

# **New York State Wildlife Health Program**





We promote the health and long-term sustainability of wildlife populations through integration of the fields of wildlife ecology and veterinary medicine.

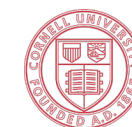


The New York State Cooperative Wildlife Health Program (WHP) is a partnership between the New York State Department of Environmental Conservation (NYSDEC) and Cornell University's College of Veterinary Medicine Animal Health Diagnostic Center (AHDC) that works to safeguard the long-term health of New York State's wildlife populations.

Our laboratories in Albany and Ithaca conduct routine surveillance and in-depth research, staff training and data analysis to support NYSDEC's mission. We maintain strong relationships with partners in human and domestic animal health to address issues common to all under the One Health philosophy.



Patrick Martin - Program Leader  
Kevin Hynes - Wildlife Biologist  
Joseph Okoniewski - Wildlife Biologist  
John Shea - Wildlife Technician  
Ashely Ableman - Wildlife Technician



**Cornell University**  
College of Veterinary Medicine  
Animal Health Diagnostic Center

Elizabeth Bunting - Wildlife Health Veterinarian  
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## HEALTH AND DISEASE SURVEILLANCE

Our team of biologists and veterinarians examines hundreds of submitted wildlife cases each year to investigate the causes of mortality.

Real-time surveillance allows us to establish common disease patterns as well as to rapidly detect and respond to new and emerging threats that can impact wildlife, human, and domestic animal health.

Our online case database will allow biologists to rapidly access the information and better respond to public inquiries.



## BALD EAGLES AND LEAD TOXICITY

Our program conducted a retrospective survey of bald eagle samples collected by DEC staff over the last 20 years. Testing indicated that approximately 17% of the bald eagles in New York died from lead toxicity.

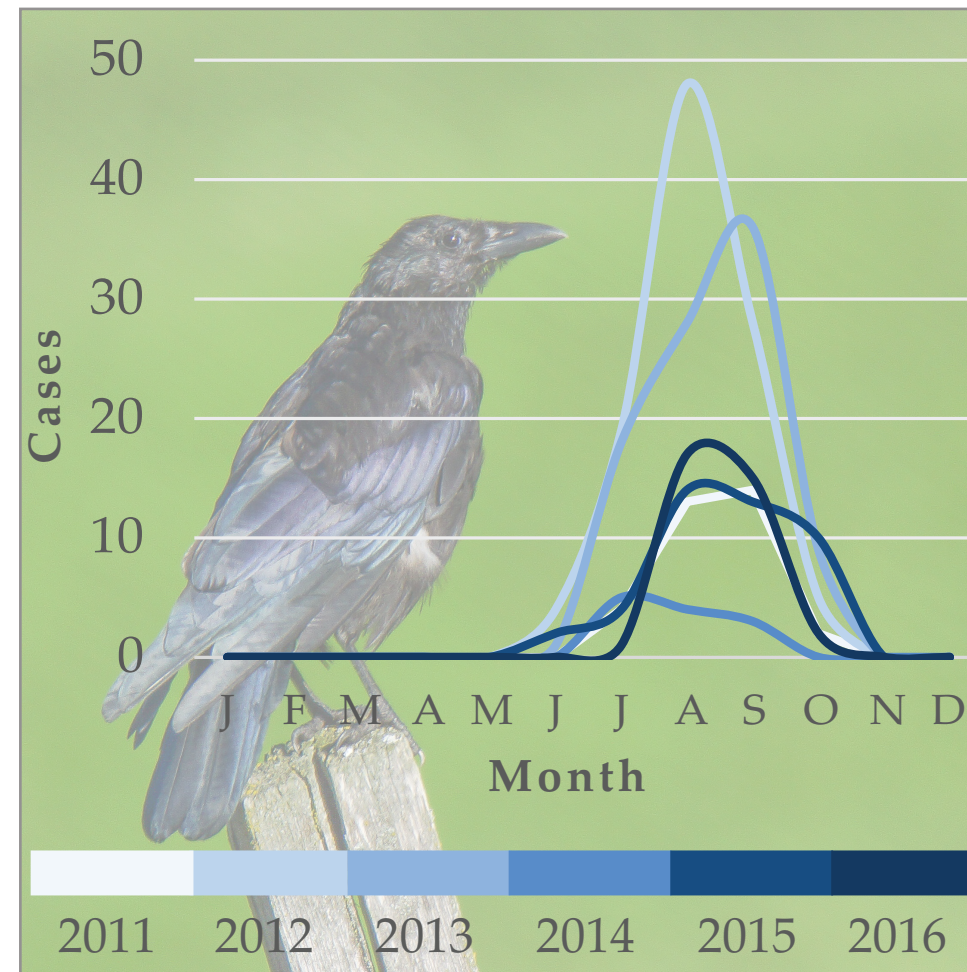
A new research project will pool data with multiple state and federal agencies to look at spent lead ammunition as a potential source, and its long term impact on this species.





## BLACK BEAR MANGE

An increasing number of New York black bears have developed infections with mange. Caused by a skin mite, mange is already common in red foxes and causes striking hair loss and eventual death from hypothermia and secondary infections. With help from researchers, biologists and hunters in Pennsylvania, Georgia, and New York, our program is investigating the scope of the disease in bears and analyzing genetic markers to determine if the bear mange mite is unique from the red fox mite. This critical information will be used to guide management and treatment recommendations.



## WEST NILE VIRUS

West Nile Virus emerged from New York City in 1999 and is now widespread across the country. Our program routinely tests cases during the summer months and shares information with county health departments to alert them to virus activity. We are working with ornithologists and virologists to understand the factors driving annual trends to better inform future control measures.



Bsal

Chytrid fungus or "Bd" for short, is an introduced pathogen of amphibians that is already responsible for the extinction of almost 200 frog species worldwide, and now a newly identified Asian variety (Bsal) is killing wild salamanders in Europe. Because North America is home to 50% of the world's salamander species, state and federal agencies are moving quickly to reduce our risks. Our program is working with these partners to conduct surveillance in New York and establish Cornell AHDC as a regional testing laboratory.



## **DISEASE PREVENTION AND RESPONSE**

The Wildlife Health Program identifies emerging threats to wildlife, human, and domestic animal health; conducts targeted surveillance and research; and works with partners to plan comprehensive education, prevention, and response activities.

**Prevention is the only  
proven effective method  
of wildlife disease  
management.**





## CHRONIC WASTING DISEASE

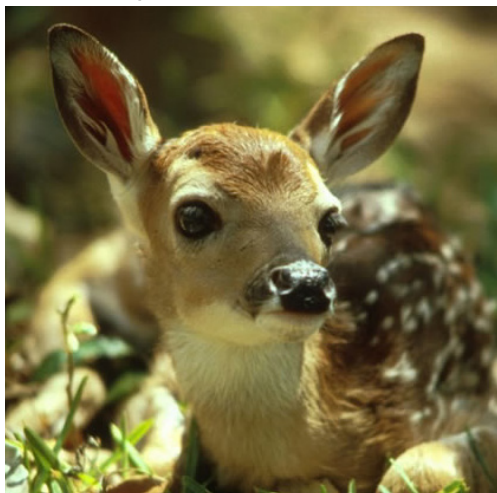
Our program prioritizes preventing the reintroduction of chronic wasting disease (CWD) into the New York State wild deer herd. Now identified in 24 states, CWD represents a serious threat to deer populations and the captive cervid industry with serious economic, ecological, and social repercussions. Deer hunting and recreational activities contribute \$1.5 billion annually to the state economy. Hunting participation has declined by more than 10% in areas where CWD has become established.



### Population impact

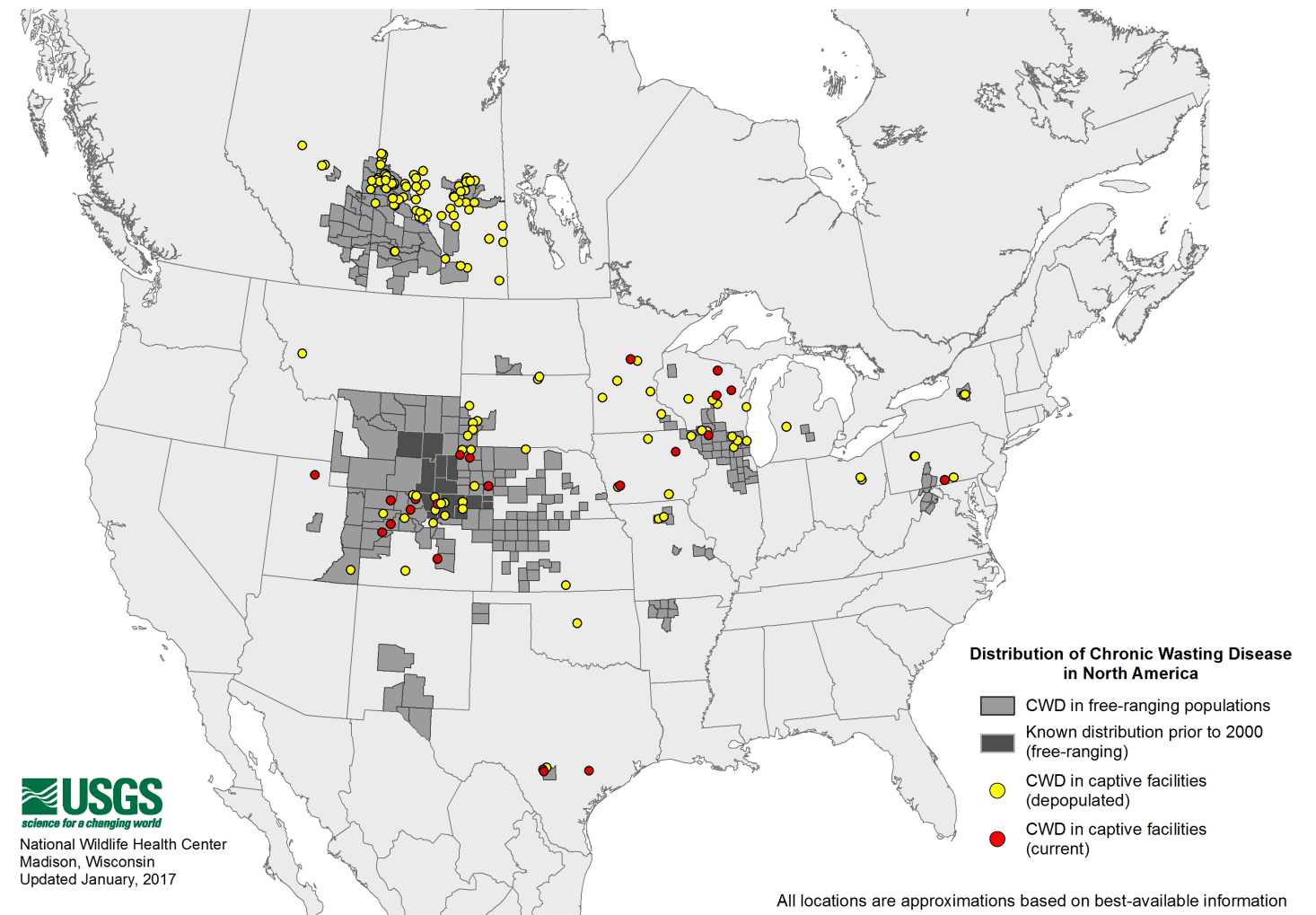
Chronic wasting disease is caused by a prion that destroys the brain in infected deer, elk, moose, and caribou. Live animals can spread the disease through contact or their saliva, feces, and urine. Prions can bind to soil or be taken up in plants, where they remain infectious for years. Eventually, deer populations will begin to decline in heavily infected areas.

Although there have been no human cases, CWD is similar to “mad cow disease” and the CDC advises against eating venison from CWD positive animals.



### Adaptive surveillance

We designed a risk-based surveillance system that samples animals where we have the highest likelihood of CWD introduction. This system streamlines workflow for field staff while increasing the probability of early detection. Working with deer processors and taxidermists, NYSDEC has submitted over 40,000 samples for testing in the past 10 years, with no positive cases identified.



### Risk minimization and response

We organized an interagency team from the NYS Dept. of Agriculture & Markets, NYSDEC, and Cornell AHDC to identify disease transmission risks and recommend minimization strategies. Our prevention plan, which is in the final stages of agency review, will implement regulations and promote education for all stakeholders. Our team also produced a response plan that defines roles and responsibilities for a coordinated management strategy in the event of CWD detection.



A large, dark, mottled Eastern Hellbender (Cryptobranchus alleganiensis) is shown resting on a bed of smooth, light-colored river stones. The salamander's body is broad and flat, with a single prominent eye visible. The background is slightly blurred, showing more stones and a hint of a rocky overhang at the top.

## RESEARCH

**Our research is broadly collaborative, applied, and driven by real world issues. At any given time we may have more than a dozen active projects combining field and laboratory work with colleagues from around the country in a variety of disciplines.**

Eastern hellbenders are the only giant salamanders found in North America. In the past decade, the New York population has declined by 40% across their range. We've teamed with NYSDEC field biologists, Buffalo Zoo, Buffalo State University, and Smithsonian Institute scientists to improve survival in captive reared and released animals through genetic analysis, vaccination, and modified release strategies.

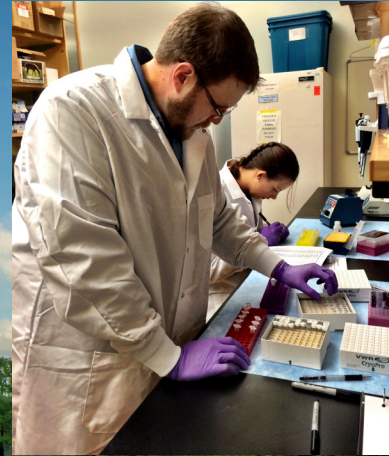
**EASTERN HELLBENDER CONSERVATION**





## eDNA

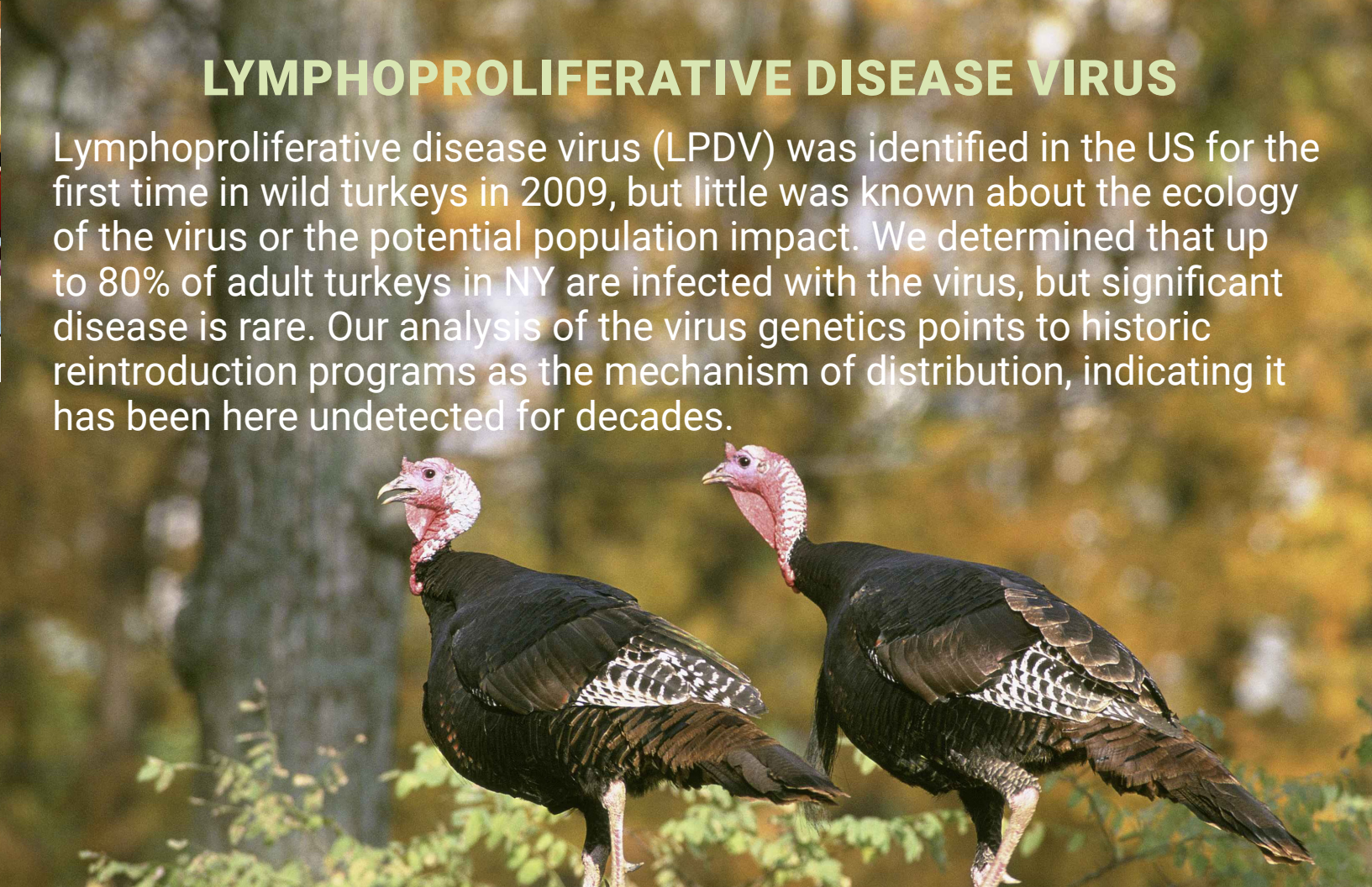
New technologies using DNA-based tests have the potential to revolutionize the way that we understand and manage wildlife health. By identifying free DNA shed by species and pathogens in water - known as environmental DNA or eDNA - we can greatly reduce the resources needed to map and monitor both the species and the diseases that impact them. Through a grant from NYSDEC, we are developing eDNA tools for detection of ranavirus and amphibian species of concern in New York.



Dr. Ossiboff and Niki Dean  
preparing DNA samples

## LYMPHOPROLIFERATIVE DISEASE VIRUS

Lymphoproliferative disease virus (LPDV) was identified in the US for the first time in wild turkeys in 2009, but little was known about the ecology of the virus or the potential population impact. We determined that up to 80% of adult turkeys in NY are infected with the virus, but significant disease is rare. Our analysis of the virus genetics points to historic reintroduction programs as the mechanism of distribution, indicating it has been here undetected for decades.



## MOOSE HEALTH

Moose populations have been declining across their range. Several institutions are working together with NYSDEC to determine how many moose exist in the Adirondacks and what factors are impacting this population. We examine samples from moose to assess reproductive status, infectious disease exposure, parasite load, and cause of death in mortalities. New York moose appear to be most affected by parasites that are commonly carried by white-tailed deer (brainworm and giant liver fluke), but are not suffering from winter tick infestations as are other Northeast populations.



## TRAINING AND TEACHING

One of our highest priorities is training DEC staff to keep them safe in the course of their job duties.



Kevin Hynes training field biologists on Wildlife Health response kits

### Training DEC staff

We organize biennial regional workshops with lectures and interactive scenarios. These include training in infectious disease risks, humane handling, euthanasia, field necropsy, and disease response. Regional staff provide suggestions for workshop topics, feedback on program activities, and input for future planning. Over 170 personnel from DEC Bureau of Wildlife, Division of Law Enforcement, and NYS Parks attended the 2016 statewide workshops.



DEC biologist Jim Eckler, bird banding workshop

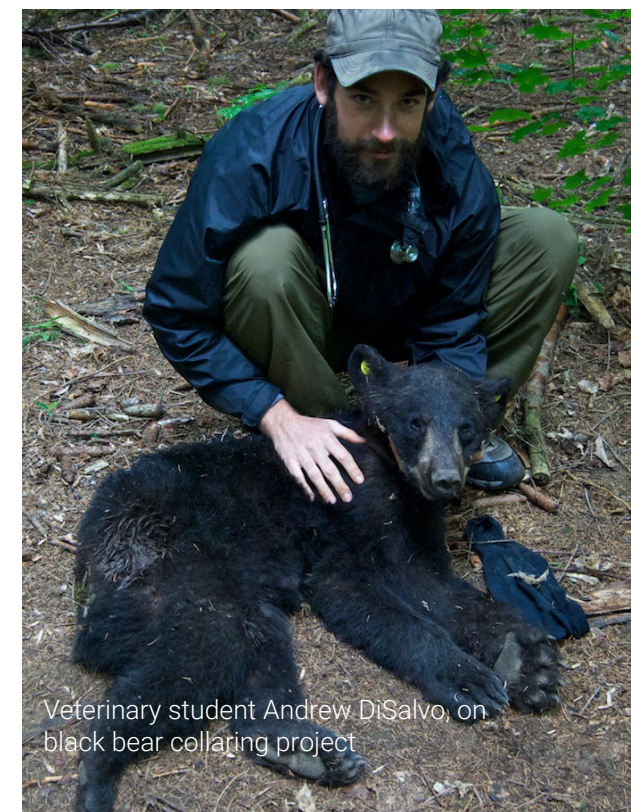


DEC ECO's at Safe Capture training

Our program also handles requests for specialized training. We engage with various stakeholder groups ranging from taxidermists, bowhunters, nuisance wildlife operators, and the sporting community. We annually host Safe Capture International for a 2-day workshop on chemical immobilization best practices. Over 120 DEC personnel have completed the certificate training.

### The next generation of wildlife professionals

Undergraduate, graduate, and veterinary students from various institutions have the opportunity to work alongside our biologists and veterinarians. This real-world experience has provided students with a better understanding of the unique challenges associated with wildlife species as they pursue professional careers in wildlife or public health.



Veterinary student Andrew DiSalvo, on black bear collaring project



## POLICY AND SUPPORT

Our program staff draw on a variety of resources and expertise to provide NYSDEC with the most up-to-date scientific information in wildlife health.



### Permit and Management Reviews

We regularly review research permit requests to ensure wildlife will be safely and humanely handled and to reduce the risk of disease transmission. We also give input on community deer management plans, captive breeding and release programs, and Nuisance Wildlife Cooperator guidelines.

### Euthanasia Guidance

Biologists may need to humanely euthanize sick or injured wildlife. We worked with NYSDEC staff to develop guidelines for safe and effective procedures for these situations that prioritize staff and public safety, animal welfare, and minimize disease transmission.



### Informing Policy: Venison Donation

We researched scientific literature and provided recommendations to NYSDEC and the NYS Dept. of Health regarding lead contamination in venison donated to food banks. As a result, NYSDOH initiated an information campaign at food pantries to inform patrons about the potential for lead exposure in children and pregnant women.



### Chemical Immobilization

The NYSDEC staff routinely use controlled anesthetic drugs to handle free-ranging wildlife. Our program participated in a national effort by the Assoc. of Fish and Wildlife Agencies to draft a best practices document on the storage, handling, and administration of drugs. This document serves as a blueprint for an agency-wide protocol for NYSDEC.







**Cornell University**  
College of Veterinary Medicine  
Animal Health Diagnostic Center



**Department of  
Environmental  
Conservation**