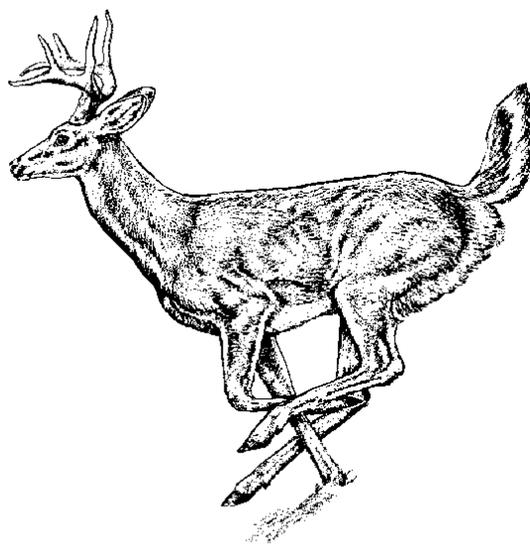


**Illinois Chronic Wasting Disease:
2010-2011 Surveillance/Management Summary**



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Background:

Prior to July 1, 2010, Illinois Department of Natural Resources personnel sampled more than 50,000 wild deer (*Odocoileus virginianus*), and identified 294 individual deer infected with chronic wasting disease (CWD). Much of the disease occurred in two distinct clusters; one just to the northeast of Rockford (Winnebago County, IL) and the other just to the southeast. Spread of CWD from these clusters was primarily to the east and southeast along major riparian corridors (the North and South Fork of the Kishwaukee River) and their tributaries. Within the core CWD area, diseased deer had been found in suitable deer habitat throughout Boone County, but in other counties cases were limited mainly to eastern Winnebago County, northwestern DeKalb County, and western McHenry County except for isolated occurrences (Fig. 1). Additionally, isolated foci of disease had been identified in Stephenson County (2 cases), Ogle County (3 cases), and LaSalle County (1 case).

CWD Surveillance Activities During FY2010-2011:

All CWD testing was conducted at Illinois Department of Agriculture's (IDOA) Animal Disease Laboratory located at Centralia, Illinois, which is certified for CWD testing by USDA. Immunohistochemistry (IHC) was the testing method used. Sampling was accomplished primarily by collecting tissues from (1) hunter-harvested deer; (2) suspect animals reported to IDNR staff; (3) road-killed deer in known CWD-infected areas; (4) deer taken under authority of urban Deer Population Control Permits, nuisance Deer Removal Permits, and Scientific Permits; and (5) deer taken by IDNR sharpshooters in CWD areas.

Deer Hunting Season Surveillance. Tissue samples (retropharyngeal lymph nodes and obex) for CWD testing were collected from hunter-harvested deer at three sources: (1) mandatory check stations in high-risk counties in northern Illinois during the firearm seasons; (2) designated self-service drop-off locations in northern Illinois where hunters during any season could leave a deer head to be tested; and (3) cooperating meat lockers/taxidermists at which cooperators were paid a fee to collect heads or sample tissues for IDNR. Mandatory check stations were operated during firearm deer season (November 19-21 and December 2-5, 2010) for nine counties considered high-risk for CWD (Stephenson, Winnebago, Boone, McHenry, Ogle, DeKalb, Kane [west of Highway 47], LaSalle and Grundy). Tissue samples were taken by IDNR staff from all adult deer that hunters would allow to be tested. The sampling objective was 500 samples per county, which provides 99% confidence of detecting a 1% disease prevalence rate. Harvest location was recorded to the nearest square mile according to the government land survey (Township, Range, and Section). A total of 2,499 usable samples were collected at check stations, with 22 CWD-positive individuals identified from eight counties (Boone [3], DeKalb [5], Grundy [1], Kane [1], LaSalle [2], McHenry [2], Ogle [2], Stephenson [1] and Winnebago [5]). Although CWD testing of hunter-harvested deer is voluntary, participation has remained high with the exception of a few locales. If hunter cooperation declines so that surveillance is ineffective, it may become necessary to implement mandatory surveillance in high-risk areas in the future. Appendix A provides a tabulation of the number of usable samples taken in each county via all collection methods, and Figure 2 depicts the distribution of sampling intensity throughout Illinois from all sources.

Fig. 1. Distribution of CWD-infected deer identified in Illinois prior to July 1, 2010.

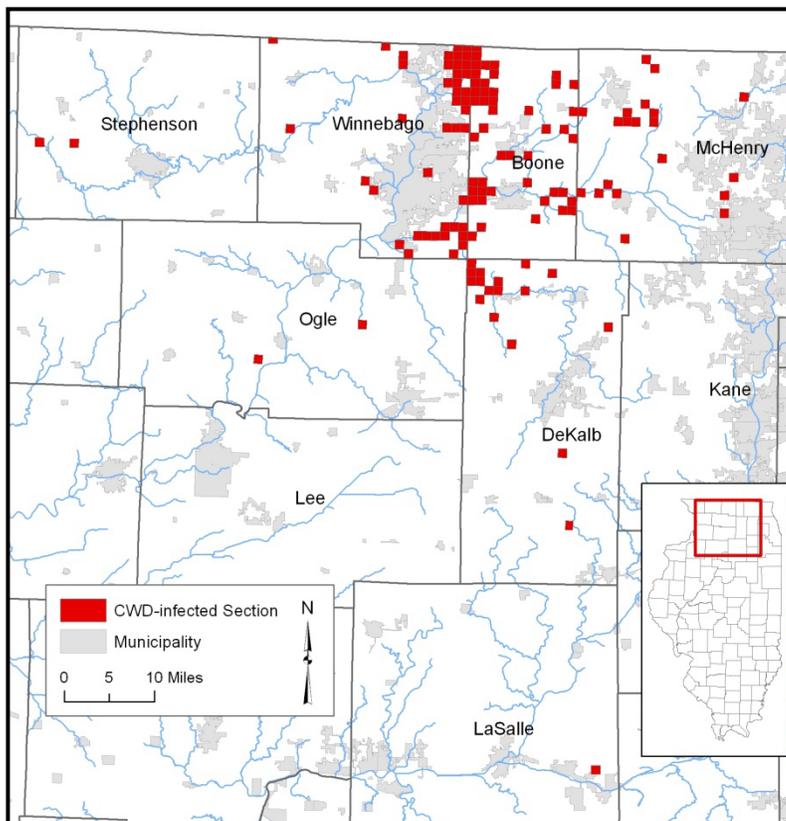
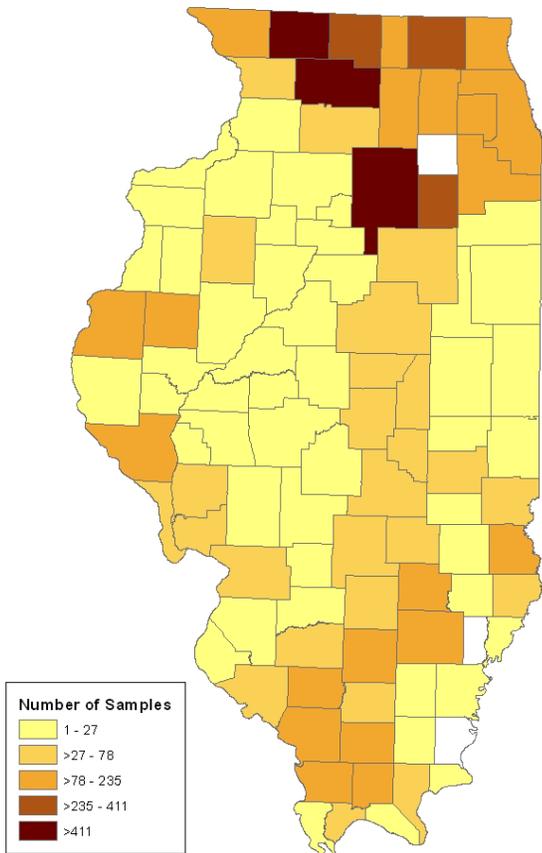


Fig. 2. Distribution of CWD sampling effort in Illinois counties during FY2010-2011 (all sources). Darker counties were sampled more intensively.



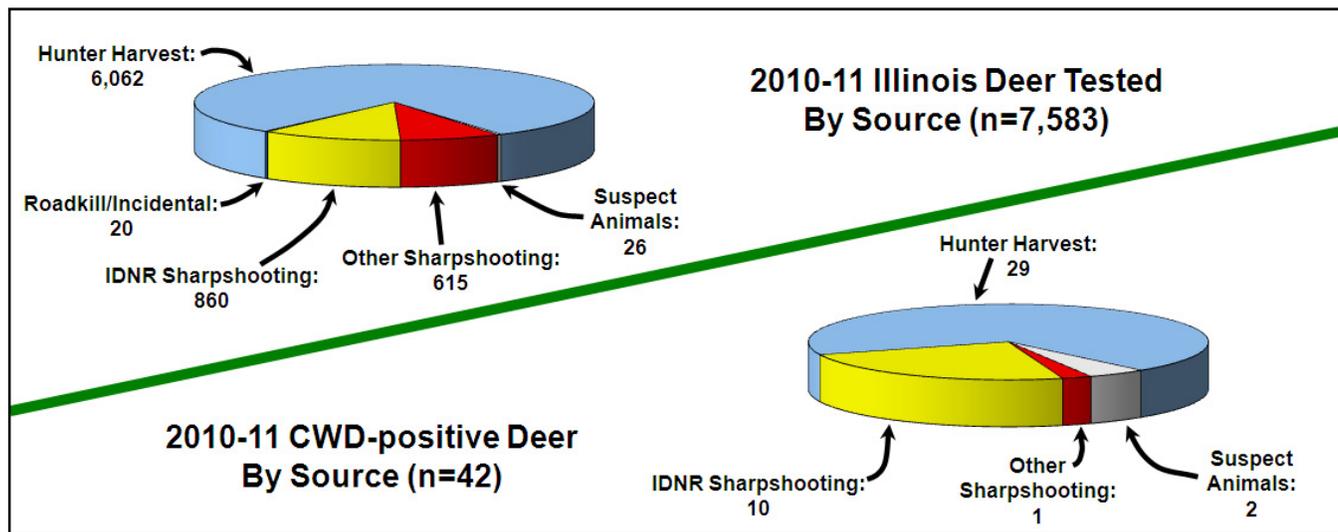
In order to collect additional samples from the CWD area during other hunting seasons, and to collect samples from hunter-harvested deer throughout the state, we used a system of self-serve “drop-off” stations and also contracted with commercial meat lockers and taxidermists to collect samples for us. Drop-off stations were available in select northern Illinois counties to allow deer hunters during any season to donate samples for CWD surveillance. To participate, hunters filled out a card to identify themselves and the location from which they harvested the deer, and left the deer head and the completed card in a plastic bag in the provided refrigerator. IDNR staff checked stations at least twice a week, removed tissue samples from heads, and forwarded samples to the Galesburg Animal Disease Laboratory for testing. For statewide CWD surveillance efforts, IDNR contracted with cooperating meat lockers/taxidermists throughout the state to collect samples from hunter-harvested deer being processed at their facility. We assumed that each cooperator took in deer from an approximate 25 mile surrounding radius, and attempted to distribute cooperators accordingly. We were unable to find cooperators in some parts of the state, particularly in areas where processors rely exclusively on commercial renderers for offal disposal. Renderers will not accept offal from deer being tested for CWD, because of the threat of an FDA recall in the event that an animal tests positive. Using both these collection methods, we collected usable samples from 3,563 deer in 98 counties (\bar{x} =36, range = 1-219), with 7 positive deer detected in 5 counties (Boone [2], Grundy [1], JoDaviess [1], Kane [1], and Winnebago [2]).

Surveillance Using Agency-issued Permits for Lethal Deer Removal. Recipients of special permits from IDNR authorizing lethal deer removals were required to collect CWD samples when working in high-risk CWD areas, or when working in areas in which other surveillance techniques were judged insufficient. These special permits include (1) Deer Population Control Permits (used by some agencies to control urban deer populations); (2) nuisance Deer Removal Permits (for crop depredation, etc.); and (3) Scientific Permits (various research projects). This approach provided 615 usable CWD samples from northeastern Illinois counties not open to firearm deer hunting (Cook, Lake, DuPage), as well as from properties in JoDaviess, McHenry, Peoria, Will, and Winnebago counties (Appendix A). One CWD-positive deer was identified from Winnebago County.

Suspect (“Target”) Deer Surveillance. Upon receiving reports from the public about sick deer, IDNR staff collected samples for CWD testing from deer that exhibited signs/symptoms that could be attributed to chronic wasting disease. Samples were taken from 26 deer in 15 counties (Appendix A). Two positive deer were found; both from Kane County.

Surveillance from Post-Hunting Season Sharpshooting. Sharpshooting was conducted during the period January 15, 2011 - March 31, 2011 by IDNR Wildlife Biologists and IDNR Conservation Police Officers. Sharpshooting locations were confined to those parts of Boone, DeKalb, Grundy, JoDaviess, Kane, LaSalle, McHenry, Ogle, Stephenson, and Winnebago counties in close proximity to areas where CWD-infected deer had been identified. More specific details of goals, procedures, and results of the experimental sharpshooting program are discussed in the management section of this report. Agency sharpshooters collected 860 usable samples from the ten counties (Appendix A). Ten positive deer were found in Boone (2), DeKalb (2), LaSalle (1), McHenry (1), Ogle (2), and Winnebago (2) counties. Figure 3 presents the number of samples taken by each collection method and the resulting positive deer identified.

Figure 3. Number of CWD samples tested and number of positives identified by sampling source during FY2010-11.



Discussion of Surveillance Results to Date. A total of 7,583 usable samples were collected statewide during FY10-11, resulting in the identification of 42 CWD-positive deer from ten counties: Boone (7), DeKalb (7), Grundy (2), JoDaviess (1), Kane (4), LaSalle (3), McHenry (3), Ogle (4), Stephenson (1), and Winnebago (10). The number of CWD-positive deer identified annually since the discovery of CWD in Illinois has varied from 14 to 51 (Figure 4).

During this sampling period, CWD was found for the first time in JoDaviess, Grundy, and Kane counties (Fig. 5). However, the JoDaviess and Grundy positives were near (~6-7 mi.) previously-identified disease foci in Stephenson and LaSalle counties, respectively, implying that CWD has become established at some level in those areas. Finding four positive deer in Kane County (in four different sections) was disturbing, but not overly surprising, since northern Kane County has multiple riparian links to the CWD-infected portion of the Kishwaukee River watershed in Boone and McHenry counties, which would provide some connectivity of habitat. Overall distribution of positive deer found during 2010-2011 was more widely dispersed than in previous years, with only 43% (18/42) of positives found within three miles of the Winnebago-Boone county line (extended southward to include extreme NW DeKalb County). In 2009-2010, 68% of positives occurred within this area. The apparent spread of CWD into new areas and the potential for disease establishment in those areas makes it imperative that surveillance is effective in detecting new disease foci quickly, and that management can be implemented to begin lowering deer densities in affected areas. It is evident that some of our previous initial responses to the finding of CWD in new areas (e.g., Ogle, LaSalle, and Stephenson counties) have been insufficient to prevent at least some level of disease establishment.

Figure 4. Number of CWD-positive deer identified in Illinois by year.

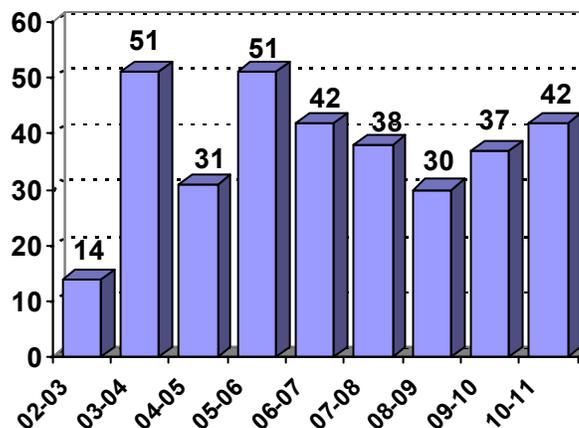
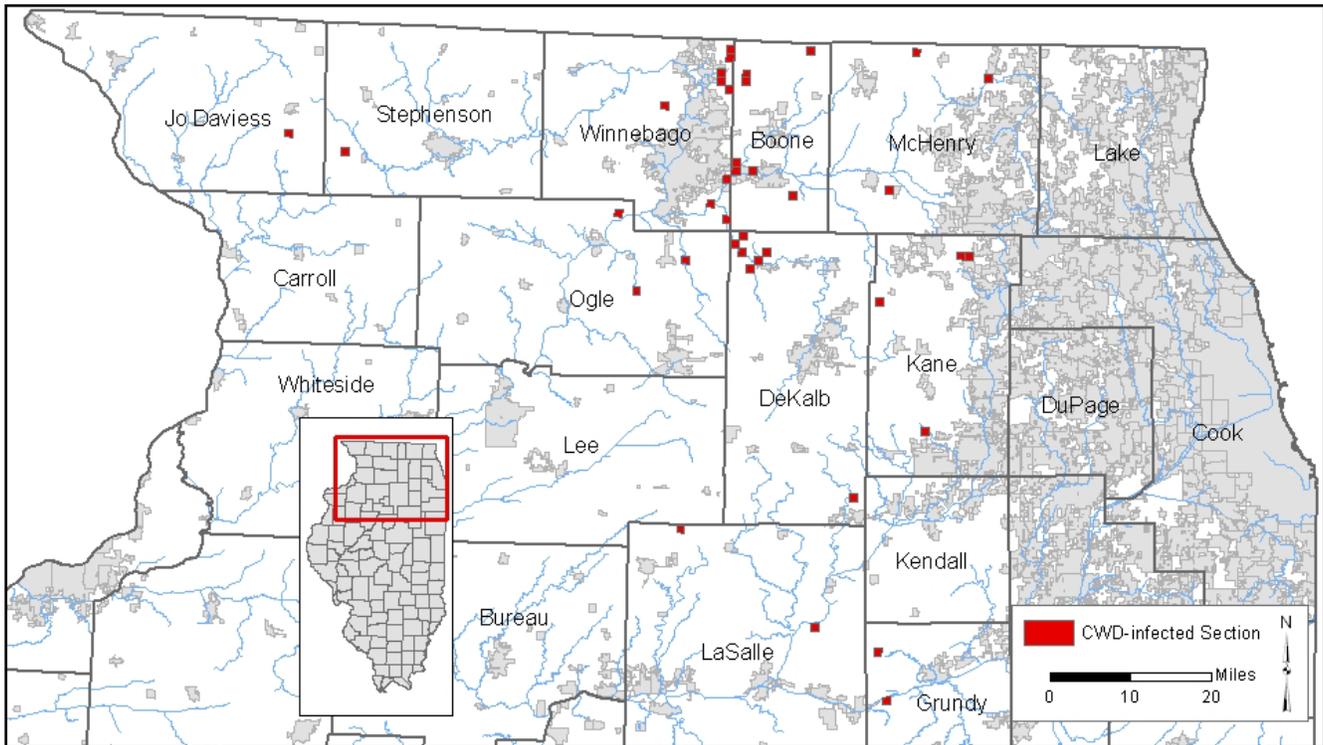


Figure 5. Distribution of CWD-positive deer identified during FY10-11.



Using surveillance data collected from hunter-harvested deer only, disease prevalence rates were calculated for adult deer (> fawn) in the 10 counties where CWD has been identified (Table 1). IDNR staff and cooperators were instructed to collect samples only from adult deer, so samples collected from deer for which no age were recorded were assumed to be adults. Adult prevalence rates throughout the 10-county area were 1.02% (± 0.37 , 95% confidence interval), and ranged from 0.19% (± 0.37 , 95% confidence interval) in Stephenson County to 8.33% (± 6.99 , 95% confidence interval) in Boone County.

Table 1. County CWD prevalence estimates for adult deer during 1 July 2010 through 30 June 2011. Estimates are based only on samples collected from hunter-harvested deer.¹

County	# of Samples	# of Positives	Percent Positive	95% Confidence Interval (+/-)
Boone	60	5	8.33%	6.99%
DeKalb	121	5	4.13%	3.55%
Grundy	259	2	0.77%	1.07%
Jo Daviess	162	1	0.62%	1.21%
Kane	67	2	2.99%	4.07%
LaSalle	690	2	0.29%	0.40%
McHenry	162	2	1.23%	1.70%
Ogle	546	2	0.37%	0.51%
Stephenson	531	1	0.19%	0.37%
Winnebago	244	7	2.87%	2.09%
All CWD Counties	2842	29	1.02%	0.37%

¹ Estimates derived from hunter-harvested deer represent populations throughout the entire county.

In order to evaluate disease distribution and prevalence at a smaller scale, prevalence rates were also calculated within a grid across northern Illinois in which each unit consisted of four townships (approximately 144 mi²)(see Figure 6). For these prevalence estimates, we used samples collected by all methods except suspect animal surveillance within each unit (block). The drawback to this approach is that the use of samples from sharpshooting may tend to bias prevalence estimates (generally making them higher) since sharpshooting efforts are most intense within locales known to have highest prevalence. Estimates were made only for adult deer, as sample sizes for fawns were too small. Calculated prevalence rates (with 95% confidence intervals) for blocks with at least one positive are presented in Table 2.

Table 2. CWD prevalence rates for adult deer in known CWD areas during FY2010-2011. Blocks are those areas defined in Figure 5. Includes all test sources except suspect animals.

Block Number	Location	Number Tested	Number Positive	Estimated Prevalence	95% Confidence Interval (+/-)
0,0	North Winnebago-Boone	96	7	7.29%	5.20%
0,1	North Boone-McHenry	23	1	4.35%	8.33%
0,2	Northcentral McHenry	73	1	1.37%	2.67%
0,3	Northeast McHenry-Lake	36	1	2.78%	5.37%
0,-1	Northcentral Winnebago	107	1	0.93%	1.82%
0,-5	Northeast Jo Daviess	22	1	4.55%	8.70%
1,0	South Winnebago-Boone	99	6	6.06%	4.70%
1,1	South Boone-McHenry	59	1	1.69%	3.29%
1,2	Southcentral McHenry	38	1	2.63%	5.09%
1,-1	Southcentral Winnebago-Ogle	97	1	1.03%	2.01%
1,-4	Southwest Stephenson-Carroll	123	1	0.81%	1.59%
2,0	Northeast Ogle-Northwest DeKalb	56	7	12.50%	8.66%
2,2	Northwest Kane	38	2	5.26%	7.10%
4,1	Southeast DeKalb	29	1	3.45%	6.64%
5,0	Northcentral LaSalle	38	1	2.63%	5.09%
6,1	Eastcentral LaSalle	231	2	0.87%	1.19%
6,2	Northwest Grundy	176	2	1.14%	1.57%

The area northeast of Rockford (Block 0,0 North Winnebago-Boone) is where the first case of CWD was found in Illinois deer. It has historically produced the most positive deer and did so again this year, although one other block produced an equal amount. Seven positives were found in Block 0,0, resulting in an estimated adult prevalence rate of 7.3% (±5.2%). While prevalence rates have not declined significantly here, seven is the fewest positives found in this block since the discovery of CWD in 2002 (highest was 22 in FY2004). The lower number of positives can be attributed to decreased sample sizes as management has impacted deer densities in the affected areas.

Just to the south of Block 0,0 along the Winnebago-Boone County line, Block 1,0 (South Winnebago-Boone), which includes the towns of Cherry Valley and Belvidere, continued to exhibit relatively high prevalence rates (6.1%). As was observed for Block 0,0, the number of CWD-positive deer identified has declined from a high of 15 in FY2006 to 6 this year because of declining deer densities and lower sample sizes, but prevalence rates have not declined.

Highest prevalence rates (12.5%) were found in Block 2,0 (Northeast Ogle-Northwest DeKalb), with 7 of 56 deer testing positive. Prevalence rates appear to be increasing in this area, and deer densities have not declined as they have in many of the areas where multi-year management has been in effect. Most deer in this block are located in the northwestern portion of DeKalb County, and access to properties for purposes of managing the

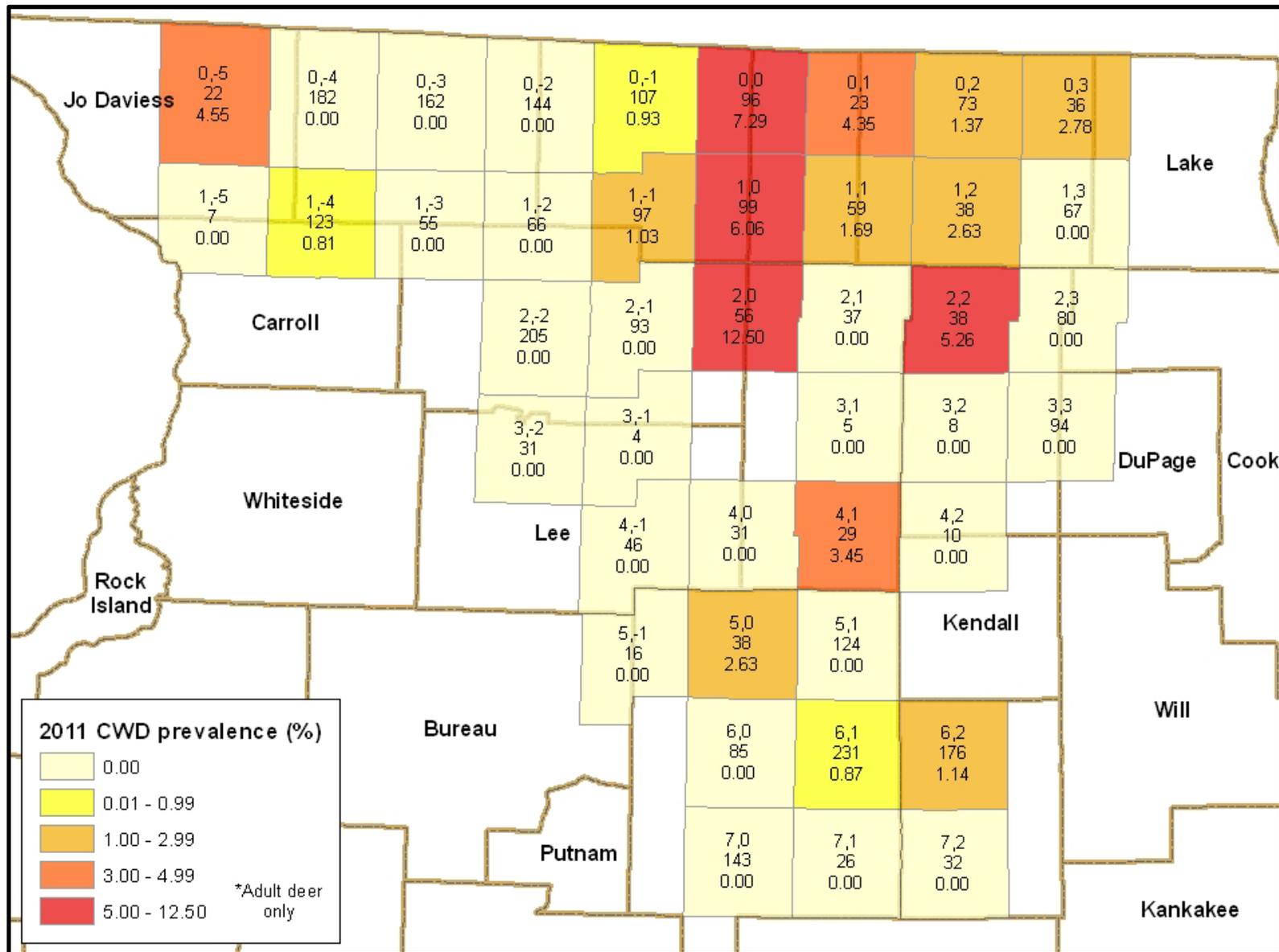


Figure 6. Estimated prevalence rates in adult deer during FY10-11 using a grid consisting of 4-township blocks. Within each block, the upper number is the grid coordinate of the block; the middle number is the sample size; and the lower number is the estimated adult prevalence rate (%). Prevalence rates were calculated from samples collected from all sources except suspect deer.

disease has been very limited. If this situation remains unchanged, it is likely that this area will become Illinois' primary focus of entrenched disease.

Other blocks that produced >1 adult positive were Northwest Kane (Block 2,2), Eastcentral LaSalle (Block 6,1), and Northwest Grundy (Block 6,2). Estimated adult prevalence rates in these blocks ranged from 0.9% - 5.3%. The finding of 5 positive deer in LaSalle/Grundy counties and 4 in Kane County is noteworthy, because it implies that the disease became established in new areas over a period of time while remaining undetected, and surveillance sample sizes in the LaSalle/Grundy area have been substantial during that time.

While the outermost boundaries of known CWD range have expanded over the years, the pattern of disease distribution and intensity has remained consistent, with a central core of higher prevalence focused on the Winnebago-Boone county line, and the disease becoming more diffuse at increasing distance from this core. However, this pattern may begin changing, as the larger amount of landscape involved spreads our limited staff much more thinly and limits the local impacts that efforts have produced in the past. In addition, the higher deer densities and more contiguous habitat associated with JoDaviess County and the Illinois River portions of LaSalle/Grundy counties will complicate management efforts and facilitate disease spread along major riparian corridors.

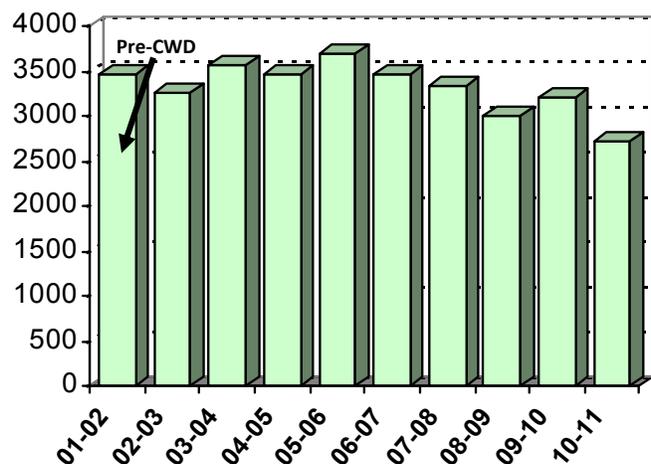
Experimental CWD Management Activities During FY2010-2011:

Use of regulated hunting for herd control in CWD-affected areas. Archery deer season (October 1, 2010 – January 16, 2011; closed during 7 days of firearm deer season) consisted of 101 days during which there was no bag limit for antlerless deer. Gun seasons totaled 19 days; consisting of firearm (split 7-day season), youth (2 days), muzzleloader (3 days), and either the special CWD season or the late winter season (each a split 7-day season). Counties open to the CWD season were Winnebago, Boone, McHenry, Kane, and DeKalb; while counties open to the late-winter season were JoDaviess, Stephenson, Ogle, LaSalle, and Grundy. Liberal deer permit quotas remained in effect during regular firearm and muzzleloader seasons, allowing hunters to purchase virtually unlimited numbers of permits. For the special CWD season, hunters were allowed to purchase unlimited numbers of permits over-the-counter (OTC), while for the late-winter and youth seasons hunters were limited to one OTC permit each per county. During the CWD season and late-winter season, hunters could also use any unfilled tags from firearm, muzzleloader, or youth deer seasons.

Liberalized regulations and increased opportunities have not resulted in deer harvest increases in any of the identified CWD counties. In the original 4-county CWD area (Winnebago, Boone, McHenry, and DeKalb) total deer harvest from all seasons combined numbered 2,730, down from 3,214 the previous year. Average harvest during the previous five years was 3,340, and the trend has been downward throughout that time. While regulations to promote harvest have not proven effective for increasing deer harvest in these counties (Figure 7), we believe that they have been important in maintaining harvests comparable to historic levels in spite of evidence of smaller deer population size in the CWD portions of those counties.

Sharpshooting in CWD “hot spots”. Following the close of deer hunting seasons in January, teams of sharpshooters (IDNR Biologists and Conservation Police Officers) began culling deer that were wintering in or around known CWD locations. An Urban Deer Population Control Permit (DPCP) was issued to the Winnebago County Forest Preserve District to allow their staff to conduct a sharpshooting program on forest preserves in known CWD areas in southeastern Winnebago County. In a few instances, nuisance Deer Removal Permits (DRP) were issued to private landowners in CWD areas that allowed them to shoot deer to help reduce crop depredation. All IDNR sharpshooting activities were carried out between January 15 and March 31, 2011.

Fig. 7. Number of deer taken by hunters annually in Illinois' four original CWD counties



Objectives of the sharpshooting were: (1) to provide detailed localized surveillance information about disease distribution and prevalence rates within infected areas; and (2) to examine the feasibility/effectiveness of controlling CWD in free-roaming deer populations by [a] removing as many sick deer as possible from known CWD areas; [b] removing/sampling deer that are inaccessible to hunters because of urbanization; and by [c] reducing densities in known CWD locales to lower transmission rates.

All animals (including fawns) removed during the sharpshooting program from which suitable tissue samples could be collected were tested for CWD to determine disease prevalence in affected areas. The retropharyngeal lymph nodes and the obex were removed at DNR processing facilities in the sampling zones, and transferred to the IDOA Disease Laboratory for testing. Additional tissues (tongues, fetuses) were collected and archived for further research/testing at the University of Illinois Champaign/Illinois Natural History Survey.

Aerial deer surveys (via helicopter) were conducted during periods of suitable snow cover to census deer wintering in known CWD areas. Surveys served to identify wintering habitat that contained concentrations of deer, and to provide estimates of deer numbers throughout the affected area. Our goal was to focus sharpshooting activities on deer in winter concentration areas that included or were nearby CWD-infected properties, thus maximizing our effectiveness. Extensive, deep snow cover during winter 2010-2011 provided excellent census conditions; probably the best since we began CWD work in winter 2002-2003. As a result, increased sightability may have elevated deer counts somewhat above the norm. Figure 8 depicts the number of deer counted in each CWD management unit (CMU) in northern Illinois, and Table 3 presents deer densities within each of those individual units. Surveys were not flown in JoDaviess County because the only CWD-positive deer there was identified after surveys were flown, and a few outlying CMUs were not flown because of lack of funding. Deer densities (deer per mi² of area surveyed, uncorrected for amount of habitat) ranged from 2.2/mi² (CMU 0,-1 - North-Central Winnebago) to 20.6/mi² (CMU 2,3 - North-Eastern Kane), with a mean density of 6.3/mi². Of the surveyed areas, deer densities were highest in outlying portions of the CWD area (“spark areas”) where the disease has been documented only sporadically and significant sharpshooting has not occurred. Deer densities in the core CWD areas, where management activities have been more intense and long-term, were generally low.

Table 3. Deer census and sharpshooting results by management unit in northern Illinois CWD area during winter 2010-2011. Management units are those depicted in Figure 8.

Management Unit	Area (mi ²)	Area Surveyed (mi ²)	# Deer Counted	Density (Deer/mi ²)	# Deer Removed	% of Counted Deer Removed
0,-4 W Stephenson-E JoDaviess	182.4	44.5	243	5.5	30	12.3
0,-2 W Winnebago-E Stephenson	174.0	37.7	395	10.5	0	0.0
0,-1 North-Central Winnebago	149.6	47.3	103	2.2	23	22.3
0,0 NW Boone-NE Winnebago	140.9	134.4	584	4.3	81	13.9
0,1 NE Boone-NW McHenry	135.9	117.6	314	2.7	1	0.3
0,2 North-Central McHenry	138.0	70.4	574	8.2	35	6.1
0,3 NE McHenry	137.9	23.0	154	6.7	7	4.5
1,-4 SW Stephenson	143.1	14.2	189	13.3	35	18.5
1,-1 South-Central Winnebago	137.1	82.4	1001	12.1	21	2.1
1,0 SW Boone-SE Winnebago	145.3	142.3	699	4.9	119	17.0
1,1 SE Boone-SW McHenry	144.0	130.9	445	3.4	34	7.6
1,2 South-Central McHenry	144.0	78.9	364	4.6	29	8.0
1,3 SE McHenry	144.4	13.9	90	6.5	0	0.0
2,-1 East-Central Ogle	141.2	40.0	435	10.9	44	10.1
2,0 E Ogle-NW DeKalb	141.8	93.7	405	4.3	22	5.4
2,1 NE DeKalb	141.9	61.2	168	2.7	20	11.9
2,2 NW Kane	139.3	33.3	368	11.1	29	7.9
2,3 NE Kane-W Cook	138.1	9.9	203	20.6	45	22.2
4,0 SE Ogle-SW DeKalb	144.1	5.7	17	3.0	0	0.0
4,1 SE DeKalb	137.9	42.6	170	4.0	24	14.1
5,0 North-Central LaSalle	145.1	8.6	57	6.6	12	21.1
5,1 NE LaSalle	136.2	9.6	160	16.6	10	6.3
6,1 East-Central LaSalle	140.1	44.8	549	12.2	126	23.0
6,2 NW Grundy	143.5	44.3	658	14.9	101	15.3
TOTAL	3465.7	1331.2	8345	6.3	848	10.2

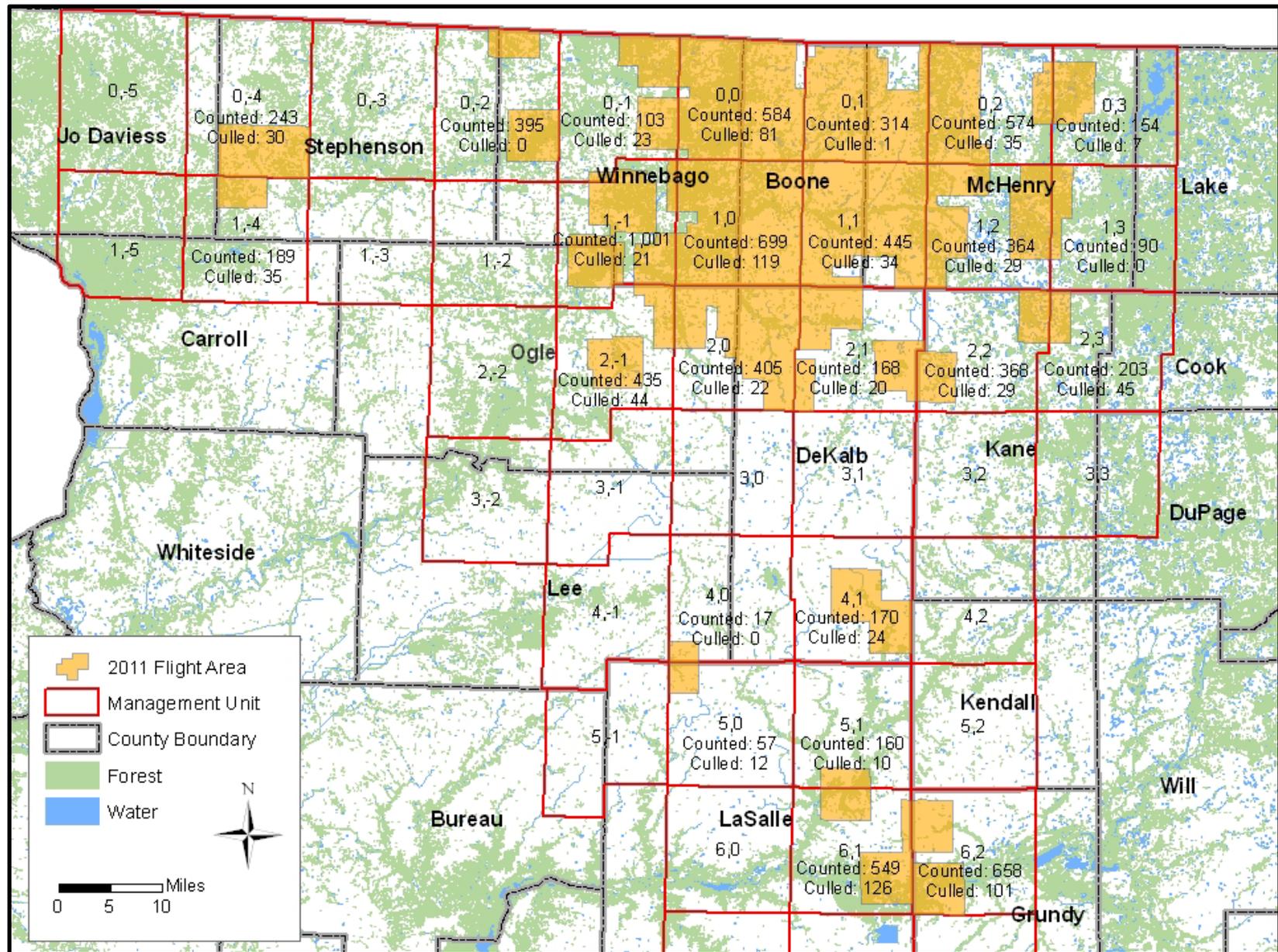


Figure 8. Number of deer counted during aerial censuses and removed by sharpshooters in CWD-affected areas of northern Illinois during winter 2010-11.

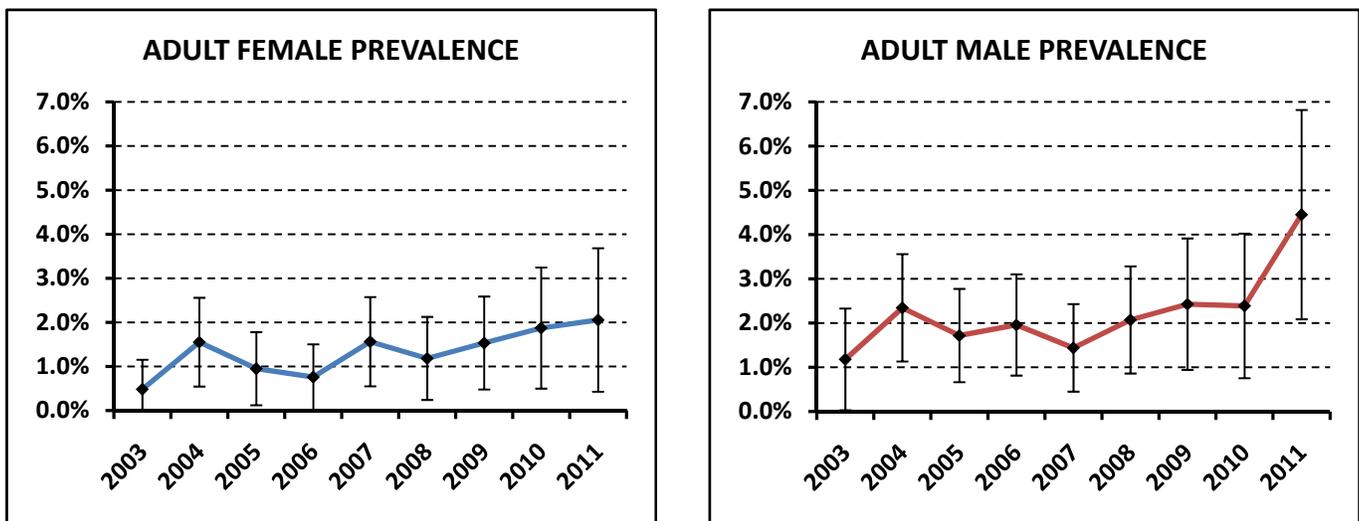
CWD management units were delineated by including all known CWD-positive sections (all years), plus a 2-section (1 section = ~1mi²) buffer around each. Sharpshooting activities in the CWD zones were generally limited to this defined area. A total of 848 deer were removed from the CMUs (Table 3), or about 10.2% of the deer counted via aerial surveys. The proportion of deer removed by post-hunt sharpshooting has been declining during the past several years, primarily because the agency does not have sufficient resources to effectively cover both the core CWD area and all of the spark areas, many of which are a considerable distance from the core (and our laboratory facilities). In addition, deer removals in the core areas have become progressively more difficult as densities decline, resulting in low success rates. During the previous four winters, sharpshooters removed a mean of 18.6% of deer counted (range = 12.4% - 28.1%) from CMUs averaging 942 mi² (~30% smaller area than during 2010-2011).

Deer removed by sharpshooting consisted of 35.3% fawns and 64.7% adults. Sex ratios were 1 male to 1.62 females. County totals were as follows: Boone (97), DeKalb (60), Grundy (112), JoDaviess (41), Kane (74), LaSalle (149), McHenry (91), Ogle (59), Stephenson (71), and Winnebago (156).

CWD Prevalence Patterns

During nine years of surveillance data collection (FY 2003-2011) in the four original CWD counties (Winnebago, Boone, McHenry, and DeKalb), estimated CWD prevalence rates have been almost twice as high for adult male deer (\bar{x} = 2.1% prevalence) as for female deer (\bar{x} = 1.3% prevalence). For that same period and area, prevalence rates in females have shown a very slightly increasing trend over time – about 0.15% per year (Figure 9). Prevalence rates in adult males were virtually stable (\bar{x} = 2.0%) during the past seven years, but experienced an abrupt increase during the most recent period. Continued surveillance will be required to identify whether the observed increase is an aberration or the beginning of a real trend.

Figure 9. Estimated CWD prevalence rates during the period 2003-2011 (fiscal years) for adult female and adult male deer collected during hunting seasons. Error bars at each point depict the 95% confidence interval of the estimate.



Summary

During FY10-11, a total of 7,583 usable samples from wild Illinois white-tailed deer were tested for chronic wasting disease, and 42 CWD-positive deer were identified. Twenty-one of 42 CWD-positive deer (50%) originated from the core CWD area along the Winnebago-Boone county line from Wisconsin south into northwest DeKalb County (Blocks 0,0; 1,0; and 2,0). Distribution of CWD-positive deer was much more diffuse than in past years, and the implications of our surveillance sampling are that small, but established, foci of disease exist in Kane County, Grundy County, LaSalle County, and the border area of JoDaviess and Stephenson counties. While the number of positives identified this year remains below the peak numbers found in 2003-04 and 2005-06 (51 each; see Table 4), staffing and monetary constraints will likely limit our ability to effectively manage CWD if continued spread of the disease occurs. Past management efforts have lowered deer densities in strategic areas and maintained disease prevalence at low levels, but the mobility of white-tailed deer in fragmented Midwestern habitats poses a significant obstacle to controlling disease spread into new areas.

Following the deer hunting seasons in FY10-11, sharpshooters removed 910 deer from sites in 127 different sections of the CWD-affected area, averaging 7.2 (range = 1-38) deer culled per square mile in those sections. Deer densities have been substantially lowered in CWD areas that have undergone multiple years of sharpshooting, and declining sharpshooting success rates reflect those trends. The number of deer removed per unit area peaked during winter 2003-04, when an average 16.2 deer/mi² was taken from a much smaller management area (65 sections).

Table 4. Number of CWD-positive deer identified in each county by year.

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	Total
Boone	9	25	13	15	13	11	9	14	7	116
DeKalb	0	4	1	5	6	8	4	3	7	38
Grundy	0	0	0	0	0	0	0	0	2	2
JoDaviess	0	0	0	0	0	0	0	0	1	1
Kane	0	0	0	0	0	0	0	0	4	4
LaSalle	0	0	0	0	1	0	0	0	3	4
McHenry	2	2	4	4	4	0	4	3	3	26
Ogle	0	0	0	2	0	0	1	0	4	7
Stephenson	0	0	0	0	0	1	0	1	1	3
Winnebago	3	20	13	25	18	18	12	16	10	135
Total	14	51	31	51	42	38	30	37	42	336

Appendix A. Usable CWD samples taken by county in Illinois during the 2010-2011 sampling season. Numbers in parentheses reflect the number of CWD-positive deer identified.

County	Check Stations	Drop-off Stations/ Meat Processors	Agency Culling	Special Permits ¹	Roadkill/ Incidental	Suspect	Total
ADAMS		10					10
ALEXANDER		17					17
BOND		10					10
BOONE	51 (3)	9(2)	97 (2)				157 (7)
BROWN		20					20
BUREAU	1	6				1	8
CALHOUN		61					61
CARROLL		35					35
CASS		3					3
CHAMPAIGN		10					10
CHRISTIAN		12					12
CLARK		41					41
CLAY		164					164
CLINTON		2					2
COLES		76					76
COOK		4		168		1	173
CRAWFORD		126					126
CUMBERLAND		16					16
DEKALB	106 (5)	15	59 (2)		1	1	182 (7)
DEWITT		30					30
DOUGLAS		6					6
DUPAGE		2		110			112
EDGAR		17					17
EFFINGHAM		40					40
FAYETTE		37					37
FORD		6					6
FRANKLIN		51					51
FULTON		15					15
GREENE		76					76
GRUNDY	233 (1)	26 (1)	112		1		372 (2)
HAMILTON		14					14
HANCOCK		96					96
HARDIN		13					13
HENDERSON		3					3
HENRY		16					16
IROQUOIS		8					8
JACKSON		100					100
JASPER		24					24
JEFFERSON		168					168
JERSEY		44					44
JO DAVIESS		162 (1)	39	27			228 (1)
JOHNSON		103					103
KANE	26 (1)	41 (1)	72		1	3 (2)	143 (4)
KANKAKEE		3					3
KNOX		70					70
LAKE	1	7		110			118
LASALLE	654 (2)	36	149 (1)			1	840 (3)
LAWRENCE		35					35
LEE	3	50			1	2	56

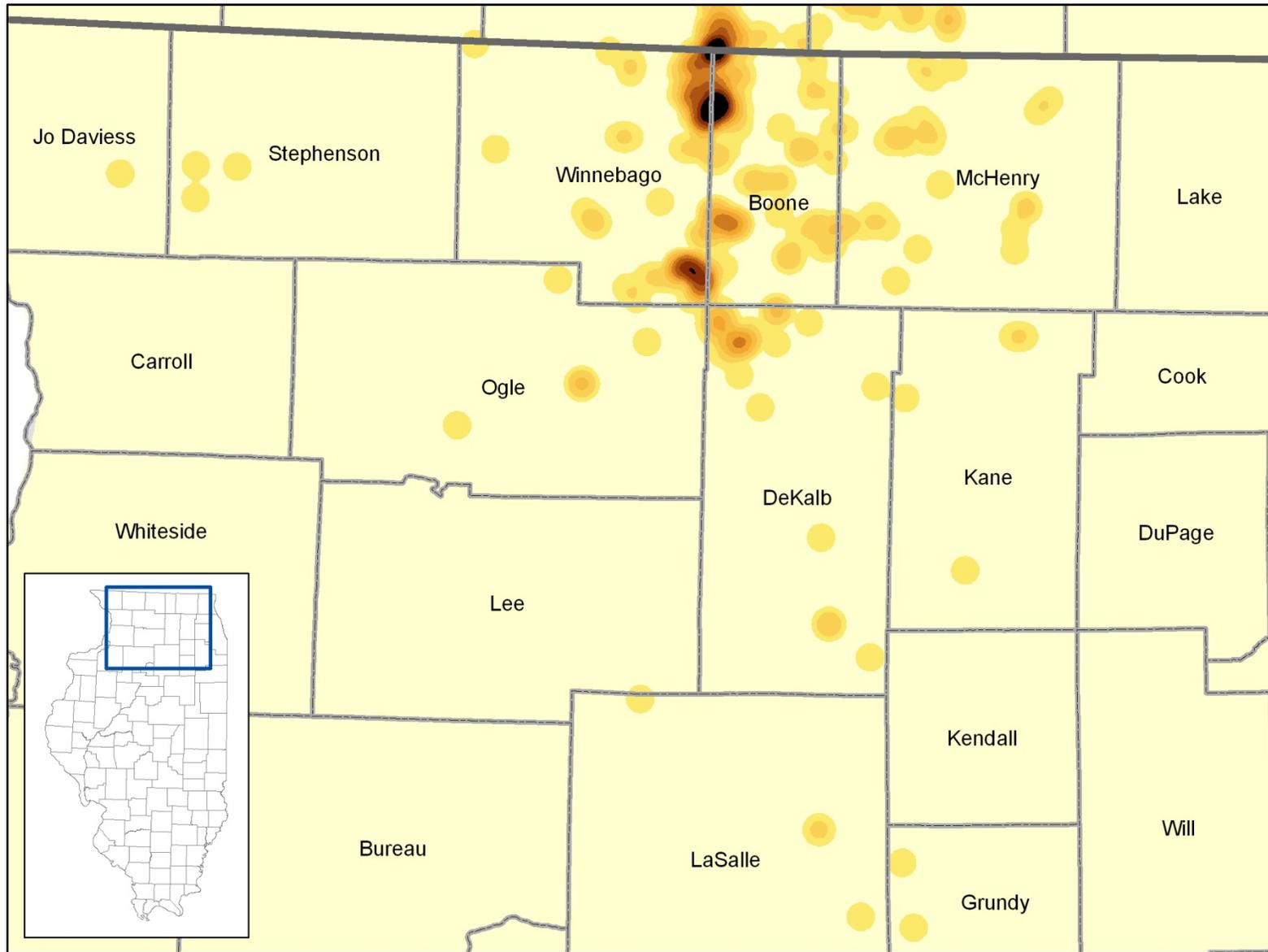
Appendix A cont'd.

County	Check Stations	Drop-off Stations/ Meat Processors	Agency Culling	Special Permits ¹	Roadkill/ Incidental	Suspect	Total
LIVINGSTON		75					75
LOGAN		5				1	6
MACON		54					54
MACOUPIN		17					17
MADISON		35			1		36
MARION		29					29
MARSHALL		4					4
MASON		4					4
MASSAC		21					21
MCDONOUGH		101					101
MCHENRY	147 (2)	15	90 (1)	49		4	305 (3)
MCLEAN		44					44
MENARD		1					1
MERCER		12					12
MONROE		3					3
MONTGOMERY		9					9
MORGAN		4					4
MOULTRIE	12	19					31
OGLE	533 (2)	14	59 (2)		2	4	612 (4)
PEORIA		1		2			3
PERRY		141					141
PIATT		34					34
PIKE		153					153
POPE		50					50
PULASKI		31					31
PUTNAM		7					7
RANDOLPH		31					31
RICHLAND		22					22
ROCK ISLAND						1	1
SALINE		12					12
SANGAMON		3					3
SCHUYLER		4					4
SCOTT		9					9
SHELBY	33	42					75
ST CLAIR		18					18
STARK		1					1
STEPHENSON	475 (1)	56	71		3	1	606 (1)
TAZEWELL		2				2	4
UNION		219					219
VERMILION		6					6
WABASH		1					1
WARREN		27					27
WASHINGTON		31					31
WAYNE		99					99
WHITE		6					6
WHITESIDE		1				2	3
WILL		15		106	1		122
WILLIAMSON		115					115
WINNEBAGO	224 (5)	20 (2)	112 (2)	43 (1)	9	1	409 (10)
WOODFORD		4				1	5
TOTALS	2499 (22)	3563 (7)	860 (10)	615 (1)	20	26 (2)	7583 (42)

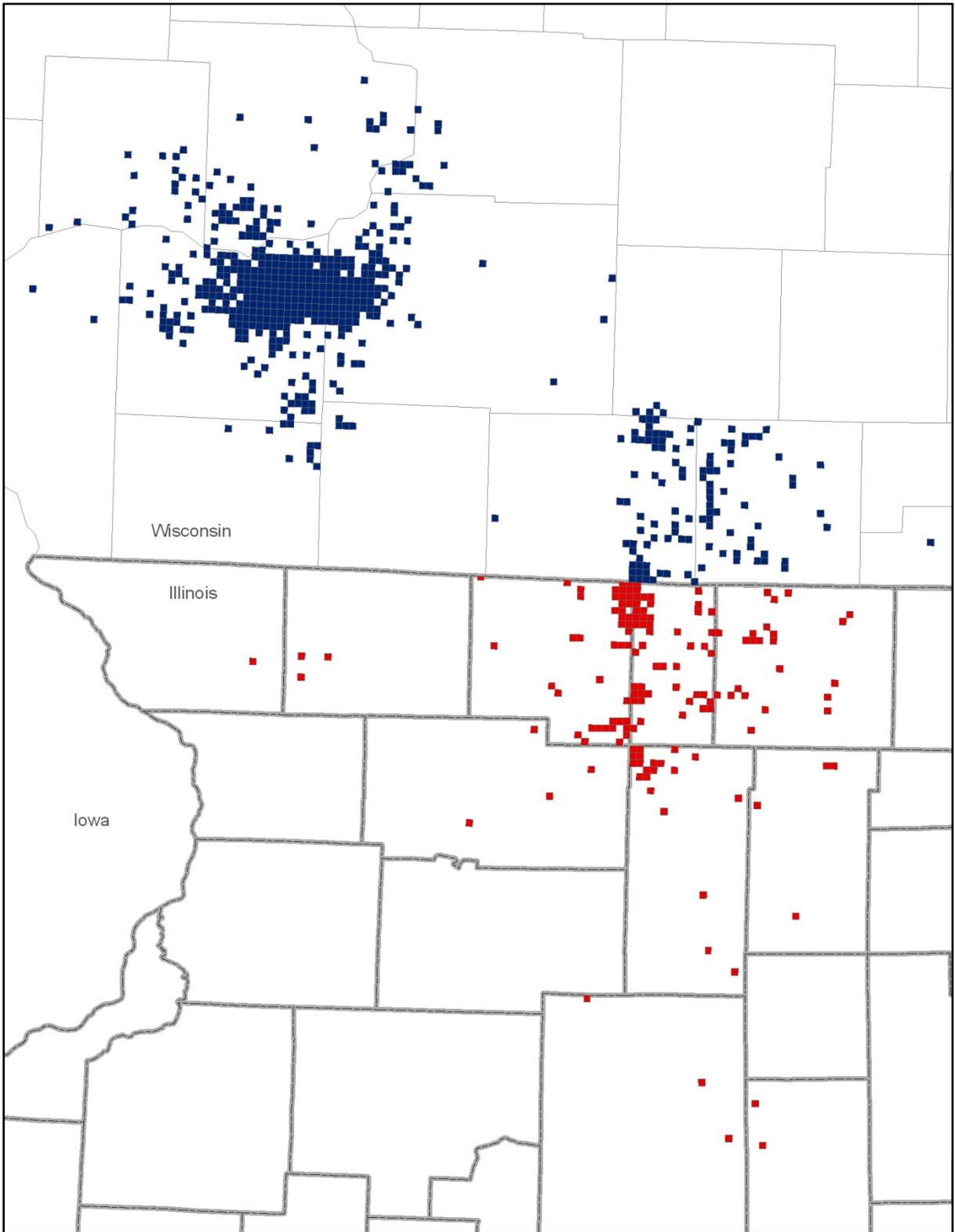
¹ Special permits include urban Deer Population Control Permits, nuisance Deer Removal Permits, and Scientific Permits.

Appendix B. Summary of CWD-positive Illinois deer collected during FY2010-2011.

Date Collected	County	Township, Range, Section	Sex	Age	Collection Method
10/6/10	WINNEBAGO	343N 2E S25	M	2	Hunting
11/4/10	BOONE	344N 3E S28	M	3	Hunting
11/15/10	WINNEBAGO	346N 2E S35	M	2	Hunting
11/15/10	BOONE	346N 3E S32	M	Adult	Hunting
11/19/10	WINNEBAGO	346N 2E S13	F	3	Hunting
11/19/10	DEKALB	342N 3E S7	M	1	Hunting
11/19/10	BOONE	343N 4E S9	M	2	Hunting
11/19/10	GRUNDY	334N 6E S20	M	2	Hunting
11/19/10	KANE	341N 6E S17	M	1	Hunting
11/19/10	STEPHENSON	426N 5E S1	M	2	Hunting
11/20/10	OGLE	342N 2E S19	M	2	Hunting
11/20/10	DEKALB	342N 3E S14	M	3	Hunting
11/20/10	WINNEBAGO	346N 2E S13	M	1	Hunting
11/20/10	WINNEBAGO	343N 2E S25	F	2	Hunting
11/20/10	LASALLE	336N 2E S6	F	2	Hunting
11/20/10	LASALLE	334N 4E S1	M	3	Hunting
11/20/10	BOONE	346N 3E S29	F	1	Hunting
11/21/10	BOONE	346N 4E S10	F	4	Hunting
11/21/10	OGLE	425N11E S10	M	2	Hunting
11/21/10	WINNEBAGO	345N 2E S1	M	2	Hunting
11/22/10	GRUNDY	333N 6E S21	M	Unknown	Hunting
12/3/10	MCHENRY	346N 8E S29	M	2	Hunting
12/3/10	DEKALB	337N 5E S14	M	1	Hunting
12/3/10	DEKALB	342N 3E S5	M	2	Hunting
12/4/10	WINNEBAGO	345N 1E S15	M	1	Hunting
12/5/10	DEKALB	342N 3E S17	F	5	Hunting
12/5/10	MCHENRY	343N 6E S5	F	4	Hunting
12/10/10	KANE	342N 7E S13	M	Unknown	Hunting
1/17/11	JO DAVIESS	427N 4E S26	M	4	Hunting
1/19/11	WINNEBAGO	343N 2E S15	M	2	Sharpshooting
1/24/11	WINNEBAGO	346N 2E S26	M	1	Sharpshooting
1/25/11	MCHENRY	346N 6E S11	F	2	Sharpshooting
1/26/11	WINNEBAGO	344N 2E S36	F	Fawn	Sharpshooting
2/3/11	DEKALB	342N 3E S28	F	4	Sharpshooting
2/10/11	OGLE	341N 1E S7	F	Fawn	Sharpshooting
2/16/11	BOONE	344N 3E S19	F	5	Sharpshooting
2/17/11	KANE	338N 7E S5	M	2	Suspect
2/22/11	LASALLE	334N 4E S1	F	3	Sharpshooting
3/3/11	DEKALB	342N 3E S22	F	4	Sharpshooting
3/9/11	OGLE	341N 1E S7	M	Fawn	Sharpshooting
3/11/11	KANE	342 7E S14	F	3	Suspect
3/31/11	BOONE	344N 3E S30	F	1	Sharpshooting



Appendix C. Cumulative distribution and relative intensity of chronic wasting disease in northern Illinois. Darker areas represent larger numbers of positive deer identified.



Appendix D. Distribution of CWD in southern Wisconsin and northern Illinois as of June 30, 2011. Squares represent sections in which CWD has been detected.