

**Horicon and Fox River
National Wildlife Refuge
Chronic Wasting Disease
Surveillance and Management Plan**

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Date

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I. Introduction

Disease Background

Chronic Wasting Disease (CWD) is a transmissible spongiform encephalopathy (TSE) of deer and elk in North America. The disease causes accumulation of a protease-resistant protein in central nervous system and lymphoid tissues. The consequence is severe neurological disease and eventual death. CWD has been known for almost four decades in the United States, and generally remained in a limited geographic area in wild deer and elk of northeast Colorado, southeast Wyoming and western Nebraska. However, rapid expansion and spread of the disease in the game-farm industry started in 1996. CWD currently (2004) has been found in elk and deer game farms of eight states and two Canadian provinces. In 2002, the known CWD prevalence and distribution in wild, free-ranging cervids markedly changed and affected a considerably greater number of wildlife resources. The geographical expansion of CWD includes detection over the continental divide in Colorado from east to west border into northern Utah, spread over the continental divide and to the northwest of Casper in Wyoming, expansion further east in the Nebraska panhandle and into southwest South Dakota, several new locations in Saskatchewan, and new foci in New Mexico and east of the Mississippi River in Wisconsin and Illinois.

Figure 1 – CWD in North America



CWD Surveillance and History in Wisconsin's Wild Cervids

The Wisconsin Department of Natural Resources (WDNR) began active CWD surveillance of hunter harvested deer in 1999 and through 2001 had sampled approximately 1,100 deer throughout the state. The DNR was notified in February 2002 that three male deer harvested from Deer Management Unit 70A near the city of Mount Horeb in western Dane County tested positive for CWD. A 12-mile radius surveillance area was designated that centered on the three index cases. During March and April 2002, 516 deer were collected from within the surveillance area of which 15 (2.9%) tested positive for CWD. However, prevalence of these positive cases was clustered and not uniformly distributed in the surveillance area.

Most recently the WDNR announced that the first CWD-positive deer had been discovered in Kewaunee County and an additional positive has been identified in Rock County. This brings the number of CWD-positive deer to six found within and around the 25-square mile Rock County Disease Eradication Zone (DEZ). The zone was established by the Department of Natural Resources this year due to proximity of CWD-positive wild deer across the border in Illinois. Illinois has identified 30 CWD-positive deer from their border counties to date.

Figure 2 – Distribution of CWD-positive Deer in Wisconsin and Illinois

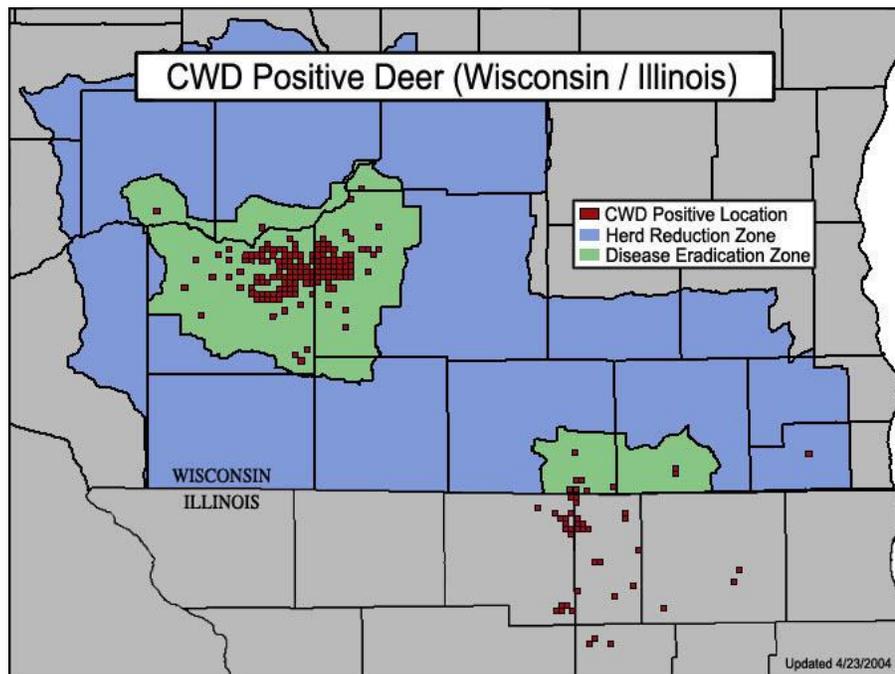


Table 1 shows the results of the 2004 and overall sample test results as of January 4, 2005.

Table 1 – Wisconsin CWD Test Results

DNR Zone	Sampled	Analyzed	Positive
2004 Test Results			
Disease Eradication Zone (DEZ)	9,585	7,030	50
Herd Reduction Zone (HRZ)	7,070	4,692	4
Remainder of WI	727	467	0
Overall Results			
DEZ	32,171	29,603	373
HRZ	16,334	13,955	5
Remainder of WI	24,791	24,531	0

With the appearance of CWD in Wisconsin and Illinois, the State of Wisconsin developed a CWD Management Plan designed to minimize the negative impact of CWD on wild and captive cervid populations, the state's economy, hunters, landowners, and other people dependent upon healthy wild and farmed populations of deer and elk. This goal is to be accomplished through five major actions: 1) surveillance, 2) human health protection, 3) CWD research, 4) communications, and 5) disease control.

Currently there have been no CWD infected deer known to have been harvested from Horicon National Wildlife Refuge in Dodge and Fond du Lac Counties or Fox River National Wildlife Refuge in Marquette County.

CWD Surveillance in Wisconsin's Captive Cervids

The Wisconsin Department of Agriculture, Trade, & Consumer Protection (DATCP) began a voluntary CWD monitoring program for farm-raised deer in 1998. Through 2002 there were approximately 40 captive herds enrolled in the CWD monitoring program, the majority of which were elk herds. Emergency rules adopted by DATCP in April 2002 greatly increased CWD testing and monitoring. The emergency rules, among other things, required monitoring all captive herds for CWD by farmers that moved live deer or elk off a farm and testing of all deer and elk carcasses removed from farms. By December 2002,

there had been over 1,700 CWD tests done on farmed deer in Wisconsin and there were 260 herds fully enrolled in the state's CWD monitoring program.

In December 2002, DATCP Board approved a set of permanent rules that were similar to the emergency rules adopted the previous spring. The permanent rules were strengthened by requiring owners of farm-raised deer to report all escapes within 48 hours and to notify a certified veterinarian within 24 hours of observing any signs or symptoms of CWD. The permanent rules further required that every farm-raised deer over 16 months of age that dies on the herd premises be tested for CWD.

On January 1, 2003, as part of the state's new Captive Wildlife Law, regulatory authority over whitetail deer farms was transferred from DNR to DATCP. The authority change for the administration of deer farms occurred shortly after the discovery of CWD and resulted after more than 14 years of cooperative work between the DNR, DATCP, the Legislature and the captive wildlife industry.

In order to provide a solid baseline of information to the new responsible agency, DNR attempted to conduct on-site inspections of deer farm fences and deer farm records (audits) for all whitetail deer farm licenses. Each audit procedure included an inventory of captive deer, fence inspections, annual reports, receipts and records of sales, purchases and transfers of deer.

The audits revealed that the majority of the 639 whitetail deer farms had fences that were in compliance with state laws; however, 77 farms were found to be in violation of fence specifications. Deer farms in Wisconsin contained at least 16,070 deer. Most deer farmers reported they have not experienced problems with escapes; however, 182 deer farmers did report escapes or intentional releases into the wild. Of those, at least 436 escaped deer had not been recovered or returned to the farms. Several other issues were identified, including variations in record keeping to lack of testing of at least 1,222 deer that had died over the past three years prior to testing requirements.

In addition to deer farms, Wisconsin has 272 elk farms, and 100 farms that have deer species such as red deer, fallow deer, sika deer, and reindeer registered with DATCP. These farms represent about 35,000 cervids.

CWD History in Wisconsin's Captive Cervids

A male white-tailed deer from a deer farm in Portage County tested positive for CWD in September of 2002 when it was sampled in compliance with the rule requiring testing of all carcasses if any part of the carcass is to leave the farm. This finding triggered an investigation which resulted in identifying a CWD positive female white-tailed deer on a Walworth County farm that same month. Another deer, assumed to have escaped from the same Walworth County farm in April 2002, was shot near the farm and tested positive for CWD in October 2002.

All of the deer in the Walworth County herd were killed and tested for CWD in December 2002 and four additional CWD infected deer were identified. The CWD positive deer on both of these farms appear to have originated on a second Walworth County farm. All three farms were quarantined in September 2002 and the two remaining farms will stay under quarantine until they are de-populated.

On October 20, 2003, a white-tail buck from a Sauk County deer farm tested positive for CWD. The animal was tested since it had died of digestive problems. This was the tenth farm-raised animal in Wisconsin to test positive for CWD and the fourth farm where the disease has been found. One of the infected animals was an elk; the rest have been whitetail deer. Currently thirteen herds are under quarantine: four connected with on-farm CWD cases in Portage and Walworth counties; two that received animals from a herd in Minnesota later found to be infected; and seven that are within the Department of Natural Resources CWD eradication zone.

CWD in Adjacent States

Illinois

On November 1, 2002, Illinois Department of Natural Resources (ILDNR) officials received confirmation that chronic wasting disease (CWD) in a wild Illinois deer had been found as the result of routine testing of a suspect animal from Boone County. During the ensuing firearm deer season in November and December, a total of 4,060 samples were taken from hunter harvested deer in 36 Illinois counties. Six additional CWD-positive deer were identified from these samples. Two clusters of infection were identified - one located along the Boone-Winnebago county line northeast of Rockford, and the other southeast of Woodstock in McHenry County.

After identification of those areas in which CWD-positive deer were found, the ILDNR followed up with additional sampling (via sharp shooting) in those two locations so as to better evaluate the status of CWD in the immediate area. Sampling commenced on February 6, 2003, and continued through March 31. Samples were collected and tested from 185 deer, including 62 from Boone County, 29 from McHenry County, and 94 from Winnebago County. None of the 27 samples from southern Winnebago County tested positive for CWD. In addition, none of the 29 samples from McHenry County were positive. In the Boone-Winnebago sampling unit, 4 of 78 adult deer (5.1%) and 1 of 51 fawns (2.0%) were CWD-positive. All positive animals except one originated from sections already known to contain CWD-infected deer, with the new section being located just east of Roscoe in Winnebago County.

Fifteen CWD-positive animals (from all sources) have been identified from Winnebago (4), Boone (9), and McHenry (2) counties in Illinois. The disease does not yet appear to be widely distributed in either the Boone-Winnebago Unit or the McHenry Unit, but sample sizes are still relatively small so caution must be used in interpreting the results.

Currently, the ILDNR is allowing hunters to bring deer and elk hunted out of state back into Illinois so long as the carcasses are brought to a licensed meat processor or licensed taxidermist within 72 hours of entry into the state. This rule amends an earlier prohibition on the transportation of hunter-harvested deer and elk carcasses into Illinois, except for de-boned meat, antlers, antlers attached to skull caps, hides, upper canine teeth and finished taxidermy mounts. Individuals who do not take their harvest to either a licensed meat processor or licensed taxidermist still must comply with this regulation. Meat processors and taxidermists are required to dispose of discarded animal materials either with a renderer or in a landfill.

Minnesota

While CWD has not been detected in free-ranging deer in Minnesota, it has been reported in bordering states to the west and east (i.e., South Dakota and Wisconsin), and it was recently diagnosed in a captive elk in Minnesota. Consequently, the Minnesota Department of Natural Resources (MNDNR) has developed more intensive targeted and geographically-focused surveillance plans to monitor free ranging deer for presence of the disease and a contingency plan to guide MNDNR's response if CWD is detected. Also, the MNDNR has been evaluating *cervid management laws, rules, regulations, and policies* for those captive and free-ranging cervids that are under MNDNR authority, to identify and assess issues and weaknesses that may be related to disease vulnerability and management. In these efforts, the MNDNR will work with other agencies and organizations (e.g., BAH, Minnesota Departments of Agriculture and Health, Minnesota Deer Hunters Association) responsible for or concerned about free-ranging and captive cervid disease management in an attempt to assure comprehensive approaches to effective management of CWD risks.

Iowa

As of May 6, 2003, the Iowa Department of Natural Resources (IADNR) had collected and tested 3,736 samples from road kills and from deer harvested by hunters during the 2002-2003 deer hunting season. The number of samples fell just short of objectives in the northeast Iowa counties of Dubuque, Jackson and Allamakee, where 500 samples were desired because of these counties proximity to the CWD endemic area in Wisconsin.

No signs of CWD were found in the samples taken from whitetail deer in Iowa in 2002. The IADNR is still concerned about CWD and will expand monitoring and testing efforts in 2003.

Iowa has adopted a ban on the transport of any live deer into the state unless the deer originated from a herd certified to be free of CWD and bovine tuberculosis (BT). Also, hunters cannot transport into Iowa the whole carcass of any cervid (i.e., deer or elk) taken from a CWD endemic area within any state or province. Only the boned-out meat, the cape, and antlers attached to a clean skull plate from which all brain tissue has been removed are legal to transport into Iowa.

Michigan

In past years, Michigan Department of Natural Resources (MIDNR) scientists and the National Veterinary Services Laboratory have tested approximately 450 deer for CWD. All deer samples have been negative. In addition, MIDNR has tested deer having symptoms similar to those of CWD on an ongoing basis. All of these animals have tested negative as well.

In 2002, the Michigan Natural Resources Commission ordered an end to supplemental deer feeding in the Upper Peninsula, starting with the four U.P. counties bordering Wisconsin and including the remaining 11 counties by May, 2003. Supplemental feeding is presently banned in the Lower Peninsula. The move is aimed at lowering deer numbers that are kept artificially high through unnatural feeding and reducing the nose-to-nose contact inherent with congregated feeding. Further, the NRC implemented a 50-mile buffer zone around the state. If CWD is discovered within 50 miles of any state border, all baiting and feeding activities in the adjacent peninsula will be immediately banned.

After the CWD discovery in Wisconsin, the MIDNR enacted a ban on all cervid imports from Wisconsin effective March 6, 2002.

II. CWD Management Plan for Horicon and Fox River NWRs

Goals

The goals of this CWD contingency plan are to minimize the impact of CWD on ungulate populations that reside or frequent Refuge lands, to ensure early, rapid, and accurate detection, and ensure coordination and communication with adjacent wildlife management agencies on CWD. Disease prevention is far more cost-effective and resource-protective than disease control. Therefore, a secondary objective for CWD contingency planning is to review current Refuge management activities. Management will be practical and consistent with Refuge objectives and Fish and Wildlife Service policy. Management will also be adapted to minimize the potential for CWD incursion or minimize CWD impact should it be found.

This plan was developed using the most current and widely accepted disease management strategies. Management strategies may change as the disease situation changes and as CWD is better understood. This plan will be adapted as needed and will be re-evaluated annually or more often, based on changes in strategies developed by the WIDNR, to address the effects those changes could pose to Refuge lands.

Policy

Guidance for CWD management was originally provided in a November 20, 2002, memorandum from the Regional Director, Region 6 to field stations. This Region 6 guidance was modified to address differing circumstances in Region 3 and distributed to Region 3 field stations on February 25, 2003. Further planning guidelines for development of CWD surveillance and management plans was provided in a July 19, 2004, memorandum from the Regional Director, Region 3 to field stations. The Refuge Manual (Chapter 7 RM 17) further provides that it is “Service policy to prevent or control wildlife diseases on Refuges wherever practical or possible” and the “Service will take a leadership role....[for] fostering cooperative [wildlife disease] control activities.”

State, Federal, and Tribal agencies have statutory authority to respond to CWD in infected farmed/captive cervids and wildlife. In exercising the regulatory authority found in the *Code of Federal Regulations* and the *United States Code*, Federal agencies must comply with the National Environmental Policy Act. When Federal agencies need to respond quickly with emergency management actions, they have options of using categorical exclusions, environmental assessments, or alternative arrangements with the Council of Environmental Quality. If the proposed emergency actions are expected to have significant impacts on the environment, then an environmental impact assessment would also be conducted as a follow-up action.

The primary Federal role will be to provide coordination and assistance with research, surveillance, disease management, diagnostic testing, technology, communications, information dissemination, education, and funding for State CWD programs. Federal agencies will provide tools and financial assistance to States and help develop consensus-based approaches to CWD control.

Wisconsin CWD Management Activities

Management Strategies

Once CWD is in a herd the best management strategies to control CWD are to: 1) depopulate the deer herd in the known affected area; 2) reduce deer populations around the affected area to establish a barrier to prevent the spread of CWD outside the affected area; and 3) ban baiting and feeding to limit the transmission of the disease.

The WIDNR has identified three management zones to deal with CWD in the state deer population: the CWD Eradication Zone (DEZ), an Intensive Harvest Zone (IHZ), and the Herd Reduction Zone (HRZ) (formerly the CWD Management Zone).

The WIDNR has established a time period of five years without a positive CWD result as a trigger for declaring a zone free of CWD.

Disease Eradication Zone

The DEZ is defined to extend 9 ½ miles from the center of the original known CWD positive deer and 4½ miles out from any additional positive deer. Currently, the DEZ covers 964 square miles and lies entirely within the Intensive Harvest Zone, but it could expand outside the Intensive Harvest Zone if new CWD positive deer are found.

The WIDNR has established three Disease Eradication Zones in southeastern Wisconsin. Two zones located west of Madison were established as a result of the positive tests from the area. The WIDNR established a third, Rock County DEZ, in 2003 after Illinois reported that CWD-positive deer were discovered in a section of land located within 1.5 miles from the Wisconsin state line.

The deer population in the DEZ will be reduced to as close to zero as possible through expanded hunting dates with unlimited harvest opportunities. In addition to these deer herd control measures, the Department of Natural Resources is issuing landowner shooting

permits, authorizing the shooting of deer by department employees and may utilize helicopters for driving and/or shooting deer. No part of Horicon NWR or Fox River NWR falls within the boundary of the Disease Eradication Zone.

Intensive Harvest Zone

The IHZ includes and closely surrounds the CWD Eradication Zone and is the area where the most liberal hunting framework will be employed.

No part of Horicon NWR or Fox River NWR falls within the boundary of the Intensive Harvest Zone.

Herd Reduction Zone

The HRZ extends out from the center of the DEZ approximately 40 miles. The WIDNR has established somewhat less aggressive hunting regulations to reduce the deer population to as close to 10 deer per square mile as possible in this zone. It does not include the IHZ or the DEZ.

No part of Horicon NWR or Fox River NWR falls within the boundary of the Herd Reduction Zone.

Remainder of Wisconsin

The WIDNR will attempt to minimize the potential for further spread of CWD throughout the remainder of the state by: 1) Zone-T seasons where deer populations are above established goals; 2) prohibition of baiting and feeding of deer where applicable (see below); and 3) educational efforts on the proper disposal of deer carcasses.

During the 2003-2004 seasons sampling was only done in the CWD management zones and in select counties where additional sampling was needed to meet the overall surveillance goals set the prior year or because they were considered areas of higher risk because of proximity of CWD infected or quarantined deer or elk farms.

Baiting and Feeding

The original emergency rules prohibited all forms of baiting and feeding. On September 11, 2003 the State of Wisconsin implemented a baiting and feeding ban in 23 Counties where all or

portions of the county are located within the EZ, IHZ, and HRZ, or are within ten miles of a captive or free roaming, domestic, or wild animal that has tested positive for CWD or TB since January 1, 1998 (Appendix I).

Surveillance and Coordination

State surveillance sampling for CWD relies on hunter-killed deer for most samples. In some areas of the state, hunter-killed deer are supplemented by deer killed under deer damage shooting permits or collections of car-killed deer. In addition, DNR staffs respond to any report of sick deer in the state and any CWD suspect deer are tested for the disease.

Service CWD Management Activities within Horicon and Fox River NWRs

The Refuge has developed this CWD management strategy to be employed on Horicon and Fox River NWRs based on strategies previously established by the WIDNR.

Disease and Population Management

Common sense determines that depopulation is best utilized and most successful within the confines of individual game farms. Depopulation in such cases falls under the jurisdiction of the WIDNR, DATCP, and U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS). Qualified Refuge staff may be involved in these activities but only at the request and under the direction of the responsible agencies.

Complete depopulation over a larger area, such as that of the Disease Eradication Zone as currently designated by the Wisconsin DNR, is optimistic at best. That being said, the goal of limiting the possibility of spread within the DEZ, IHZ and HRZ through a drastic reduction of the deer population is promoted by the Refuge. To this end, the Refuge will rely on hunter harvest during established seasons to approach, as nearly as possible, the WIDNR population goals on the Refuge. The exception would be in the detection of deer that show the clinical signs of CWD; in that case the procedures outlined in the Surveillance and Coordination portion of this plan below will be followed.

Currently it is the policy of the WIDNR to expand the DEZ to encompass any positive animals. There may come a time when the WIDNR changes policy from an eradication to a culling of the herd at some distance around a positive animal. In this instance it is reasonable to expect that the WIDNR or other agency would request that the Refuges allow sharpshooters to achieve this culling. At this time it is the policy of the

Refuge through this plan to not allow sharpshooters on Refuge properties. This policy may be adjusted on a case by case basis in the future to allow for culling through the use of sharpshooters on Refuge lands based on CWD policy changes by the WIDNR.

Surveillance and Coordination

Even prior to the development of this plan the Refuge staff had assisted the WIDNR with meeting the goals of the Wisconsin CWD Plan through assistance at check stations with processing deer and collecting samples. The Refuges have adopted most State seasons and regulations for hunting. The hunting program at Fox River NWR was expanded as a result of the CWD discovery in the state. Future assistance will be strengthened through the implementation of this plan.

As a result of the intensive amount of on-going surveillance conducted by the WIDNR and DATCP, Refuge staff will conduct passive, opportunistic observations of deer on Refuge lands. Refuge staff will also assist other State and Federal agencies as requested.

Testing and Handling CWD Suspect Animals

Any animals that appear to have the clinical signs of CWD will be euthanized. Clinical signs of CWD include: 1) no fear of humans, 2) nervousness, 3) teeth grinding, 4) loss of coordination, 5) notable weakness, 6) excessive salivation, 7) drooping of head and ears, 8) diminished facial muscle tone, 9) excessive thirst, 10) excessive urination, 11) difficulty swallowing, 12) severe emaciation and dehydration, 13) rough dull coat, 14) inability to stand, and 15) walking in set patterns. If possible, the appropriate State Point of Contact (POC) will be contacted prior to euthanizing a suspect animal.

The POC for the removal of any deer on Refuge lands that appears to be sick will be the local DNR Conservation Warden and/or the State Area Biologist. Wardens and Biologists are trained in the proper handling and processing of deer for the CWD testing. The State POC as well as a list of local Conservation Wardens is provided in Appendix II.

CWD is not known to be transmissible to humans; however, other diseases may be transmissible. Written procedures and training to assist field stations in collecting CWD samples are currently being developed by the National Wildlife Health Center. Until these are finalized basic common sense precautions should be observed when collecting and sampling animals. Before sampling, have the appropriate safety materials available. These include: coveralls (either washable or disposable), boots (something that can be washed and disinfected), bucket with disinfectant

(Clorox, 5-10 percent solution)*, boot scrub brush, latex gloves or dishwashing gloves, dust mask (OSHA-approved; follow 29 CFR 1910.134, appendix D use) and eye protection to keep spattered fluids and tissues from contacting sensitive areas of the face. (* Note: This solution is good as a general disinfectant for bacteria, virus, and fungal agents; however, not a proven disinfectant for CWD).

Once the head is removed and bagged, coveralls should also be bagged for later washing or disposal. Disinfect boots and gloves. Discard gloves and dust mask if worn.

Baiting and Feeding

The recent relaxation of the baiting and feeding ban in some Counties should have little or no effect on the Refuge’s ability to limit the spread of CWD since baiting and feeding are illegal on all Refuges.

Implementation Costs

Annual costs associated with this plan will vary depending on expansion and prevalence of the disease.

Table 2. Horicon and Fox River NWR’s CWD Plan
Implementation Estimated Annual Costs

Administrative:	
Supplies & Materials	\$1,000.00
Fuel	\$1,560.00
Costs of CWD Tests	\$0.00
Training	\$1,000.00
Per diem/lodging, etc. to assist WIDNR	\$105/day
Surveillance:	
Targeted Surveillance:	\$0.00
Passive Surveillance:	\$4,300.00
ANNUAL STAFF & ADMIN. COST:	\$7,965.00

Currently the estimated annual cost of administration and surveillance would be almost \$8,000. Additionally, one person on a one week detail to assist the WIDNR with the processing of CWD samples would cost approximately \$525.00.

Conclusion

The detection of CWD in the wild white-tailed deer herd in Wisconsin is of particular concern due to the potential for rapid spread within white-tailed deer populations of substantially higher densities than in the previously identified endemic areas of Colorado, Wyoming, and Nebraska (2-5 deer per square mile).

Fall deer densities in south-central Wisconsin can be as high as 75+ animals per square mile.

The Wisconsin DNR has used the National CWD plan as a guide to develop their current Statewide CWD Plan. As a result the goals of the Wisconsin Plan are to; 1) depopulate the deer herd in the known affected area; 2) reduce deer populations around the affected area to establish a barrier to prevent the spread of CWD outside the affected area; 3) ban baiting and feeding to limit the transmission of the disease.

Several additional factors have been taken into account in coming to the decision to closely follow the Wisconsin CWD Plan on the Horicon and Fox River NWR: 1) the Refuges provide pockets of high quality habitat for white-tail deer and as such have the potential to contribute greatly to local deer herds; 2) the Refuges are open to public hunting. As opposed to private lands, which may provide sparse public hunting opportunities and as a result lessen the impact on herd reduction, the Refuges will continue to contribute to attaining the population goal for the unit in which they fall; and 3) although the State of Wisconsin has recently re-opened several counties to baiting and feeding of deer, baiting and feeding remain illegal on Refuges. This rule provides a permanent contribution to limiting the spread of the disease by avoiding high concentrations of deer at feeding stations and bait piles.

Fortunately, Wisconsin requires hunters to register their deer at established Registration Stations throughout the state. There are generally several Registration Stations within any one Deer Management Unit providing the WIDNR with an opportunity to easily obtain a large number of samples as was done during the 2002-2003 hunting seasons.