



AFWA Best Management Practices for Prevention, Surveillance, and Management of Chronic Wasting Disease

INTRODUCTION

The Association of Fish and Wildlife Agencies (AFWA) Best Management Practices (BMPs) for the Prevention, Surveillance, and Management of Chronic Wasting Disease (CWD) were developed to provide guidance to fish and wildlife agencies as they address the growing threat of CWD to free-ranging cervid populations. The BMPs are based on the best available peer-reviewed science and field-tested methods, and represent the contributions of more than 30 wildlife health specialists, veterinarians, and agency leaders actively engaged in CWD issues across North America. The BMPs are intended to be adaptable as new information becomes available. They are not meant to be prescriptive or to mandate programs at the state, federal, tribal, or territorial level; they should be regarded as a set of recommendations for agencies to consider as they develop or revise their CWD programs.

The BMPs are arranged under the general headings of Prevention, Surveillance, Management, and Supporting Activities. A best practice is provided for each topic, where appropriate, as are alternative methods that do not mitigate risks as well as the best practice. Many practices fit into more than one of the above headings. Expanded information, additional practices, background, justification, and reviewed literature are available in the accompanying Technical Report.

PREVENTION of CWD Introduction and Establishment

- A. Live animal movement** is regarded as the greatest risk for CWD introduction to unaffected areas.
1. Prohibit all human-assisted live cervid movements
 2. Alternatives:
 - a) Prohibit importation of all live cervids from CWD-positive states and provinces.
 - b) Allow movement/importation of cervids from herds that have been monitored for an extended period without detection of CWD or links to herds that have been affected or exposed.
 - c) Allow importation of captive cervids from herds certified as low risk for CWD by the USDA CWD Herd Certification Program (see below for more on captive cervids).
- B. Carcass movement** poses a risk for CWD introduction if unused parts from potentially infected carcasses are imported and disposed of improperly.

1. Prohibit importation from all states of intact cervid carcasses or carcass parts except boned out meat, clean hide with no head attached, clean skull plate with antlers attached, clean antlers, finished taxidermy specimens, and clean upper canine teeth.
2. Alternatives:
 - a) Allow importation of quartered carcasses with no spinal column, head, or central nervous system tissue in addition to the permitted items above.
 - b) Prohibit importation, with certain standard exceptions, of intact or whole carcasses from states that have detected CWD in captive and/or free-ranging cervids.
 - c) Prohibit importation from specific zones in states where CWD has been detected.

C. Products of cervid origin may pose a risk for CWD introduction as well as an attractant that may congregate normally dispersed animals facilitating CWD transmission and/or establishment.

1. Natural products of cervid origin: Prohibit sales and use of products that include natural urine, feces, scrape material, deer pen soil or other items of cervid origin.
2. Reproductive tissues and material: Prohibit importation of cervid origin reproductive tissues, semen, embryos, germplasm.
3. Alternate practices: Allow sales and use of synthetic scent products; allow importation of products and reproductive materials only from facilities that are certified as low risk for CWD.

D. Unnatural Concentration of Cervids facilitates CWD transmission and establishment if the CWD agent is present.

1. Prohibit baiting and feeding of wild cervids; prohibit placement of minerals, granules, blocks, or other supplements for wild cervids; provide hay and other feed for domestic animals in a manner that does not congregate wild cervids; prohibit sales and use of other cervid attractants such as synthetic scent lures, foods, flavors, scents, pour-ons, sprays, etc.
2. Alternate practices include restrictions on amounts of bait or feed as well as restrictions on baiting and feeding on a temporal and/or spatial basis.

SURVEILLANCE

A. CWD Testing for Cervids.

1. Use only USDA-approved laboratories and methods for CWD testing.
2. Test obex and medial retropharyngeal lymph nodes (MRPLN) collected from dead animals; positive and suspect results should be confirmed by the USDA's National Veterinary Services Laboratories. Minimally test MRPLN for deer and both obex and MRPLN for elk.

- a) Antemortem testing may be useful in whole-herd screening of captive cervids or for sequential testing of individual free-ranging and/or research animals. Current antemortem tests are not adequate to detect CWD on an individual animal basis.
- b) All suspect positive ELISA test and Western blot results should be confirmed with IHC (The Gold Standard test).

B. Surveillance for initial detection of CWD should be an ongoing activity. Early detection is critical to managing CWD effectively and especially for eliminating it when/if possible.

1. Surveillance efficiency may be enhanced by:
 - a) Targeting animals more likely to have CWD: clinically affected animals; road- or predator killed animals; mature animals, particularly males.
 - b) Spatial targeting via risk assessments based on proximity to affected cervids, unmonitored populations, captive cervids, or other risk factors.
2. Surveillance (and monitoring) should be undertaken at biologically relevant spatial scales and inferences drawn only in the appropriate spatial context in view of the highly patchy distribution of CWD in wild cervids. Consequently, agencies should refrain from drawing statistical conclusions such as “there is 95% certainty that CWD would have been detected if present at 2% prevalence or greater.”
3. See https://pubs.usgs.gov/of/2012/1036/pdf/ofr2012_1036.pdf for “*Enhanced Surveillance Strategies for Detecting and Monitoring CWD*”

C. Surveillance to “monitor” CWD in an affected population

1. Random sampling of harvested animals provides relatively unbiased estimates of infection rates and is the most efficient active sampling method for estimating prevalence or incidence in CWD enzootic populations. Comparisons over time or between locations should be based on a common denominator (e.g., harvested males aged 2 years or older) to assure that reliable inferences are drawn. Consider including vehicle-killed animal surveillance and looking for expansion of current disease foci as well as new disease foci.
2. Practices should include defining biologically relevant spatial units for data collection and evaluation; determining meaningful sample sizes for interpretation; identifying surveillance goals to guide sampling strategies over time; and working within existing management frameworks to maximize opportunities for sample collection while minimizing additional personnel and financial costs to the agency.

MANAGEMENT

A. CWD Response Plans should be developed before CWD is detected and implemented at the first report of CWD within the jurisdiction or within a previously defined distance from its borders, such as in a neighboring state. Plans should include the immediate

response to detection as well as long-term management of the disease if it cannot be eliminated. An Incident Command System or other central coordinating group may facilitate the initial response.

1. Essential elements of the response plan should include action plans for each of the following sections: Communications, diagnostics, surveillance, disease management, and research.

B. Initial Response to the First Detection should include:

1. A communications strategy should be designed to build support for response actions.
2. Sufficient testing capacity should be identified to support surveillance/monitoring activities.
3. Surveillance strategies should be implemented through consultation with epidemiologists to determine disease prevalence and geographic distribution of the affected area.
 - a) Actions may include special hunts by the public with mandatory CWD testing, culling by sharpshooters and other methods.
4. Disease management activities should begin with recognition that they may be necessary on a long-term basis.
 - a) CWD Management Zones should be established on the basis of the location of affected animals and natural history of local populations.
 - b) Management activities likely will occur in concert with surveillance actions to define the affected area.
5. Surveillance and management of captive cervids should be in place as part of planning efforts and include fencing design, mandatory testing, inspections, animal ID, quarantine and decontamination protocols, among others (see Captive Cervid section below).

C. Managing CWD Prevalence should include utilizing harvest, sharpshooters or other removal mechanisms combined with statistically appropriate sampling and testing to monitor changes in prevalence. Strategies may include:

1. Targeting the portion of the population most likely to have CWD.
2. Targeting animals in known CWD hotspots.
3. Adjusting timing to most effectively remove infected animals.
4. Reducing cervid density in CWD-positive areas with high animal density.
5. Eliminating practices that promote artificial cervid concentrations to minimize environmental contamination.
6. Utilizing a coordinated, adaptive management approach that allows evaluation of experimental CWD suppression strategies whereby the data gathered from these efforts would be used to develop improved strategies.
7. Restricting or prohibiting intact carcass and high risk material transport out of CWD management zones.

D. Rehabilitation of Deer and other Cervids may result in translocation and/or release of infected animals.

1. Prohibit cervid rehabilitation activities, including animal transport, either statewide or in designated CWD management zones or in other geographic areas where CWD has been detected in wild or captive cervid populations.
2. Alternative practices: In areas where CWD is suspected but not yet reported, restrict rehabilitation activities to facilities that observe all recommended biosecurity protocols for the safe handling, disposal, and decontamination of prions and prion-infected tissues, materials, and equipment.

E. Carcass Disposal is critical to prevent exposure of wildlife to the CWD agent.

1. Incinerate carcasses in an Environmental Protection Agency-approved conventional incinerator, air curtain incinerator, or cement kiln.
2. Treat carcasses with high-pressure alkaline hydrolysis followed by burial of the treated material in an active, licensed landfill.
3. Alternate practices: Composting; centralized sites for disposal of CWD-positive or high risk carcasses. Landfills often are used: although burial does not eliminate infectious prion, carcass parts should be inaccessible to cervids and other animals.

F. Decontamination and Disinfection Methods for Equipment require special techniques because of the resistance of the CWD agent to standard disinfectants and sterilization methods.

1. Effective products and methods include 2% sodium hypochlorite (bleach) solution, autoclaving under specific conditions, or the use of Environ LpH se Phenolic disinfectant.

SUPPORTING ACTIVITIES

A. Internal and Public Communications are critical to build support within agencies and among the general public for CWD prevention, surveillance, and management policies, regulations, and activities. Development of an integrated communications strategy and CWD communications plan is recommended. Messages should be developed with thorough understanding of the importance of the human dimensions of wildlife disease management.

1. Communications should be open between agency administrators and field employees.
2. Agencies should maintain accurate, up-to-date websites that contain general information about CWD, jurisdiction-specific CWD information, surveillance and response activities, relevant regulations, public health concerns, recommendations for hunters and information indicating how they can help, reporting procedures for sick or dead ungulates, and test result reporting.
3. Social science surveys may be conducted to inform management decisions and increase positive stakeholder engagement.

B. Research is needed to identify:

1. The most effective techniques for prevention, surveillance, and management; prion detection and diagnostics; and disease epidemiology.
2. Human dimensions issues such as the impact of CWD on hunting practices and on hunting-related expenditures.
3. The cost of CWD to state and provincial economies.
4. The costs of CWD to wildlife agencies to facilitate budget planning and to landowners, hunters, and other stakeholders.
5. Other sources of funding for CWD prevention, surveillance, and management.

C. Cervid Regulations in North America. State, provincial, and territorial wildlife agencies should:

1. Work closely with neighboring jurisdictions to coordinate management and regulatory responses to CWD.
2. Review and evaluate regulations and authorities on a regular basis in order to ensure sufficient management flexibility and regulatory authority for managing CWD in wild and/or captive cervid populations.
3. Develop and implement policies and regulations to address the best management practices identified in this AFWA document.

D. Captive cervids. Best management practices include:

1. State or provincial wildlife agency authority over wild and captive cervids in order to conserve free-ranging wildlife. Alternative: shared authority with the animal health agency.
2. Testing of all captive cervid deaths regardless of facility participation in the federal CWD Herd Certification Program
3. Adequate fencing and barriers to preclude contact between free-ranging and captive cervids.
4. Individual animal identification visible from a distance, regular physical inventory of captive cervids and reconciliation with records.
5. Detailed response plans to detection of CWD in a captive facility.
6. Relevant U. S. case law discussing regulatory authority over, categorization of, and ownership interests in captive cervids is summarized in the Technical Report. Important cases occurred in Missouri, Minnesota, Ohio, Texas, and Indiana.

E. CWD and Public Health. Best management practices include:

1. Wear protective gloves and wash hands.
2. Disinfect field equipment when handling cervids or any other wildlife or carcasses.
3. Avoid sawing through the bone and cutting through the brain and spinal cord.
4. Do not consume meat from animals that appear sick or are found dead of unknown causes.
5. Do not consume meat or other tissues from CWD-positive animals.
6. Follow guidance from wildlife and public health agencies.