

SURVEILLANCE PLAN FOR CHRONIC WASTING DISEASE IN NEW YORK STATE 2013-2014



Illustration by Jean Gawalt

**New York State Department of Environmental Conservation
Cornell University Animal Health Diagnostic Center
August 2013**

Contents

Abstract	3
Introduction	3
Purpose	3
Background	3
Table 1: Deer samples tested for Chronic Wasting Disease by year.....	4
Surveillance Activities	5
Figure 1 - Locations of the 90 CWD Cooperators for 2012-2013 sampling year	5
Figure 2 - Locations of 595 captive cervid facilities in New York State.....	7
Figure 3 - Captive cervid facilities in New York State.....	8
Figure 4 - Locations of known deer processors and taxidermists by county.....	9
Figure 5 - Locations of taxidermy and deer processing businesses that have received carcasses from outside of New York and locations of businesses that were also reported to have live cervids on the premises.....	10
Figure 6 - Movements (n=114,474) of captive cervids in Pennsylvania between 2002-2011 (Figure from Romano 2012)	11
Figure 7 - New York State adult male deer (bucks) hunter harvest for 2012-2013 was used as an index of the population.....	12
Figure 8 - Breakdown of point distribution by risk, deer population, and border with PA for all NY counties.....	12
Table 2 - Minimum point quota by Region and County for 2013-2014 Chronic Wasting Disease Surveillance of Hunter-Harvested White-tailed Deer in New York State.	14
Field Activities	17
Wildlife Health Unit Sample Collection.....	19
Central Office	20
Cornell Laboratory Analysis	21
Authors and Acknowledgments.....	22
References	23
APPENDICES	24

Abstract

New York State's Chronic Wasting Disease Surveillance (CWD) is a comprehensive approach to identify the earliest possible intrusion of CWD into New York. The highest priority is to collect and test sick and abnormal deer to determine cause of death. During the hunting season, a point system weighted by deer sex and age is used to reach established quotas for each county. These quotas are set by deer population indices; risk factors from taxidermists, processors, and captive cervids that may bring CWD into the state or expose wild deer to the disease; and bordering counties with Pennsylvania – a CWD-positive state as of 2012. Risk factors were informed by field surveys conducted by NYS Dept. of Environmental Conservation and NYS Dept. of Agriculture and Markets and results are provided. Staff is asked to continually update information on taxidermy and processor businesses as it becomes available. A pilot program is starting in 2013 in which participating taxidermists will collect lymph nodes for CWD testing directly. Additional efforts by staff include education and outreach programs to inform the public about CWD and current regulations.

Introduction

This plan presents the surveillance activities related to Chronic Wasting Disease for the 2013 Big Game Hunting Season and into 2014. The efforts began in 2011 with a risk pathways analysis, qualitative risk assessment, and enhanced by information gathered from the field during on-site visits in 2012 to refine risk areas across the state. This plan also details elements to educate and engage stakeholders to provide long-term disease prevention and participation in wildlife disease surveillance.

Purpose

New York State Department of Environmental Conservation (NYSDEC) is committed to identifying the earliest intrusion of CWD in New York by focusing on areas of possible disease introduction or previous occurrence of the disease. Early detection depends on a sound surveillance plan and provides the best opportunity for intervention by wildlife managers. This sampling approach continues to use previous methods stratified by deer population while including elements of potential CWD risk in proportion to their occurrence in individual counties. Information on potential risks was systematically gathered by regional field staff to refine assessments that dictate sample quotas for each county. Additionally, information was provided to the public and businesses to educate them on CWD and relevant regulations, including deer carcass importation and disposal.

Background

The NYSDEC began surveillance for CWD in 2002, collecting about 1,500 samples statewide annually. In New York, CWD was first detected in 2005 in five captive white-tailed deer in Oneida County. Subsequent intensive sampling detected the disease in two free-ranging white-tailed deer in close proximity to the captive deer facility. A containment area 10 miles in diameter was established around the index cases with the following emergency regulations to prevent further spread of the disease: mandatory check stations and testing of all harvested deer from that location; bans on movement of

intact carcasses outside the containment area, deer rehabilitation, possession and use of deer or elk urine taken from the containment areas, possession of a deer killed by a motor vehicle; and requirements for taxidermist record keeping, reporting, and contact barriers with live cervids. The 2 CWD-positive captive herds were depopulated and 3 additional positive deer were identified. A multi-agency team operating under the Incident Command System ran 14 teams of sharpshooters and required collection and testing of all deer taken by motor vehicles or through nuisance permits. In the 5 years after detection, 7,335 deer were tested in the containment area and 21,867 in the rest of the state. Outside the containment area, NYSDEC collected deer heads from deer processors to reach sample quotas established for each county based on an index of relative deer abundance. A second targeted collection of 49 wild WTD was conducted in Feb.-Mar. 2009 around the index location. In 2010, the mandatory testing requirement for the containment area was discontinued, although increased voluntary sample collection efforts continued to focus on Wildlife Management Unit 6P as the area where the CWD-positive deer were identified in 2005. DEC has sampled over 36,000 deer statewide since 2002; no additional CWD cases have been detected after 2005. In 2012-2013, 90 cooperators (Figure 1) provided over 1500 deer heads for the statewide hunter-harvest surveillance.

Table 1: Deer samples tested for Chronic Wasting Disease by year.

Age/Sex Class	2012*	2011	2010	2009	2008	2007	2006
Yearling Female	173	276	241	285	359	865	846
Adult Female	553	595	573	857	1218	1967	1844
Yearling Male	525	618	657	941	1112	3029	3311
Adult Male	318	262	280	479	1645	1313	1301
Yearling Unknown	2	14	6	7	10	21	42
Adult Unknown	1	11	3	11	29	25	29
Unknown Female		14	12	34	38	109	245
Unknown Male		15	17	62	39	134	272
Unknown Sex		1	3	3	3	10	16
Fawn					2		1
Total	1564	1806	1792	2679	4455	7473	7907
Points	2484.5	2627.5	2638.5	4065.5	8352	11082.5	11430
Clinicals	90	21	28	32	65	81	107
*clinical (CWD suspect) samples not included in sample total or points							



Figure 1 - Locations of the 90 CWD Cooperators for 2012-2013 sampling year

Surveillance Activities

The 2013-2014 CWD Surveillance Plan consists of six major activities, and includes a relatively small increase the total number of samples. Instead, focus has been placed on collecting a greater proportion of higher value samples and engaging taxidermists in sample collection. The actions are:

- 1) Continue to support and broaden statewide effort to collect and test all abnormal, clinical, or suspect deer for full necropsy to determine cause of death or illness. Clinical suspects are valuable samples for early disease detection.
- 2) Continue increased effort to intensively sample from Wildlife Management Unit 6P (includes the Towns of Verona and Westmoreland). Continued testing in this area can identify deer that are infected from environmental contamination or maintaining disease in the wild population.
- 3) Use weighted risk-based sampling by county with special effort to obtain higher value animals (older age class males and females). States with CWD typically have higher prevalence rates in older deer so testing these animals increases the likelihood of disease detection.
- 4) Partner with willing taxidermists to increase sampling of older-age class bucks.
- 5) Continue to take advantage of opportunities to develop collaborative relationships with taxidermists and deer processors to provide outreach/ education on CWD through distribution of a fact sheet on CWD and NYSDEC Regulations.
- 6) Continue opportunistic interviews of taxidermists and deer processors to collect and refine standardized information to evaluate risk.

Actions 1 and 2 are continuations of 2011-2013 CWD sampling activities. In 2011, sampling was also altered from collection of retropharyngeal lymph nodes, obex, and tonsils from hunter-harvested deer to collection of retropharyngeal lymph nodes only. This change reduced handling time per head. Action 3 was implemented in 2012-2013 and was informed by data collected from field surveys of taxidermists,

meat processors, and captive cervid facilities. Action 4 is a following step toward last year's efforts to start a new program involving the taxidermist in submitting high value (older bucks) samples. Actions 5 and 6 were new tasks in 2012 and are included if field staff has an opportunity to interact with taxidermists and meat processors. Further information and guidance is provided below (see Appendix 3 for Frequently Asked Questions).

SAMPLING WILD DEER

Justification

At this time, it is not clear if the New York State white-tailed deer herd is free of CWD or if the incidence of disease is simply too low to be detected by previous sampling quotas. Statistically valid random sampling methodology for low incidence diseases is costly and labor intensive to achieve adequate sample sizes of more than 10,000 deer for New York State's estimated wild deer herd of nearly 1 million deer. To improve the likelihood that our sampling will detect CWD-positive deer, the sampling strategy was modified to emphasize locations and age classes of deer that are of the greatest risk for CWD infection using weighted surveillance (Walsh et al. 2011) and a qualitative risk assessment process. These methods were employed to focus field efforts given current CWD knowledge and were refined using scientific data and field information collected from taxidermists and deer processors. The sampling calculations were determined by three primary criteria:

1) Weights by Deer Sex and Age Classes

Scientific research in CWD-positive states has identified older males as more likely to have CWD than females or younger males, but currently bucks older than 2.5 years comprise only 15% of the samples collected in New York. The weighted point system that places higher values on older animals resulted in a 5% increase in adult males in the first year. Increasing payments to processors and taxidermists for the submission of older-age deer improved the proportion of 2.5+ year-old males and females in our sample for a more efficient surveillance system. For example, a 2.5+ year-old buck is worth 3 points while a yearling buck is only worth 1 point. A 2.5+ year-old female is worth 1.5 points while a yearling female is only 1 point. Our objective is to actively seek older bucks and does for sampling. We will continue to **exclude** fawns from the sampling as in previous years. These weights were derived from information provided by researchers at the University of Wisconsin for white-tailed deer (Jennelle et al. 2012).

2) Proximity to Geographic Risk Factors

Prions can remain infectious in the environment, and current management strategies are ineffective once CWD is established in an area. Though the CWD Regulation (6 NYCRR Part 189) prohibits importation of cervid carcasses and carcass parts from affected states and provinces, NYSDEC recognizes that captive cervid farms (Figures 2 and 3), taxidermy businesses, and deer processing centers (Figures 4 and 5) also present an increased risk due to the possible importation of CWD-infected live cervids and infectious material (parts or products) and improper or illegal disposal of carcasses and parts. Higher deer concentrations may also spread disease if it is present in New York State, but those risks have not been fully evaluated at this time by NYSDEC or other researchers.

CWD continues to be identified in previously uninfected states in both captive and wild cervids in 2011-2012, including captive and wild white-tailed deer in Missouri, Iowa, and Pennsylvania, captive red deer in Minnesota, and wild mule deer in Texas.

A. Captive Cervid Farms (Figure 2)

The New York State Department of Agriculture and Markets (NYSDAM) has regulatory authority for the management of CWD on cervid farms pursuant to their CWD Regulation (1 NYCRR Part 68). This regulation provides for a rigorous CWD herd certification program permitting importation of live cervids from outside of New York if such animals are in compliance with all provisions of the NYSDAM CWD Regulation. In addition, the NYSDAM CWD Regulation requires testing mortalities of all susceptible cervids, animal identification, restraint system, inventory, and recordkeeping. Animals in a “certified herd” may be moved alive to other herds in NY and to other states. The initial discovery of CWD on a cervid farm in NY was made when deer were being sampled under the provisions of the NYSDAM CWD Regulation. The other designation of captive cervid operations is Special Purpose/Monitored. NYSDAM requires annual testing of 10% of mortalities up to 30 animals with the owner choosing which animals to test. No animals may leave the premises alive. These herds can be operated as commercial shooting operations.



Figure 2 - Locations of 595 captive cervid facilities in New York State. The 279 farms identified as Active are indicated in yellow. Data provided by the New York State Dept. of Agriculture and Markets

A risk survey of captive cervid facilities completed by NYSDAM field veterinarians that regularly visit these farms listed 595 farms registered in NY. Of these, 279 were indicated as Active. Another 223 were considered to be out-of-business and information was not available on the remaining 93 facilities. Of the Active locations, 129 (46%) were CWD Certified herds and 168 (60%) were Special Purpose herds. There were at least 18 locations that have both CWD Certified and Special Purpose herds with the same owner. We were not able to collect consistent data on species or herd sizes, but 198 (71%) had Domestic Game Breeder permits from the DEC to keep white-tailed deer. The survey indicated 87 (31%) of locations had elk. Thirty-one facilities imported deer from outside of New York and 65% of these imports came

from CWD-positive states, such as PA or WI. There were 44 (16%) facilities that were known to run shooting operations, but these businesses are not specifically regulated. NYSDAM staff was asked to rank the fence quality as high, medium, or low. 161 (58%) of facilities received a “high” ranking. We also asked about past escapes and found at least 38 (14%) of facilities had escapes and 11 were listed as unsuccessful in their recovery. 42 (15%) of the facilities were considered to have compliance issues. Only 60 (21%) of farms were known to be under the routine care of a veterinarian. Finally, 11(4%) had taxidermy businesses on site, 2 (<1%) engaged in wild deer rehabilitation which is illegal under current regulations, and 72 (26%) butchered deer on site.



Figure 3 - Captive cervid facilities in New York State. As an example of some of the risk factors, there are at least 44 known shooting operations (green) and multiple importations of deer from out-of-state (orange)

Scoring for risk factors (Figure 3) was based on information gathered from the field survey and applied to each location and summed over the entire county. All active cervid locations classified as Backyard Farms, Game Farms, Farms, or blank were given 1 point as a base. Additional points were added for risk factors. These included:

Importation of deer from out-of-state	+3
Possession of CWD-susceptible species	+1
Disposal method available to wild deer	+1
Fence Quality:	
Low	+2
Medium/Unknown	+1
Taxidermy Business on site	+1
Rehabilitation of wild deer	+1
Butcher deer on site	+1
Shooting operation	+3
Owner compliance issues	+2

B. Taxidermy and Deer Processor Businesses (Figure 4)

NYSDEC CWD Regulation prohibits taxidermists from combining taxidermy activities with keep of live deer, such as deer farming or wildlife rehabilitation. The risks associated with taxidermy (mounting of cervid heads) are: (1) infected material may be imported or shipped into NY in the form of trophy heads for mounting, (2) the heads sent for mounting are predominately older male animals with a higher risk for having CWD, and (3) the disposal of potentially infected materials (i.e. brain, eyes, lymph nodes, spinal cord, etc.) that present the opportunity for environmental contamination or direct exposure to wild deer.

Deer processing facilities represent similar risks as taxidermy businesses, although taxidermists are more likely to handle older age class males (greater infection rates) while deer processors will likely have higher volumes of carcasses. If businesses discard carcass material outside the approved waste stream, it is possible for infected tissues to come in contact with wild deer or contaminate the environment. The risks associated with deer processing are: (1) receiving carcasses, including those from outside New York, (2) the amount and disposal of potentially infected materials that present the opportunity for environmental contamination or direct exposure to wild deer, (3) concentrating many carcasses in one location, and (4) cutting into tissues which may harbor prions including the brain, eyes, lymph nodes, spinal cord, etc.



Figure 4 - Locations of known deer processors and taxidermists by county

From the 2012-2013 NYSDEC field staff survey of processors and taxidermists, we identified 782 businesses (369 meat processors, 392 taxidermists, and 22 that did both services; Figure 1). We identified 347 locations that were known to be in business in 2012. Staff conducted 342 site visits and conducted 243 interviews (71% success rate). Seventy locations declined interviews. NYSDEC distributed 239 CWD Fact Sheets and 136 businesses indicated willingness to submit samples in 2013. We were able to estimate that a minimum of 54,347 hunter-harvested deer are taken to these location. The average is 226 for processors, 57 for taxidermists, and 163 for combined operations. The maximum reported was 1800 deer processed in one season.

Information on deer coming from out of state was not well defined but we estimate at least 2151 deer or 3-5% of the total number coming into processors and taxidermists (Figure 5). Taxidermy records indicate that deer have been received from CWD-positive states, such as Colorado, Wyoming, and Kansas. Disposal methods were concerning. Many people were unaware of solid waste regulations. Only 50% of business used a landfill, 25% used rendering services exclusively, and 15% indicated they composted, used a pit, or otherwise left carcasses on the landscape where they could be encountered by wild deer. The remaining 10% used a variety of methods, with <1% choosing incineration.

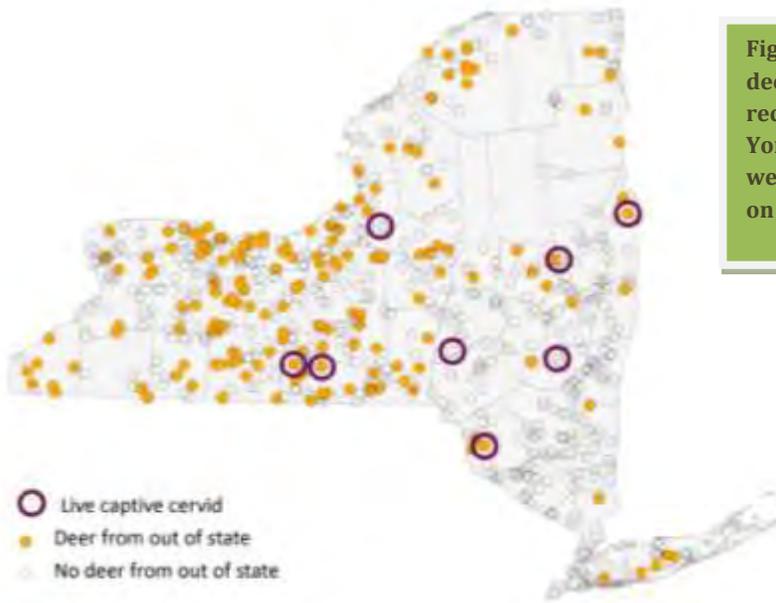


Figure 5 - Locations of taxidermy and deer processing businesses that have received carcasses from outside of New York and locations of businesses that were also reported to have live cervids on the premises

Scoring for risk factors (Figure 5) was based on information gathered from the field survey and applied to each location and summed over the entire county. All open or unknown business status taxidermy or processor businesses were given 1 point as a base. Additional points were added for risk factors. These included:

Taxidermist and processor	+1
Disposal method available to wild deer	+1
Live captive cervids on site	+1
Deer processed from out of state:	
1-9	+1
10-99	+2
100+	+3

C. Border with Pennsylvania

In 2012, the first detection of CWD in Pennsylvania came from a farm in Adams County in southeast PA. Two deer tested positive from this herd, which was depopulated. A total of 34 farms were quarantined, but definitive proof of origin could not be identified for the index animal due to faulty paperwork and all but 8 locations have been released from quarantine. At the conclusion of the wild deer testing in 2013, 3 additional wild white-tailed deer were found to

be CWD-positive in Blair (n=2) and Bedford (n=1) counties. Disease management areas were set up around both locations that required testing of all hunter harvested deer and prohibited movement of high-risk deer parts, live cervids, deer rehabilitation, and use and possession of cervid-based urine.

While none of the new detections, either wild or captive, are in PA's northern tier, there is justification for intensifying surveillance along NY's border with PA. First, the majority of statewide hunter-harvest surveillance in PA was focused in the southern part of the state closer to CWD-endemic areas in WV and VA. Second, known movements of captive cervids in PA indicated that 10,646 cervids were moved to two or more farms during their lifetime, which is 22.89% of the total captive cervid population in the state's 1139 premises (Romano 2012). There were 114,474 documented movements from year-end reports (Figure 6), which do not include loans for breeding or for bottle-raising fawns. The mean distance moved was 45 miles (Romano 2012). Because captive deer are moved all across the state (Figure 6) and record keeping for PA captive deer is demonstrably lacking, the border area is at a higher risk received separate weighting.

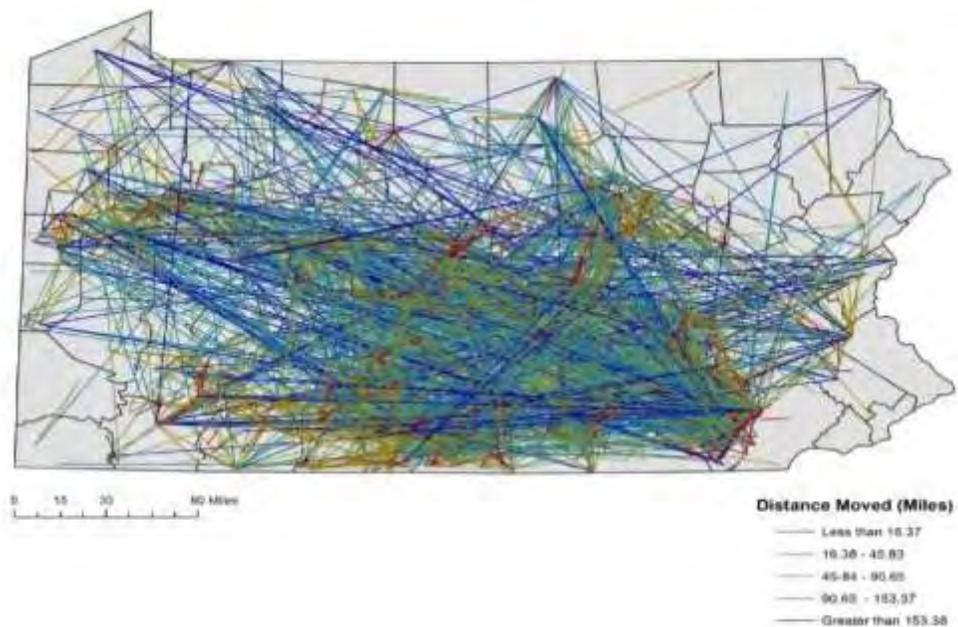


Figure 6 - Movements (n=114,474) of captive cervids in Pennsylvania between 2002-2011 (Figure from Romano 2012)

3) Deer Population Size

As in previous years, relative abundance of deer is considered a factor for disease transmission. Areas with larger deer populations will receive more intensive surveillance. Number of bucks taken per square mile (Figure 7) served as an index of the deer population. 1000 points were allotted to population and apportioned based on buck take. For Nassau and Suffolk counties, adjusted buck take was estimated at 6.5 bucks/sq. mi. based on recommendations of Ed Kautz (NYSDEC biometrician) and Josh Stiller (Region 1 biologist).

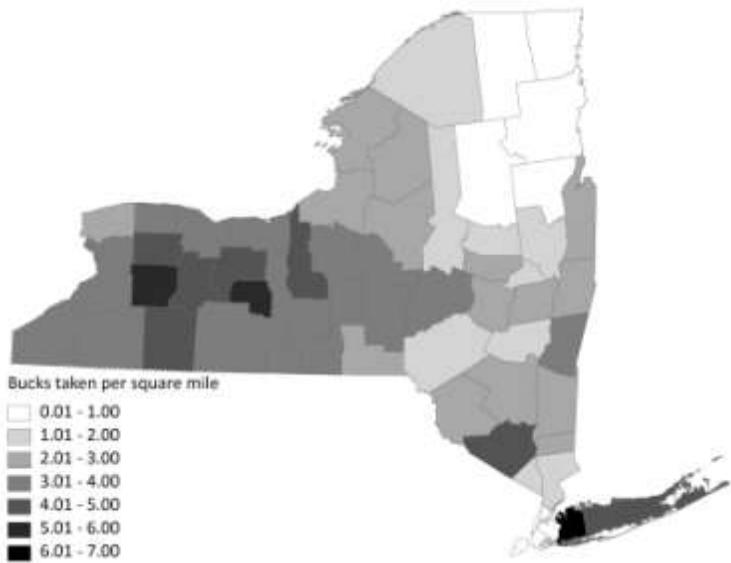


Figure 7 - New York State adult male deer (bucks) hunter harvest for 2012-2013 was used as an index of the population

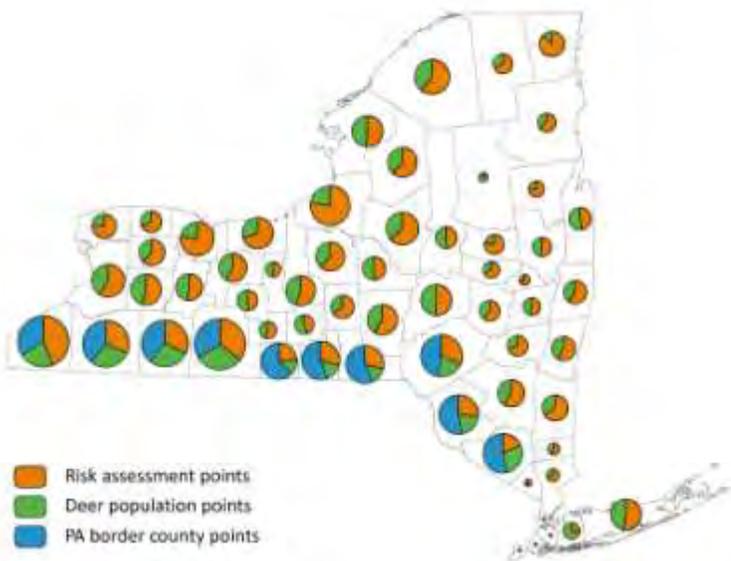


Figure 8 - Breakdown of point distribution by risk, deer population, and border with PA for all NY counties

The total point allotment for New York State in 2013-2014 is 3000 points, which is a 25% increase from the point total achieved during 2012-2013. The distribution of points is 1000 for deer population, 1500 for risk, and 500 for border counties with Pennsylvania (Figure 8).

4) Identification of Additional Risks

The risk assessment process identified additional potential routes of entry for CWD infected material into New York, such as the sale of attractant products such as deer urine, illegally imported infected carcasses or parts by individual hunters, undocumented importation of live deer. Other activities or locations may spread disease if CWD is currently present or becomes established by concentrating environmental contamination, such as illegal feeding or baiting, winter deer yards,

and wildlife rehabilitation facilities. Sampling strategies may change in the future as we collect additional scientific information and evaluate the risks of other locations or practices. An Interagency CWD Prevention Plan is meant to deal with risks posed by many of these activities and is currently in development.

Containment Area: Prions, the agents that cause CWD, can bind to soil particles and remain infectious for at least 2 and possibly up to 16 years (Georgsson et al. 2006). The former containment area where CWD-positive deer were previously found in NY continues to pose a higher risk for CWD transmission than other locations and will be sampled at an increased rate. Specifically, this area includes WMU 6P, covering the towns of Verona and Westmoreland.

Clinical Deer: Although deer may be CWD infected without exhibiting clinical signs, sick deer that are acting abnormally continue to be the highest priority for testing and cause of death determination.

Methods

The methods in 2013-2014 have not changed from 2012-2013 when we moved from a stratified random sample based on solely on relative deer abundance to one that incorporates geographic risk factors by sampling unit (county). Each county is assigned a minimum point target determined by the relative deer population and number of risk activities in that area. Samples are assigned a weighted point value based on the sex and age class of the deer. Statewide sampling for New York in 2013-2014 is designed to achieve a minimum of 3000 points (Table 2, Figure 8, Appendix 1): 1000 determined by the deer population, 1500 from the statewide risk scoring, and 500 apportioned to counties bordering PA. The targeted number of points for each county could be achieved by different combinations of samples. Sex and age value are the same as 2012: Adult male (≥ 2.5 years old) – 3 points, Adult female (≥ 2.5 years old) – 1.5 points, Yearling male or female (< 2.5 years old, > 1 year) – 1 point, Fawns male or female (< 1 year old) – 0 points and will not be sampled.

Table 2 - Minimum point quota by Region and County for 2013-2014 Chronic Wasting Disease Surveillance of Hunter-Harvested White-tailed Deer in New York State.

	BORDERS PA	RISK	POPULATION	TOTAL POINTS
REGION 1				
Nassau	0	6	15	21
Suffolk	0	38	29	67
Region 1 Total	0	44	44	88
REGION 2				
Bronx	0	1	0	1
Kings	0	1	0	1
New York	0	0	0	0
Queens	0	1	0	1
Richmond	0	1	0	1
Region 2 Total	0	4	0	4
REGION 3				
Dutchess	0	28	16	44
Orange	50	17	27	94
Putnam	0	7	5	12
Rockland	0	3	2	5
Sullivan	50	24	20	94
Ulster	0	28	20	48
Westchester	0	9	4	13
Region 3 Total	100	116	94	310
REGION 4				
Albany	0	11	11	22
Columbia	0	24	17	41
Delaware	50	37	22	109
Greene	0	20	9	29
Montgomery	0	14	7	21
Otsego	0	31	31	62
Rensselaer	0	23	15	38
Schenectady	0	7	3	10
Schoharie	0	17	12	29
Region 4 Total	50	184	127	361
REGION 5				
Clinton	0	37	5	42
Essex	0	14	9	23
Franklin	0	19	9	28
Fulton	0	22	6	28
Hamilton	0	1	7	8
Saratoga	0	13	13	26
Warren	0	15	5	20
Washington	0	27	19	46
Region 5 Total	0	148	73	221

	BORDERS PA	RISK	POPULATION	TOTAL POINTS
REGION 6				
Herkimer	0	21	17	38
Jefferson	0	31	31	62
Lewis	0	40	22	62
Oneida	0	41	25	66
St. Lawrence	0	45	30	75
Region 6 Total	0	178	125	303
REGION 7				
Broome	50	24	13	87
Cayuga	0	31	26	57
Chenango	0	33	25	58
Cortland	0	23	13	36
Madison	0	19	19	38
Onondaga	0	33	21	54
Oswego	0	75	22	97
Tioga	50	26	14	90
Tompkins	0	12	15	27
Region 7 Total	100	276	168	544
REGION 8				
Chemung	50	21	11	82
Genesee	0	27	17	44
Livingston	0	24	23	47
Monroe	0	53	16	69
Ontario	0	35	22	57
Orleans	0	21	10	31
Schuyler	0	11	10	21
Seneca	0	8	9	17
Steuben	50	51	45	146
Wayne	0	42	19	61
Yates	0	15	16	31
Region 8 Total	100	308	198	606
REGION 9				
Allegany	50	42	36	128
Cattaraugus	50	38	37	125
Chautauqua	50	62	33	145
Erie	0	39	28	67
Niagara	0	28	10	38
Wyoming	0	32	28	60
Region 9 Total	150	241	172	563
GRAND TOTAL	500	1499	1001	3000

EDUCATION AND OUTREACH

Justification

Multiple benefits are obtained by engaging the public through interaction with NYSDEC Regional field staff and the distribution of educational materials. Not only does field staff learn of businesses that handle deer and other wildlife species, such as deer processors and taxidermists, but the proprietors of those businesses also have a name and face to call on at NYSDEC if they need to provide information, such as reporting a violation or potentially diseased animal. The education and outreach will provide current information on CWD, actions being taken by NYSDEC, and efforts that the public can take to prevent introduction of CWD prions to the New York landscape.

Methods

Chronic Wasting Disease Fact Sheet

The CWD Fact Sheet (Appendix 2) is available for distribution as an educational tool. It will be made available to interested parties during the New York State Fair and will be distributed to NYSDEC offices for the public. Field staff visiting taxidermists or processor businesses can distribute the fact sheet. The goal of the Fact Sheet is to provide current information on CWD science, importation regulations, and disposal methods for deer carcasses. The Fact Sheet was developed with input from Bureau of Wildlife and Bureau of Fish and Wildlife Services staff, along with clarification from Cornell Waste Management Institute and NYSDEC Waste Materials. Regional field staff should read and understand the Fact Sheet and be able to answer questions on relevant topics. NYSDEC Wildlife Health Unit (WHU) staff is available to answer questions or provide additional details.

Partnership with Taxidermists

During on-site visits to taxidermy businesses, field staff should inquire if business owners are willing to participate in CWD sample collection of older age male deer (≥ 2.5 -years old) this year and at what level of effort they would be willing to engage. The reason behind this is because older bucks have higher prevalence rates in infected deer herds. They typically have larger home ranges and contact many deer during the rut so there is increased opportunity to encounter and spread CWD prions.

In 2012-2013, taxidermists provided deer heads for \$10/head. Batches were picked up by field staff. Heads remained frozen until pick-up by field staff on mutually agreeable schedule. Regional field staff should discuss the best method for head collection with each taxidermist. In 2013, a program is going to be instituted to train taxidermists to collect retropharyngeal lymph nodes and lower mandible (half) for aging with proper paperwork. This program has involved training in person and by video with sampling packets provided to taxidermists prior to the big game season. As a pilot program, taxidermists in PA border counties, past cooperators, and those indicating willingness to cooperate in 2013 will be contacted to participate in sample collection. Depending on the response, regional big game team biologists will choose the number of taxidermists they can manage in the program.

Road Signs

To increase awareness of DEC import regulations along the border of Pennsylvania, NYSDEC has worked with NYSDOT to place electronic road signs at major interstates and county roads along the New York border. These signs will have a brief message alerting NY hunters to an import ban on PA deer. For persons interested in learning more about these signs, a photo of the sign with a link to the CWD regulations page will be placed on the DEC website.

Cooperator Patches

Most of the deer processor and taxidermy businesses that provide heads are financially compensated for their efforts. To increase visibility of their participation in the CWD program and as a token of appreciation for their valuable assistance, all cooperators in 2013-2014 will receive a NYS CWD Cooperator patch.

RISK ASSESSMENT SURVEY

Justification

A qualitative risk assessment for CWD importation and spread was conducted in 2011, which identified possible sources for introduction of CWD prions. The 2012-2013 CWD sampling season focused efforts in those areas in general, and on-the-ground interviews refined the risk assessment by gathering information on how many deer are coming from out-of-state, how many deer are being handled for NYS processors and taxidermy businesses, and methods of waste disposal for carcasses. This information was used to adjust points for 2013-2014 sampling. A higher point value would be applied to the high risk locations.

Methods

Geographic locations for captive cervid farms, taxidermy businesses, and deer processors were obtained from multiple sources. The NYS Department of Agriculture and Markets (NYSDAM) provided coordinate locations for all captive cervid farms in the state. This information was supplemented with NYSDEC data on white-tailed deer farms licensed by the Special Licenses Unit and Animal Health Diagnostic Center (AHDC) information on CWD testing of captive cervids. Taxidermy businesses were geocoded from street addresses obtained from NYSDEC taxidermy records for businesses that process black bears, former CWD-required reporting, field staff, and internet searches. Deer processors were geocoded from street addresses from information provided by field staff, business directories, and internet searches. All mapping and geospatial analysis tasks were completed using ESRI ArcGIS 10 (Redlands, CA). County and NYSDEC Region information were added as additional columns.

A survey of captive cervid facilities was initiated and distributed to NYSDAM field veterinarians based on regions. The interview methods for Regional field staff were reviewed by the Cornell University Institutional Research Board for Human Participants and received an exemption because no individual information will be released outside of NYSDEC. Spreadsheets with all known taxidermy businesses and deer processors were provided for each region and maintained as confidential within the agency.

Questions were answered via an interview administered informally and on-site or by phone; interviews were conducted before or during the hunting season in conjunction with deer checks.

In 2013, field staff will be provided spreadsheets with taxidermist and processor information. They should add the names of businesses in their region that were not included on their list and conduct interviews at those new locations if possible. Locations that are no longer in business should be noted as well, any other changes to the information should be noted and provided back to the Wildlife Health Unit. Business proprietors should be informed of the appropriate and legal disposal methods for parts and carcasses. Direct them to the CWD Fact Sheet (Appendix 2) for websites where they can find more information on big game importation regulations and disposal regulations related to their businesses.

Field Activities

This section gives step-by-step guidance and contact information to standardize CWD surveillance activities across the State and to gather high quality data and samples. This guidance will document activities that are similar to previous years and where changes are being made for 2013-2014.

Additional effort by field staff is being requested (1) to maintain an updated data sheet for taxidermists and processors, (2) to distribute a CWD fact sheet when appropriate, and (3) to inform the taxidermists, deer processors, hunters and the public about the continuing threat of CWD, importation prohibitions, and carcass disposal requirements. **Copies of the 2013-2014 CWD Surveillance Plan and all appendices will be emailed to regions and also be available on the DFWMR InSite** <http://internal/dfwmr/dfwmr232.html>.

Regional Field Staff Actions:

- 1) **COLLECTION OF CLINICAL DEER:** Ongoing and year-round effort. Where possible, increase our statewide effort to collect and test all abnormal, clinical, or suspect deer for full necropsy to determine cause of death or illness
 - A. All deer should be collected for a full necropsy – call WHU (Regions 1-6) or Cornell (Regions 7-9) to arrange delivery.
 - B. Do not collect CWD samples on these animals. Submit intact carcass with regular Specimen History Form.

- 2) **COLLECTION EFFORTS IN A PORTION OF THE CWD CONTAINMENT AREA:** Continue increased sampling effort started in 2011 from WMU 6P (includes the Towns of Verona and Westmoreland).
 - A. WMU 6P was used as a reasonable geographic unit within the former containment area
 - B. Increased effort in this area to increase CWD sample size because of previous outbreak and possible new infections from environmental contamination

- 3) **STATEWIDE CWD SURVEILLANCE:** We use a weighted risk-based sampling by county (point system) with special effort to obtain higher value animals (older age class males and females)
 - A. Give participating deer processors and taxidermists adequate supplies [bags, zip ties, instructions, and tags (Appendix 5)].

- B. If processors have a **Collector ID (See spreadsheet)**, please remind them of their number on the CWD Cooperator Letter. If a processor or taxidermist needs a Collector ID, submit the name to Angela Martin and a Collector ID will be assigned.
- C. Provide CWD Cooperators with CWD Cooperator letter (Appendix 4) and have them complete a W-9 form (Appendix 6) and Standard Voucher (Appendix 7). If they completed a W-9 in 2012, they do not need to fill out another unless changes need to be made. Information on the W-9 and Standard Voucher must match.
- D. Continue to visit deer processors to collect heads at \$5/head. No fawns will be accepted. Deer processors can receive \$10/head for bucks that are 2.5 years-old and up, but these will be identified when tissues are extracted and an additional \$5 will be added to the deer processor's voucher for each adult male sample confirmed.
- E. Ask taxidermists if they are willing to submit heads this year for \$10/head for bucks that are 2.5 years-old and up. No yearlings will be accepted from taxidermists. Taxidermists can be trained to collect lymph nodes for \$15/sample for adult bucks only. Do not encourage them to collect from adult does.
- F. Look at each tag while at the place of business to ensure that deer kill tags are filled out completely by processors or taxidermists. No payment can be issued for incomplete tags. No Central Office staff is available to call individual businesses to confirm data.
- G. Regional staff can decide to record age, sex, and county when deer are collected to keep their own running point totals. However, because other regions may collect from counties outside of their areas, definitive points total will be available from Central Office on DFWMR Wildlife Health section on InSite (<http://internal/dfwmr/dfwmr232.html>). Point totals will also be emailed out on a regular basis.
- H. Sampling by region:
 - i. Deer heads and completed deer kill tags from Regions 1-7 go to the WHU at Delmar
 - 1. Please make arrangements with Kevin Hynes or Robert Benson at the Wildlife Health Unit at Delmar before shipping or transporting any heads. This is necessary so they can plan for sample extraction with staffing and storage.
 - 2. Regions should plan to ship or transport heads. The WHU has limited staffing and may not be available to pick up. Call the WHU first.
 - ii. Deer heads from Region 6 may be processed at the Rome Check Station if staff are available. If not, the heads will be shipped to Delmar.
 - iii. Deer heads from Regions 8-9 are processed at John White Game Farm and lymph nodes submitted directly to AHDC. Deer kill reports were sent to the WHU for entry directly into database.
 - iv. The barcode system employed in previous years will remain the same. All NYS DEC Deer Kill Reports (Appendix 5) receive a barcode sticker and a complementing barcode sticker goes on NYSDEC CWD Submission Form (Appendix 8). The CWD record of specimen scannable form will not be used again this year to eliminate duplicate data entry.
 - 1. Suspect or clinical animals will be processed the same as throughout the year with submission of the whole carcass for necropsy. Complete Specimen History Form rather than CWD-related materials.

2. Kevin Hynes will distribute barcodes.
 - I. Check DFWMR InSite for daily point updates (<http://internal/dfwmr/dfwmr232.html>). Daily or weekly totals by region and county will also be emailed to regional CWD Coordinators.
 - J. Call Kevin Hynes at WHU (518-478-3034) if you have questions or need additional supplies.
 - K. Time and Activity or TDS Code: 66914 and Cost Center for CWD related: 295817-FG-13.
- 4) CHANGE: WORK WITH WILLING TAXIDERMISTS TO EXTRACT RETROPHARYNGEAL LYMPH NODE TISSUES DURING THE 2013-2014 BIG GAME SEASON.
 - A. Taxidermists participating in a CWD Sampling Program for 2013-2014 will collect retropharyngeal lymph nodes (trained in person or by video) – payment for samples will be \$15 if they properly collect and freeze lymph nodes, include lower jaw for aging, and appropriate paperwork.
 - B. Show taxidermists how to collect lymph nodes if they are interested and you are able to do so. Training by video will be provided in the packet mailed to them as a cooperator.
 - C. Provide your contact number to taxidermists. They will be working directly with you.
- 5) CONTINUING: CWD FACT SHEET AND CARCASS DISPOSAL INFORMATION. When interacting with taxidermists and all deer processors in your Region, make them aware of the continuing threat posed by CWD and provide them with a copy of the CWD Fact Sheet (Appendix 2) and inform them of the CWD importation regulations and of the carcass disposal regulations
 - A. Field staff should read and understand the CWD Fact Sheet first
 - B. Your visit is not an enforcement action. You will be providing these businesses with information about the legal disposal of carcasses and parts and the prohibitions on importation of certain carcasses and parts.
 - C. This is a public outreach effort to get to know these businesses, develop a collaborative working relationship, and provide information directly related to the taxidermy and deer processing businesses.
- 6) CONTINUING: TAXIDERMISTS AND DEER PROCESSORS INFORMATION.
 - A. List of known businesses will be distributed to each region with questions on spreadsheet.
 - B. Add businesses that are not included on sheet.
 - C. Record any updates to businesses, such as no longer in operation or disposal methods. Return spreadsheet to Krysten Schuler (ks833@cornell.ed) by January 1, 2014.

Wildlife Health Unit Sample Collection

The NYSDEC Wildlife Health Unit in Delmar (WHU) is the primary location where deer heads will be shipped or transported by field staff from Regions 1-7. Biologists (Kevin Hynes and Joe Okoniewski) and technicians (Bob Benson and Angela Martin) are responsible for retropharyngeal lymph node extraction, determining deer age, shipping samples to the Animal Health Diagnostic Center (AHDC) and data entry providing a daily tally. The goal for turn-around on sample data entry is 1-2 days. The WHU policy is “first in,-first out.” Call the WHU in advance to make arrangements for shipping or transporting your

deer heads. As in previous years, Regions 8-9 will collect deer heads and extract lymph nodes at the John White Game Farm, Region 6 will work out of the Rome check station. Those samples will be shipped directly to the AHDC. All data entry will be completed at the WHU by staff. Tags from Regions collecting lymph nodes will be sent to the WHU for entry.

The WHU will provide sampling supplies to Regional staff prior to the start of the hunting season and supplement supplies as needed. If Regional staffs are handling deer heads/brains, they must have their rabies titers checked. The local Health Departments should be able to facilitate blood testing. Note takers not handling deer heads do not need rabies pre-exposure vaccinations.

Central Office

The NYSDEC will have a primary contact, Kevin Hynes, to answer questions and coordinate sampling. Prior to the hunting season, information about CWD testing will be provided in a press release.

Forms

Similar to past years, the deer processor or taxidermist will fill out Deer Kill tags (Appendix 5) and attach them to the outside of the bagged head (preferred). All Deer Kill Report tags must be completely filled out by the business owner, including Collector ID. No payment will be issued for incomplete forms.

Data will be entered directly in an Access database at the WHU during sample collection. Reports will be generated and emailed to regional CWD coordinators on a regular basis.

Copies of the CWD Surveillance Plan and all appendices will be emailed to regions.

Payment for Heads

To ensure the correct payment to each business, the DEC Deer Kill Report tag (Appendix 5) must be filled out completely and correctly. Incomplete forms will not be processed. Regional staff will be provided a CWD Cooperator form (Appendix 4) to leave with cooperating processors and taxidermists to outline procedures. These forms are to be tailored to each specific region with the regional biologist contact information. Regional staff should familiarize themselves with the terms and conditions on this information sheet. Both previous and new CWD Cooperators should be provided with a copy of this information sheet. This letter spells out the terms under which DEC will and will not pay CWD Cooperators for heads and provides the CWD Cooperator with information on who to contact in DEC.

Deer processors and taxidermists providing adult bucks 2.5-years-old and older will receive a \$5 “bonus” in addition to the traditional \$5. The bonus is added because of the higher value of adult males as diagnostic samples. Unknown sex or age deer will be processed at \$5/head. Fawns, head-shot, decomposing, or rotten deer will not receive payment. Taxidermists or processors interested in collecting retropharyngeal lymph nodes directly will receive \$15/sample for the correct tissues.

This year’s payment process is the same as 2012. A CWD Cooperator must complete two forms: 1) Substitute Form W-9 (Appendix 6) and 2) Standard Voucher (Appendix 7). The W-9 was a new form in

2012 that must be completed by the CWD Cooperator who will be the person receiving a check from NYSDEC. It is a requirement of the Statewide Financial System and instructions are provided on the reverse side of the W-9 form. The W-9 is the official record of the taxpayer and a Standard Voucher for payment can only be made to the person/taxpayer identified on the W-9 form; all information must be identical on the W-9 and the Standard Voucher. The W-9 must be completed and returned to Patrick Martin in Central Office as soon as possible and before any Standard Voucher is completed. If a W-9 is on file from 2012, another form does not have to be completed in 2013. NOTE: Do not check the box marked Exempt from Backup Withholding on the W-9.

The Standard Voucher is the same as last year. Information in the highlighted sections must be completed by the CWD Cooperator. The lines entitled "Deer heads submitted for CWD sampling" will be completed when the heads have been aged either at the Rome Check Station, John White Field Lab or at the Wildlife Health Unit in Delmar. Regional staff should have the Standard Voucher completed and signed by the CWD Cooperator and then send the completed Standard Voucher to Patrick Martin in Central Office. Remember, the information on the Standard Voucher must be identical to the information provided by the CWD Cooperator on the W-9.

Cornell Laboratory Analysis

The Animal Health Diagnostic Center (AHDC) will be conducting all CWD testing for New York State. Samples will be accompanied by AHDC CWD Submission Form (Appendix 8). Retropharyngeal lymph nodes from hunter-harvested deer submitted in bulk during the hunting season will be tested by ELISA through the BSE Lab. Individual clinical suspect deer throughout the year will be tested for CWD using IHC through the Pathology Services as part of a routine cervid necropsy for cause-of-death determination. Similar confirmation and notification procedures apply to the case pathologist.

Communication Procedure from AHDC to NYSDEC or DAM:

1. Non-detected results from ELISA or IHC -
AHDC: Randy Renshaw will report to
DEC: Kevin Hynes (WHU) and Patrick Martin (Central Office)
DAM: Dave Smith
2. Suspect or CWD-positive samples by ELISA or IHC will be immediately communicated to
AHDC: Randy Renshaw will report to Elizabeth Bunting, Krysten Schuler, and Bruce Akey, who will report to:
DEC: Patrick Martin will report to Patricia Riexinger, Kevin Hynes, Gordon Batcheller, and regional manager
DAM: Dave Smith

All suspect or CWD-positive samples will be immediately sent for confirmation by USDA-National Veterinary Services Laboratory in Ames, IA.

The hunter will be contacted and a press release with information from the positive deer location will be issued upon confirmation of a CWD-positive deer.

Authors and Acknowledgments

CWD Surveillance Planning Team

- Steve Heerkens - NYSDEC
- Arthur Kirsch- NYSDEC
- Krysten Schuler –AHDC
- Kevin Hynes- NYSDEC

CWD Risk Assessment

- Bruce Akey - AHDC
- Elizabeth Bunting - AHDC
- Steve Hurst- NYSDEC
- Kevin Hynes- NYSDEC
- Patrick Martin- NYSDEC
- Randy Renshaw - AHDC
- Krysten Schuler - AHDC
- Bryan Swift- NYSDEC

Technical and Editorial Guidance

- Bruce Akey -AHDC
- Elizabeth Bunting - AHDC
- Anna Cappabianca – NYSDEC
- Chuck Dente- NYSDEC
- Jim Farquhar- NYSDEC
- Nicholas Hollingshead - AHDC
- Jeremy Hurst- NYSDEC
- Steve Hurst- NYSDEC
- Jeff Huse – NYSDAM
- Chris Jennelle – University of Wisconsin
- Angela Martin - NYSDEC
- Patrick Martin- NYSDEC
- George Merrill – NYSDAM
- Hussni Mohammed – Cornell Epidemiology
- Randy Renshaw - AHDC
- John Rowen - NYSDOT
- Sally Rowland –NYSDEC Waste Management
- Bryan Richards – USGS-NWHC
- Natalie Sacco- NYSDEC
- Mary Schwartz – Cornell Waste Management Institute
- William Siemer – Cornell Human Resources Unit
- Dave Smith - NYSDAM
- Bryan Swift- NYSDEC
- Alan Woodard – NYSDEC Waste Management

References

Georgsson G, Sigurdarson S, Brown P. 2006. Infectious agent of sheep scrapie may persist in the environment for at least 16 years. *Journal of General Virology* 87: 3737–3740.

Jennelle C, Osnas E, Samuel M, Rolley R, Langenberg J, Russell R, Walsh D, Heisey D. 2012. Using auxiliary information to improve wildlife disease surveillance: A Bayesian approach. *Ecological Applications* (In Review).

Romano, M. 2012. The Effects of Chronic Wasting Disease on the Pennsylvania Cervid Industry Following its Discovery. Master's Thesis, Drexel School of Public Health, Philadelphia, PA.

Walsh, D. 2012. Enhanced surveillance strategies for detecting and monitoring chronic wasting disease in free-ranging cervids: U.S. Geological Survey Open-File Report 2012–1036. 42 p.