Wildlife Health Matters
A Glimpse Into the Health of Wisconsin Wildlife
2017

A Publication of the Wildlife Health Section of the Wisconsin DNR’s Bureau of Wildlife Management
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Vilas County Lake Residents Assist With Investigation of Tadpole Mortality

Wildlife Health staff rely on observant and involved citizens as partners in monitoring the health of wildlife in Wisconsin. In early June, lake resident Amy Hermus contacted Wisconsin Department of Natural Resources (DNR) staff after she and her family noticed numerous dead green frog (Rana clamitans) tadpoles along the shore line of Lake Laura, Vilas County. Her family has owned a cottage on Lake Laura for four generations and they knew that this was not a normal event. Lake residents had noted a high population of frogs and healthy tadpoles in the lake in the spring. They began noticing 20-30 sick or dead tadpoles a day along the shoreline in early June. They also observed sick tadpoles that were swimming in circles on the surface in one direction only, swimming upside down or unable to swim forward or down. Dead tadpoles were found along the shoreline and at the bottom of the lake. They continued to find sick and dead tadpoles daily, though in decreasing numbers, through the month of July.

With the assistance from DNR staff in the Bureaus of Natural Heritage Conservation (NHC) and Wildlife Management (WM), the lakeshore residents collected dead tadpoles for analysis. Dead tadpoles were submitted to the National Wildlife Health Center (NWHC) for necropsy. Pathologists at the NWHC discovered that the internal organs of the tadpoles were infected with a protozoan parasite referred to as Perkinsea. A recent publication, Pathogenic lineage of Perkinsea associated with mass mortality of frogs across the United States, co-authored by the same NWHC pathologist that examined these tadpoles, reported that this parasite has been associated with mass mortalities of tadpoles in other states including Minnesota. This is the first time it has been reported in Wisconsin.

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Estimations of the total number of dead tadpoles were difficult to make due to the small size of tadpoles, unknown removal by predators or scavengers, and water depth and clarity; but extrapolating from the number of dead reported per day over the reported time period easily put numbers over a thousand.

Amphibian mortalities are very difficult to detect and investigate. They are difficult to casually observe due to the small size and the habitat that they live in. Once they die their bodies can deteriorate quickly making them useless for diagnostic examination. The successful investigation of this significant tadpole mortality was due in large part to the lake resident’s observations and assistance. This family’s knowledge of the lake, their passion for the health of the lake and their willingness to assist in sample collection and to continue to monitor the situation were all instrumental in the discovery of this parasite. Plans to monitor this and surrounding lakes next spring for a reoccurrence of this parasitic infection are ongoing.

Citizens play a crucial role in identifying and reporting wildlife mortalities.
Canine distemper is caused by a virus that affects, and is easily transmitted between, raccoons, mammals in the canine family (fox, coyote, wolf, domestic dog) and in the mustelid family (for example skunk, badger, otter, mink). It is common in WI to see localized mortality events associated with this virus especially in raccoons, foxes and skunks. However in 2017, reports from Wisconsin residents, licensed Wildlife Rehabilitators and surrounding states indicated that canine distemper was more widespread than in most years. What began as routine investigations of localized mortalities turned into a proactive effort to document the extent of a statewide mortality event.

Seven species were confirmed at necropsy to have died from canine distemper including:
- one American badger  
  » Waupaca County
- one coyote  
  » Price County
- six gray fox  
  » Adams, Columbia, La Crosse, Marinette, Monroe and Racine counties
- four wolves  
  » Ashland, Price, and two from Bayfield counties
- one long-tailed weasel  
  » Marinette County
- nine common raccoons  
  » Ashland, Dodge, Iowa, Kenosha, Oneida, Portage, Racine, Sauk and Vilas counties
- two striped skunks  
  » both from Racine County

Canine distemper virus (CDV) was detected statewide in a wide range of susceptible species (see inset to right). In addition to these confirmed cases, mammals showing signs consistent with canine distemper (including lack of fear of people, weakness, aimless wandering or stumbling, seizures and sometimes aggression) were reported from 21 other counties and included one mink (Dane County).

Signs observed in wildlife infected with CDV cannot be distinguished from those seen in rabies infections. For additional information on rabies and what to do if a person or domestic animal is exposed to a sick wild animal visit dnr.wi.gov and search keyword “wildlife health” and click the link for “mammal diseases.”
Interesting Causes of Mortality in Bald Eagles

Eighteen bald eagles were submitted to the National Wildlife Health Center for necropsy to determine the cause of death.

Snake Bite
One bald eagle was transported from Adams County to the Raptor Education Group, Inc. (REGI) after it was seen falling out of a tree onto a garage roof in August. The eagle died soon after arrival at the wildlife rehabilitation center and was submitted for necropsy. The pathologist found blood in the body cavity along with necrosis (death of tissue) of the heart and liver. These findings are consistent with being injected with venom from a snake bite. Snakes are a potential prey source for bald eagles. Two species of venomous snakes are found in Wisconsin. Eastern massasaugas (Sistrurus catenatus) are a state endangered snake that has been documented in Adams County. The other venomous snake in Wisconsin is the Timber rattlesnake (Crotalus horridus). While timber rattlesnakes have not been documented in Adams County they have been documented in adjacent counties to the south.

Lead Poisoning
Five bald eagles died due to lead toxicity (Juneau, Monroe, Sauk, Columbia and Brown counties). Bald eagles and other wild birds, such as loons and trumpeter swans, can die from ingesting lost fishing tackle or spent gun ammunition that is made from lead.

Electrocution
One adult and two juvenile bald eagles were found dead together along a road under a power line in Sauk County. All three died of electrocution. Electrocution of birds from power lines occurs when they complete the electrical circuit by contacting either two live wires or a live wire and a grounded object (such as the pole) at the same time. Large birds such as eagles and swans are at greater risk from electrocution since their long wing spans have the potential to make two contacts at the same time. Small birds, such as songbirds, can safely sit on one power line because they are too small for their outstretched wings to contact another point and complete the circuit. For more information on power line safety and birds see the Avian Power Line Interaction Committee.

Wildlife Health Matters
Wisconsin River Bald Eagle Syndrome
Found in Eastern Wisconsin?
In November and December, five bald eagles were found dead in and along the Fox River and Little Lake Butte des Morts in Winnebago, Outagamie and Calumet counties. A bald eagle was also found dead along the Branch River in Manitowoc county. The eagles were submitted to the National Wildlife Health Center for necropsy. A cause of death could not be determined, however pathologists found lesions in the livers of all six eagles that were similar to lesions found in sick and dead bald eagles from the lower Wisconsin River in past years. No cause for the lesions from the Wisconsin River eagles was found and mortality due to these lesions has since been named Wisconsin River Bald Eagle Syndrome (see inset). Until this winter this syndrome has only been documented on the lower Wisconsin River in Sauk, Columbia, Dane and Adams counties. These new cases in eastern Wisconsin may represent a new location for this syndrome.

Wisconsin River Bald Eagle Syndrome was first identified along the lower Wisconsin River. During the winter of 1994-95, 16 bald eagles were found sick or dead along the lower Wisconsin River in Sauk and Columbia Counties. Thirteen bald eagles were found during the winter of 2000-2001 and included Dane and Adams Counties. Sick eagles were weak and showed signs of neurological disease including incoordination, tremors and seizures. At necropsy, the consistent finding was hepatic lipidosis (microscopic fat deposits within the liver tissue). Fewer eagles with these signs/lesions were identified in the subsequent years with the most recent one identified in January of 2015 from Adams county. Extensive diagnostic testing for bacteria, fungi, viruses, parasites, and toxins has not yet identified the cause. DNR staff continue to monitor bald eagles for this syndrome. Winters Mortality of Bald Eagles Along the Lower Wisconsin River, Mclaughlin, et al., 2004 Proceedings AAZV, AAWV, WDA Joint Conference.
Unfortunately, collisions with structures such as towers, buildings and windows are a common cause of death for wild birds. After a storm in late September, approximately 25 dead songbirds were found below a tower in Eau Claire County. Species involved included American redstart, ovenbird, pine warbler, Wilson’s warbler, black and white warbler, common yellowthroat, magnolia warbler, indigo bunting and gray catbird. The height of a structure, reflective glass, bright lights and the location within a migratory pathway all contribute to increasing the risk of collision. Weather events, such as fog or rainstorms, can increase the chance that birds may collide with these structures by reducing visibility or causing birds to fly at lower altitudes. See the USFWS webpage, Collisions, for more information on these risks to birds.

In October, mortality events of up to 25 birds each were reported in Polk county (house finches) and Douglas county (mourning doves). The cause of death of these birds was due to a protozoal parasite, *Trichomonas gallinae*. Infection from this parasite is called trichomoniasis. The parasite infects the mouth of the birds and can cause inflammation and lesions in the mouth and crop that can prevent birds from eating. This parasite is commonly found in doves and pigeons and infrequently in other songbirds. It can be passed directly from the mouth of one bird to another, usually during feeding of young, or from feed or water contaminated from infected mouths. Raptors can become infected from feeding on infected prey. Unlike salmonella, this disease is not spread through bird feces.
In July, a young male wolf from Bayfield County died from a severe pneumonia caused by blastomycosis. **Blastomycosis** is an uncommon infection that is caused by a fungus (*Blastomyces dermatitidis*) that lives in moist soil and decomposing organic matter such as leaves and wood. Infection occurs when the soil or environment is disturbed and the spores are inhaled. In Wisconsin, conditions that favor this fungal spore are found near lakes and rivers.

**Blastomycosis in a Gray Wolf**

During the fall, hunters from multiple counties in Wisconsin and Minnesota reported harvesting squirrels that had red rashes or red circular bumps on or under the skin. Harvested squirrels were submitted for examination from Dane and Shawano counties in Wisconsin. Pathologists at the National Wildlife Health Center described finding dermatitis (inflammation of the skin) but could not determine the cause. Speculated causes of the dermatitis included damage from ectoparasites, such as lice or fleas, or damage from pox virus infection. Additionally, a gray squirrel in Taylor County was confirmed to have squirrel fibromatosis caused by a pox virus.

**Hunters Report Skin Lesions in Harvested Squirrels**

Residents in a Marathon County neighborhood reported findings six dead squirrels during one week in October. One of the squirrels was submitted for necropsy. The cause of death was determined to be from exposure to an anticoagulant rodenticide. Anticoagulant rodenticides are chemicals that interfere with blood clotting (anticoagulant) that are used in baits to kill pest rodents such as rats and mice (rodenticide). If these baits are not properly placed and secured, other wildlife can also consume them and become poisoned. Additionally, if not properly used, rodents that ingest these baits may leave the bait area and become easy prey for raptors who then become secondarily poisoned. Consumers who use these baits to legally control rodents can help to ensure that other wildlife or domestic animals are not harmed by following all label instructions and monitoring their control efforts carefully.

**Rodent Control Baits Can Have Unintended Consequences**

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Wildlife Face Challenges to Avoid Starvation

Wild animals face many challenges to finding enough food to meet their needs for survival, breeding, and raising young. In 2017, starvation that was not associated with disease or injury, was identified as the cause of death in seven species in Wisconsin: American robins (Milwaukee and Marathon counties), big brown bats (Jefferson County), little brown bats (Douglas County), long-eared owls (Manitowoc County), a juvenile bald eagle (Columbia county), double-crested cormorants (Door County) and purple martins (colonies in Calumet, Manitowoc, Sheboygan, Marathon, and Dodge counties).

Weather conditions, habitat quality, competition, age and health status can all affect a wild animal's ability to find sufficient food. Young, old, weak, sick and injured animals are at higher risk of starvation. Harsh winters with extreme cold or deep snow or other environmental changes can lead to lack of availability of food, increased stress or difficulty in movement that can decrease success in foraging or hunting. Less competitive animals living in marginally suitable habitat, and life stages such as migration and rearing young which require increased food intake, can also lead to starvation under certain circumstances. Death of adults that are raising young can lead to starvation of the offspring, or newly independent young can die from starvation due to lack of experience in catching prey.

Give Wildlife a Brake

Wildlife suffer trauma from many sources. (See “Electrocution” and “Multiple Species Found Dead Under Tower After Storm”). Collisions with man-made structures and vehicle collisions are common sources of trauma. In 2017, two wolves (Juneau and Oneida counties) and two banded bald eagles (Oconto and Waushara counties) died due to injuries from trauma. Bald eagles frequently fall victim to vehicle collisions when they are feeding on dead deer along the road. When they are startled by an oncoming car and fly off, they can be slower and fly lower to the ground putting them at risk of being struck by the vehicle. Drivers can help bald eagles and other wildlife by slowing down when wildlife are present along the road.

Cool, rainy and windy weather in multiple areas during the time when purple martins were rearing young is thought to have affected insect availability and the adults’ ability to forage and feed young, leading to high mortality in purple martin nest cavities last spring.

Purple martin colonies at High Cliff State Park

Photo credit: Dick Nikolai
Dead wildlife are submitted for necropsy to find out why they died. Unfortunately, it is not always possible to determine the cause of death. In 2017, two wolves (Douglas and Iron counties) and a peregrine falcon hatchling (Marathon County) were submitted for necropsy but the cause of death could not be determined. Frequently, wildlife are not found soon enough after death to prevent normal decay or scavenging by other animals. These factors make tissues unsuitable for analysis. Sometimes when the internal organs are examined at necropsy, there are no obvious abnormalities seen. Without clues to suggest what tissues to test and what tests to run, finding a cause of death can be like looking for a needle in a haystack.

Some Causes of Wildlife Mortality Go Unanswered

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Sandhill cranes that are found sick or dead are submitted for necropsy when they are found within areas of the state where the Whooping Crane Eastern Partnership (WCEP) is working to establish a self-sustaining population of whooping cranes. Necropsy findings are used to help inform the partnership of potential health risks to the whooping crane population. A sandhill crane found dead in a field in Columbia County in September died from severe pneumonia due to a fungal infection of the lungs and air sacs.

This type of respiratory fungal infection is called aspergillosis and in wildlife is generally caused by the fungus, *Aspergillus fumigatus*. The cause of death could not be determined for a sandhill crane found sick in Adams County in August. A banded common loon found dead by a kayaker in Oneida County in August also died from aspergillosis.

A juvenile raccoon that was found sick and died in May (Oconto County) was diagnosed with parvovirus and pneumonia. The parvovirus that causes illness in raccoons is related to, but distinct from, the parvovirus that causes illness in domestic dogs. The raccoon parvovirus is more closely related to the parvovirus that causes illness in domestic cats which is more commonly called panleukopenia.
Disease Surveillance

In addition to investigating reported wildlife mortalities through the necropsy program, DNR staff conduct intentional surveillance annually by targeting sampling for specific diseases to monitor the health of Wisconsin wildlife.

Rabies Testing in Wisconsin

Testing of wildlife for rabies is conducted when there is a risk that either a human or a domestic animal has been exposed to a wild mammal’s saliva through a bite or scratch. In these situations, samples are submitted directly to the Wisconsin State Lab of Hygiene (WSLH) for rabies testing. The WSLH Rabies Laboratory reported 28 rabies positive bats from bats submitted directly to their lab. However, a total of 654 bats that were submitted to the Rabies Lab were negative for rabies, making the percentage that were rabies-positive a very low 4.1%.

Epizootic Hemorrhagic Disease

There was one confirmed case of epizootic hemorrhagic disease (EHD) in 2017. Epizootic hemorrhagic disease is caused by a virus that is transmitted by a biting fly or midge. Significant deer mortality in Wisconsin is rare since Wisconsin is on the very northern edge of the range for these midges. In the years where mortality has been documented, generally multiple deer are found dead near water. Deer with EHD can develop high fevers and may seek out water. In Wisconsin, deer usually die fairly quickly when infected with EHD and when found dead appear to be in good nutritional condition. In mid-October, a landowner in Dane County reported finding three dead deer on his property over the previous month. They were all found within approximately 30 yards of a small pond. The first two were too decomposed to sample, but the third was sampled and tested positive for EHD.

Wild mammals that are submitted to the DNR Wildlife Health Program for necropsy are also tested for rabies based on species, neurological signs observed and history. In 2017, 36 wild mammals tested negative for rabies at necropsy including 1 badger, 2 big brown bats, 1 little brown bat, 15 raccoons, 1 coyote, 2 elk, 6 gray fox, 1 red fox, 5 gray wolves and 2 striped skunks.
West Nile Virus Detection Was Increased in 2017

West Nile virus (WNV) is a virus that is spread through the bite of an infected mosquito. Many species of birds can become infected with WNV without becoming ill. Corvids (crows, blue jays and ravens) are especially susceptible to becoming sick from WNV. Raptors such as bald eagle, hawks and owls also commonly become sick from WNV.

Dead Bird Hotline (1-800-433-1610)

The statewide Dead Bird Hotline (1-800-433-1610) takes and logs calls about sick and dead birds of all species in Wisconsin from May through October. From these calls, the Department of Health Services (DHS) coordinates with the Wisconsin Veterinary Diagnostic Laboratory on the testing of crows, blue jays and ravens in each county until one tests positive for WNV. This serves as an indicator of WNV activity in a county. The hotline reported receiving three times the number of dead bird reports in 2017 as compared to 2016. Not all of these reports are due to WNV, however 75% of the reports were of crows, blue jays and ravens. The Department of Health Services reported detecting the first positive wild bird earlier in 2017 (May 31st) as compared to 2016 (June 17th). Also, 62 counties had a WNV positive wild bird in 2017 as compared to 44 counties the previous year.

State licensed wildlife rehabilitators also reported a significant increase in admissions of corvids and raptors that were sick with signs consistent with WNV disease. Several of these were submitted for necropsy and WNV testing; one bald eagle, one great-horned owl and two red-tailed hawks were confirmed positive for WNV. An additional 21 birds were negative for WNV when tested as part of routine necropsies.

Avian influenza (AI) is a viral disease common in wild bird populations, especially shorebirds and waterfowl. There are many different subtypes of AI virus that occur due to mixing of the virus's genetic material. In general, most subtypes do not cause obvious signs of disease in wild birds or have the ability to infect animals other than birds. Because some strains of AI can cause significant mortality in domestic poultry, DNR staff include AI testing as part of wild bird mortality investigations.

Surveillance of sick and dead wild birds for AI was continued in 2017. Since no avian influenza activity was detected in Wisconsin in 2017, surveillance was limited to selected species or in mortality events of five or more birds. Forty-two samples were collected and submitted for testing for AI at the National Wildlife Health Center. Species sampled included bald eagles, owls, hawks, waterbirds and passerines. No strains of AI were detected in any of the samples.
During the 2017 Chronic Wasting Disease (CWD) year (which runs from April 1st, 2017 through March 31st, 2018) over 9,800 deer were tested for CWD and 597 deer tested positive. All but nine of these were from the southern farmland zone. CWD was detected in Vernon, Dodge, Milwaukee and Lincoln counties for the first time. During the 2017 deer hunting season, DNR continued to sample deer within the Southern Farmland Zone and at select locations in the CWD-affected area. The department also sampled deer around CWD positive deer locations in Washburn, Adams, Juneau and Portage counties, as well as in the wild deer herd surrounding CWD positive captive deer facilities in Marathon, Eau Claire, Oneida, Oconto, Shawano and Waupaca counties.

Chronic Wasting Disease

During 2017, the Wildlife Health program played an integral role in the development of the CWD implementation plan that resulted from the DNR, Department of Agriculture, Trade and Consumer Protection (DATCP), and Wisconsin Conservation Congress collaborative stakeholder review of the CWD Response Plan during the fall and early winter of 2016/17. The CWD Response Plan Implementation Plan identifies 115 implementation steps for 62 action items associated with six primary objectives all correlating to the goal to minimize the area of Wisconsin where CWD occurs and the number of infected deer in the state. For more information on CWD, visit the DNR website dnr.wi.gov, keywords “CWD” and “CWD Response Plan”.

Wisconsin's Deer Donation Program

2017 marked the 18th running of Wisconsin’s Deer Donation Program. The program was enacted in 2000 after a legislative act established the program, and it represents a collaboration between the DNR, participating counties, hunters, meat processors, food pantries, and countless volunteers. Since program inception, over 3.6 million pounds of venison has been processed and donated to local food pantries across the state to then be provided to those in need.

A Memorandum of Understanding between the DNR and the Wisconsin Department of Health Services (DHS) defines the list of counties in which harvested deer must be tested for CWD prior to donation to the Deer Donation Program. Nineteen counties required testing of either adult or all harvested deer in 2017; this list, along with adult/fawn testing requirements, can be found online at dnr.wi.gov, keyword “Deer Donation”. The list of counties that have CWD testing requirements is reviewed by DNR and DHS before the start of each deer hunting season, and can change.

Wisconsin's Hunter Incentive Tool for Responding to CWD

DNR staff continue to work to make testing easier for hunters through the use of self-serve kiosks and enhanced communication and outreach efforts. Kiosks provide a 24/7 drop-off option for hunters to help enhance sampling numbers, provide for ease of use and increase options in the world of electronic registration. Overall feedback from hunters during the 2017 deer season reflected an appreciation for the kiosk option.
The 2017 Season in Review:
Ninety-four meat processors participated in the program in 2017 across 52 counties. Hunters dropped off 1,423 deer to participating processors, which represents a 13% increase from the number donated in 2016, and equates to approximately 57,000 pounds of venison that was the distributed to local food pantries.

The Financial Side of Things:
Program funding comes through the Wildlife Damage Program account, which is funded through a surcharge on deer hunting licenses. Voluntary contributions are also accepted, and can be made online (dnr.wi.gov, keyword “Deer Donation”). Total program costs totaled $92,270 in 2017, which worked out to a cost of approximately $1.60 per pound of venison that was donated to local food pantries

How you can help:
Consider donating deer to a participating meat processor during the 2018 deer hunting seasons. Donations will be accepted from September 15th, 2018 to January 31st, 2019 for the 2018 Deer Donation Program. Alternatively, consider making a financial donation to the program; donations help to offset the cost of processing the venison. Donations can be made online (dnr.wi.gov, keyword “Deer Donation”).

Sick Deer Reports
During the calendar year of 2017, 192 reports of sick deer were entered into the Wildlife Health Sick Deer Database by DNR wildlife field staff. These included 122 deer that were sampled for CWD from 33 counties. Of the sick deer tested for CWD, 50 tested positive. Also included were 70 field observations of 90 sick deer that either were not available for sampling or were reported with signs consistent with trauma or other non-CWD health issues. For additional information on selected health concerns in deer visit dnr.wi.gov, keywords “wildlife health” and click on “deer diseases”.

In early November, two sick deer harvested in northern Waukesha County were reported by hunters and investigated by DNR wildlife field staff. Hunters reported the deer as having odd skin abnormalities described as “running out of its skin” and “skin peeling back easily”. A week later a third deer, harvested from the central part of the county, was reported with a similar description. This deer was collected by DNR wildlife field staff and submitted for necropsy. Unfortunately, the cause of the skin abnormalities was not identified from necropsy or after extensive additional follow up testing conducted by the Wisconsin Veterinary Diagnostic Lab. For information on how to report a sick deer visit dnr.wi.gov and search keywords “sick deer”.

Wildlife Health Matters
The third year of the multi-year translocation effort to reintroduce elk into Jackson County and supplement the herd by Clam Lake with elk from Kentucky was a success. As part of this effort, Wildlife Health supported the greater DNR elk team and our partners through planning for the elk trapping and their caretaking in Kentucky all the way through monitoring the elk following their release in the Flambeau River Forest.

In January and February of 2017, DNR and Kentucky Department of Fish and Wildlife staff captured and started the quarantine process to relocate elk to Wisconsin. The health team assisted with trapping operations in Kentucky, as well as provided oversight of husbandry and animal health, drawing upon the previous two years of experience as well as those of other states.

Following initial testing for diseases of concern, 28 elk were ultimately approved to move from Kentucky to Wisconsin in March. The elk all did well during the required additional holding period in Wisconsin and passed their final health test.

Thanks to the addition of calves, 31 elk were released in July and quickly comingled with the resident population.

For more information regarding the elk translocation project visiting dnr.wi.gov and search keywords “elk reintroduction”.

Translocated elk on their first evening after release into the Flambeau River State Forest, Sawyer County
The Wisconsin Bald Eagle Bio-sentinel Program is a collaborative project that has tracked eagle productivity and contaminant levels in Wisconsin since 1990. The results of this monitoring program have illustrated that bald eagles can be a sentinel indicator species for changes in the environment.

This long-term biomonitoring program utilizes nestling bald eagles as indicators of environmental change, ecosystem health, and contaminant exposure within aquatic, riverine, and riparian ecosystems in Wisconsin. While we still monitor legacy contaminants (PCBs, organochlorines, lead, mercury), there is a new focus on newly emerging contaminants including brominated flame retardants, fluorinated compounds (used in non-stick coatings and other industrial purposes), and endocrine disrupting chemicals. Different eagle populations are sampled on a rotating basis in order to assess spatial distribution and exposure trends of contaminants.

In 2017, eagles within the Northern Highlands Ecological Landscape in northern Wisconsin were monitored and 22 bald eagle territories were visited with 27 blood samples collected.

This population is considered a control area in terms of contaminants monitoring. Preliminary results indicate relatively low levels of PCBs and other organochlorines. However, mercury levels above proposed toxic thresholds were observed in eagle nestlings from large flowage complexes. The elevated mercury in these individuals is likely a reflection of the mercury methylation potential of these flowage ecosystems. Results for emerging contaminants such as PFCs and phthalates are pending.
Wisconsin’s licensed wildlife rehabilitators dedicate their knowledge, experience and time to provide temporary care to sick, injured and orphaned wild animals. Wildlife rehabilitators work directly with the public and often are first to notice changes or problems with the health of Wisconsin’s wildlife populations. In September, rehabilitators at Wild Instincts Wildlife Rehabilitation Center immediately contacted their consulting veterinarians and DNR wildlife health staff after observing one of the black bear cubs in their care with a cough that rapidly progressed to severe respiratory distress. The bear cub was moved to an indoor enclosure and then rushed to the veterinary clinic for an exam, scans and cultures which indicated severe lung infection. In a matter of days all bear cubs in care were exhibiting varying degrees of respiratory issues.

Wisconsin is home to a thriving population of black bears and every year orphaned bear cubs are found by concerned citizens. Limited rehabilitation options exist for these orphans and for many years Wild Instincts has played a primary role in caring for bear cubs until they are prepared for release back into the wild. This apparent disease outbreak had never been seen before, was incredibly stressful and highlights the challenges of wildlife rehabilitation.

While Wild Instincts was patiently managing the status of the sick cubs, staff at WVDL were able to determine that the lung infection was caused by a parasitic nematode, *Eucoleus (Capillaria)* sp. The suggested treatment associated with this finding was administered and the cubs slowly but surely became more active, regained their appetites and began to improve.

Even though black bears, among several wild carnivores, are known to serve as a natural host of this lung parasite, the situation at Wild Instincts still brought forward important questions: How did this happen? How do we prevent this in the future? Successive conversations shed light on possible explanations and provided useful suggestions based on the lifecycle of the parasite and effectiveness of deworming treatments.

On October 14th, the treated bear cubs were released back into northern Wisconsin.

Note: This new section of the newsletter is dedicated to featured stories of collaboration with licensed wildlife rehabilitators and the DNR Wildlife Health program.