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# **Response of Hunters and the General Public to the Discovery of Chronic Wasting Disease in Deer in Oneida County, New York.**



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## **EXECUTIVE SUMMARY**

The discovery of CWD in March-April 2005 in Oneida County, NY resulted in a major public outreach effort by state and federal agencies to reach citizens with answers to their anticipated questions. The actions executed by wildlife agencies on the ground, which included killing and testing of 292 wild deer as well as a number of captive deer in a 10-square mile area was grist for mass media attention. The responsible agencies collaborated and made information available in a timely basis.

As a result of the discovery of CWD in captive deer in Oneida County, the NYS Department of Environmental Conservation (DEC) began an intensive effort to determine whether CWD was established in wild deer in the area. Management actions for field operations included a multi-agency Incident Command structure with a ten-mile perimeter. A field laboratory was established within the perimeter. Landowner access was sought and frequently obtained for purposes of shooting a sample of deer for diagnostic purposes. Proper disposal methods for deer carcasses were established. By April 30, 2005, 2 cases of CWD were confirmed in the Town of Verona, Oneida County. Other agencies and organizations who participated in this large interagency effort include the NYS Department of Agriculture and Markets (DAM), NYS Department of Health (DOH), USDA Veterinary Services, USDA APHIS Wildlife Services and Veterinary Services, and the Cornell University School of Veterinary Medicine. In late April 2005, DEC adopted emergency regulations, which became permanent on July 27, 2005, to deal with the presence of CWD.

A number of public meetings, news releases, and websites by the 3 state agencies helped inform the public about CWD and the situation in New York. After this study was concluded, in August 2005, a workshop for hunters, farmers, and outdoor writers on CWD in NY was held, sponsored by Cornell Cooperative Extension, the American Wildlife Conservation Foundation, the Chronic Wasting Disease Alliance, and DEC. This event brought together some of the nation's leading authorities on CWD. The CWD management plan for New York and new deer management regulations were highlighted. Continued surveillance of both wild and captive cervids, and containment of the disease, were emphasized.

A 16-page booklet, *Understanding Chronic Wasting Disease in New York*, was designed by CCE to provide background information on CWD and the NYS management plan to prevent the spread of this disease. This publication included information for hunters and meat processors on the safe handling of deer and processing of venison. New state regulations for deer hunters within the containment area were summarized. An abbreviated version of this booklet is scheduled to be published as an insert in DEC's *Conservationist* in the October 2005 issue.

### **Study Purpose and Methods**

The purpose of this study generally was to characterize early public awareness and reaction to the CWD discovery and information seeking behavior during the first few weeks after the disease was reported. Our objectives were to determine for hunters and general public:

1. awareness, interest and concerns about CWD,
2. sources of information about CWD and agency response to the discovery of CWD in NY,
3. satisfaction and trust of information about CWD communicated by primary sources, and

4. indication of impact of detection of CWD on 2005 deer hunting participation.

We interviewed people by telephone, with the survey conducted during the period April 30-June 7, 2005 by the Survey Research Institute at Cornell University. HDRU staff developed the survey instrument and analyzed the data from the survey. Telephone samples were acquired from Genesys Sampling Systems. We set a quota of 400 completed interviews for each of seven strata of interest in the study. This number was achieved or slightly exceeded in all strata, resulting in 2803 respondents. All but one of the seven strata were subsets of New State residents. One stratum was of non-resident hunters (based on archived data from 2004-05 hunting license sales records).

The instrument used in the interviews was straightforward and included up to 19 questions depending on how an individual tracked on screening and follow-up questions. The average interview lasted 5 minutes.

## Results

The percent of working residential phone numbers for which interviews could be completed was approximately 38% for each of the 3 general public strata and ranged from 56% to 60% for the 4 hunter strata. Approximately 9% of those contacted refused to answer the survey, and for an additional 4%, the listed person was either deceased or too ill to complete the survey.

Respondents from both the hunter and general public strata were primarily residents of rural areas and villages. Ten to 20% of hunters were from small cities of less than 100,000 people, and less than 10% were from larger municipalities. Larger proportions of the general public than hunters lived in cities.

The hunters interviewed were overwhelmingly male, 92% - 93% for in-state strata and 98% for out-of-state hunters. Interviewees selected for the general public strata were about equally male and female. Respondents' age ranged from an average of 51 to 53 years for the general public strata, to 53 to 58 years for hunters (New York hunters not in Oneida and surrounding counties had a mean age of 58 years). Approximately 19% of hunters had at least a four-year college degree, compared to 39% of the general public. Overall, about one-third of general public respondents indicated they currently or previously have been a licensed hunter.

**Awareness of CWD:** Over half of respondents in all strata surveyed were familiar with the term "chronic wasting disease." One-fourth to one-third of hunters indicated they were "very familiar," compared to 10-15% of respondents from the general public strata. Fully half to two-thirds of nonhunters surveyed reported hearing little if anything about CWD. Nevertheless, most respondents were aware of the discovery of CWD in New York. Over 95% of hunters in Oneida and surrounding counties were aware, as were 83% of other in-state and 71% of out-of-state hunting respondents. Among the general public, 84% from Oneida County, 75% from surrounding counties, and 56% of other upstate respondents were aware that deer with CWD had been found by state authorities.

**Information Sources:** Mass media was the primary avenue for people to first learn about CWD in NY. Newspapers and local television were indicated most frequently by respondents from all strata. The proportion of hunters who sought further information on CWD ranged from less than 25% of those residing outside of Oneida and surrounding counties to 45% in Oneida County. Less than 20% of the general public, even in Oneida County, sought additional information.

News stories in mass media were turned to most frequently by respondents in quest of additional information, except for out-of-state hunters, who relied more frequently on the world wide web. Public meetings sponsored by DEC and perhaps others was not a source reported by many respondents, but this opportunity was indicated by 10% of Oneida County residents (hunters and general public), the people living closest to where such opportunities to hear from DEC were available.

The proportion of respondents indicating NYS government as a source of their information on CWD was below half for all strata, and below one-third except for Oneida County hunters. Printed material, media releases, and state government web sites were the most frequently listed channels for such information.

**Interest in Additional Information on CWD:** Over 80% of hunters and a majority of the general public indicated at least some interest in receiving more information about CWD. Over half (52% to 56%) of hunters indicated a lot of interest, compared to less than a quarter of the general public. Of the 941 individuals (34% of all respondents) who indicated a lot of interest in obtaining more information about CWD, the majority (79%) came from hunter strata, and 60% of the remaining respondents with a lot of interest either are, or at some time have been a licensed hunter. Those who wanted a lot more information on CWD differed significantly from other respondents in: (1) indicating more frequently that they were very familiar with CWD (37% vs. 16%); (2) being more likely to seek additional information on CWD (40% vs. 14%); (3) being more likely to use New York State sources of information (36% vs. 23%); and (4) being more frequently dissatisfied with how government officials have been informing the public about CWD (41% vs. 29%). These two groups were similar with regard to how they first heard about CWD (newspapers were the leading source) and in their levels of trust of information put out by Cornell Cooperative Extension and the various state and federal agencies (described in the next section).

**Satisfaction with government-provided information:** Respondents were overall more likely to be satisfied than dissatisfied with the effectiveness of state government in its attempts to keep citizens informed. However, given the enormous effort exerted to this purpose, the results showing half or less of the respondents being satisfied is somewhat surprising. Yet the opportunity to be responsive and perhaps improve citizen satisfaction ratings is apparent.

Cornell Cooperative Extension (CCE) was rated quite highly with respect to public trust in information provided on CWD. The level of trust placed in the state and federal agencies was moderate but somewhat lower than for CCE. Because CCE has strong collaborative relationships with the primary state and federal agencies involved, partnering might improve the

overall public trust numbers and help ensure consistency of message, which is a concern in the process of developing public understanding of an issue such as CWD and in informing the development of public risk perceptions associated with CWD.

**Respondent concerns about CWD:** Most respondents (about 70% of the general public, 80% to 90% of hunters) believed deer were common in their area. About three-fourths of hunters and half of the general public indicated they were concerned about CWD. This concern is primarily related to the areas of human health, the impact on hunting, and the health of wild deer. Approximately 60% of hunters with concerns and 45% of all hunters surveyed indicated concerns about human health risks associated with CWD.

In a follow-up question, we asked respondents to indicate on a 10-point scale the extent to which CWD poses a serious health threat to citizens—with 1 meaning no threat at all and 10 meaning CWD poses a very high risk. The mean response ranged from 4.4 to 5.0 and was not statistically different for hunters versus the general public. Just under one-fifth of all respondents gave a rating of 8 to 10 on this 10-point scale, indicating they believe CWD poses a high risk to human health.

Respondents' concerns may become manifest in the venison consumption predilections of hunters and their families. We found a significant percentage of families of hunters and other residents in Oneida County (25% and 16%, respectively) for which at least one family member's attitudes changed toward eating venison. The percent reporting such a change decreased to 7% to 9% among people living further from the incident sites.

Despite the apparent concern about CWD, and especially about venison consumption, the vast majority of hunters intend to hunt during fall 2005. Moreover, these hunters indicated extremely strong fidelity to the areas where they hunted in 2004, with few indicating they will hunt elsewhere.

## **Summary and Implications**

The discovery of CWD in New York resulted in a major public outreach effort by state and federal agencies in an effort to reach citizens with answers to their anticipated questions. The actions executed by wildlife agencies on the ground, which included killing and testing hundreds of captive and wild deer in a 10-square mile area was grist for mass media attention. The responsible agencies collaborated and made information available in a timely basis. The level of public concern indicated in our study, conducted one to two months following the discovery in captive deer, and just a few days to five weeks following discovery in wild deer, was not extraordinary, given the circumstances.

Most hunters contacted, wherever they lived, were aware of CWD in general and of its discovery in Oneida County, as were many residents in and near the incident zone. This did not seem to instill any panic but did create high desire for information on CWD and its consequences for people, domestic animals and wildlife, including deer. Government agencies by and large were trusted sources of information at the time we conducted our survey. Clearly there is more demand for information and it would be in the NYSDEC's best interest to be a perceived source

of credible information about CWD among NY citizens. This may best be achieved in collaboration with other agencies, and perhaps especially with Cornell Cooperative Extension. Such collaboration likely will be essential to ensuring consistency in information delivered. Furthermore, exploiting the situation where there is a void in information yet high demand by the public during the early stages of public exposure to CWD may be a critical intervention to affect risk perception with respect to CWD. Employing multiple channels of both traditional (newspaper) and modern electronic communication technology (world wide web) seems key—neither is as effective alone as they are in combination.

## **ACKNOWLEDGMENTS**

This study was a cooperative undertaking of the Human Dimensions Research Unit (HDRU), Cornell Cooperative Extension, the Cornell University Agricultural Experiment Station (CUAES), and the New York State Department of Environmental Conservation's Division of Fish, Wildlife, and Marine Resources (DEC). Funding for the study was provided by the CUAES.

In addition to the authors, DEC staff Gerald Barnhart, John O'Pezio, Edward Kautz, Chuck Dente, Randall Stumvoll, Louis Berchielli, Mark Lowery, and Laurel Remus attended a planning meeting for this study. Many of these people also reviewed a draft questionnaire and contributed helpful suggestions.

Telephone interviews were conducted by the Survey Research Institute (SRI) at Cornell University under the direction of Yasamin Miller, and SRI produced frequency tables of the survey results. HDRU staff Jody Enck and Nancy Connelly provided additional analysis. Margie Peech provided formatting assistance for the final report.

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## INTRODUCTION

The discovery in March-April 2005 of chronic wasting disease (CWD), first in captive and soon after in wild, free-ranging white-tailed deer (*Odocoileus virginianus*) in Oneida County, NY set the machinery of state and federal government in motion to implement an emergency response plan. This was the first case of CWD in the Northeast. CWD was discovered in 2002 in white-tailed deer in Wisconsin, and earlier in several other midwestern and Rocky Mountain states in mule deer (*Odocoileus hemionus*) and Rocky Mountain elk (*Cervus elaphus nelsoni*) as well as white-tailed deer (Needham et al., 2004).

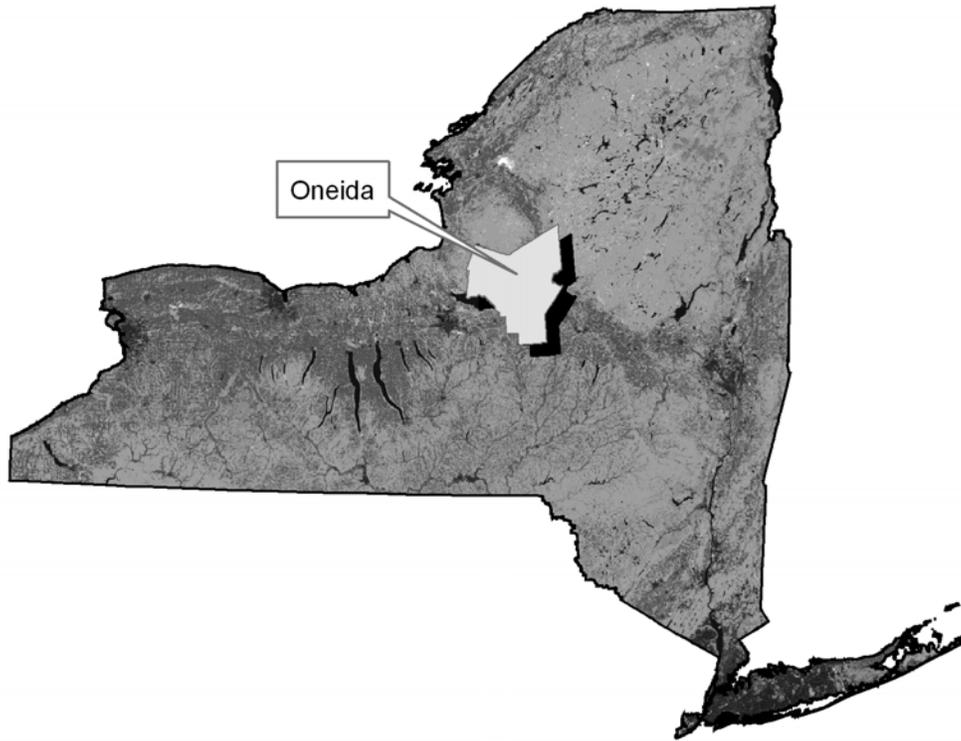
The response of the state natural resources agency to CWD in Wisconsin was described by Heberlein (2004). CWD was instrumental in a decline in hunter numbers of nearly 10% in one year and a cost of \$12.6 million to the Wisconsin Department of Natural Resources in combating the disease (Bishop, 2004). About half of the decline was found to be due to health-related concerns of the disease (Vaske et al., 2004). CWD found in wild elk herds and deer in very limited numbers seemed to have little effect on hunting participation, although hunters indicated a greater incidence of the disease would affect their participation in South Dakota (Gigliotti, 2004). Most hunters continued to hunt during the 2002 deer season in Illinois, where CWD was discovered that November, and most indicated they would also hunt in 2003, although some who lived in the area where CWD was discovered indicated they were hunting less (Miller, 2004).

Many state and federal agencies, including agriculture, food safety, and health, as well as natural resources, collaborated to address this novel disease for New York. The size of the government response was unlike anything witnessed previously in natural resource management in the state. While the captive deer farm situations were largely under jurisdiction of agricultural authorities, addressing management of the disease in wild deer fell largely on the shoulders of the Division of Fish, Wildlife and Marine Resources in the New York State Department of Environmental Conservation (DEC).

Among the many concerns to be addressed and activities initiated by DEC, those relating to public perceptions of the disease and the agency's response to its discovery were paramount. Providing the interested publics with accurate, up-to-date information, especially for hunters and rural landowners, was a priority for communication efforts by the agency. Press conferences, news releases, website information, public meetings and other activities were used to keep information flowing to the concerned citizens of New York.

Within hours of discovering the disease in NY, leaders of DEC and Cornell University's Human Dimensions Research Unit were discussing information and research needs of the agency. Several short-term and long-term needs were identified, but one rose to the top in urgency. DEC desired information about the level of awareness of the disease among various groups of New Yorkers. This included hunters and other residents living in or near the incident zone in Oneida County (Figure 1), as well as those who lived in more distant areas of New York and beyond. We decided to focus on this inquiry, which we referred to as our "rapid response survey." HDRU had previously studied a high-profile event (summer of 2002) when an infant was tragically killed by a

black bear in the Catskill Mountain region of southeastern New York (Gore et al., 2005). Tapping into initial public reaction to a high profile wildlife issue like a bear mauling or a potentially frightening disease can yield useful insights about agency media use, stakeholder information needs, and evaluations of agency response.



**Figure 1. Location of Oneida County in New York State**

## **BACKGROUND ON CWD IN CENTRAL NEW YORK**

New York has approximately 250 establishments statewide that hold 6,500 deer (of several species) and elk in captivity (data from New York State Department of Agriculture and Markets (DAM)). DAM conducts routine sampling for CWD in captive herds and had tested 683 captive deer and elk between 2000 and the discovery of CWD in captive deer in Oneida County in March, 2005. DEC has tested for CWD in wild deer since the fall of 2002; prior to March 2005, they had tested over 3,400 deer, including 40 from Oneida County.

CWD was detected in Oneida County during routine testing of a captive white-tailed deer herd in Oneida County. CWD was then found in a second deer that had been kept in a herd that had received animals from the first herd. In early April 2005, CWD was detected in three additional captive deer in the first herd after the remaining 19 members of the two herds were destroyed and tested. In late April, as part of an intensive monitoring effort, CWD was detected in 2 wild deer from Oneida County.

## **Chronology of Agency Efforts Related to CWD**

DEC's planning for how to deal with CWD, including the dissemination of information to the public, began in 2002 after CWD was discovered in Wisconsin, and included news releases to the public and an article in the *Conservationist* (Sanford 2002). Basic information to raise awareness of CWD was incorporated into 18 presentations at public meetings in May and June of 2002. These presentations focused on the "State of the Deer Herd" and reviewed harvests, populations, and potential changes in deer hunting laws and regulations. In addition, a series of 14 public meetings was held statewide in 2003 to explain temporary regulations DEC was adopting and permanent regulations they would be seeking to minimize the risk of CWD spreading in New York.

DEC has included information on CWD in the Hunting and Trapping Regulations Guide each year since 2002 and quantities of a two-sided handout, "Questions and Answers on Chronic Wasting Disease for Hunters," developed by the Wildlife Management Institute and National Shooting Sports Foundation, have been widely distributed. In addition, DEC has worked with DAM and the New York State Department of Health (DOH) on web pages (see:

<http://www.dec.state.ny.us/website/dfwmr/wildlife/deer/currentcwd.html>;

<http://www.agmkt.state.ny.us/AI/cwd.html>; and

<http://www.health.state.ny.us/nysdoh/zoonoses/cwd/htm>). Brochures on this topic have also been printed and distributed. In addition, CWD has been a topic of interest and discussion as part of other agenda items in a host of regularly scheduled meetings between DEC, hunters, other constituent organizations, and advisory groups.

As a result of the discovery of CWD in captive deer in Oneida County in March 2005, DEC began an intensive effort to determine whether CWD was established in wild deer in the area. Management actions for field operations included a multi-agency Incident Command structure with a ten-mile perimeter. A field laboratory was established within the perimeter. Landowner access was sought and frequently obtained for purposes of shooting a sample of deer for diagnostic purposes. Proper disposal methods for deer carcasses was established. By April 30, 2005, 292 deer had been killed and sampled, and two cases of CWD were confirmed, the first on April 27 in the Town of Verona, Oneida County. Other agencies and organizations who participated in this large interagency effort include DAM, DOH, USDA Veterinary Services, USDA APHIS Wildlife Services and Veterinary Services, and the Cornell University School of Veterinary Medicine.

In late April 2005, DEC adopted emergency 90-day regulations to deal with the presence of CWD (these regulations became permanent on July 27, 2005). A containment area of approximately 850 square miles was established within which possession of vehicle-killed deer was prohibited to allow testing of these deer. Other activities that were prohibited in this area included (1) rehabilitation of wild deer at facilities housing live cervids; (2) transporting certain animal parts out of the containment area; and (3) the collection, sale, possession, or transport of deer or elk urine taken from the containment area. During the 2005 hunting season, it will be mandatory for deer taken in the containment area to be brought to a DEC check station for examination.

The retail sale of feed labeled as wild white-tailed deer feed has been prohibited statewide, and feed retailers are required to post signs advising customers about deer feeding regulations. Also prohibited statewide was the capture or possession of wild white-tailed deer by anyone possessing captive-bred deer or elk or by anyone engaged in taxidermy of deer or elk. The regulations also imposed new record keeping and reporting requirements on deer and elk taxidermists.

Since the detection of CWD in Oneida County in March 2005, several public meetings have been held with representatives of DEC, DAM, and DOH present. The first, on April 8, was a meeting by invitation of local elected officials and key stakeholders, followed by a public meeting that evening at the Cornell Cooperative Extension, Oneida County building. A similar meeting in a larger venue was held the next day (April 9) in a local school gymnasium. These meetings reviewed CWD biology and management, status of surveillance programs and preventive measures and regulations in effect, and outlined an adaptive management approach in response to the finding of the disease in captivity, with plans for collecting samples from a sufficient number of wild deer to determine if the disease existed in the wild in the area. Following completion of field collection efforts through the month of April, a public meeting was held at the Vernon-Verona-Sherrill High School Auditorium on May 12 to present findings of the intensive surveillance efforts, outline next steps in additional regulatory response, and provide an opportunity for questions and answers.

CWD information, including results of 3 years of surveillance efforts in New York, was also included in 20 public meetings held statewide in February 2005 to solicit comment on proposed deer hunting regulation changes, as well as update the "state of the deer herd." An additional round of 22 statewide meetings is ongoing in September 2005.

### **Cornell Cooperative Extension Efforts**

Cornell Cooperative Extension's (CCE's) Managing Human-Wildlife Conflicts Program Work Team responded quickly to the CWD findings. A web site was developed (<http://wildlifecontrol.info/CWD/default.htm>) to answer the public's questions concerning chronic wasting disease (CWD), and to serve as a resource to educators. CCE educators around the state were informed of the CWD issue via workshops, news releases, and listservs. Several other on- and off-campus CCE educators assisted with the CWD response, including Gary Goff and Raj Smith, Cornell Department of Natural Resources; Mike Fargione, CCE-Ulster County; and Holly Wise, CCE-Oneida County.

A workshop for hunters, farmers, and outdoor writers on CWD in NY was held in August 2005, sponsored by CCE, the American Wildlife Conservation Foundation, the Chronic Wasting Disease Alliance, and DEC. This event brought together some of the nation's leading authorities on Chronic Wasting Disease (CWD). Presentations were made by staff from the National Wildlife Health Center, Cornell's College of Veterinary Medicine, DEC, and DAM. The CWD management plan for New York, and new deer management regulations were highlighted. Continued surveillance of both wild and captive cervids, and containment of the disease, was emphasized.

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## **STUDY PURPOSE**

The purpose of this study generally was to characterize early public awareness and reaction to the discovery of CWD and information-seeking behavior during the first few weeks after the disease was reported. Our objectives were to determine for hunters and general public:

1. awareness, interest and concerns about CWD,
2. sources of information about CWD and agency response to the discovery of CWD in NY,
3. satisfaction and trust of information about CWD communicated by primary sources, and
4. indication of impact of detection of CWD on 2005 deer hunting participation.

## **METHODS**

We interviewed people by telephone, with the survey conducted during the period April 30-June 7, 2005 by the Survey Research Institute at Cornell University. HDRU staff developed the survey instrument and analyzed the data from the survey. Telephone samples were acquired from Genesys Sampling Systems. The protocol for contacts included up to 10 attempts to contact each household selected for the survey. We set a quota of 400 completed interviews for each of 7 strata of interest in the study. This number was achieved or slightly exceeded in all strata, resulting in 2803 respondents. All but one of the seven strata were subsets of New York State residents. One stratum was focused on non-resident hunters (derived from 2004-05 hunting license sales records).

The instrument used in the interviews was straightforward and included up to 19 questions, depending on how an individual tracked on screening and follow-up questions. The average interview lasted 5 minutes.

## **RESULTS**

The percent of completed interviews was approximately 38% for each of the 3 general public strata and ranged from 56% to 60% for the 4 hunter strata (Table 1). Approximately 9% of those contacted refused to answer the survey, and for an additional 4%, the listed person was either deceased or too ill to complete the survey.

**Table 1. Strata, sample sizes, and response summary.**

| Stratum                   | Completed Interviews | Refusals | Not Reached | Total Attempted | Completion Rate (%) |
|---------------------------|----------------------|----------|-------------|-----------------|---------------------|
| Hunters:                  |                      |          |             |                 |                     |
| Oneida County             | 402                  | 5        | 293         | 700             | 57                  |
| Counties bordering Oneida | 401                  | 12       | 304         | 717             | 56                  |
| Rest of New York          | 404                  | 17       | 287         | 708             | 57                  |
| Out of state              | 400                  | 19       | 250         | 669             | 60                  |
| General public            |                      |          |             |                 |                     |
| Oneida County             | 400                  | 68       | 570         | 1038            | 38                  |
| Counties bordering Oneida | 400                  | 57       | 601         | 1058            | 38                  |
| Rest of Upstate New York  | 400                  | 105      | 533         | 1038            | 38                  |

**Respondent demographic characteristics**

Respondents from both the hunter and general public strata were primarily residents of rural areas and villages (Table 2). Ten to 20% of hunters were from small cities of less than 100,000 people, and less than 10% were from larger municipalities. Larger proportions of the general public than hunters lived in cities.

**Table 2. Proportion of respondents in residential categories.**

| Stratum                   | Rural | Village | City/Suburb <100K Pop. | City/Suburb ≥100K Pop. |
|---------------------------|-------|---------|------------------------|------------------------|
| Hunters:                  |       |         |                        |                        |
| Oneida County             | 53    | 25      | 19                     | 3                      |
| Counties bordering Oneida | 61    | 27      | 10                     | 2                      |
| Rest of New York          | 46    | 31      | 17                     | 6                      |
| Out of state              | 55    | 14      | 22                     | 9                      |
| General public            |       |         |                        |                        |
| Oneida County             | 37    | 24      | 35                     | 4                      |
| Counties bordering Oneida | 33    | 29      | 24                     | 14                     |
| Rest of Upstate New York  | 35    | 26      | 25                     | 14                     |

The hunters interviewed were overwhelmingly male, 92% - 93% for in-state strata and 98% for out-of-state hunters. Interviewees selected for the general public strata were about equally male and female (44% male in Oneida County, 49% male in surrounding counties, and 52% in other Upstate counties). Respondents' age ranged from an average of 51 to 53 years for the general public strata, to 53 to 58 years for hunters (New York hunters not in Oneida and surrounding counties had a mean age of 58 years). Approximately 19% of hunters had at least a four-year college degree, compared to 39%

of the general public (34% in Oneida County, 40% in surrounding counties, and 42% for other upstate counties). Overall, about one-third of general public respondents indicated they currently or previously have been a licensed hunter.

### Awareness of CWD

Over half of respondents in all strata surveyed were familiar with the term “chronic wasting disease.” One-fourth to one-third of hunters indicated they were “very familiar,” compared to 10-15% of respondents from the general public strata (Table 3). Fully half to two-thirds of nonhunters surveyed reported hearing little if anything about CWD.

Nevertheless, most respondents were aware of the discovery of CWD in New York. Over 95% of responding hunters in Oneida and surrounding counties were aware, as were 83% of other in-state and 71% of out-of-state hunters. Among the general public, 84% from Oneida County, 75% from surrounding counties, and 56% of other upstate respondents were aware that deer with CWD had been found by state authorities.

**Table 3. Proportion of respondents aware of the term “chronic wasting disease” and amount they have heard or read.**

| Stratum                   | Familiarity |           |      | Amount Heard or Read |      |              |
|---------------------------|-------------|-----------|------|----------------------|------|--------------|
|                           | Not very    | Some-what | Very | Nothing/Little       | Some | A Great Deal |
| Hunters:                  |             |           |      |                      |      |              |
| Oneida County             | 19          | 47        | 34   | 18                   | 22   | 59           |
| Counties bordering Oneida | 20          | 50        | 30   | 28                   | 26   | 46           |
| Rest of New York          | 29          | 46        | 25   | 38                   | 24   | 38           |
| Out of state              | 25          | 44        | 31   | 35                   | 24   | 42           |
| General public            |             |           |      |                      |      |              |
| Oneida County             | 44          | 41        | 15   | 50                   | 26   | 25           |
| Counties bordering Oneida | 46          | 41        | 12   | 59                   | 24   | 17           |
| Rest of Upstate New York  | 55          | 34        | 11   | 68                   | 20   | 12           |

### Information Sources

Mass media was the primary source where people first learned about CWD in NY (Table 4). Newspapers and local television were indicated most frequently by respondents from all strata. The proportion of hunters who sought further information on CWD ranged from less than 25% of those residing outside of Oneida and surrounding counties to 45% in Oneida County. Less than 20% of the general public, even in Oneida County, sought additional information.

News stories in mass media were turned to most frequently by respondents in quest of additional information, except for out-of-state hunters, who relied more

frequently on the world wide web (Table 5). Public meetings sponsored by DEC and perhaps others was not a source reported by many respondents, but this opportunity was indicated by 10% of Oneida County residents (hunters and general public), the people living closest to where such opportunities to hear from DEC were available.

**Table 4. Proportion of respondents first hearing about CWD in New York from various sources.**

| Stratum                   | News-paper | Local TV News | Word of Mouth | Radio | Public Meeting | Nat'l Cable TV | Sports-mans Group | Web Site | Other Web Source |
|---------------------------|------------|---------------|---------------|-------|----------------|----------------|-------------------|----------|------------------|
| Hunters:                  |            |               |               |       |                |                |                   |          |                  |
| Oneida County             | 56         | 20            | 12            | 5     | 3              | 2              | 2                 | 1        | 1                |
| Counties bordering Oneida | 42         | 30            | 12            | 7     | 2              | 3              | 2                 | 0        | 0                |
| Rest of New York          | 59         | 11            | 14            | 3     | 2              | 3              | 4                 | 2        | 1                |
| Out of state              | 47         | 8             | 19            | 2     | 1              | 2              | 11                | 6        | 1                |
| General public            |            |               |               |       |                |                |                   |          |                  |
| Oneida County             | 46         | 32            | 35            | 5     | 1              | 2              | 1                 | 0        | 0                |
| Counties bordering Oneida | 39         | 36            | 24            | 8     | 0              | 3              | 1                 | 0        | 1                |
| Rest of Upstate New York  | 49         | 20            | 25            | 8     | 2              | 2              | 3                 | 1        | 0                |

**Table 5. Proportion of respondents seeking additional information about CWD in New York from various sources.**

| Stratum                   | News Stories | Web Search | Word of Mouth | Public Meeting | Print Info. | E-mail/Web Chat | Sports-mans Group | Calls to Professionals |
|---------------------------|--------------|------------|---------------|----------------|-------------|-----------------|-------------------|------------------------|
| Hunters:                  |              |            |               |                |             |                 |                   |                        |
| Oneida County             | 31           | 29         | 18            | 10             | 3           | 6               | 2                 | 1                      |
| Counties bordering Oneida | 35           | 26         | 17            | 5              | 3           | 3               | 5                 | 0                      |
| Rest of New York          | 26           | 24         | 25            | 4              | 6           | 2               | 12                | 2                      |
| Out of state              | 27           | 39         | 15            | 3              | 3           | 10              | 3                 | 6                      |
| General public            |              |            |               |                |             |                 |                   |                        |
| Oneida County             | 48           | 17         | 17            | 9              | 3           | 2               | 0                 | 0                      |
| Counties bordering Oneida | 45           | 20         | 25            | 0              | 3           | 2               | 3                 | 0                      |
| Rest of Upstate New York  | 42           | 33         | 17            | 4              | 0           | 4               | 0                 | 1                      |

The proportion of respondents indicating NYS government as a source of their information on CWD was below half for all strata, and below one-third except for Oneida County hunters. Printed material, media releases, and state government web sites were the most frequently listed channels for such information.

## Interest in Additional Information on CWD

Over 80% of hunters and a majority of the general public indicated at least some interest in receiving more information about CWD. Over half (52% to 56%) of hunters indicated a lot of interest (Table 6), compared to less than a quarter of the general public.

**Table 6. Extent of interest in receiving more information on CWD.**

| Stratum                   | Not Much (%) | Some (%) | A Lot (%) |
|---------------------------|--------------|----------|-----------|
| Hunters:                  |              |          |           |
| Oneida County             | 16           | 29       | 55        |
| Counties bordering Oneida | 12           | 32       | 56        |
| Rest of New York          | 18           | 30       | 52        |
| Out of state              | 18           | 30       | 52        |
| General public            |              |          |           |
| Oneida County             | 38           | 39       | 23        |
| Counties bordering Oneida | 29           | 40       | 21        |
| Rest of Upstate New York  | 33           | 43       | 24        |

We examined the characteristics of the 941 individuals (34% of all respondents) who indicated a lot of interest in obtaining more information about CWD. The majority (79%) came from hunter strata and therefore have demographic characteristics similar to those depicted earlier for hunters. Of the remaining respondents with a lot of interest in further information on CWD (i.e., from the general public strata), 60% either are, or at some time have been a licensed hunter. Of this entire group of 941 respondents, 87% were male and 79% lived in a village or rural area.

Those who wanted a lot more information on CWD differed significantly from other respondents in: (1) indicating more frequently that they were very familiar with CWD (37% vs. 16%;  $\chi^2 = 155.298$ , 1 df,  $P < 0.0001$ ); (2) being more likely to seek additional information on CWD (40% vs. 14%;  $\chi^2 = 239.764$ , 1 df,  $P < 0.0001$ ); (3) being more likely to use New York State sources of information (36% vs. 23%;  $\chi^2 = 53.719$ , 1 df,  $P < 0.0001$ ); and (4) being more frequently dissatisfied with how government officials have been informing the public about CWD (41% vs. 29%;  $\chi^2 = 40.940$ , 1 df,  $P < 0.0001$ ). These two groups were similar with regard to how they first heard about CWD (newspapers were the leading source) and in their levels of trust of information put out by Cornell Cooperative Extension and the various state and federal agencies (described in the next section).

## Satisfaction with government-provided information

Respondents were overall more likely to be satisfied than dissatisfied with the effectiveness of state government in its attempts to keep citizens informed (Table 7). However, given the enormous effort exerted to this purpose, the results showing half or

less of the respondents being satisfied is somewhat surprising. Yet the opportunity to be responsive and perhaps improve citizen satisfaction ratings is apparent.

**Table 7. Degree of satisfaction with how State officials are informing the public about CWD.**

| Stratum                   | Satisfied (%) | Neutral (%) | Dissatisfied (%) |
|---------------------------|---------------|-------------|------------------|
| Hunters:                  |               |             |                  |
| Oneida County             | 50            | 16          | 33               |
| Counties bordering Oneida | 45            | 22          | 33               |
| Rest of New York          | 40            | 20          | 40               |
| Out of state              | 49            | 21          | 30               |
| General public            |               |             |                  |
| Oneida County             | 42            | 31          | 27               |
| Counties bordering Oneida | 28            | 34          | 38               |
| Rest of Upstate New York  | 23            | 38          | 39               |

Partnering may be a good idea for information dissemination, given the levels of public trust in the various government agencies involved in CWD (Table 8). Cornell Cooperative Extension (CCE) was rated quite highly with respect to public trust. Because CCE has strong collaborative relationships with the primary state and federal agencies involved, partnering might improve the overall public trust numbers and help ensure consistency of message, which is a concern in the process of developing public understanding of an issue such as CWD and in informing the development of public risk perceptions associate with CWD.

### **Respondent’s concerns about CWD**

Most respondents (about 70% of the general public, 80% to 90% of hunters) believed deer were common in their area. About three-fourths of hunters and half of the general public indicated they were concerned about CWD. This concern is primarily related to the areas of human health, the impact on hunting, and the health of wild deer (Table 9). Approximately 60% of hunters with concerns and 45% of all hunters surveyed indicated concerns about human health risks associated with CWD.

In a follow-up question, we asked respondents to indicate on a 10-point scale the extent to which CWD poses a serious health threat to citizens—1 meaning no threat at all and 10 meaning CWD poses a very high risk. The mean response ranged from 4.4 to 5.0 for various strata and was not statistically different for hunters versus the general public. Just under one-fifth of all respondents gave a rating of 8 to 10 on this 10-point scale, indicating their belief that CWD poses a high risk to human health.

Respondents’ concerns may be manifested largely in the venison consumption predilections of hunters and their families. We found a significant percentage of families

of hunters and other residents in Oneida County (25% and 16%, respectively) for which at least one family member's attitudes changed toward eating venison. The percent reporting such a change decreased to 7% to 9% among people living further from the incident sites.

**Table 8. Mean level of trust of information on CWD by source, on a five-point scale, where 1 = not at all; 5 = greatly trust.**

| Stratum                   | Cornell Cooperative Extension | NYS Dep't. Agric. & Markets | NYS Dep't Environ. Conserv. | NYS Dep't of Health | USDA Wildlife Services |
|---------------------------|-------------------------------|-----------------------------|-----------------------------|---------------------|------------------------|
| Hunters:                  |                               |                             |                             |                     |                        |
| Oneida County             | 4.2                           | 3.5                         | 3.4                         | 3.5                 | 3.6                    |
| Counties bordering Oneida | 4.4                           | 3.6                         | 3.5                         | 3.5                 | 3.6                    |
| Rest of New York          | 4.2                           | 3.5                         | 3.6                         | 3.5                 | 3.6                    |
| Out of state              | 4.5                           | 3.7                         | 3.8                         | 3.6                 | 3.7                    |
| General public            |                               |                             |                             |                     |                        |
| Oneida County             | 4.4                           | 3.6                         | 3.7                         | 3.6                 | 3.5                    |
| Counties bordering Oneida | 4.4                           | 3.5                         | 3.6                         | 3.6                 | 3.5                    |
| Rest of Upstate New York  | 4.5                           | 3.7                         | 3.8                         | 3.8                 | 3.7                    |

**Table 9. For those who were concerned about CWD, proportions indicating various concerns.**

| Stratum                   | Human Health | Impact on Hunting | Health of Wild Deer | Domestic Animal Health | Deer Farming |
|---------------------------|--------------|-------------------|---------------------|------------------------|--------------|
| Hunters:                  |              |                   |                     |                        |              |
| Oneida County             | 62           | 57                | 49                  | 16                     | 15           |
| Counties bordering Oneida | 58           | 64                | 54                  | 19                     | 16           |
| Rest of New York          | 60           | 51                | 44                  | 12                     | 9            |
| Out of state              | 62           | 53                | 57                  | 20                     | 16           |
| General public            |              |                   |                     |                        |              |
| Oneida County             | 62           | 29                | 44                  | 26                     | 11           |
| Counties bordering Oneida | 60           | 26                | 48                  | 26                     | 7            |
| Rest of Upstate New York  | 59           | 24                | 51                  | 24                     | 7            |

Despite the apparent concern about CWD, and especially about venison consumption, the vast majority of hunters intend to hunt during fall 2005. Moreover, these hunters indicated extremely strong fidelity to their 2004 hunting areas, with few indicating they will hunt elsewhere (Table 10).

**Table 10. Proportion of hunters who hunted deer in 2004, who intend to hunt in New York in 2005, and who intend to hunt in the same county in 2005 as in 2004.**

| Stratum                   | Hunted in 2004 | Intend to hunt in NYS in 2005 | Intend to hunt in same county as in 2004 |
|---------------------------|----------------|-------------------------------|--|
| Hunters:                  |                |                               |  |
| Oneida County             | 91             | 92                            | 99                                       |
| Counties bordering Oneida | 94             | 96                            | 99                                       |
| Rest of New York          | 92             | 94                            | 99                                       |
| Out of state              | 90             | 90                            | 99                                       |

### **Summary and Implications**

The discovery of CWD in New York resulted in a major public outreach effort by state and federal agencies in an effort to reach citizens with answers to their anticipated questions. The actions executed by wildlife agencies on the ground, which included killing and testing hundreds of captive and wild deer in a 10-square mile area, was grist for mass media attention. The responsible agencies collaborated and made information available in a timely basis. The level of public concern indicated in our study, conducted one to two months following the discovery of CWD in captive deer, and just a few days to five weeks following its detection in wild deer, was not extraordinary, given the circumstances.

Most hunters contacted, wherever they lived, were aware of CWD in general and of its discovery in Oneida County, as were many residents in and near the incident zone. This did not seem to instill any panic but did create high desire for information on CWD and its consequences for people, domestic animals and wildlife, including deer. Government agencies by and large were trusted sources of information at the time we conducted our survey. Clearly there is more demand for information and it would be in DEC's best interest to be perceived as a credible source of knowledge about CWD among NY citizens. This may best be achieved in collaboration with other agencies, and perhaps especially with Cornell Cooperative Extension. Such collaboration likely will be essential to ensuring consistency in information delivered. Furthermore, exploiting the situation where there is a void in information yet high demand by the public during the early stages of public exposure to CWD may be a critical intervention to affect risk perception with respect to CWD. Employing multiple channels of both traditional (newspaper) and modern electronic communication technology (world wide web) seems key—neither is as effective alone as they are in combination.

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