Summary of Chronic Wasting Disease Workshop in Edmonton on Feb. 9-10, 2011 and Alberta's CWD Update as of March 23, 2011

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ACTWS was invited by the Alberta Prion Research Institute to provide a representative to attend a workshop entitled Management of CWD in Canada. The purpose was to discuss past practices, current conditions, future risks and options. The following is a summary of the workshop and an update of the CWD situation in Alberta.

Jurisdictional Summaries

- ***Dr. Michael Miller, Colorado Division of Wildlife***
  - CWD known in Colorado in captive cervids since 1967 and in wild cervids since early 1980s but intensive study done only since 2001.
  - no evidence of occurrence in other domestic ruminants nor other wild mammals.
  - prevalence high in many local mule deer populations.
  - patterns of infections influenced by time since introduction, herd demographics, movement and congregation patterns, land use, soil characteristics, and management strategies.
  - attempts to control or contain CWD deemed ineffective and abandoned, partly because of lack of public support.
  - surveillance through directing hunt pressure and testing hunter kills continues.

- ***Dr. Michael Samuel, Department of Forest and Wildlife Ecology, University of Wisconsin***
  - CWD identified in Wisconsin wild cervids in 2002 (white-tailed deer) but it's estimated that it may have been there for 2 or 3 decades.
  - early eradication attempts deemed ineffective and abandoned 3 years ago
  - present management aimed only at containment through directing hunt pressure, testing and monitoring.
  - spread estimated to be 2 -3 miles per year.
  - genetic research indicates some evidence of developing resistence but it is a very slow to occur and estimated to take in the order of 200 years to make a difference.

- ***Dr. Trent Bollinger, University of Saskatchewan***
  - CWD brought in from the US in late 1980s via imported game farm animals and now found in three populations of wild cervids.
  - over the past decade CWD became wide spread in the province and occurs in both deer species and wild elk.
  - containment efforts by directing hunt pressure have been unsuccessful and there is fear that caribou may become infected.
  - management currently focused on tracking movements of the disease.
  - considerable concern that if CWD crosses the species barrier (i.e. to domestic stock and/or humans) there will be far reaching negative economic and social consequences.
  - largely depending on research to result in effective management programs.

- ***Dr. Greg Douglas, Chief Veterinary Officer, Saskatchewan Ministry of Agriculture***
  - game farms and hunt farms involving 54,000 cervids is currently worth $60 million annually to Saskatchewans economy.
  - described the challenges in efforts (mainly involving surveillance and culling) to eradicate CWD from Saskatchewan game farms via mechanisms to improve traceability, inventory, and surveillance.

- ***Dr. Stephane McLachlan and Misty Potts-Sanderson, University of Manitoba***
  - CWD not present in Manitoba to date but is approaching from eastern Saskatchewan
  - First Nations very concerned about "corralling" or "penning" (game farming) wild animals.
  - considerable concern expressed about the decline in environmental quality from industrial sources and its effect on wildlife, indicating that CWD may be a symptom of a much larger problem.
  - considerable concern expressed about the lack of effective communication between scientific community and First Nations.

Impacts of CWD presence on society

- ***Dr. Vic Adamowicz, Department of Rural Economy, University of Alberta***
  - presented results of questionnaires designed to investigate how CWD affects recreational hunting.
  - further work will determine the effects of CWD presence on the province's economy.
  - found awareness of CWD varied among societal cohorts, particularly urban/rural differences.
  - CWD presence resulted in greater change in hunting venue among urban as opposed to rural dwellers.

- ***Helen Cote-Quewezance, Cote First Nations, Saskatchewan***
  - outlined the importance of healthy wildlife to First Nations people in the form of sustenance, health, and spirituality.
  - very concerned that CWD will likely degrade that aspect of aboriginal life.
  - is willing to share knowledge with scientific community but asked for a forum that includes an effective understanding of aboriginal culture.

- ***Dr. Ellen Goddard, et al, Department of Rural Economy, University of Alberta***
  - Canadians in general currently have a very limited understanding of CWD, however, it is somewhat greater than that of Americans.
  - concern that CWD constitutes a significant human health risk is very low in both countries (i.e. much lower ranking than concerns about BSE or other known meat borne pathogens).
  - Canadians support efforts to eradicate CWD much more than Americans.

Research initiatives

- ***Dr. Michael Coulthart, et al, Public Health Agency of Canada***
  - although not occurring to date, he estimates that report of just one probable case of human CWD could trigger a public health crisis in North America.

- epidemiological studies so far indicate the probability is very slight, however, prion agents and their transmission properties are highly mutable and adaptable and the possibility can not be ruled out.
- suggests those involved in human prion disease surveillance should consider the possibility of human CWD and develop a readiness to deal with it.

- ***Dr. Margit Westphal, McLaughlin Centre for Population Health Risk Assessment, University of Ottawa***

- CWD identified in captive research animals in 1967 has now spread to 18 US states and 2 Canadian provinces in farmed and free ranging cervids.
- complicating development of an effective plan to combat CWD are the facts that it has a very long latency period, extended environmental persistence, and it lacks a quick and sensitive diagnostic anti-mortem test.
- "Effective management of CWD requires the development and application of an integrated risk management framework based on sound principles of risk assessment and management, and the harmonization of regulation that align trans-border management efforts".

- ***Judd Aikens et al, Centre for Protein Folding Diseases, University of Alberta***

- have identified two prion protein gene variants in Alberta white-tailed deer that are linked to disease prolongation.
- implications could lead to possible development of resistence but would likely take a very long time.

- ***Scott Adams and Scott Napper, University of Saskatchewan***

- testing is currently underway to determine the effectiveness of a newly developed injectable CWD vaccine that has shown considerable promise.
- an effective vaccine could be used to prevent CWD in game farm animals but additional study would be required to determine an effective application method in the wild.

Conclusions drawn from the workshop presentations and discussions

- CWD is a newly invasive and fatal neurodegenerative prion disease of cervids known in North America only since 1967 (45 years) and hosts have not had time to adapt. To date it is present in 18 US states and 2 Canadian provinces.

- Attempts to eradicate CWD via intensive culling has generally proved to be ineffective except where infection is very recent. Evidence of recent timing of infection was shown in Alberta by lymph node positive but brain negative in tested specimens.

- In wild cervids the two deer species are most commonly involved. Of those, mule deer are most heavily infected in western jurisdictions while in east-central states, where mule deer are absent, white-tails are the only host. Further, of the various cohorts, adult males are most commonly infected and regulations aimed at providing trophy antlers may be exacerbating efforts to control CWD prevalence and spread.

- Culling by management agencies and/or by directing hunting pressure was shown to be ineffective in eradicating and even the in halting the spread of the disease.

- Surveillance for prevalence and degree of spread via testing hunter-killed animals is currently the most common management method in practice. It has also been shown that public awareness, understanding, and attitudes are critical factors to consider when embarking on control activities.

- Factors complicating the control or management of CWD are:
  - CWD has a very long latency period.
  - Currently the only tests for diagnosing CWD in living animals is to collect tonsil or rectal lymph biopsy tissues.
  - Prions will bind with clay particles in soil and thus remain persistent in areas containing infected animals.
  - Although there are some signs of developing immunity or resistence in hosts it will take very long time (i.e. > 200 years) to manifest itself.
  - In infected foci, close relatedness appears to be a factor in increase prevalence, which could also result from mule deer being more gregarious and exhibiting clumping behavior, particularly during winter when CWD transmission is most likely to occur.
  - Some mule deer are migratory, which further complicates CWD containment efforts.

- CWD is slow to show population effects but with time it is predicted to result in significant reductions in density and distributions of ecologically, economically, socially important cervids in all jurisdictions with CWD infections.

- Presently there are only speculative indications of CWD crossing species barrier but on the slim chance human CWD occurs, it is predicted there will be general public panic and adverse repercussions to recreational and First Nation's use of cervids and subsequent negative effects on economies in several jurisdictions.

- Social science is directing further effort into determining probable effects of CWD presence on public understanding, awareness, and attitudes toward control efforts and in turn how this may influence hunter behavior, food safety, and the economy.

Identified needs for future efforts to manage CWD

- improved interagency (state, provincial and federal wildlife and game farm managers, research agencies including those investigating prion diseases such as BSE, public health agencies, first nations) cooperation and coordination.
- development of a quick and sensitive anti-mortem CWD diagnostic test
- much improved methods of enhancing public awareness and understanding of CWD to facilitate efforts and funding directed at CWD control and management.
- development of a broad, long term CWD management approach with best-practice protocols, adaptable to local situations.
- establishment of a trans-border, central agency responsible for coordinating the overall management of CWD.

- investigation of methods to incorporate more holistic approaches to CWD management.
- revisit current regulations governing hunting and game farming to assure compatibility with accepted CWD management protocols.
- develop a consistent message, united voice, or international consensus on CWD because of differing views on the significance of CWD.
- in Canada, include Manitoba, Quebec and BC in future deliberations concerning CWD.
- support research efforts to develop an effective anti CWD vaccine.
- development of a protocol to reduce public exposure to CWD infected animals or meat.

Other specific needs identified by the game farm industry and First Nations

- Alberta elk farmers wish to have the cull program on positive farms discontinued; a national elk registry program; an effective anti-mortem CWD test; improved information on mechanisms of CWD spread; and an effective anti CWD vaccine.
- First nations - request mobile CWD testing sites; specimen storage sites; and short turn-around on test results. They also encourage managers to investigate the use of "natural" medicines in CWD control efforts.

Alberta Chronic Wasting Disease (CWD) Surveillance Update: March 23, 2011

All heads of deer and elk received to date from the fall hunting seasons have been tested, although a few heads continue to dribble into the lab. Herein we provide the summary of the 2010 fall surveillance. However, the ongoing CWD Surveillance Program will continue to test heads whenever they are received throughout the year.

From September 1, 2010 to March 23, 2011 we tested 5062 heads (primarily deer heads) and detected nineteen (0.4%) new cases of CWD in wild deer in Alberta.

! Seventeen of the positive deer were mule deer: twelve males, five females

! The two remaining positive deer were white-tail males

! All positive deer were harvested by hunters and were in very good to excellent body condition.

! All but one positive deer were adults. The remaining positive deer was a yearling in the early stages of infection.

! Many of the infected deer were near previous known CWD cases, largely in the Battle River and Ribstone Creek drainages in the north and the Red Deer River drainage in the south.

! A cluster of infected deer was found north and west of Dinosaur Provincial Park in WMU 152 – a significant extension of the disease westward along the Red Deer River.

! Of particular significance, the positive yearling mule deer buck was the first case of

CWD found in the North Saskatchewan River valley in Alberta. This is strong evidence of recent expansion of the disease into or within the valley.

- As anticipated, additional infected deer were found in CFB Wainwright in association with the Battle River valley.

- The 19 new hunter-kill cases are in addition to the road-kill case found in February 2010, thus the annual total for 2010 is 20 cases.

- Ongoing **NEGATIVE** test results were posted to AlbertaRelm and made available to individual hunters. To date, approximately 50% of the test results have been read by the hunter.

- Ongoing **POSITIVE** test results were provided by phone directly to the hunter who harvested the infected deer.

- As in previous years, hunters who harvest a CWD-infected deer were given the options of

  - keeping the meat

  - turning in the meat and receiving a replacement licence for this year (if the season was still open where the infected deer was harvested)

  - turning in the meat and receiving a replacement licence for next year for the same species and location as the infected deer

- The total number of CWD cases detected in wild deer in Alberta since September 2005 is 94.

- As part of the ongoing provincial surveillance program, we also are testing a random sample of emaciated cervids associated with severe winter conditions occurring in various parts of Alberta

To learn more about CWD in Alberta, visit:

http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/ChronicWastingDisease/

Attention Hunters!

If you have frozen deer heads that you would like to submit to the ongoing CWD surveillance program, please drop them off at any Fish and Wildlife office during regular office hours. For more details, visit:

http://srd.alberta.ca/FishingHuntingTrapping/Hunting/ChronicWastingDisease-InformationForHunters.aspx

CWD Map and Statistics

MAP:

http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/ChronicWastingDisease/CWDUpdates/documents/CWD-PositiveMap-Mar18-2011.pdf

LIST:

http://srd.alberta.ca/BioDiversityStewardship/WildlifeDiseases/ChronicWastingDisease/CWDUpdates/documents/CWD-PositiveList-Mar18-2011.pdf