

REPORT OF THE COMMITTEE ON CAPTIVE WILDLIFE AND ALTERNATIVE LIVESTOCK

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The Committee met on Tuesday, October 22, 2013 at the Town and Country Hotel, San Diego, California, from 8:00 a.m. to 12:47 p.m. There were 40 members and 43 guests present.

Presentations and Reports

Update on *Mycoplasma bovis* Infection in Bison and Cervid Species

Dave Hunter, National Bison Association
Peregrine Wolff, Nevada Department of Wildlife

Mycoplasma bovis infections have resulted in the loss of bison from Western Canada to Oklahoma. Bison losses in the Turner bison herd started in 1999 in yearling animals. Six years later, *Mycoplasma* was the reason for losses in older bison in their New Mexico herds. In 2009 and 2011, two Turner herds suffered a loss of fifteen to twenty percent of the breeding bison cows on infected properties. In 2011 a similar outbreak in Canada reported losses up to 60 percent in many of the breeding herds in Alberta and Saskatchewan. A team of research scientists, regulatory officials, veterinarians, and industry representatives from the U.S. and Canada stated "mycoplasma in bison has become a primary pathogen. It may be the most important disease facing the bison industry". A research project conducted at USDA, ARS identified that *M. bovis* from a combined sample of Canadian and U.S. isolates was able to infect bison without other virus precursors. In cattle, results showed the need for a concurrent inoculation of BVDV to create disease. The efficacy and safety of an autogenous vaccine is currently being investigated.

Mycoplasma bovis has been diagnosed in free-ranging and farmed cervids in a number of states. Lesions described were similar to those reported for *M. bovis* in cattle.

The American Association of Zoo Veterinarians (AAZV) Infectious Disease Committee (IDC) Manual on Infectious Diseases affecting Captive and Free-ranging Wildlife in North America

Dr. Julie Napier, Omaha's Henry Doorly Zoo and Aquarium

In 2006 the European Association of Zoo and Wildlife Veterinarians (EAZWV) published a Transmissible Disease Notebook covering approximately 100 diseases affecting captive and free-ranging wildlife in Europe. It was written and reviewed by approximately 50 zoo and wildlife veterinarians. The purpose was to provide a brief review of infectious diseases in wildlife to both practicing veterinarians and regulatory officials regarding such topics as transmissibility, species affected, and the reportable status in each country, thus enabling them to determine whether to move animals both within a country and between countries, while following established laws and guidelines.

That same year the Infectious Disease Committee (IDC) of the AAZV elected to produce a version for North America and, with the permission of the EAZWV, used their Notebook as a template. In 2011 the

IDC published the first edition of the Manual on Infectious Diseases affecting Captive and Free-ranging Wildlife in North America on the publicly available portion of the AAZV website. It provides two to five page fact sheets on 163 bacterial, fungal, parasitic and fungal diseases affecting wildlife in captive and free-ranging settings. It was written by 106 authors, reviewed by 216 reviewers from the AAZV as well as a number of professional organizations, educational institutions and government agencies. It also provides reportable status in all 50 United States, Canada and Mexico. This manual, designed to be a starting point for information and to provide additional resources on these diseases, works in concert with the European version and is a living document designed to be updated every 18 to 24 months. A second addition is forthcoming at the end of 2013.

The website address: <http://www.aazv.org/displaycommon.cfm?an=1&subarticlenbr=754>

Elephant Care Stakeholders Taskforce, Tuberculosis Update

Kay Backues, Tulsa Zoo

Background:

The Management and Research Priorities of Tuberculosis for Elephants in Human Care Stakeholders Task Force (hereafter, the "Elephant Care Task Force"), ECT for brevity, is a group of specialists in the fields of elephant husbandry, elephant veterinary medicine, elephant management, zoonotic and human infectious disease, public health, and animal sciences. The ECT first convened in 2011 and has since met annually to address questions and concerns over the science and data supporting the 2010 and proposed 2012 USAHA generated, Guidelines for the Control of Tuberculosis in Elephants, hereafter referred to as 'The Guidelines'. The ECT meetings have been sponsored by the AAZV, EMA, IEF, Feld, and the Zoos that have hosted the meetings; Fort Worth-2011, Tulsa 2012, Pittsburgh-2013. These meetings have been by invitation only and have brought together professionals representing all aspects of the industry that work with elephants. The meetings have not always produced consensus but have produced actionable items, highlighted areas for future research and sought evidence based medicine solutions in regard to elephant treatment and diagnosis.

The ECT believes that the 2010 and 2012 Guidelines, which are a significant departure from the 2008 Guidelines, raise serious procedural, public policy, scientific, veterinary and legal issues. Furthermore they do not support or further enhance elephant health and welfare. The 2010 and 2012 Guidelines would result in the unnecessary and unfair restrictions on the movement of animals in interstate commerce, and breeding, as well as the unnecessary and in some cases harmful treatment of animals that do not actually have disease and present no disease risk to other animals or to the public. The Guidelines would have a disparate impact on traveling elephant exhibitions and such impacts need to be fully considered and justified.

Currently the USDA is using the 2008 Guidelines and the 2010 Guidelines are under consideration. The 2012 Guidelines produced by USAHA elephant TB subcommittee are still under review by that USAHA subcommittee. The ECT has submitted lengthy reviews with recommendations to both groups about the 2010 and 2012 guidelines respectively.

Current Statements from the ECT:

1. While tuberculosis is a serious disease that can and does impact the welfare of elephants, experience indicates that it is manageable under the current 2008 Guidelines and that continued scientific inquiry and study is appropriate.

2. Current data indicates tuberculosis in elephants has a low infectivity and a low prevalence in the current captive elephant population, ~8 % with 2-3 new cases a year. (Feldmen 2013).

3. The frequently cited literature, Greenwald 2009 reports the sensitivity, Se and specificity, Sp of the Chembio serologic tests as a 100% for a small population of known status animals, i.e. samples from animals that had been confirmed with *Mycobacterium tuberculosis* (Mtb) infection via microbial culture. However no paper has reported the true Se and Sp in the entire captive population, where individual animal's infection status cannot be determined. The Greenwald 2009 paper is cited erroneously in the Guidelines and other papers and can cause misinterpretation of testing results for elephants whose true status cannot be confirmed via culture.

4. The ECT has sent a resolution with four parts to the USAHA Committee on Tuberculosis and the USAHA Committee on Captive Wildlife and Alternative Livestock.

a. USAHA to recommend to the USDA to postpone implementation of the 2010 guidelines, until a complete review of all submitted comments, new research and ECT recommendations can be completed.

b. USAHA to recommend to the National Assembly of State Animal Health Officials (NASAHO) endorsement of the USAHA 2008 Guidelines for the Control of Tuberculosis in Elephants as the most current guidance for issues related to importation and movement of elephants across state lines.

c. In light of the critical role and valuable input of the American Association of Zoo Veterinarians (AAZV) in developing the original 2008 Guidelines for the Control of Tuberculosis in Elephants, the United States Animal Health Association urges the USAHA Elephant Tuberculosis Subcommittee and the USDA to collaborate with the AAZV and the ECT in the review of the 2010 and 2012 proposed Guidelines to ensure that they reflect the best science, data and research available and incorporate stakeholder input.

d. The United States Animal Health Association directs the USAHA Subcommittee on Elephant Tuberculosis to conduct a de novo review of the 2010 and 2012 versions of Guidelines for the Control of Tuberculosis in Elephants. The subcommittee should encourage compliance with regulatory bodies consistent with the 2008 Guidelines until such a review is complete.

The ECT has been funding independent research and inquiry to help answer some of the questions associated with mycobacterium tuberculosis (Mtb) disease in elephants. These projects include:

1. An industry wide epidemiological survey of tuberculosis in captive elephants at U.S. facilities. This is currently underway with expected completion sometime in late 2014.

2. An evidence based review of all published elephant Mtb diagnostic papers. This paper is in its final review by authors with expected submission for publication in late 2013 or early 2014.

3. Evaluation of other Mtb diagnostics that may have potential as tools for the diagnosis of Mtb in elephants, such as GeneXpert, IGRAS, High definition cytometry and other antigen, agent based testing. A group within the ECT participants has been tasked with a research and proof of concept proposal for a nucleic acid amplification study to be submitted for review to the ECT meeting in 2014.

4. Development of a fact sheet for state veterinary health officials containing referenced human and livestock health risk information. Provide this fact sheet quickly and easily to state animal health officials and provide contacts for further questions.

The members and sponsoring institutions of the ECT are committed to pursuing answers to the questions and problems the presence of Mtb in captive elephants pose. The ECT supports the best health and welfare decisions for elephants in human care in the U.S., having all members of the elephant community at the table for open discourse and facilitating the dissemination of information about the disease to regulatory and public health care providers.

USDA Contingency Planning and Training through Partnerships

Yvonne Nadler¹, Y. Johnson-Walker², S. Olson³, and J. Briscoe⁴

¹Lincoln Park Zoo; ²Department of Veterinary Clinical Medicine, University of Illinois; ³ Association of Zoos and Aquariums; ⁴United States Department of Agriculture, Animal Care.

When compared to traditional agricultural species, captive wildlife and alternative livestock are a small percentage of the total number of animals in the United States. However, they may have irreplaceable genetic or monetary value. They may be part of a zoological park, cherished by members of an entire community. Given the unique requirements of some of these species, traditional contingency planning tools and training may not address all the needs of these animals and their caretakers.

This presentation will update the audience on projects of interest to stakeholders in the captive wildlife-alternative livestock communities. Funded by United States Department of Agriculture (USDA), Animal Care, these projects were designed to a) provide guidance for all hazards contingency planning for managed wildlife; b) provide opportunities for collaborative discussion across the industries; and c) provide Incident Command System training and a chance to use that knowledge in a functional internet exercise. Partnerships between USDA, Association of Zoos and Aquariums, University of Illinois and others made the project goals achievable. The audience will be given an update on future collaborative opportunities

CervidTB Stat Pak® and DPP Testing in 2013

Lee Ann Thomas, USDA-APHIS-VS

In late 2012 Veterinary Services approved two new serological tests for TB in cervids: The Stat-Pak and the dual-path platform (DPP). The testing protocol was published in a VS Guidance Document and in an Interim Rule to the 9CFR. Three webinars to inform animal health officials, private practitioners, and cervid producers were presented. National Veterinary Services Laboratory (NVSL) began testing cervid blood serum samples collected by private practitioners in February, 2013. Animals testing positive to first

Stat-Pak and DPP tests were retested after 30 days with the DPP. If the second DPP is positive, animals are classified as reactors and may be indemnified and submitted for necropsy and sample collection for TB testing. The DPP tests, which resulted positive, produced a line on the cassette and were being read visually as negative or positive per test kit instructions. A colorimetric reader was also being used in the laboratory to obtain a numerical optical density (OD) reading for visually positive samples. This data was recorded and kept for future use and analysis. During the spring cervid TB testing season, 5,214 cervids of five species have been tested from 25 states. White tailed deer were the largest number of any species tested and represented the largest number of reactors. Forty four necropsies have been conducted on white tailed deer, elk, and fallow deer. No lesions typical of TB were found on the necropsies and to date, 29 samples have been negative on culture and 13 cultures are pending. APHIS-VS recognizes that a larger number of positive tests and false positives have occurred than expected based on our data from the test validation studies and previously published scientific papers. The statistical analysis on our testing data performed by USDA's Centers for Epidemiology and Animal Health indicates that with a test combination specificity of 97.7% and a sensitivity of 77% we can be 95% sure that the cervid population prevalence of TB is less than 0.29%. The DPP reader OD values from retrospectively tested banked serum samples of known infected animals and presently tested negative animals were analyzed statistically. The statistical analysis allowed for negative/positive OD numerical cutoff values to be determined giving an acceptable sensitivity and specificity for the tests. A new testing protocol using the DPP test OD numerical values and established cutoff points for calling a test negative or positive was developed. There were still 12 living reactor animals and after reclassification, two remained as reactors based on the new OD cutoff values. Of 23 suspect animals remaining, only one animal remained as suspect. The new protocol and supporting information and statistical analysis was submitted to the USAHA Tuberculosis Scientific Advisory Subcommittee for review and comment.

Goals for CWD Herd Certification Program

Lee Ann Thomas, Ruminant Health Programs, USDA-APHIS-VS

An overview was presented of the voluntary national Chronic Wasting Disease (CWD) herd certification program for farmed deer, elk, and moose as well as established minimum standards for interstate movement of cervids. The purpose of the Herd Certification Program (HCP) is to provide clarification and guidance on how to comply with and meet requirements of the CWD rule and contains two Parts: Part A – Herd Certification and Part B – Guidance on Response to CWD-affected herds.

Funding for the program is through APHIS-VS Equine, Cervids, Small Ruminants (ECSR) Commodity Health Line which funds essential activities for surveillance and program operations with flexibility to respond to new and emerging health concerns.

A review of the FY 2013/14 Program Activities of APHIS-VS which included federal oversight of the voluntary national CWD HCP as well as the principle activities conducted that pertain to the HCP.

Based on available resources, APHIS will serve in an advisory capacity to Approved States for 1) epidemiological investigations of positive findings; 2) development of herd plans (newly infected herds); 3) quarantine, depopulations, cleaning and disinfection; and 4) assistance with annual herd inspections and tri-annual physical herd inventories.

FY 2013/14 Program Activities required for Approved States included 1) compliance with CWD rule; 2) annual reports; 3) management of HCP data; 4) reporting positive cervid herds to APHIS; 5) respond, investigate, and manage any positive, suspect, and exposed animals/herds; and 6) develop herd plans for positive/exposed herds.

The CWD Interim Final Rule (CWD Herd Certification Program and Interstate Movement of Farmed or Captive Deer, Elk, and Moose) was published in the Federal Register June 13, 2012 with a public comment period. The effective date of the rule was August 13, 2012.

Part 81 of the Rule delayed enforcement until December 10, 2012. Public comments have been considered and affirmation of a final rule is in development. The Revised federal rule applies only to the following genera known to be susceptible to CWD by natural infection including, *Cervus* (elk, red deer, sika deer), *Odocoileus* (white-tailed deer (WTD), mule deer (MD), black-tailed deer (BTD) and *Alces* (moose). States may have requirements for other cervid species.

The objectives of the CWD rule are to 1) provide uniform minimum requirements for state CWD herd certification programs (HCPs); 2) provide uniform minimum requirements for interstate movement of CWD susceptible species; 3) provide a regulatory framework to support domestic and international markets for

farmed cervids and cervid products; and 4) provide a consistent approach towards minimizing risk of introduction and transmission of CWD in cervid populations.

Provisions of the CWD rule include 1) Part 55 (Subpart A): Indemnity, Laboratory Approval, Official Laboratory Testing; 2) Part 55 (Subpart B): Voluntary national Approved State CWD HCP for farmed cervids (deer and elk) (fencing requirements, animal ID and herd inventory requirements, surveillance - testing mortalities >12 months, and herd status – based on years of surveillance and participation in HCP), 3) Part 81: Interstate movement minimum requirements) establishes minimum requirements for interstate movement of cervids. The CWD rule does not include international movement regulations.

States having a CWD HCP may request federal approval of their State program which will be approved by APHIS in accordance with CWD rule (9 CFR 55.23). As of October 2013, there are 29 Approved State HCPs. Approved states must have a signed memorandum of understanding (MOU) with APHIS that addresses 1) authority to restrict animal movement; 2) enforces and monitors quarantines; 3) surveillance and disease reporting capability; 4) animal identification; 5) designated CWD HCP coordinator; 6) mortality surveillance; 7) recordkeeping and data management; 8) ability to conduct epidemiologic investigations; 8) education/ outreach for producers; 9) herd plans (CWD positive/exposed herds); and 10) annual reports to renew Approved status.

Herd owners already participating in State CWD programs will keep initial State enrollment date (first date of participation) when State is designated an Approved State CWD HCP. There is no available funding projected for FY2014 to support direct herd owner enrollment in the national program. Herd owners must comply with animal identification, fencing requirements, reporting escapes & mortalities and mortality testing for certified status, herd records and inventories, separation from other herds, and status of herd additions.

A CWD Working Group was formed to review and provide input on revisions to the CWD Program Standards (2012 USAHA Resolution). Members included representatives from the cervid industry, state animal health officials, state wildlife agencies/ Association of Fish and Wildlife Agencies (AFWA), and diagnostic laboratories (AAVLD/NAHLN), and APHIS-VS. Meetings were conducted through weekly teleconferences and topics discussed included – physical inventory, sample collection, missing samples, reporting mortalities and escapes, transiting, herd plans, trace outs, animal identification, fencing, and interstate movement.

Further information can be found at: http://www.aphis.usda.gov/animal_health/animal_diseases/cwd.

A Review of the Orbivirus Gap Analysis: Conclusions and Research Recommendations

William Wilson, Center for Grain and Animal Health Research, USDA-APHIS-ARS

Bluetongue and epizootic hemorrhagic disease viruses are of concern to livestock producers in North America because of 1) the emergence of new serotypes; 2) increased reports of spill over and clinical disease in cattle; and 3) increased spread and adaptation to new geographical areas. Accordingly, USAHA passed Resolution 16 in October 2012, requesting the United States Department of Agriculture (USDA), and the United States Department of Interior (DOI) to arrange a diversified blue-ribbon panel (including: industry stakeholders, university and federal researchers, federal and state regulatory agencies) to determine research needs and identify and prioritize intervention strategies.

In response to USAHA Resolution 16, the USDA in collaboration with the DOI, organized a gap analysis workshop comprised of international experts on Orbiviruses. On May 14-16, 2013, at the Arthropod-Borne Animal Diseases Research Unit, in Manhattan, Kansas, the Orbivirus Working Group (OVWG) conducted a gap analysis workshop of the available scientific information and assess countermeasures to effectively control and mitigate the impact of an outbreak of an emerging Orbivirus with epizootic potential, with special emphasis given to bluetongue virus (BTV) and epizootic hemorrhagic disease (EHD) virus. The OVWG will prepare a report that will 1) define the threat; 2) provide a gap analysis of our knowledge of animal orbiviruses; 3) identify priority research needs; and 4) provide an in-depth analysis of available countermeasures to contain and mitigate the threat.

Results from the workshop included recommendations on diagnostic testing, vector control, and vaccines. A number of Working Groups (Virology, Diagnostics, Epidemiology, Vector Control, and Vaccines) were formed and also provided specific recommendations. Research gaps relative to EHDV vaccine development were also identified.

Further information can be found at: www.ars.usda.gov/OrbivirusesGapAnalysis.pdf.

Committee Business:

There was one resolution presented and passed by the Committee regarding a National Review of Research Needs for Chronic Wasting Disease. The resolution was submitted requesting that the USAHA request the USDA, and the U.S. Department of Interior (DOI) to arrange a diversified blue-ribbon panel (which would include industry stakeholders, university and federal researchers, and Federal and State regulatory agencies) to determine research needs and identify and prioritize intervention strategies for the control of Chronic Wasting Disease. The resolution was moved by member Warren Bluntzer and seconded by Glen Zearth, and forwarded to the Committee on Nominations and Resolutions.

There was one recommendation presented and voted upon by the Committee as follows:

Formation of a Committee on Farmed Cervids

A recommendation was presented to the Committee on Captive Wildlife and Alternative Livestock to create a new Committee on farmed cervidae. The motion to form the new Committee was moved by Richard Winters and seconded by Paul Anderson. A vote following discussion was tied 13 to 13. Attached is a copy of the recommendation with some preliminary edits in track changes. It was felt by many of the Committee members that if this committee was approved that there should be some significant modifications to the mission statement, which was proposed as follows:

Background:

The farmed cervidae industry is unique in that producers deal with diseases, regulations and political issues which are unlike any other animal agricultural industry.

To effectively address these issues requires a national forum for discussion. The creation of a new USAHA committee where farmed cervidae producers can work together with state and federal regulatory officials and scientists to solve the problems faced by the industry is critical.

Mission:

“The purpose of the Committee on Farmed Cervidae is to provide a national forum to (1) discuss scientific, regulatory and political issues affecting the farmed cervidae industry, (2) evaluate state and federal regulatory programs, (3) develop effective programs to control diseases, and (4) recommend regulatory programs that contribute to the growth and prosperity of the farmed cervidae industry while mitigating disease risks.”

The Committee adjourned at 12:47 p.m.