal*).

Bsal is closely related to the amphibian pathogen *Batrachochytrium dendrobatidis* (often shortened to 'chytrid', or *Bd*) which is known to affect more than 200 amphibian species, is linked to spread through the global pet trade, has caused extinctions, and continues to be a leading cause of amphibian mortality events worldwide. First detected in 2013, *Bsal* has caused significant declines of salamander populations in Belgium and the Netherlands. It does not occur in North America yet, and we are determined to keep it out if we can, and to detect it quickly enough to put up a fight if we fail to keep it out.

The Atlantic and Pacific Oceans are a very effective barrier to amphibian movements, so the most likely scenario for an invasion of *Bsal* into North America is an accidental introduction through the escape or intentional release of an infected pet amphibian. Because of this, Canada's first line of defense against *Bsal* is regulatory and takes the form of import restrictions/permitting requirements. Canada prohibits the import of all species of the order Caudata (such as salamanders, newts and mudpuppies) unless accompanied by a permit, and these restrictions also apply to eggs, sperm, tissue culture, embryos and other parts or derivatives. These restrictions were implemented under the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act (WAPPRIITA) and Wild Animal and Plant Trade Regulations (WAPTR) in 2018 and are intended to identify and protect wild Canadian salamander species from *Bsal*.

But what happens if *Bsal* gets through that first line of defence? Early detection of *Bsal* is essential for minimizing its negative impact. Unfortunately, early detection is inherently challenging, because it requires broad and long-term surveillance that can be expensive, time-consuming and logistically challenging. This is why the the Student Network for Amphibian Pathogen Surveillance (SNAPS) program is so important. The approach embraced by the SNAPS program is to build an integrated network of partners in surveillance coordinating and encouraging sampling for *Bsal* by diverse partners to achieve a reasonable level of surveillance. Much of the labour is an in-kind contribution by students and faculty at post-secondary educational institutions, and logistics costs are minimized by having the students sample locally.

The objectives of this approach are to increase *Bsal* awareness, engage volunteer personnel and citizen scientists, and to utilize dispersed in-kind resources to increase the amount of *Bsal* sampling we can accomplish with the resources available.

First implemented in the US in 2020, SNAPS has now expanded to Mexico and Canada, providing surveillance across the continent. It works differently in different countries. In Canada, SNAPS is coordinated by the CWHC with support from Environment and Climate Change Canada (ECCC). First implemented in Canada 2022, SNAPS has recently completed its third surveillance season. We have monitored sites in British Columbia, Alberta, Ontario, Quebec, New Brunswick, Nova Scotia and Newfoundland and Labrador. We are happy to report that there have been no *Bsal* detections so far.

SNAPS was developed specifically for *Bsal* surveillance, but we have also been using it for *Bd* surveillance across the continent, and in 2024, ECCC added ranavirus testing to the Canadian program as well, and both of these important pathogens have been detected in Canada. There have been detections of *Bd* in British Columbia, Ontario, Quebec, New Brunswick and Newfoundland and Labrador. We believe the *Bd* detection in Newfoundland was the first detection of this pathogen in that province. So far we have not detected *Bd* in Alberta or Nova Scotia. Our expanded surveillance in 2024 detected ranavirus in Quebec and New Brunswick. So far we have seen no mortality associated with any of *Bd* or ranavirus detections in the Canadian SNAPS program.

We would like to take this opportunity to thank everyone who worked so hard to make SNAPS happen in Canada this year. We thank Environment and Climate Change Canada for funding in support of the program, and the faculty and students of the Memorial University of Newfoundland, Mount Allison University in New Brunswick, Université de Sherbrooke in Quebec, University of Ottawa in Ontario, and the University of Lethbridge in Alberta for their hard work, and a special thanks to Krysia Tuttle and to Rebecca Golat who worked with members of the Special Bird Service to monitor several sites in British Columbia this year. The Special Bird Service Society aims to make nature more accessible, remove barriers, and challenge stereotypes present in the outdoors through birding, elevating people of colour and the 2SLGBTQ+ communities' voices, history, and values in nature. Thank you Special Bird Service!



REGIONAL HIGHLIGHTS

DIGESTIVE TRACT INFECTIONS BY FLUKES CAUSE MORTALITY IN DUCKS IN QUEBEC

An episode of massive mortality of dabbling ducks was reported in Baie Lavallière (Saint-Anne-de-Sorel, southern Quebec). In total, 130 black ducks, 16 mallards, 10 northern pintails, and one green-winged teal were found dead between March 23 and 27 of this year.

Several specimens were submitted for analysis at the Quebec regional centre (CWHC / CQSAS) to determine the cause of the observed mortalities. The ducks submitted were all in very good nutritional condition and showed distension of the intestines and caeca by a large quantity of hemorrhagic liquid often containing aggregates of fibrin. In some areas, the intestinal mucosa was hemorrhagic and covered with fibrin. Numerous small whitish ovoid structures barely visible to the naked eye were present in the intestinal content. Examination of these structures under microscope confirmed that they were trematodes (flatworms). Acute hemorrhagic fibrinonecrotic typhlocolitis/enteritis was identified as the cause of death of these birds. Avian influenza virus was not detected by molecular method in these birds.

Different species of intestinal trematodes are known to potentially cause mortality in ducks. In Quebec, the species *Sphaeridiotrema globulus* and *Cyathocotyle bushiensis* are the most frequently described. The morphology of the parasites observed in these cases suggests a combined infection by these two species of trematodes (molecular identification in progress). Experimental studies have demonstrated that a duck can consume a lethal dose of parasites over a 24-hour period and die within 3 to 10 days following the onset of infection. These parasites can therefore be responsible for the acute mortality episode observed here. According to the timeline of events, the first observations of black ducks in Baie Lavallière were made on March 19, 2024, when the bay was newly ice-free following spring thaw. It can therefore be suggested that the ducks became infected upon their arrival at this site. It is worth noting that this mortality episode lasted less than a week; no mortality was observed during a site visit on April 3. Although the number of black ducks at the site had greatly decreased, the number of northern pintails had greatly increased. This observation suggests that black ducks are more susceptible to these parasites than northern pintails. It is also possible that the vast majority of infected snails were consumed by the first birds to arrive at the site.

Typhlocolitis/enteritis due to trematodes is a condition regularly reported in waterfowl in North America, especially in diving ducks such as scaups, and in coots. Mortalities associated with these two parasites are also documented in dabbling ducks, especially at the end of summer. In Quebec, several episodes have been reported since the 1960s. Nevertheless, to our knowledge, the intensity and timing (spring) of this mortality episode are rather unusual.

These parasites are transmitted to ducks (the definitive host) via intermediate hosts (snails). The faucet snail (*Bithynia tentaculata*), an invasive species native to Europe, plays a predominant role in the transmission of these parasites, and thus in the ecology of this condition. This species of snail, which was first documented in North America in Lake Michigan in 1871, is now present in the Great Lakes and several tributaries, including the St. Lawrence River. Some observations suggest that this gastropod has experienced an increase in abundance and distribution range in recent decades. The “invasive” nature (therefore non-native) of these trematodes and their intermediate host could explain, at least in part, this apparent imbalance in the parasites’ relationship with these maladapted North American definitive hosts. Furthermore, the high infection intensity observed in the submitted ducks could indicate an unusually high exposure to faucet snails in the last days. The relatively low water level present at this site this year may have favoured duck exposure to snails, as they were less deep and therefore more accessible to dabbling ducks. Additionally, it appears that the abundance of faucet snails may be favoured by increased temperature and eutrophication (nutrient increase) of the water. Therefore, we may wonder how the often problematic relationship between these parasites and their hosts will be affected by the global changes observed in the ecosystem.

It should be noted that these parasites pose no risk to humans and domestic mammals.



REGIONAL HIGHLIGHTS

NORTHERN HIGHLIGHTS: A SELECTION OF CASES FROM THE CANADIAN ARCTIC

We don't often get to talk about cases we receive from the Arctic parts of our region: the Northwest Territories and the Yukon. Even though the territories make up the largest part of our region geographically, only around 12% of our cases in the last three years have come from the north. And it makes sense - our diagnostic lab is located in Saskatoon, Saskatchewan, and transporting cases within the province is easier than having them shipped from outside of it. Nevertheless, Western/Northern has received quite a few interesting cases from outside of Saskatchewan in the past year.

In early fall, we received **two ringed seals** from the Arctic Archipelago - an exciting species to work on when living in the Prairies. The seals were found dead approximately 100 yards apart and looked healthy, which concerned a local community member. Bacterial culture results indicated that the first seal died of a peracute bacterial septicemia caused by the coccal bacterium *Streptococcus phocae* and terminal disseminated intravascular coagulopathy. *Streptococcus phocae* had been isolated from diseased seals previously, often associated with pneumonia, which was not seen in this case. Since *S. phocae* can be isolated from the oropharynx of healthy marine mammals, its role as a primary pathogen is unclear and it has been suggested to be an opportunistic pathogen. No other diseases were detected in the seal and tests for avian influenza returned a negative result. No obvious sources of infection were found.

The second seal was severely autolyzed and had likely died several days prior to the first seal. On bacterial culture, no bacterial species known to cause disease in seals or marine mammals was isolated. *Yersinia intermedia* was isolated from all tissues but is not a significant primary pathogen and likely a post-mortem invader as it is associated with aquatic environments. *Carnobacterium maltaromaticum* was also isolated and can cause disease in fish and sharks; the bacterium causes a severe suppurative meningoencephalitis in sharks, which was not observed in this seal. The cause of death of this seal remains unknown, as autopsy and subsequent examination of tissues was hampered by severe autolysis.

Although the seals were found within 100 yards of each other, they died of different causes - the first seal died of *S. phocae* septicemia, and although the second seal's cause of death remains unknown, it was not *S. phocae* infection. Their proximity was likely coincidental and due to prevailing currents or wind patterns in the area.

Our most important findings in northern cases this past year came from two ravens and a bald eagle in the latter half of 2024.

In the late fall, we received **two ravens** that were found within four days and a city block of each other. Both were reported to resource officers by members of the public. One raven was displaying abnormal behaviour - craning its neck back, stumbling, flailing - and was euthanized. The second raven was reported as sick or injured and taken home by a local resident, where it died shortly after. The behaviour of the second raven prior to death is not known. The second raven tested PCR positive on routine avian influenza virus (AIV) swabs for the H5 subtype, while the first raven's result was a weak positive. Histopathological findings coupled with the initial positive result for AIV were highly suggestive of highly pathogenic avian influenza (HPAI) which was determined to be the cause of the raven's death.

In cases where the AIV H5 result is a weak positive, like with the first raven, tissues are assessed for pathological microscopic changes that are highly suggestive of HPAI infection. However, despite the dramatic clinical signs suggesting the first raven had a neurological problem, no lesions were identified in the examined brain sections on histopathological assessment. An initial hypothesis proposed that the virus was present in the bird's digestive tract and may not have been causing disease. As scavengers, ravens can easily be exposed to the virus by consuming infected dead birds. Additional sections of brain were examined and another PCR test for AIV on fresh tissues was ordered. Microscopic findings and a positive tissue test result led to a final diagnosis of HPAI.

About a month after we received the ravens, the head of a **juvenile bald eagle** was sent to us. The eagle had been found dead two months prior, before the ravens had died, and further north. Initial PCR AIV test results were weakly positive on routine swabs. Histopathological findings and a follow-up PCR AIV test using brain tissue determined that the bird died of HPAI.

These are not the first cases from the Arctic Region of Canada that have tested positive for HPAI; eight cases from 2022 and four cases from 2023 tested positive. However, these three cases highlight the continued relevance of HPAI in the wildlife health field, the spread of the virus, and the value of the AIV surveillance program.





LOOKING FORWARD



RESHAPING OUR FUTURE

ANNOUNCING THE CWHC VISION FRAMEWORK: A COLLECTIVE STATEMENT OF WHO WE ARE

After months of inclusive collaboration, the CWHC is proud to introduce its new Vision Framework—a foundational document that reflects our shared values, purpose, and mission. For a national organization with six regional centres, having a unifying vision is essential. This framework is more than a set of statements; it serves as a compass to guide our strategic planning and decision-making as we work to advance wildlife health as a cornerstone of One Health in Canada.

The development process was intentionally inclusive, ensuring every team member had a voice. Using a modified version of Google’s “vision, value, and voice” approach, we gathered input through national discussions, surveys, and local team meetings to articulate our core Values, Purpose, and Mission. This approach respected diverse communication styles and geographic constraints, allowing for thoughtful iteration and consensus-building across our coast-to-coast network.

The resulting Vision Framework centers on values such as accountability, collaboration, biodiversity conservation, One Health, and the integration of Indigenous and Western knowledge systems. Our Purpose is to advance the health of Canadian wildlife, recognizing its central role in sustainable relationships among wildlife, people, and the environment. Our Mission is to create and apply science-based knowledge, services, and solutions to support wildlife health for the benefit of all Canadians. This framework not only unites our team but also strengthens our partnerships as we move forward, together, toward shared wildlife health goals.

For a comprehensive overview, please see our blog: <https://healthywildlife.ca/announcing-the-cwhc-vision-framework-a-collective-statement-of-who-we-are/>



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Jordi Segers, National Bat Health Program Coordinator (*National Office*)

Scott McBurney, CWHC Associate and Wildlife Pathologist (retired)

Pierre-Yves Daoust, CWHC Associate and Professor Emeritus



THE FINANCIAL LANDSCAPE



FINANCIALS

REVENUES

	General	Targeted	Total
Canadian Food Inspection Agency	145,000	276,020	421,020
Environment and Climate Change Canada	359,038	800,228	1,159,266
Fisheries and Oceans Canada	0	306,224	306,224
Parks Canada	160,000	44,911	204,911
Polar Knowledge Canada	10,000	0	10,000
Public Health Agency of Canada	300,000	0	300,000
Government of Alberta	5,000	0	5,000
Government of British Columbia	10,000	0	10,000
Government of New Brunswick	10,259	0	10,259
Government of Northwest Territories	16,000	0	16,000
Government of Nova Scotia	10,000	0	10,000
Government of Nunavut	15,000	0	15,000
Government of Ontario	180,000	172,000	352,000
Government of Prince Edward Island	4,735	34,560	39,295
Parcs	142,000	91,807	233,807
Gouvernement du Québec - Ministère de l'Agriculture, des Pêcheries et de l'Alimentation	42,000	0	42,000
Gouvernement du Québec - Ministère de la Santé et des Services sociaux	21,000	10,000	31,000
Government of Saskatchewan - Ministry of Agriculture	0	127,200	127,200
Government of Saskatchewan - Ministry of Environment	100,000	0	100,000
Government of Yukon	14,000	0	14,000
Canadian Wildlife Federation	2,500	0	2,500
Western College of Veterinary Medicine	76,350	0	76,350
Miscellaneous Income/Fee-for-service	32,000	0	32,000
TOTAL REVENUE	\$ 1,654,882	\$ 1,862,950	\$ 3,517,832

EXPENSES

	General	Targeted	Total
Salaries and Benefits	1,481,694	1,246,624	2,728,318
Equipment	14,458	10,110	24,568
Diagnostic Costs	207,400	248,843	456,243
Operational	107,697	36,457	144,154
Travel	48,184	59,121	107,306
Other	24,164	50,131	74,295
Overhead	199,293	209,101	408,394
TOTAL EXPENSES	2,082,890	1,860,388	3,943,278

REVENUE LESS EXPENSES	\$ (428,008)	\$ 2,562	\$ (425,446)
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SUMMARY

CONTINUED EXCELLENCE AND INNOVATION

This year's report highlights how the CWHC not only maintained its foundational work in wildlife disease surveillance but continued its essential stakeholder engagement work through diverse, meaningful engagement with public, academic, government, Indigenous, and media partners. Across all regions, CWHC continued to serve as Canada's wildlife health network, monitoring ongoing issues like HPAI and responding swiftly to emerging threats. Our network tested over 6,400 animals representing 308 species, issued thousands of diagnostic reports, and contributed to research and policy decisions at every level.

Engagement took many forms, from grassroots outreach and social media education to academic training and public science communication. Highlights include Bat Week campaigns reaching thousands, attendance at community festivals like Heroes 4 Wildlife, and Indigenous-led workshops on disease monitoring in Nunavut. Academically, CWHC supported over 100 presentations and capacity-building sessions, and continued its veterinary residency program—Canada's only one focused on wildlife health. The Student Network for Amphibian Pathogen Surveillance (SNAPS) expanded to monitor salamander pathogens across multiple provinces. Meanwhile, our experts participated in 55 mainstream media interviews, ensuring accurate, science-based communication to a wide audience.

This year also saw the launch of our Vision Framework, a collaboratively crafted roadmap aligning our purpose, values, and mission. With partners across the country and engagement as a central theme, CWHC continues to show that wildlife health is not only a scientific endeavour—it is a shared responsibility. As we look ahead, we remain committed to collaborative relationships, public education, and scientific excellence in support of wildlife, ecosystems, and the health of all Canadians.

We look forward to continuing this essential work with every one of you in the coming years.

KEVIN BROWN
DIRECTOR, CWHC NATIONAL OFFICE



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