

A Case History of Chronic Wasting Disease (CWD) In West Virginia

Prepared by the West Virginia Division of Natural Resources
Wildlife Resources Section

September 7, 2008

A Case History of Chronic Wasting Disease (CWD) in West Virginia

SITUATION AND BACKGROUND

On August 25, 2005, the West Virginia Division of Natural Resources (WVDNR) received notification from the Southeastern Cooperative Wildlife Disease Study located at the University of Georgia, College of Veterinary Medicine that a lymph node sample from a 2½-year-old male road-kill deer collected as a part of routine Chronic Wasting Disease (CWD) surveillance in Hampshire County, West Virginia had an abnormal test result suggesting the animal could be positive for the CWD agent. According to protocol, the Southeastern Cooperative Wildlife Disease Study sent samples to the U.S. Department of Agriculture's National Veterinary Services Laboratories, which reported positive CWD test results on September 2, 2005.

CWD is a neurological disease found in deer, elk and moose that belongs to a family of diseases known as transmissible spongiform encephalopathies (TSE). The disease is thought to be caused by abnormal, proteinaceous particles called prions that slowly attack the brain of infected deer, elk and moose, causing the animals to progressively become emaciated, display abnormal behavior and invariably results in the death of the infected animal. There is no known treatment for CWD, and it is always fatal for the infected deer, elk or moose. It is important to note that currently there is no evidence to suggest CWD poses a risk for humans or domestic animals.

The origin of CWD is unknown. It was first recognized as a syndrome in captive mule deer in Colorado during the late 1960s, but it was not identified as a TSE until the 1970s. At the present time, CWD is found in captive herds in 11 states and 2 Canadian provinces and in free-ranging deer, elk and moose in 11 states and 2 Canadian provinces. The source of infection for wild and captive deer and elk in new geographical areas is unknown in many instances, but the spread through the translocation of live deer and elk has been documented. While it is not known exactly how CWD is transmitted, lateral spread from animal to animal through shedding of the infectious agent from the digestive tract appears to be important, and indirect transmission through environmental contamination with infective material is likely. At the present time, the origin of this disease in West Virginia is unknown.

The discovery of CWD in Hampshire County, West Virginia represents a significant threat to the state's white-tailed deer. The disease does not cause an immediate wide spread die-off of deer, but models indicate if allowed to spread will cause long-term damage to the herd. Those that have tried to predict the outcome of the disease on a deer population have described the disease as a 30 to 50 year epizootic. Due to the uncertain ramifications that CWD may have on the state's white-tailed deer resource, the WVDNR has taken immediate and appropriate actions as described in its CWD – Incident Response Plan.

CWD – INCIDENT RESPONSE PLAN

The WVDNR immediately implemented its CWD – Incident Response Plan to identify and describe the WVDNR's immediate response to the confirmation of a positive CWD deer in Hampshire County, West Virginia. While there are many scientific uncertainties regarding the basic biology and ecology of CWD that may hinder development of efficient strategies for

combating this disease in free-ranging deer, the actions outlined in this Plan are designed to accomplish the following goals.

- Determine the distribution and prevalence of CWD through enhanced surveillance efforts.
- Communicate and coordinate with the public and other appropriate agencies on issues relating to CWD and the steps being taken to respond to this disease.
- Initiate appropriate management actions necessary to control the spread of this disease, prevent further introduction of the disease, and possibly eliminate the disease from the state.

ACTIONS TAKEN UNDER THE CWD – INCIDENT RESPONSE PLAN

Specific action items identified in the WVDNR's CWD – Incident Response Plan have been implemented to date and include the following.

- An initial public informational meeting dealing with the topic of CWD was conducted on September 13, 2005 in Romney, West Virginia. Subsequent public informational meetings dealing with ongoing and proposed CWD management activities were held on August 4, 2006 in Romney, West Virginia and on September 27, 2007 in Slanesville, West Virginia.
- News releases were prepared and distributed in an effort to provide the public with the most up-to-date and accurate information relating to the ongoing CWD situation in Hampshire County. Numerous media contacts were made to provide accurate and timely information relating to the CWD situation in Hampshire County. This information was subsequently made available to the public through television, radio and the print media.
- Close coordination and collaboration with appropriate state and federal agencies (e.g., West Virginia Department of Agriculture, West Virginia Bureau for Public Health and U.S. Department of Agriculture) and adjacent state fish and wildlife agencies (e.g., Virginia Department of Game and Inland Fisheries, Maryland Department of Natural Resources and Pennsylvania Game Commission) and the Southeastern Cooperative Wildlife Disease Study at the University of Georgia's College of Veterinary Medicine were initiated and are ongoing.
- CWD deer collection teams, comprised of personnel from the Wildlife Resources and Law Enforcement Sections, initiated and completed deer collection efforts within portions of Hampshire County during the months of September and October 2005. A total of 195 animals were sampled by these collection teams.
- CWD sampling teams, comprised of personnel from the Wildlife Resources Section, operated 9 biological checking stations throughout Hampshire County and collected CWD samples from 1,016 hunter-harvested animals during the first 3 days of the 2005 buck season and portions of the 2005 archery deer season.
- CWD deer collection efforts were reinitiated in March and April 2006, and these teams collected 85 adult deer and 40 fawns for sampling purposes within portions of Hampshire County.

- CWD sampling teams, comprised of personnel from the Wildlife Resources Section, operated 9 biological checking stations throughout Hampshire County and collected CWD samples from 1,357 hunter-harvested animals during various segments of the 2006 deer seasons.
- CWD deer collection efforts were reinitiated in March and April 2007, and these teams collected 101 adult deer and 42 fawns for sampling purposes within portions of Hampshire County.
- CWD sampling teams, comprised of personnel from the Wildlife Resources Section, operated 9 biological checking stations throughout Hampshire County and collected CWD samples from 1,285 hunter-harvested animals during various segments of the 2007 deer seasons.
- CWD deer collection efforts were reinitiated in March and April 2008, and these teams collected 193 adult deer and 66 fawns for sampling purposes within portions of Hampshire County.

CWD SURVEILLANCE RESULTS

To date, CWD surveillance efforts conducted by the WVDNR have resulted in a total of 31 deer being confirmed positive for CWD in Hampshire County, West Virginia (i.e., 1 road-killed deer confirmed in 2005, 4 deer collected by the DNR in 2005, 5 deer collected by the DNR in 2006, 1 hunter-harvest deer collected in 2006, 3 deer collected by DNR in 2007, 6 hunter-harvested deer collected in 2007, and 11 deer collected by DNR in 2008). These include the following.

- On September 2, 2005, the first confirmed positive CWD deer in West Virginia was reported. The animal was a 2.5-year-old male collected as a road kill near Slanesville, West Virginia during routine surveillance for the disease.
- On September 29, 2005, three more deer were confirmed positive for CWD. These animals were collected by CWD deer collection teams operating in the Slanesville area. The positive animals were all female and included one 1.5-year-old and two 2.5-year-old animals.
- On November 18, 2005, a fifth deer was confirmed positive for CWD, a 2.5 year-old female deer collected by the DNR in the Slanesville area. This animal was initially reported as a sick 7.5-year-old female to our agency. The animal did not exhibit the classical CWD clinical sign of being emaciated, but it was reported as displaying clinical signs associated with the central nervous system. Subsequent confirmation of this fifth positive sample by the USDA National Veterinary Services Laboratories in Ames, Iowa revealed that a sample numbering cross reference error had occurred at the University Of Minnesota laboratory and the fifth positive deer was actually the 2.5 year-old female deer collected by DNR and not the 7.5 year-old female.
- Five (5) more deer tested positive for CWD from DNR collections that took place in Hampshire County during March and April of 2006.
- One (1) hunter-harvested deer was collected during the bucks-only deer season in Hampshire County during November of 2006.
- Three (3) more deer tested positive for CWD from DNR collections that took place in

Hampshire County during March and April 2007.

- Six (6) hunter-harvested deer were collected during the bucks-only deer season in Hampshire County during November 2007.
- Eleven (11) more deer tested positive for CWD from DNR collections that took place in Hampshire County during March and April 2008.
- From September 2005 through April 2008, a total of 4,380 deer have been tested for CWD. These samples consisted of 1,016 hunter-harvested deer taken during the 2005 fall hunting season, 195 deer collected by the DNR in the fall of 2005, 125 deer collected by the DNR in 2006, 1,357 hunter-harvested deer taken during the 2006 fall hunting season, 143 deer collected by the DNR in 2007, 1,285 hunter-harvested deer taken during the 2007 fall hunting season, and 259 deer collected by the DNR in 2008. CWD was not detected in any of the 1,016 hunter-harvested deer collected in 2005. Four (4) of the 195 deer collected by the DNR in the fall of 2005 were confirmed to have the CWD agent, 5 of the 125 deer collected by the DNR in 2006 tested positive for CWD, 1 of the 1,357 hunter-harvested deer collected in 2006 tested positive for CWD, 3 of the 143 deer collected by the DNR in 2007 were confirmed to have the CWD agent, 6 of the 1,285 hunter-harvested deer collected in 2007 tested positive for CWD, and 11 of the 259 deer collected by the DNR in 2008 had the CWD agent.
- Prior to the hunter-harvested samples collected in 2007, analysis of the CWD surveillance data indicated the disease appeared to be found in a relatively small geographical area located near Slanesville, West Virginia. The CWD positive deer had all been collected within a 5½-mile radius of the first positive deer and within the Hampshire County CWD Containment Area (i.e., that portion of Hampshire County located North of U.S. Route 50). In 2007, it was determined that one CWD positive deer was harvested outside the CWD Containment Area but still within Hampshire County near Yellow Springs, West Virginia (i.e., 11.4 miles southeast of the closest known CWD location).

CWD MANAGEMENT STRATEGIES IMPLEMENTED

Based upon the CWD surveillance findings noted above, the WVDNR has taken the steps necessary to implement appropriate management actions designed to control the spread of this disease, prevent further introduction of the disease, and possibly eliminate the disease from the state. The following disease management actions have been implemented by the WVDNR within the affected area of Hampshire County.

- Continue CWD surveillance efforts designed to determine the prevalence and distribution of the disease.
- Lower deer population levels to reduce the risk of spreading the disease from deer to deer by implementing appropriate antlerless deer hunting regulations designed to increase hunter opportunity to harvest female deer.
- Establish reasonable, responsible and appropriate deer carcass transport restrictions to lower the risk the disease will be moved to other locations.

- Establish reasonable, responsible and appropriate regulations relating to the feeding and baiting of deer to reduce the spread of the disease from deer to deer.

SUMMARY OF PROGRAM STRENGTHS

- Our agency received outstanding technical support from the wildlife researchers and veterinarians stationed at the Southeastern Cooperative Wildlife Disease Study located at the University of Georgia, College of Veterinary Medicine in Athens, Georgia.
- Our deer project leader received his Ph.D. from the University of Georgia working for the Southeastern Cooperative Wildlife Disease Study, and he provides significant in-house capacity to our agency on various wildlife diseases issues, including CWD.
- Our agency has a strong district base of operations that allows for structured communication, a clear chain of command, effective tactical planning and efficient implementation of action items identified in the CWD – Incident Response Plan.
- Our agency has been able to effectively communicate with the public (e.g., hunters, landowners, etc.) and coordinate with state and federal agencies on issues relating to CWD and the steps being taken to manage the disease.
- Landowner and hunter cooperation associated with the WVDNR’s CWD surveillance efforts in Hampshire County remain high, and this has been an essential element of our agency’s success. The WVDNR remains committed to keeping the public informed and involved in these wildlife disease management actions.
- Collaboration and communication with other state fish and wildlife agencies on issues relating to CWD surveillance and management actions appeared to be successful and well received.
- Contact with the media has been completely transparent, upfront and timely with regard to the exchange of information associated with our CWD surveillance and management activities.
- Our Wildlife Biologists, Wildlife Managers and Conservation Officers are working diligently to fully implement the WVDNR’s CWD – Incident Response Plan, which is designed to effectively address this wildlife disease threat. Anecdotal evidence indicates hunters, landowners and other members of the public feel confident that we have some of the best wildlife biologists and veterinarians in the world, including those stationed at the Southeastern Cooperative Wildlife Disease Study in Athens, Georgia, working collaboratively on this situation.

SUMMARY OF PROGRAM WEAKNESSES

- Our agency lacks human dimensions expertise, and we have not secured sound, science-based information relating to the views, opinions and concerns of hunters, landowners and others interested in the ongoing CWD situation and our agency’s management actions.
- Political pressures precluded our agency from fully implementing a science-based, CWD

containment zone designed to effectively regulate deer carcass transport and the baiting and feeding of wildlife within designated areas.

- Expanded opportunities to harvest additional antlerless deer, remove females from the population and reduce deer densities have only achieved moderate success due at least in part to the land ownership patterns in this portion of Hampshire County (i.e., numerous landowners holding small acreages).
- A lack of funding has precluded our agency from conducting DNA-based research designed to determine the movement patterns of deer across the landscape. If we could determine the genetic flow of this material, we might be able to implement more effective management options to reduce the spread of CWD.
- Enhanced CWD surveillance efforts have placed an extreme burden on existing programs in terms of manpower allocations and budget constraints, especially within the Game Management Unit.

CONTACT INFORMATION

For additional information regarding implementation of the WVDNR's CWD – Incident Response Plan and our agency's efforts to manage this disease, please contact the following personnel.

Paul R. Johansen, Assistant Chief
In Charge of Game Management
West Virginia Division of Natural Resources
Wildlife Resources Section
State Capitol Complex, Building 3, Room 815
Charleston, West Virginia 25305
Telephone: 304-558-2771
Email: pauljohansen@wvdnr.gov

Dr. James M. Crum, Deer Project Leader
West Virginia Division of Natural Resources
Wildlife Resources Section
Elkins Operations Center
P.O. Box 67
Elkins, West Virginia 26241
Telephone: 304-637-0245
Email: jimcrum@wvdnr.gov

Richard E. Rogers, District Wildlife Biologist
West Virginia Division of Natural Resources
Wildlife Resources Section
1 Depot Street
Romney, West Virginia 26757
Telephone: 304-822-3551
Email: richrogers@wvdnr.gov