

## REPORT OF THE COMMITTEE ON CAPTIVE WILDLIFE AND ALTERNATIVE LIVESTOCK

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The Committee met on October 11, 2009 at the Town and Country Hotel, San Diego, Calif., from 12:30 -5:00 p.m. There were 37 members and 21 guests present.

**Update on Animal Care, USDA** was presented by Dr. Chester Gipson, USDA-APHIS, Animal Care (AC). Animal Care is the unit within USDA's Animal and Plant Health Inspection Service (APHIS) responsible for enforcement of the Animal Welfare Act (AWA) and the supporting regulations, as well as the Horse Protection Act (HPA) and the supporting regulations. There are several regulatory changes proposed with the intent to address issues and improve the welfare of animals covered by the AWA. Some of the proposed changes are: contingency plan requirement for licensee to better prepare for disasters; safe handling requirements for certain species to address safety issues when handling potentially dangerous species by requiring a shift cage; minimum age requirement for the transport of animals to address the dangers and health risk to animals transported without the mother at too young an age; submission of itineraries so USDA will know the location of animals with traveling exhibitors; removal of the acclimation certificate and require the owner to sign the certificate rather than a veterinarian; veterinary medical records be kept for each animal; standards for birds that are now covered by the AWA; amendment to the regulations to prohibit the importation of dogs less than 6 months of age with exception for the state of Hawaii as long as they are not imported for resale at less than 6 months of age. The Department is also evaluating a petition received from In Defense of Animals to promulgate regulations to address space requirements and hoof care for elephants.

There has been a policy change on the tuberculosis (TB) test guidelines for elephants. At the 2008 USAHA meeting, the TB test guidelines were updated and approved and USAHA requested that APHIS adopt the updated version. The updated guidelines incorporate a new blood test, the elephant TB Stat-Pak and the MAPIA, in addition to the trunk wash protocol. Testing and implementation protocols are under review and guidelines, when finalized, can be found at: [www.aphis.usda.gov/animal\\_welfare/](http://www.aphis.usda.gov/animal_welfare/) under "Publications and Reports."

APHIS has collaborated with the Lincoln Park Zoo's Davee Epidemiological Center to develop a surveillance and outbreak management plan for Foreign Animal Diseases (FADs) in zoos that might affect the zoo's collection. The Davee Center has organized an operation unit to administer surveillance and outbreak plans for HPAI and other reportable diseases that could affect zoo collections. The Center has also developed training modules for surveillance of HPAI and other FADs. Pilot surveillance programs are expected to begin in zoos this fall.

APHIS has established a Center for Animal Welfare located in Kansas City, Missouri. With the increased public awareness and emphasis placed on animal welfare, the Agency recognized the need to

provide better support to the regulated community. A few of the activities the Center will engage in are these: provide experts in the field of animal welfare to serve as both a national and international resources; assist states and organizations with performing an analysis of their animal welfare regulations; conduct field studies, including the evaluation, development, and appropriate use of technology, to support the well-being of animals; identify and track emerging issues related to animal welfare and where appropriate, analyze and develop policy related to those issues; engage in capacity building in the international community for animal welfare; and provide Center personnel to work with universities, federal, state and local governments, industry, and animal advocacy groups to create partnerships and joint programs. We anticipate the Center being fully operational in 2010.

**Chronic Wasting Disease National Program Update** was presented by Dr. Dean Goeldner, National Center for Animal Health Programs, USDA-APHIS. In FY 2009 APHIS received approximately \$17 million in appropriated CWD funding, including \$1.5 million in congressional earmarks.

APHIS-VS Program for Captive and Farmed Cervids

CWD rule update: The proposed supplemental rule for CWD was published for comment in the Federal Register on March 31, 2009. The proposed rule preserved the principle of federal preemption regarding interstate movement restrictions for CWD but did not affect state movement restrictions for other reasons. It also increased the surveillance requirement for interstate movement to 5 years, or certified status in the program. Finally, it proposed to create a 25 mi/40 km proximity standard to occurrences of CWD in wild cervids for those states seeking additional risk mitigation. Other issues such as inventory, quarantine, DNA comparison and wildlife surveillance requirements were also addressed.

APHIS is drafting responses to the comments received and is discussing internally what direction the revised final rule will take. Issues that may impact the revised final rule include the president's memo on federal preemption dated May 20, 2009; budgetary constraints; the 2015 vision for Veterinary Services; and the need to create a truly cooperative state-industry-federal program that works for all stakeholders.

APHIS intends to publish and implement the revised final CWD rule in 2010.

Testing: In FY 2009, 23,652 farmed and captive cervids were tested for CWD using immunohistochemistry. This continues an increasing trend that is likely the result of industry growth and stricter enforcement of state regulatory programs.

Status: Five positive farmed cervid herds were detected in FY 2009: Two white-tailed deer herds in Wisconsin, one elk herd in Minnesota, and two elk herds in Colorado. The Wisconsin and Minnesota facilities have been depopulated. This brings to 47 the number of positive herds that have been identified since 1997. At this time, six positive elk herds remain in Colorado. Also, CWD was detected at slaughter for the first time in FY 2009. VS continues to offer indemnity and cover depopulation, disposal and testing costs for CWD-positive and exposed herds and trace animals.

**Sensitive Detection of PrP<sup>CWD</sup> in Rectoanal Mucosa-Associated Lymphoid Tissue from Preclinical White-Tailed Deer** was presented by Dr. David Schneider, USDA, ARS. Diagnosis of transmissible spongiform encephalopathies relies upon sensitive detection of disease-associated prion protein (PrP<sup>Sc</sup>) in brain or lymphoid tissues [for example, the obex and medial retropharyngeal lymph node (RPLN), respectively]. Live animal testing for scrapie disease in sheep has included evaluation of biopsy samples of the tonsil, third eyelid lymphoid tissue and rectoanal mucosa-associated lymphoid tissue (RAMALT). Similarly, diagnosis of chronic wasting disease (CWD) in live elk by detection of PrP<sup>CWD</sup> in biopsy samples of RAMALT has recently been described.

This report summarizes the comparative diagnostic performance of postmortem RAMALT sampling in four white-tailed deer test populations: from Wisconsin, 210 free-ranging deer and a captive herd of 76; and from Saskatchewan, Canada, two captive herds (122 and 385, respectively). Deer were diagnosed as CWD-positive if PrP<sup>CWD</sup> was detected in any nervous system or lymphoid tissue. The apparent prevalence of disease in these test populations ranged from 6% in the sampled free-ranging deer to 21-79% in the captive herds. None of the deer were demonstrating signs consistent with CWD.

The overall tissue-specific test sensitivities were (simple mean  $\pm$  sd, n = 4 test populations): RPLN, 0.95  $\pm$  0.05; tonsil, 0.86  $\pm$  0.10; RAMALT, 0.80  $\pm$  0.09; obex, 0.66  $\pm$  0.18. Test sensitivities were generally lower for captive herd deer having at least one PRNP G96S allele (n = 3): RPLN, 0.87  $\pm$  0.18; tonsil, 0.66  $\pm$  0.15; RAMALT, 0.58  $\pm$  0.10; obex, 0.34  $\pm$  0.15. False negative RAMALT results were associated with early disease progression (n = 4), as assessed by PrP<sup>CWD</sup> accumulation scores in RPLN or obex, and/or the PRNP G96S allele (n = 2 of 3). As determined in two of the captive herds, the proportion of CWD-positive

RAMALT follicles were generally lowest in deer early in disease progression and/or heterozygous at *PRNP* codon 96. And, as expected, variation in the proportion CWD-positive RAMALT follicles was inversely related to the total number of observable follicles per sample.

For general usage these comparisons for samples collected postmortem suggest diagnostic evaluation of RAMALT samples in white-tailed deer would have intermediate test sensitivity as compared to evaluation of RPLN and obex. While many factors may influence actual test performance, early stage of disease progression and the *PRNP* G96S allele are two that were associated with lower test sensitivities.

**Resistance of Fallow Deer (*Dama dama*) to Chronic Wasting Disease Under National Exposure in a Heavily Contaminated Environment** was presented by Dr. Jack Rhyan, USDA, APHIS. Between 2000 and 2007, 25 fallow deer were placed in a CWD contaminated pasture and exposed to CWD infected mule deer. Eighteen fawns were born in 2002. Of the 41 mule deer that rotated with the herd during this time, 35 were diagnosed with CWD. None of the 43 fallow deer were found to have CWD. This study suggests that fallow deer appear to have resistance to CWD infection under natural exposure in a heavily contaminated environment

**Scimitar-Horned Oryx Project Senegal Update** was presented by Mr. Charly Seale, Exotic Wildlife Association.

**History of the Game Ranching Industry:** The newly emerging exotic animal business was a way during the drought of the 50's and falling cattle, sheep, and goat prices to save many failing ranches. The term exotic rancher began to catch on as many ranchers/farmers across Texas and many states throughout the U.S. began to see this new industry as a way to cash in and diversify their traditional livestock ranches and farms. In the early 1970's the Texas Legislature, through lobbying from the EWA, classified Exotic Hoofstock as livestock. What this did was to take the regulatory authority away from the Texas Parks and Wildlife Dept. and place it under the Texas Animal Health Commission. This gave the ranchers the ability to buy, sell, and trade these animals without the undo burden of governmental regulations. This caused these animals to flourish in a landscape and environment that was very similar in nature to their own native lands.

**Beginning of Game Ranching/Farming:** The first exotics and game ranching in the United States began as far back as the 1700's when George Washington began to raise fallow and red deer on his plantation in Mount Vernon along the Potomac River, just outside the District of Columbia. First exotics in Texas date as far back as the 1800's when the United States Cavalry brought Camels to Camp Verde, Texas as an experiment in apprehending Comanche Indians. The actual first conservation efforts by private individuals dates back to the late 1800's and early 1900's when the U.S. government turned the propagation of the American Bison over to private individuals. With the government out of the way, the decimated herds of Bison were brought back from near extinction to the millions of animals that exist today.

**Modern Day Conservation Efforts-Exotic Wildlife Association/Sahara Conservation Fund:** Early 1970's over 100 blackbuck antelope and axis deer were shipped back to their native land of India and Pakistan for propagation. This was one of the first conservation efforts of the Exotic Wildlife Association.

**Dubai project-Nov 2003:** Negotiation efforts with the country of Dubai - January-February 2005-acquired 44 Dama Gazelle, 40 Addax, 35 Markhor, 10 Scimitar Horned Oryx-captured from private Texas ranches, crated and readied for shipment to the country of Dubai. 15 Hour flight once animals were loaded on a plane in San Antonio, Texas to New York and then on to their final destination at a game preserve in Dubai. All animals were in excellent condition upon their arrival in Dubai. The shipment was accompanied by our EWA Conservation Project Chairman, Sahara Conservation Fund representative, and a specially selected veterinarian.

**Senegal Project-December 2005:** April 2007-Exotic Wildlife Association and the Sahara Conservation Fund sign Memorandum of Understanding to become partners in the Senegal project and future repatriation projects. July 2007 negotiations begin with the officials of the Senegal government totally bypassing the mediator for the director of preserves-it is learned at this time that he really had no negotiating power anyway. September 2007 Conservation Project Chairman and CEO of Sahara Conservation Fund travel to Dakar, Senegal to negotiate directly with Senegal government officials, attempt to secure permits from their government, and tour two preserves where U.S. animals will be taken. The Guembeul Preserve consists of approximately 1500 acres. There are no pens and the animals, which consist of several different species, are allowed to free-range within this enclosure. The second preserve located in St. Louis, Senegal is the Katane Preserve which is also an open high fenced preserve consisting of 1200 acres. After the Senegal Government accepted EWA's proposal which consists of 12 Scimitar Horned Oryx all DNA tested for purity

and enough money to feed the animals for three years, and issues the import permits it will take another six to nine months for US Fish and Wildlife to issue the export permits. Because the animals in both the Guembeul and Katane Preserves are open preserves where the animals are allowed to roam together, EWA proposed fencing the interior where the animals could then be separated by species.

**Phase I Begins-Fencing the Guembeul and Katane Preserves:** Details had to be worked out locating the exact areas to be fenced within Guembeul and Katane Preserve. Once the locations of the fence was located the proper governmental permits had to be obtained. Fencing supplies were either purchased for the project or were donated by American suppliers. The fencing supplies were carefully selected for durability and had to be properly loaded and cared for during shipment. All supplies were inventoried and packed into steel shipping crates. Security and a complete inventory were essential to this project because of the cost of materials. EWA officials made an accurate accounting of the materials before they were shipped and then checked each loaded crate once it arrived in Saint Louis, Senegal.

A representative for the Exotic Wildlife Association and Sahara: Conservation Fund stayed on site training local workers and overseeing the construction of the fencing project. Instructing the local work force in the proper procedure for building the fence was the toughest part of the job. The strict parameters set out by the Senegal Government concerning the construction of the fence were stringently enforced. Four months after the project began the first phase was finally completed. The second phase, actually sending animals back to the preserve, will begin in the coming months. This will be the most expensive part of our conservation efforts but will hopefully be the groundwork for many conservation programs with the Senegal as well as other African governments.

**U.S. Captive Bred Species:** The Exotic Wildlife Association, which has over 3700 members, raises more numbers of rare and endangered hoofstock than any other association in the world. Exotic Game Ranching in Texas is a 1.3 million dollar business per year and Texas ranchers propagate approximately 100 different species of exotic hoofstock. The number of exotic hoofstock owned by private individuals within the state of Texas is estimated between 275,000 to 300,000 animals. The future of this industry, as well as the captive animal industry, is very bright with one caveat. The threat from sportsmen in this country who are simply misinformed about captive breeding as well as Animal Right's Activists who simply want to impose their beliefs on private citizens are the two primary causes that will bring this industry down and destroy the very animals they want to protect. We should have learned our lesson from the protectors of the American Bison and see what happens when conservation is left in the hands of the private sector. The endangered species act, which was originally passed to protect rare and endangered animals, is actually causing the demise of many of the species it was designed to protect. This law is in dire need of major overhauling. Unfortunately the U.S. Congress, when passing the ESA, did not take into account U.S. captive bred animals and private breeders when passing the act. Many of the countries that are home to these endangered species no longer care about their existence. They can barely feed their own people much less the animals. Most agree many of these species are extinct or on the verge of extinction in their native lands but flourish by the thousands in this country because of private ownership. This is why we need the exemption from the endangered species act for all U.S. captive bred animals. U.S. breeders have shown what can be accomplished when conservation is left in the hands of the private sector. The Scimitar Horned Oryx, extinct in the wild in its native land, has flourished in the U.S. There are over 8,000 in Texas alone. Give animals value and they will flourish. Make the bureaucratic red tape so cumbersome for raising these animals and you will see their eventual demise.

**Use of Non-Serological Samples for Rapid TB Diagnostic Tests** was presented by Dr. Konstantin Lyashchenko, Chemobio Diagnostics, Inc. Antibody detection assays constitute an attractive alternative to the existing methods of testing for tuberculosis, such as the tuberculin skin tests, to quickly identify infected animals. In certain situations, however, fresh blood samples cannot be collected for various reasons. Human tuberculosis research demonstrated the feasibility of antibody detection from other than blood-derived specimens. Our pilot study using several immunoassay formats (Rapid Test, Dual Path Platform, and Multiantigen Print Immunoassay) shows that antibodies against multiple proteins of *Mycobacterium bovis* can be easily found in extracts obtained from muscle tissue or lymph nodes of experimentally infected cattle or deer, but not in saliva, urine, bile, or aqueous humor. The antibody levels and antigen recognition patterns found in these alternative specimens were comparable to those observed in serum samples from the same animals. The utility of this approach was further validated using lung fluid from a captive Asian elephant which died of *M. tuberculosis*, lung and pericardial fluids from wild lions infected with *M. bovis*, and thoracic samples obtained from badgers found dead. The use of non-serological specimens for antibody-

based assays may be a useful option for wildlife surveillance/diagnosis in multiple species when blood is not available or cannot be obtained.

**Response of Sensitized Elk to Single Cervical Tuberculin (SCT) and Comparative Cervical Tuberculin (CCT) Tests** was presented by Dr. Shylo Johnson, USDA-APHIS, NWRC. Elk, *Cervus elaphus*, are subject to the regulations concerning intradermal tuberculin testing under the USDA's uniform methods and rules for the eradication of bovine tuberculosis. Though the single cervical tuberculin (SCT) and comparative cervical tuberculin (CCT) tests are approved methods of anti-mortem detection of *Mycobacterium bovis* infection, few studies quantify the response of elk to these tests. Furthermore, results are acquired after the injection sites are palpated and measured at 72 hours post injection requiring rehandling of the animals. Infrared thermography, the remote measure of surface temperature, may be able to reduce the time to results and eliminate the second handling of the animals by measuring temperature changes associated with inflammation at injection sites. Our objective was to examine the response of sensitized and non-sensitized elk to the tests by palpation, skin thickness measurement and IRT.

To this end, 10 elk were sensitized to *M. bovis*, 9 elk were sensitized to *M. avium* and 19 elk were not sensitized. The sensitized elk were tested 119 or 120 days after injection of 0.1 ml derivatives of the selected bacterium. The animals from the three different groups were randomly divided into two blocks; block 1 received 0.1 ml of 2 mg/ml of the purified protein derivative (PPD) and block 2 received 0.1 ml of 1 mg/ml of the PPD for the SCT test. Testing of block 1 was offset by one day from block 2 testing. The SCT and the CCT were conducted concurrently on each animal on the right side and left side of the neck, respectively. In addition to the PPD injections sites which were measured for skin thickness and palpated, two additional sites for the SCT and CCT were measured and palpated, a saline injection site and a control site. IRT images were taken at 0, 10, 24, 48, and 72 ± 3 hrs post injection of all sites.

No significant difference ( $\chi^2=1.09$ ,  $P=0.78$ ) for detecting a response occurred between the two different concentrations of the PPD for the SCT. Increase in skin thickness for the SCT ranged from 0.0 mm to 8.5 mm and the mean for sensitized animals at the PPD injection site was 3.0 mm (± 0.5 SE). Based on palpation results, 78.9% of the sensitized elk and 36.8% of the control elk had a response to the PPD injection on the SCT. For the CCT, skin thickness increased from 0.0 mm up to 10.0 mm. The mean at the bovine PPD site was 4.1 mm (± 0.9 SE) for *M. bovis* sensitized, 1.8 mm (± 0.4 SE) for *M. avium* sensitized, and 0.9 mm (± 0.1 SE) for the control elk. Ninety percent (9 of 10) of *M. bovis* sensitized were suspects or reactors. Of the 9 elk that had *M. avium* sensinogen and of the 19 elk that were controls, 26 plotted in the negative zone for *M. bovis* and 2 of the control elk plotted in the suspect zone for 92.9% specificity. Preliminary IRT analysis has not indicated any significant temperature changes associated with the different sites.

The changes due to the PPD injections are often small and changes in the concentration of the PPD for the SCT did not result in significant changes in detecting a response. The small changes, however, may mean less inflammation that could be masked by ambient conditions making IRT difficult to use on elk.

**Anthrax Outbreak – An Unexpected Predator** was presented by Dr. David Hunter, Turner Enterprises Inc. In July 2008, an outbreak of anthrax occurred in a herd of 5000+ bison on an 18,000 acres pasture in Montana. Primary findings were acute death and splenomegaly on necropsy. Rutting bulls had the highest rate of mortality (39%) with a total herd mortality of 5%. In addition to bison, bull elks were also found dead on the ranch. A rapid field test for biological weapons was used to confirm diagnosis in the bison.

Dead bison were buried and decontaminated. The affected pasture was fenced off and remaining bison moved and fed medicated feed. Bison were vaccinated with an attenuated live anthrax vaccine (double dose) using a pneumatic injector in the neck. Serum titers peaked at 2 months post-vaccination but persisted for 10 months above baseline.

**Epizootic Hemorrhagic Disease – An Update** was presented by Dr. David Stalknecht, University of Georgia. David Stallknecht gave an update on bluetongue and epizootic hemorrhagic virus isolations during 2008 and 2009. In 2008, isolations were made from wild and captive white-tailed deer in Arkansas (BTV-3), Indiana (EHDV-2), Kansas (EHDV-2, EHDV-6), and Texas ((EHDV-1, EHDV-2, EHDV-6, BTV-12, BTV-17). As of October 9 this year (2009), viruses have been isolated from white-tailed deer in Florida (EHDV-2), Kansas (EHDV-2), Louisiana (EHDV-2), Michigan (EHDV-6), Missouri (EHDV-2), Tennessee (EHDV-2), and Texas (BTV-17). BTV-3, BTV-12, and EHDV-6 all represent viruses that were not know to occur in the

United States prior to 1999 (BTV-3), 2006 (EHDV-6), and 2008 (BTV-12). There have been multiple isolations of BTV-3 and EHDV-6 suggesting that these viruses are established.

**Committee Business:** No resolutions or other business was brought to the committee.