

CWD Update 90

March 7, 2008

State and Provincial Updates

Alberta:

Alberta Sustainable Resource Development has published updated information on disease distribution and management activities. The new flyer is at:

<http://www.srd.gov.ab.ca/fishwildlife/livingwith/diseases/pdf/Jan%202008%20fact%20sheet.pdf>

Illinois:

Paul Shelton, Illinois Department of Natural Resources, provides the following: Ongoing surveillance for the presence of chronic wasting disease in wild deer in Illinois last fall and this winter has detected 24 deer testing positive for CWD. The IDNR has received results on tests of more than 4,100 deer which were harvested by hunters or taken by IDNR personnel as part of the 2007-08 deer season sampling program. The testing has identified the first positive case of CWD from Stephenson County in northern Illinois. The other most recent cases of CWD were found in deer from Boone (7 deer), DeKalb (6) and Winnebago (10) counties. Results are still pending on more than 2,000 additional samples collected since last fall. The first case of CWD detected in Stephenson County came from a 2.5 year old female deer taken west of Freeport. IDNR staff are collecting additional samples from deer in Stephenson County to determine if other sick deer are present. The IDNR began more intensive sampling of deer for chronic wasting disease after the first deer with CWD were found in Boone and Winnebago counties in 2002. Since then, Illinois has recorded a total of 213 deer positive for the disease in Winnebago (89 deer), Boone (82), DeKalb (22), McHenry (16), Ogle (2), LaSalle (1) and Stephenson (1) counties. CWD is a fatal neurological disease found in deer and elk. It is not known to be contagious to livestock or humans. Illinois DNR CWD information is at: <http://dnr.state.il.us/cwd>.

Kansas:

Ruby Mosher, Wildlife Veterinarian with Kansas Department of Wildlife & Parks, provides the following: Three white-tailed deer taken by hunters in Decatur County have tested positive for chronic wasting disease (CWD). Initial screening tests performed by Kansas State Veterinary Diagnostic Laboratory have been confirmed by the National Veterinary Services Laboratory in Ames, Iowa. All three deer were taken by hunters along Sappa Creek in central Decatur County, north of Oberlin, which is in the northwest corner of the state. CWD has been detected twice previously in Kansas. The first case was in 2001 in a captive elk herd in Harper County. The other occurred during the 2005 hunting season in a wild whitetail doe harvested in Cheyenne County. Wildlife biologists from Kansas and Nebraska plan to sample more deer in the vicinity in February to help determine the prevalence of the disease in the area. Additional details at: http://www.kdwp.state.ks.us/news/hunting/three_decatur_county_deer_confirmed_positive_for_chronic_wasting_disease.

Kansas (part 2):

Ruby Mosher, Wildlife Veterinarian with Kansas Department of Wildlife & Parks, provides the following: Tissue samples from deer collected earlier this month in Decatur County all have tested negative for chronic wasting disease (CWD). After three deer taken by hunters in that

area during the 2007 hunting season tested positive for the disease, KDWP biologists collected an additional 39 deer in Decatur County Feb. 11 through 13. Screening tests performed by Kansas State Veterinary Diagnostic Laboratory on those 39 samples yielded results that KDWP and Decatur County hunters and landowners wanted to hear: no additional positive results for the disease. Additional details at:

http://www.kdwp.state.ks.us/news/hunting/good_news_decatur_county_deer_sampling_results_all_negative.

New York:

John Major, New York Department of Environmental Conservation, provides the following: In New York State, efforts continued with CWD surveillance through sampling of hunter killed deer statewide and mandatory check of hunter killed deer and collection of vehicle killed deer in the Oneida-Madison County CWD Containment Area. Despite testing over 7,400 deer, including 1,400 deer from the CWD Containment Area from April 1, 2007 through January 22, 2008, no new cases were detected (a few additional samples will be collected through the end of our sample year ending March 31). CWD surveillance began in New York in 2002, with increased efforts in 2005 after the disease was detected in 5 captive and 2 wild deer in Oneida County. Since 2002, over 26,200 samples have been collected throughout the state, including 5,300 samples from the Oneida-Madison County CWD Containment Area, with no additional positives found. The involved captive facilities were depopulated within weeks of the initial discovery. Regulations prohibiting the feeding of wild deer and restricting the import and movement of live animals and carcasses remain in effect. New York Department of Environmental Conservation CWD information is at: <http://www.dec.ny.gov/animals/7191.html>.

Wisconsin:

As part of an effort to reevaluate CWD management in Wisconsin, the Wisconsin Department of Natural Resources utilized a public participation process to gather public input. Information about the Stakeholder Advisory Group, including their final report and a subsequent rule proposal, are at: <http://www.dnr.state.wi.us/org/land/wildlife/whealth/issues/CWD/advisory.htm>.

Meeting Announcement

Chronic Wasting Disease (CWD) Workshop

CWD Response Programs: Efficacy and Recommendations

Aug 8-9, 2008, Edmonton, Alberta

Co-hosted by Alberta Fish and Wildlife and Saskatchewan Ministry of Environment

The workshop is timed to immediately follow the 2008 Annual Conference of the Wildlife Disease Association, August 3-8 in Edmonton. The goal of the workshop is to provide an overview of wildlife agency programs designed and delivered in response to findings of CWD in wild cervids in different jurisdictions in Canada and USA. The workshop will examine the current programs, their success and failures, and offer some collective recommendations for future CWD response planning and programs. There will be a CDN\$30 registration fee for the workshop. Additional information is at: <http://www.biology.ualberta.ca/parasites/WDA08/>.

Recent Publications

Organic polyanions act as complexants of prion protein in soil

Maurizio Polanoa, Claudio Anselmia, Liviana Leitad, Alessandro Negroe and Maria De Nobili
Biochemical and Biophysical Research Communications 367:2 (2008) 323-329.

Abstract: The persistence of prions, the causative agents of transmissible spongiform encephalopathies, in soil constitutes an environmental concern and substantial challenge. Experiments and theoretical modeling indicate that a particular class of natural polyanions diffused in soils and waters, generally referred to as humic substances (HSs), can participate in the adsorption of prions in soil in a non-specific way, mostly driven by electrostatic interactions and hydrogen bond networks among humic acid molecules and exposed polar protein residues. Adsorption of HSs on clay surface strongly raises the adsorption capacity vs proteins suggesting new experiments in order to verify if this raises or lowers the prion infectivity.

<http://dx.doi.org/10.1016/j.bbrc.2007.12.143>.

Comparison of retropharyngeal lymph node and obex region of the brainstem in detection of chronic wasting disease in white-tailed deer (*Odocoileus virginianus*)

Delwyn Keane, Daniel Barr, Jason Keller, Mark Hall, Julie Langenberg and Philip Bochsler
Journal of Veterinary Diagnostic Investigation Vol. 20 Issue 1, 58-60.

Abstract: Chronic wasting disease (CWD) in Wisconsin was first identified in February 2002. By April 2005, medial retropharyngeal lymph node (RLN) tissues had been examined from over 75,000 white-tailed deer for the presence of CWD by either immunohistochemical (IHC) staining for the prion protein associated with CWD (PrP^{res}) or by using enzyme-linked immunosorbent assays with confirmation of positives by IHC staining and had been detected in 469 animals. Obex tissue was also available from 438 of the CWD-positive animals and was CWD positive by IHC staining in 355 (81%). To verify whether false-negative results were possible examining only RLN, both obex and RLN samples were examined for CWD by IHC staining from 4,430 of the white-tailed deer harvested from an area in Wisconsin where the overall deer CWD prevalence was approximately 6.2%. Two hundred and fourteen of the 269 positive deer (79.6%) had deposits of PrP^{res} in both obex and lymphoid tissues, 55 (20.4%) had deposits only in lymphoid tissue, and there were no deer that had deposits only in obex.

<http://jvdi.org/cgi/content/abstract/20/1/58>.

Sampling considerations for disease surveillance in wildlife populations

Sarah Nusser, William Clark, David Otis and Ling Huang
Journal of Wildlife Management 72(1):52–60; 2008.

Abstract: Disease surveillance in wildlife populations involves detecting the presence of a disease, characterizing its prevalence and spread, and subsequent monitoring. A probability sample of animals selected from the population and corresponding estimators of disease prevalence and detection provide estimates with quantifiable statistical properties, but this approach is rarely used. Although wildlife scientists often assume probability sampling and random disease distributions to calculate sample sizes, convenience samples (i.e., samples of readily available animals) are typically used, and disease distributions are rarely random. We

demonstrate how landscape-based simulation can be used to explore properties of estimators from convenience samples in relation to probability samples. We used simulation methods to model what is known about the habitat preferences of the wildlife population, the disease distribution, and the potential biases of the convenience-sample approach. Using chronic wasting disease in free-ranging deer (*Odocoileus virginianus*) as a simple illustration, we show that using probability sample designs with appropriate estimators provides unbiased surveillance parameter estimates but that the selection bias and coverage errors associated with convenience samples can lead to biased and misleading results. We also suggest practical alternatives to convenience samples that mix probability and convenience sampling. For example, a sample of land areas can be selected using a probability design that oversamples areas with larger animal populations, followed by harvesting of individual animals within sampled areas using a convenience sampling method.

<http://www.bioone.org/perlserv/?request=get-abstract&doi=10.2193%2F2007-317>.

Alternative feeding strategies and potential disease transmission in Wisconsin white-tailed deer

Abbey Thompson, Michael Samuel and Timothy VanDeelen
Journal of Wildlife Management 72(2):416–421; 2008.

Abstract: We conducted experimental feeding using 3 feeding methods (pile, spread, trough) and 2 quantities (rationed, ad libitum) of shelled corn to compare deer activity and behavior with control sites and evaluate potential direct and indirect transmission of infectious disease in white-tailed deer (*Odocoileus virginianus*) in central Wisconsin, USA. Deer use was higher at 2 of the feeding sites than at natural feeding areas ($P \leq 0.02$). Deer spent a higher proportion of time ($P < 0.01$) feeding at pile (49%) and spread (61%) treatments than at natural feeding areas (36%). We found higher deer use for rationed than ad libitum feeding quantities and feeding intensity was greatest at rationed piles and lowest at ad libitum spreads. We also observed closer pairwise distances (≤ 0.3 m) among deer when corn was provided in a trough relative to spread ($P = 0.03$). Supplemental feeding poses risks for both direct and indirect disease transmission due to higher deer concentration and more intensive use relative to control areas. Concentrated feeding and contact among deer at feeding sites can also increase risk for disease transmission. Our results indicated that restrictions on feeding quantity would not mitigate the potential for disease transmission. None of the feeding strategies we evaluated substantially reduced the potential risk for disease transmission and banning supplemental feeding to reduce transmission is warranted.

<http://www.bioone.org/perlserv/?request=get-abstract&doi=10.2193%2F2006-543&ct=1>.