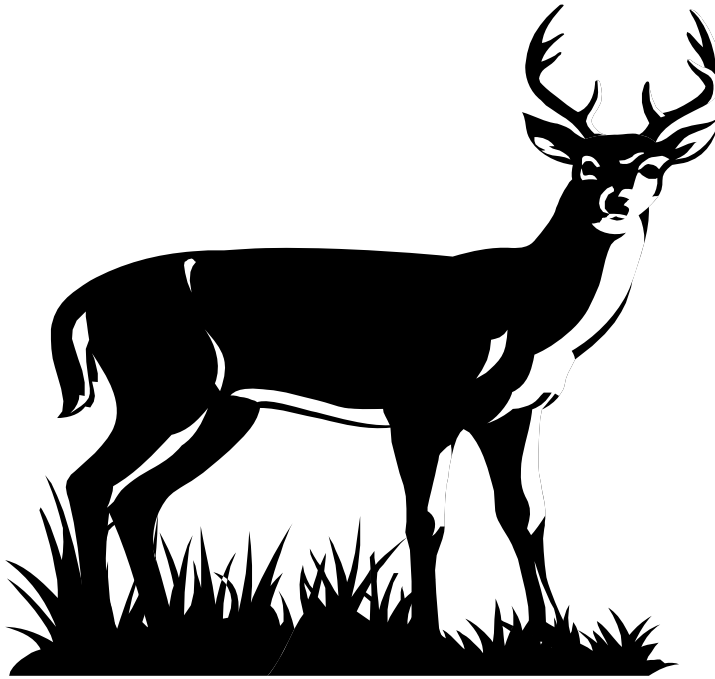




CHRONIC WASTING DISEASE RESPONSE PLAN



Division of Wildlife Management

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ACRONYMS

APHIS	Animal and Plant Health Inspection Service
CWD	Chronic Wasting Disease
CWDMZ	Chronic Wasting Disease Management Zone
DENR	Department of Environment and Natural Resources
GIS	Geographic Information System
G.S.	General Statute
NCAC	North Carolina Administrative Code
NCDA&CS	North Carolina Department of Agriculture and Consumer Services
NCWRC	North Carolina Wildlife Resources Commission
SA	Surveillance Area
SCWDS	Southeastern Cooperative Wildlife Disease Study
SEAFWA	Southeastern Association of Fish and Wildlife Agencies
USDA	United States Department of Agriculture

INTRODUCTION

Chronic Wasting Disease (CWD) is a contagious neurological disease specific to species within the deer (Cervidae) family, including white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus elaphus*), and moose (*Alces alces*). The disease is a transmissible spongiform encephalopathy and characterized by spongy degeneration of brain tissue resulting in emaciation, abnormal behavior, loss of bodily functions, and ultimately death. CWD was first observed in the 1960s at a research facility in Colorado. Initially, CWD was believed to be limited in wild herds to relatively small endemic areas in Colorado, Wyoming, and Nebraska. However, the disease subsequently has been found in wild herds in South Dakota, Utah, New Mexico, Kansas, Wisconsin, Illinois, New York, West Virginia, Saskatchewan, and Alberta. CWD also has been found in captive herds in Colorado, Nebraska, South Dakota, Montana, Oklahoma, Kansas, Minnesota, Wisconsin, New York, Saskatchewan, and Alberta. While CWD poses a serious threat to cervid populations, the United States Centers for Disease Control and Prevention and the World Health Organization have indicated there is no evidence CWD can be transmitted to humans or is linked to any neurological diseases of humans.

Although CWD has not been documented in 2,503 samples tested from North Carolina since 1999, discovery of the disease in North Carolina would have significant biological, economical, and sociological ramifications. Discovery of CWD in Wisconsin prompted the North Carolina Wildlife Resources Commission (NCWRC) to develop a preventative disease management strategy in May 2002. Revisions to administrative rules pertaining to captive cervids were implemented, including testing, tagging, and inspection requirements. A short-term buyout program was established to provide monetary compensation to licensees voluntarily relinquishing their cervid herd and captivity license to the NCWRC. Additional actions included increased efforts to minimize the occurrence of illegally-held cervids. Monitoring and surveillance of CWD were expanded for free-ranging white-tailed deer, including a statewide systematic sampling of hunter- and vehicle-killed deer and sampling around captive cervid facilities known to have imported cervids into North Carolina. Historical CWD surveillance and management actions for both captive and free-ranging cervids were initiated in 1999 and continue (Appendix A). Information has been disseminated to increase public awareness of CWD and disease management actions implemented by the NCWRC.

All management actions implemented by the NCWRC have been designed to prevent introduction or spread of CWD into North Carolina or to increase the likelihood of disease detection should it already occur. Previous management actions related to CWD and the development of this plan were conducted in cooperation with the North Carolina Department of Agriculture and Consumer Services (NCDA&CS). The Southeastern Cooperative Disease Study (SCWDS) has assisted by testing CWD samples from free-ranging cervids and providing technical guidance relative to surveillance schemes and disease management actions. A priority for annual surveillance will continue to include testing of all animals exhibiting clinical symptoms characteristic of CWD. Herein, we outline the immediate and long-term responses the NCWRC will implement should CWD be detected within or proximate to North Carolina. In the event of a positive diagnosis, the initial goal will be to identify the distribution of the disease. If additional CWD-

positive animals are found, the long-term goal will be to lower deer densities in the infected area to reduce the potential for spread of the disease.

To ensure maximum effectiveness of the NCWRC's response to a positive diagnosis of CWD, the CWD Response Plan is subject to revision as new information concerning CWD and appropriate disease management strategies become available. Any changes to the CWD Response Plan will be available on the NCWRC website (www.ncwildlife.org).

GENERAL RESPONSE SHOULD AN UNCONFIRMED POSITIVE BE DETECTED WITHIN OR NEAR NORTH CAROLINA

Upon notification of a CWD-positive sample from a U.S. Department of Agriculture (USDA)-approved laboratory using immunohistochemistry testing, the NCWRC will immediately advise all agency personnel, the Governor's Office, North Carolina Department of Environment and Natural Resources (DENR), NCDA&CS, USDA Wildlife Services, and all member states of the Southeastern Association of Fish and Wildlife Agencies (SEAFWA) that a preliminary positive case of CWD has been found and that confirmation is being provided by a second, independent USDA-approved laboratory.

Concurrent with confirmatory testing by a second USDA-approved laboratory, the following actions will immediately occur:

- The Chief of the Division of Wildlife Management will establish a Field Response Team and a Logistical Response Team. The Field Response Team will consist of the regional Technical Guidance Supervisor, district Technical Guidance Biologist, regional Land Management Supervisor, Deer Biologist, Captive Cervid Biologist, district Wildlife Enforcement Captain, and/or other individuals as deemed necessary to coordinate and conduct field response activities. The regional Technical Guidance Supervisor will serve as the Field Response Team Leader. The Logistical Response Team will include individuals in or near the NCWRC's headquarters in Raleigh, North Carolina, and will consist of the Division Chief, Wildlife and Land Management Section Manager, Administration and Planning Section Manager, State Wildlife Liaison Officer for the USDA Animal Emergency Response Organization, Public Information Officer, Geographic Information System (GIS) Biologist, Information Technology representative, Agency Legal Analyst, Division of Law Enforcement representative, Raleigh Office administrative assistant, and/or other individuals from the NCWRC or other agencies as determined necessary to provide support for the Field Response Team. The Division Chief will serve as the Logistical Response Team Leader.
- The Field Response Team will determine the location of the CWD-positive (i.e., index) sample and will forward that information to the GIS Biologist. The GIS Biologist will prepare a map utilizing roads, waterways, and/or other land features to best delineate an approximate 5-mile (8-km) radius circle around the index location. The GIS Biologist also will prepare maps indicating the deer density distribution, captive cervid facility locations, and previous CWD sample locations within the approximate 5-mile (8-km) radius circle around the index location.

- The Field Response Team Leader will determine the best location for a CWD operations facility, preferably a currently-existing NCWRC facility. The Field Response Team and/or a local Division of Wildlife Management depot crew will begin making necessary modifications to the facility that will enhance its function as an operations facility. Such modifications may include the establishment of an area for storing supplies and processing samples.
- The Field Response Team Leader will appoint a data coordinator responsible for managing all data and samples that are collected. The CWD Data Coordinator, the Deer Biologist, and a NCWRC Information Technology representative will collaborate to develop a data collection and management system. The data management system will include an online component that allows hunters to check the testing status of harvested deer. The CWD Data Coordinator will be responsible for assuring appropriate tissue samples are collected, datasheets are completed properly, all data are entered into an electronic database, and all samples are submitted for testing in a timely manner.
- The Field Response Team will finalize a list of all supplies and materials needed to conduct field activities and collect appropriate CWD samples from a minimum of 1,000 animals. The supply list (Appendix B) will be forwarded to the Deer Biologist and the Logistical Response Team and a source for all items will be secured.
- The Logistical Response Team will establish a list of appropriate media contacts, draft a news release, identify stakeholders, and begin preparations for a public information meeting.
- The Logistical Response Team will prepare a contact list with names and addresses of licensed big game hunters, captive cervid facility operators, and fawn rehabilitators.
- The Logistical Response Team will coordinate with a landfill close to the index location and the North Carolina Department of Waste Management to secure access to a disposal location for carcasses, tissues, and other contaminated materials. If a cooperating landfill cannot be located in a location convenient for the Field Response Team, the Logistical Response Team will identify other appropriate means for disposal of materials associated with CWD sampling activities.
- The Logistical Response Team will coordinate with appropriate USDA representatives and keep them apprised of all actions taken.

In the event the positive diagnosis is not confirmed, all previously-mentioned entities will be notified and a press release will be prepared. No further actions will be taken.

**GENERAL RESPONSE IN THE EVENT A CWD-POSITIVE DIAGNOSIS IS
CONFIRMED BY A SECOND, INDEPENDENT, USDA-APPROVED
LABORATORY**

- The NCWRC will immediately advise all agency personnel, the Governor's Office, DENR, NCDA&CS, USDA Wildlife Services, and all member states of the SEAFWA that the positive case of CWD has been confirmed.

- The drafted news release prepared by the Logistical Response Team will be finalized and distributed.
- The GIS Biologist will provide all prepared maps and evaluations to the Field Response Team. The approximate 5-mile (8-km) radius circle delineated around the index location will encompass the “Surveillance Area” (SA).
- The Deer Biologist and the Logistical Response Team will immediately procure the items requested by the Field Response Team and have it delivered to the CWD Operations Facility.
- The Logistical Response Team will contact stakeholders and conduct a public information meeting within or near the SA within 15 days of receiving confirmation of the positive test.
- The Logistical Response Team will send notification via mail to all licensed big game hunters, captive cervid facility operators, and fawn rehabilitators alerting them to the change in North Carolina’s CWD status and the disease management actions our agency will be implementing.

FIELD RESPONSE SHOULD CWD BE CONFIRMED IN A FREE-RANGING CERVID

- Wildlife Enforcement Officers will immediately begin securing access to private and public lands within the SA, and they also will post notification signs along roadways entering the area.
- The Field Response Team Leader and the Captive Cervid Biologist will coordinate the immediate inspection of all captive cervid facilities within the SA. The inspection will include a herd inventory, evaluation of the perimeter fence, and a visual evaluation of all captive animals to ensure no individuals are displaying symptoms characteristic of CWD.
- If confirmation of a positive occurs outside of the muzzleloader/gun deer season, two 6-member removal teams consisting of a driver, 2 spotters, and shooter in one vehicle and 2 carcass/data collection personnel in another vehicle will be assembled within 2 weeks to begin the collection of animals for CWD evaluation. These removal teams will begin operation after the public information meeting is held and will continue until the next muzzleloader deer season opens in the SA. Contacts will also be made with various enforcement agencies (state, county, local), North Carolina Department of Transportation, and other cooperating entities to establish a network of individuals to report vehicle-killed deer. The removal team will not be activated if confirmation of a positive CWD diagnosis coincides with the muzzleloader/gun deer season. A mandatory hunter check station will be established near the center of the SA during the muzzleloader/gun deer season following or coinciding with the confirmation of a positive CWD diagnosis. The mandatory hunter check station will be operated for a minimum of 5 full muzzleloader/gun deer seasons, plus the remaining partial season

in the event confirmation of the index sample diagnosis coincides with an ongoing muzzleloader/gun deer season. The Field Response Team Leader will assign NCWRC permanent, contract, or temporary employees to operate the check station. All hunters checking a deer will receive a harvest authorization number, and each deer will be affixed with a numbered identification tag. The initial objective within the SA will be to sample all deer that are harvested throughout the duration of one full muzzleloader/gun deer season, including any partial season from the previous year if CWD was confirmed while that season was ongoing. Samples collected by the removal teams or at the mandatory check station will be processed and forwarded weekly to the CWD Data Coordinator. The CWD Data Coordinator will enter all data into an electronic database and forward the samples to a USDA-approved laboratory for CWD evaluation. Testing results will be available to hunters through the NCWRC website or by calling a dedicated telephone number.

- If additional positives are detected following operation of the SA mandatory check station for the duration of one full muzzleloader/gun deer season, a CWD Management Zone (CWDMZ) will be established to include the previously-existing SA and an approximate 5-mile (8-km) radius circle delineated around each new positive. Check stations will be added as necessary as the CWDMZ increases in size. The objective within the CWDMZ will be to reduce the rate of spread of the disease by reducing deer densities to the lowest attainable level. An initial harvest strategy, utilizing herd population dynamics, will be developed to initiate reduction of deer densities within the CWDMZ. The harvest strategy will be evaluated annually to ensure that enough deer are being removed annually to both decrease deer density and the CWD prevalence rate within the CWDMZ. Actions taken to reduce deer densities may include liberalizing season length and bag limits. If the harvest objective is not achieved during the established hunting seasons within any year, removal efforts will be augmented by NCWRC, in conjunction with USDA-Wildlife Services as needed.

Deer density and the CWD prevalence rate, as determined from previous sampling within the SA, will be used to determine the number of animals to be tested for CWD during the first full muzzleloader/gun deer season following the establishment of the CWDMZ. The number of samples to be collected during the first full muzzleloader/gun deer season within the CWDMZ will be equal to the number needed to sample at the prevalence rate observed within the SA. A strategy will be developed to ensure that sample locations are well distributed throughout the CWDMZ, and will include site-specific factors such as deer density and distribution, hunter distribution, and landscape features. The mandatory check station will be operated until the required number of samples is collected. Upon accumulating the targeted number of samples, the check station will be closed by the Executive Director. The number of samples to be collected during subsequent years will be equal to the number needed to sample at the long-term prevalence rate observed within the CWDMZ. If additional positives are not detected within a surveillance year, the sampling intensity will be increased the following year. The increased sampling intensity will be determined by decreasing the observed, long-term prevalence rate incrementally each following surveillance season such that sampling will occur at a 0.5% prevalence rate during the fifth surveillance season after the last positive was detected. If additional positives are detected, sampling the following surveillance seasons will continue to occur at the prevalence rate being used for

sampling when the additional positives were detected. If additional positives are not detected after completion of 5 full surveillance seasons following detection of the last positive, all CWD surveillance and management activities in the CWDMZ will cease.

- If additional positives are not detected during or after operation of the mandatory check station within the SA for the duration of one full muzzleloader/gun deer season, the sampling intensity will be increased the following year. The estimated prevalence rate sampled for, through the duration of the first full muzzleloader/gun deer season, will be calculated using deer density and the number of samples collected. The increased sampling intensity will be determined by decreasing the prevalence rate previously sampled for incrementally each following surveillance season such that sampling will occur at a 0.5% prevalence rate the fifth surveillance season after the index positive was detected. If additional positives are detected, a CWDMZ will be established and sampling the following surveillance seasons will continue to occur at the prevalence rate sampled for when the additional positives were found. If additional positives are not detected after completion of 5 full surveillance seasons after the last positive was detected, all CWD surveillance and management activities in the SA will cease.
- Hunters harvesting deer outside of established SAs or CWDMZs, and hunters harvesting deer during archery season or after closure of mandatory check stations in established SAs or CWDMZs, can transport a harvested deer carcass or head to any NCWRC wildlife depot or other designated testing site for CWD evaluation. The location of all NCWRC wildlife depots and other testing sites will be listed on the NCWRC website (www.ncwildlife.org) in the event the CWD Response Plan is implemented. A fee covering the cost of testing will be established for hunters utilizing this service.

FIELD RESPONSE SHOULD CWD BE CONFIRMED IN A CAPTIVE CERVID

The following response actions will be implemented if CWD is detected in a captive cervid facility within North Carolina or if a captive cervid facility within North Carolina has within the past 5 years transferred cervids to or received cervids from an out-of-state captive facility in which CWD has been detected.

- A meeting will immediately be held with representatives of the NCDA&CS, including the State Veterinarian, to coordinate all actions that will affect captive cervid facilities.
- The affected captive facility will be quarantined immediately by NCDA&CS, and all cervids will be euthanized and tested for CWD. Contingent upon the availability of funds from the USDA, the captivity licensee will receive indemnity for all cervids removed. The indemnity cost will be based on the average market value for the species held in captivity. No state funds will be used to indemnify captivity licensees.
- Traces back and forward of cervids from the affected facility will be conducted to include a time span of at least 5 years. Captive facilities within North Carolina that transferred cervids to or received cervids from the index facility will be quarantined, inspected, and depopulated. Contingent upon the availability of funds from the

USDA, the captivity licensee for any depopulated facilities will receive indemnity for all cervids removed. The indemnity cost will be based on the average market value for the species held in captivity. No state funds will be used to indemnify captivity licensees.

- The owner of a captive cervid facility in which an animal tests positive for CWD will be required to develop a NCDA&CS- and NCWRC-approved facility management plan to minimize the potential for free-ranging cervids to come into contact with infectious materials that may exist within the facility after depopulation. The facility management plan shall include provisions for disinfecting the facility and maintaining the perimeter fence.
- Surveillance of free-ranging cervids in the area of a CWD-positive captive cervid facility will occur just as if the captive facility represented a confirmed positive diagnosis in a free-ranging cervid. A SA will be established and all of the surveillance activities described previously will be implemented.
- If CWD is confirmed in a free-ranging cervid that is traceable to a captive cervid facility, a SA will be established around the location of the CWD-positive animal and all cervids within the captive facility will be euthanized and tested for CWD. If CWD is confirmed within the facility, a SA will also be established around the affected facility and the management actions described previously pertaining to confirmation of CWD within a captive cervid facility will be implemented.

FIELD RESPONSE SHOULD CWD BE DETECTED IN AN ADJACENT STATE

- The NCWRC will coordinate with the state wildlife and/or agriculture agency in the adjoining state where CWD has been detected. An attempt will be made to obtain the following information from the adjacent state: location of the index animal, the state's planned management and surveillance response, the location of all captive cervid facilities, the location of all previously-collected CWD samples, and information concerning deer density and distribution in the area of the index animal.
- If the index location is within five miles of the North Carolina border, a SA will be established within that portion of a 5-mile (8-km) radius circle that falls within North Carolina. Coordination will occur with the adjacent state to determine how application of the above-mentioned surveillance strategies should be apportioned to the identified SA within North Carolina.

REGULATORY ACTIONS INITIATED SHOULD CWD BE CONFIRMED WITHIN OR PROXIMATE TO NORTH CAROLINA

- The Executive Director, under authority by rule in the North Carolina Administrative Code or delegated to him by the Wildlife Resources Commission, or the Governor by virtue of an Executive Order shall initiate actions, regulatory and otherwise, within both the SA and CWDMZ to:

- Prohibit the rehabilitation or transfer of fawns.
- Prohibit supplemental feeding and baiting of free-ranging cervids.
- Establish mandatory harvest reporting at a check station during the muzzleloader/gun deer seasons.
- Establish mandatory CWD evaluation of harvested deer.
- Liberalize season lengths and bag limits as determined to be necessary to facilitate sample collections and population reduction.
- Prohibit exportation from the SA or CWDMZ of deer carcasses or carcass parts, except for meat that is cut and wrapped; quarters or other portions of meat with no part of the spinal column or head attached; meat that has been boned out; caped hides; cleaned skulls or skull plates; antlers; cleaned teeth; and finished taxidermy products. All approved carcass parts that are exported should be accompanied by a label indicating the individual's name, address, telephone number, and that the carcass parts are from a SA or CWDMZ.
- Prohibit all transportation of captive cervids, regardless of any herd certification program implemented by the NCWRC, NCDA&CS, and/or USDA.

Wildlife Enforcement presence will be increased within the SA and CWDMZ to ensure the above regulatory actions, as well as all other wildlife-related laws, are strictly enforced.

ACKNOWLEDGEMENTS

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APPENDIX A

HISTORICAL SURVEILLANCE AND MANAGEMENT ACTIONS

Free-ranging cervids

Historical Surveillance (1999-2001) – CWD samples collected and tested during 1999-2001 were from animals displaying clinical symptoms of CWD ($N=7$) and animals collected for herd health evaluations ($N=25$) (Table 1). Herd health evaluations typically involved the collection of five white-tailed deer from an area for the evaluation of a number of condition-related parameters (e.g., abomasal parasite counts, internal/external parasites, serologic tests). Four herd health evaluations were conducted by the Southeastern Cooperative Wildlife Disease Study on federal properties, and one herd health check was conducted by the North Carolina Wildlife Resources Commission (NCWRC) on one county property.

Priority Area Surveillance (2002) – Seventeen captive cervid facilities were identified as having the highest risk for transporting CWD-infected deer into the state because they acquired cervids from out of state within the past five years. Protocols called for the collection of samples from 10 free-ranging white-tailed deer within a 5-mile (8.0 km) radius of each priority area. Eighty of 140 samples collected during the 2002 surveillance year were through systematic sampling in priority areas (Table 1). Ten samples were collected from four of the 17 priority areas, meeting the surveillance objective. Samples were not collected from four priority areas because of relatively low deer densities, manpower constraints, or the inability to obtain hunter-killed deer in the surveillance area. On average 4.4 (range 2.0-8.0) samples were collected from the remaining nine priority areas. Samples were also collected from white-tailed deer exhibiting clinical symptoms ($N=24$), examined during herd health evaluations ($N=15$), taken legally because of depredation ($N=8$), and collected incidentally to other agency activities ($N=13$) (Table 1).

Table 1. Free-ranging white-tailed deer CWD surveillance 1999-2004. Surveillance periods run from July 1 of each year indicated through June 30 of the following year. CWD was not detected in any of the samples tested.

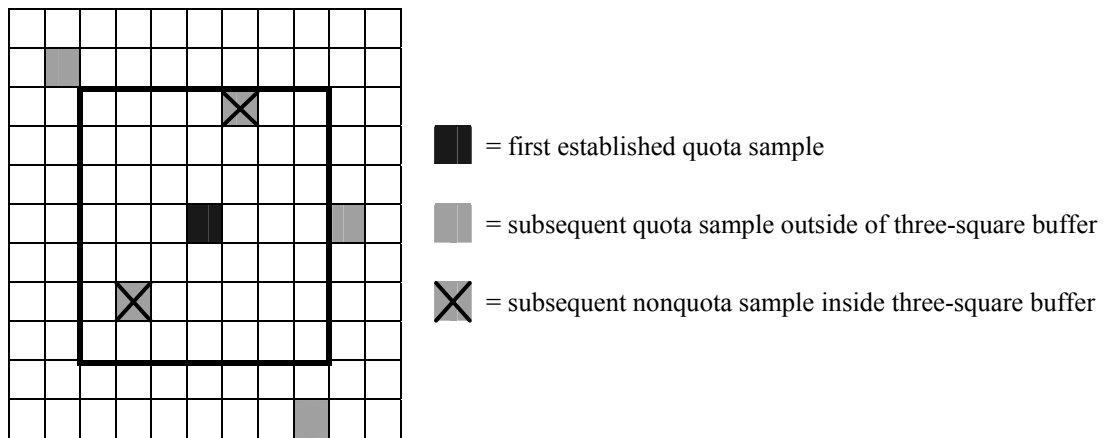
	1999	2000	2001	2002	2003	2004	Total
Clinical animal	3		4	24	21	19	71
Systematic sampling				80	1,488	123	1,691
Herd health evaluation		20	5	15			40
Depredation				8			8
Incidental sample				13		7	20
Total	3	20	9	140	1,488 ^a	147 ^b	1,807 ^{a,b}

^aTwenty-one clinical animals collected in 2003 counted as either quota or nonquota samples and are also included in the systematic sampling total.

^bTwo clinical animals were collected from priority areas in 2004 and are also included in the systematic sampling total.

Statewide Surveillance (2003) – Assuming CWD would be present at a prevalence rate of 0.5% of the statewide population, and that the disease would be distributed evenly throughout the state, we estimated that approximately 1,000 samples would provide a 99% level of confidence that the disease would be detected if present. The sampling design assured sample locations were well distributed across the state by utilizing the North Carolina Forest Service quad-block-square mapping system. Under this mapping system, one square consisted of 1 mi² (1.6 km²), one block consisted of 25 squares, and one quad consisted of 144 blocks. Protocols called for 1,000 quota samples to be collected, where a quota sample was defined as a sample that falls outside of a 3-square buffer from any previously-collected quota sample. Samples that fell within three full squares of a previously-collected quota sample were considered nonquota samples and did not count toward the 1,000 sample objective (Figure 1).

Figure 1. Designation of quota and nonquota samples using the quad-block-square mapping system.



To determine how many samples should be collected from each county, and to vary regional sampling intensity based on local white-tailed deer population densities, the 1,000 sample objective was apportioned in two steps to the county level. The 1,000 sample objective was first apportioned to each of the state’s 15 deer management zones based on relative population density as determined by population modeling. The sample quota for each management zone was then apportioned to the county level based on the relative amount of deer habitat each county contributed to its respective management zone. Deer habitat was defined as the amount of harvested cropland and forested land in each county.

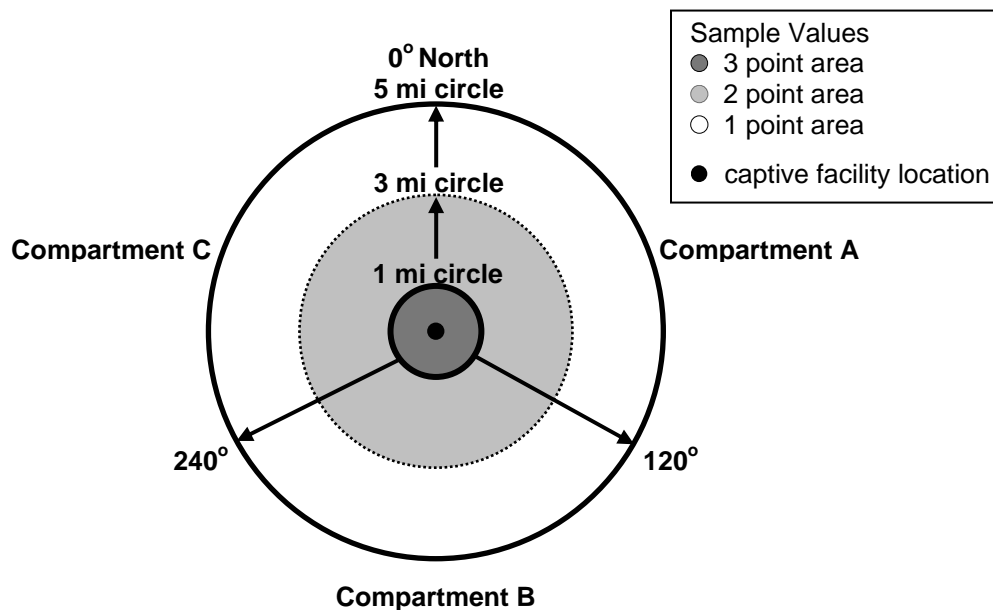
Samples ($N=1,488$) collected during 2003 included 1,002 quota and 486 nonquota samples (Table 1). While the statewide objective of 1,000 quota samples was achieved, the target number of quota samples for some individual counties was not achieved. However, the target number of quota samples for other counties was exceeded. The statewide surveillance objective of 1,000 quota samples was considered a success because sample apportionments to the county level only served to assist field staff in determining approximately how many samples should be collected within each county.

Priority Area Surveillance (2004) – Surveillance focused on collection of samples around captive cervid facilities considered among the highest risk for exposing free-ranging

white-tailed deer to CWD. High risk facilities included those that were known to have imported captive cervids from out of state or those that were known to have acquired deer from in-state sources that had acquired deer from out of state. Two such areas were established within each of the NCWRC's nine districts. Six of the 18 priority areas were also priority areas during the 2002 surveillance year.

The sampling protocol ensured sample locations were well distributed within each priority area (Figure 2). Each priority area consisted of three concentric circles with radii of 1 mi (1.6 km), 3 mi (4.8 km), and 5 mi (8.0 km) centered on each facility. A point value was assigned to samples collected within each circle. Samples collected within 1 mile (1.6 km) of each priority area were assigned a point value of three, samples collected from 1-3 mi (1.6-4.8 km) from each priority area were assigned a point value of two, and samples collected from 3-5 mi (4.8-8.0 km) from each priority area were assigned a point value of one. The priority area was also split into three compartments within the 1-3 mi (1.6-4.8 km) and 3-5 mi (4.8-8.0 km) areas with a restriction that prohibited accumulation of more than 4 points within each compartment. To encourage field personnel to collect samples as close to the priority area as possible, no restriction was placed on the number of points that could be collected within the 1-mi (1.6 km) radius circle. The objective for each priority area was the accumulation of 10 or more points.

Figure 2. CWD surveillance schematic utilized around priority areas during the 2004 CWD surveillance year.



A total of 123 samples and 142 points (mean = 7.9 points per facility) was collected from the 18 priority areas (Table 1). The sampling objective (minimum of 10 points per area) was met for six of the 18 priority areas. The number of points accrued around the remaining 12 priority areas ranged from 0.0 – 9.0 (mean = 5.7). No samples were collected from one priority area in District 9 (i.e., in and west of Madison, Buncombe, Henderson, and Polk counties) because of low deer densities and inability to obtain deer

for sampling. However, 13 samples were collected from within the county in which the priority area was located. A county sampling approach was also utilized for the other priority area in District 9. While one sample with a value of two points was obtained in this priority area, 10 additional samples were also collected outside of the priority area but within the county the priority area was located in. Nineteen samples were collected from white-tailed deer displaying clinical symptoms and seven samples were collected incidentally to other agency activities (Table 1).

Captive cervids

In May 2002, there were approximately 190 captive cervid facilities (85 licensed and 105 unlicensed) in the state and >1,970 cervids in captivity. The number of facilities in the state declined after captive cervids were voluntarily relinquished, inspections and buyouts were completed, and illegally-held cervids were confiscated. North Carolina currently has 83 captive cervid facilities. Cervid species held in captivity include: white-tailed deer (*Odocoileus virginianus*), fallow deer (*Dama dama*), red deer/wapiti/American elk (*Cervus elaphus*), Indian muntjac deer (*Muntiacus muntjak*), sika deer (*Cervus nippon*), axis deer (*Axis axis*), and reindeer/caribou (*Rangifer tarandus*) in order of abundance. Seventy-seven percent of facilities ($N = 64$) hold ≤ 20 cervids in captivity. Most facility operators in North Carolina keep cervids for family companionship or breeding purposes.

Captivity Rule Changes – The NCWRC, under General Statute (G.S.) 143-239, has the authority to regulate and administer laws pertaining to the wildlife resources in North Carolina. Pursuant to G.S. 113-129, wildlife is defined as “wild animals; wild birds; all fish found in inland fishing waters; and all inland game fish . . . the definitions of wildlife, wildlife resources, wild animals, wild birds, fish, and the like are deemed to include species normally wild, or indistinguishable from wild species, which are raised or kept in captivity” and thus includes captive cervids both exotic and native to North Carolina. In 1976, the NCWRC adopted rules in the North Carolina Administrative Code [15A NCAC 10H.0300] that required individuals to obtain a Wildlife Captivity License to possess wildlife (including cervids) in captivity. These rules do not, however, abrogate the authority, under G.S. 106-549.97, of the NCDA&CS to regulate the production and sale of farmed cervids (defined by statute as all animals in the Family Cervidae other than white-tailed deer, elk, mule deer, or black-tailed deer) that are bought or sold for commercial purposes.

Pursuant to G.S. 113-272.6, the NCWRC has the authority to regulate possession and transportation (importation, exportation, and intrastate transportation) of captive cervids. The NCDA&CS jointly regulates the importation and transportation of cervids [NCAC 52B.0212-0213 and 52C.0701] and promulgates rules which include several requirements such as tuberculosis testing and a prohibition on importing cervids from a CWD-positive county or adjacent county.

In response to the detection of CWD in Wisconsin and the continued spread of the disease from its initial distribution, and based on the previously listed authority, the NCWRC passed emergency rules in May 2002 to monitor captive cervid facilities for CWD and to protect the state’s wildlife resources. Major revisions of captivity rules included: (1) prohibition of importation and intrastate transportation of captive cervids until the USDA approves a nationwide CWD monitoring program; (2) moratorium on

issuing new licenses for holding cervids in captivity; (3) upgrading cervid enclosure requirements to restrict contact between captive and free-ranging cervids; (4) implementation of CWD evaluation, record-keeping, and dual tagging requirements; (5) density (number of captive cervids per acre of fenced area) restrictions; (6) creation of a licensing and inventory database to track interstate and intrastate movements of captive cervids, catalog licensing information on captive cervid facilities, and document CWD test results of captive cervids; and (7) semiannual inspections of captive cervid facilities by the NCWRC and the NCDA&CS to monitor inventories, ensure compliance with cervid enclosure requirements, and monitor CWD evaluation protocols. Public outreach and education was also expanded to ensure public awareness of CWD, management efforts, and disease prevention in North Carolina.

Facility Inspections – Inspections of each captive cervid facility in North Carolina occur during winter (October-December) and summer (May-June). Winter inspections are conducted by a NCWRC enforcement officer, NCWRC biologist, and licensed veterinarian or animal health technician from the NCDA&CS. The primary objectives of winter inspections are to obtain an updated inventory for each facility, monitor compliance with captivity rules, monitor herd health, and review records on CWD evaluation and fence inspection maintained by the licensee. Summer inspections are conducted by NCWRC enforcement officers who monitor compliance with the captivity rules and verify that deficiencies noted at previous inspections have been corrected.

CWD Evaluation Protocol – The NCDA&CS began voluntary testing of captive cervids for CWD in 2001. Licensees were not required by rule to test cervids that died within their captive cervid facility for CWD until the NCWRC passed emergency rules in May 2002. These rules required that all captive cervids ≥ 6 months of age, regardless of the cause of death, and any cervid exhibiting clinical signs of CWD be submitted for CWD evaluation. The NCDA&CS sends all tissue samples to the National Veterinary Services Laboratory in Ames, Iowa, for CWD evaluation. All other captive cervids ≥ 6 months of age confiscated, voluntarily relinquished, or obtained through the buyout program were also tested for CWD. Approximately 696 captive cervids have been tested for CWD since 2001 (Table 2). CWD has not been detected in any of the captive cervid samples completely evaluated.

Table 2. Captive cervid CWD surveillance 2001-2006 in North Carolina (as of January 27, 2006).

	2001	2002	2003	2004	2005	2006	Total
Clinical Animal					2		2
Buyout Program			76	252			328
Voluntary Relinquishment				11	11		22
Random Death/Slaughter	1	35	53	84	109	5	287
Settlement					15		15
Confiscation				3	38	1	42
Total	1	35	129	350	175	6	696

Buyout Program – In May 2002, the NCWRC established a voluntary buyout program to provide an opportunity for licensees to relinquish their Wildlife Captivity License and their entire cervid herd for CWD evaluation. Reimbursement rates were based on the current market values of captive cervids in May 2002: \$1000 per adult elk, \$500 per calf elk, \$600 per adult white-tailed deer, \$300 per fawn white-tailed deer, \$500 per adult of other species, \$250 per fawn of other species. Fifteen voluntary buyouts were completed, providing CWD evaluation samples from 328 captive cervids. This sample constituted roughly 16% of the total captive cervids recorded in North Carolina when the program started. The buyout program ended June 15, 2004, and expenditures incurred by the NCWRC for the purchase of animals totaled \$247,850.00.

APPENDIX B

PRELIMINARY LIST OF CWD FIELD RESPONSE TEAM EQUIPMENT NEEDS

ITEM FOR SAMPLE COLLECTIONS	QUANTITY
Dissection Knife Handles	10
Dissection Knife Blades	500
Tissue Forceps	10
Histology Containers	1,200
Polyethylene Sampling Bags	1,200
Boning Knives	10
Sharpeners (sharpening steels)	5
Parafilm	6 rolls
Latex Gloves	3,000 pair
Bleach	10 gallons
Garbage Bags	500
Large Zipper Loc Bags	1,000
Paper Towels	100 rolls
Plastic Aprons	50
Safety Goggles	20
Cut Resistant Gloves	10 pair
10% Buffered Formalin	15 gallons
Folding Work Tables	4
Generator	1
Propane Heaters with Hose Kit	2
Light Stands	2
Tarps	4
Cutting Boards	4
Spray Bottles	4
Buckets	4
Cleaning Brushes	4
5-Gallon Water Jugs	2
Large Plastic Storage Containers	4
Truck Bed Liners for Transport of Carcasses	500
Permanent Markers	8
Tags and Wire (to mark/register carcasses)	1,500
CWD Literature (for distribution to hunters)	1,000
Mandatory Check Station Signs	10
Signs to Post Surveillance Area	50
Signs to Post CWD Management Zone	100
Posts for Signs	175
Portable Shelter	1
Trailer for Storing Supplies	1

ITEMS FOR REMOVAL TEAMS	QUANTITY
.308 Rifle with Scope	4
.308 Ammunition	1,000 rounds
12 Gauge Shotgun Ammunition	250 rounds
Spotlights	4
Hand-held Radios with Ear Piece	4
Laser Rangefinder	2
GPS Units	2
Truck Bed Liners for Transport of Carcasses	250