REPORT OF THE COMMITTEE ON WILDLIFE DISEASES

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The Committee met on Tuesday, October 17, 2006 at the Minneapolis Hilton Hotel in Minneapolis, Minnesota. Approximately 114 people, including 44 committee members, attended the meeting. Reports were provided concerning ongoing and emerging wildlife health issues of interest to the United States Animal Health Association (USAHA) and its members. Summaries of these reports follow.

Dr. Robert Cook, Wildlife Conservation Society reported on International Wild Bird Avian Influenza Virus (AIV) Surveillance to the committee, including wild bird global avian influenza (AI) network for surveillance (GAINS). The Wildlife Conservation Society (WCS) operates five parks in the City of New York including the Wildlife Centers at Central Park, Queens and Prospect Park, the New York Aquarium and the Bronx Zoo. In addition WCS manages some 400 conservation projects in 60 countries around the world. The Field Veterinary Program (FVP) of the Wildlife Health Sciences Division of WCS is active on four continents and performs community-based wildlife population health monitoring and surveillance. This on-the-ground commitment to assessing the long term health of wild populations provides critical information that can serve as an early warning system for the emergence of new and renewed pathogens at the domestic animal - wildlife – human interface from remote rural settings to urban marketplaces. Over the last many years the broad disease surveillance techniques of the FVP have provided a baseline of information on the health of mammals, birds and reptiles in various parts of the world.

The aim of the Wild Bird Global Avian Influenza Network for Surveillance (GAINS) program is to expand operational field capabilities, improve the understanding of viral strains and transmission of influenza viruses in wild birds, and to disseminate information to all levels of governments, international organizations, the private sector and the general public. GAINS has begun to establish a global surveillance network of wild birds by: improving the collection and coordination of samples from wild birds in order to identify locations of avian influenza viral strains; noting species affected; identifying genetic changes in virus isolates; enhancing links with wild bird distribution and migration information, and providing an early warning system for

global spread of HPAI that threatens domestic poultry and human health as well as biodiversity (particularly avian). The GAINS program and partners are working in or traveling to areas of importance in key migratory routes, as well as working with wild species which may serve to link migratory birds with domestic poultry. These individuals and organizations are not only working in an advisory capacity to host governments and local/national organizations by providing technical input into wild bird surveillance programs, but emphasizing the transfer of technical capacity to local staff where needed. GAINS will also make available information related to wild bird avian influenza surveillance and migratory bird activity through a comprehensive database which includes agency reports, scientific publications and news. The site can be accessed at www.gains.org and will be completely functional by the end of 2006. The U.S. Agency for International Development has committed significant funding to expand the operational scope of GAINS and has coordinated with the U.S. Centers for Disease Control and Prevention to provide additional financial support for the GAINS system. Other agencies and organizations, such as the U.N. Food and Agriculture Organization, USDA-ARS, and the U.S. Geological Survey. have provided both monetary and in-kind support.

Dr. Justin Brown, Southeastern Cooperative Wildlife Disease Study (SCWDS) provided a summary to the committee on AIV research being conducted at SCWDS in collaboration with the Southeast Poultry Research Laboratory, ARS, USDA. Specifically, he discussed three projects which evaluated: 1) the persistence of AIV of the H5 and H7 subtypes in water; 2) the susceptibility of North American ducks and gulls to infection with highly pathogenic avian influenza (HPAI) H5N1 viruses; and 3) the epidemiology of wild-type AIV in shorebirds.

Avian influenza viruses are transmitted in free-living aquatic bird populations through an indirect fecal-oral route involving contaminated water. Despite the vital role that water plays in this transmission cycle, very little is known about AIV persistence in this media. The goals of this study were: 1) to provide initial data on persistence of wild-type low pathogenicity avian influenza (LPAI) viruses of the H5 and H7 subtype in water, and 2) evaluate the persistence of two HPAI H5N1 viruses from Asia to provide some insight into the potential for these viruses to be transmitted and maintained in wild bird populations. Persistence was measured in a distilled-water model using AIV-infected amnio-allantoic fluid. All of the wild-type LPAI viruses persisted for an extended period of time; several months at 17 C and several weeks at 28 C. The persistence of virus in water was reduced by increasing values of salinity ($F_{2,48}$=9.16; p=0.0004) and temperature ($F_{1,48}$=52.37; p<0.0001). In addition, a significant interaction exists between the fixed-effects of salinity and temperature ($F_{2,48}$=4.48; p=0.0165), in which the effect of salinity on viral persistence is reduced as the temperature increases. The HPAI H5N1 viruses examined in this study did not persist as long as the wild-type viruses ($F_{1,48}$=4.09; p=0.0488), but still had a prolonged duration of infectivity of 3-5 months in freshwater conditions at 17 C and approximately one month in freshwater at 28^{o} C.

In order to evaluate the potential for HPAI H5N1 viruses to be transported by or become established in wild avian populations, we assessed the clinical response and extent and duration of viral shedding in North American ducks and gulls after intranasal challenge with two Asian HPAI H5N1 viruses. All of the species were infected, but only the wood ducks and laughing gulls exhibited morbidity or mortality, and the redheads, blue-winged teal, northern pintail, and mallards remained clinically normal. Both H5N1 viruses caused similar morbidity and mortality in wood ducks and laughing gulls, and clinical signs were primarily neurologic in both species. Viral titers were higher and duration of shedding was longer in oropharyngeal swabs than in cloacal. The duration of shedding and viral titers were proportional to the severity of disease.

In order to better understand the epidemiology of AIV in wild birds in the Order Charadriiformes, SCWDS has conducted surveillance for AIV at multiple sites across the eastern half of the United States of America, Argentina, Chile, and Bermuda from 1999 to 2005.

During this period, over 9,700 charadriiforms were sampled and AIV was isolated from 311 birds (3.4%). Most virus isolations were from shorebirds or gulls. Ruddy turnstones comprised 24% of the sample population, but accounted for 86% of the isolates. The overwhelming majority (~97%) of AIV isolates were made from birds at Delaware Bay, USA during the spring (May). This peak prevalence spatially and temporally corresponds to the northern migration of numerous shorebirds across the east coast of the United States. The H10 subtype was the most frequently isolated (27%) subtype at Delaware Bay, but as a general rule, no one subtype predominated each year. To date, Delaware Bay in May is the only site worldwide where a consistently high prevalence of AIV has been reported from charadriiforms and most of these isolates have been from ruddy turnstones.

Dr. Thomas Deliberto, Wildlife Services (WS), Animal and Plant Health Inspection Service (APHIS), United States Department of Agriculture (USDA) updated the committee on USDA-APHIS and State Wildlife Agency Avian Influenza Surveillance for AI. The following information captures an update of surveillance efforts, outreach, and communication issues being conducted to support the early detection of highly pathogenic avian influenza in wild birds. It specifically includes efforts by APHIS-Wildlife Services (WS) and additional information supported by Legislative and Public Affairs (LPA) and Veterinary Services (VS). The surveillance effort is being fully supported by all 50 State Wildlife Agencies in a cooperative effort to produce robust sample sizes from across the US.

All 50 states have started conducting surveillance for the early detection of highly pathogenic H5N1 avian influenza in wild migratory birds. Total number of samples collected (28,480) from wild birds per flyway, are as follows: Pacific flyway (including AK and HI) – 5,981; Central flyway – 6,708; Mississippi flyway – 7,154; and Atlantic flyway – 8,637. Additionally 19,836 environmental samples have been collected across all flyways. All of the cloacal and environmental samples have been screened at either a National Animal Health Laboratory Network (NAHLN) laboratory or the WS National Wildlife Research Center laboratory.

Cooperative agreements with all 50 State Wildlife Agencies, Texas A&M University, the Native American Fish and Wildlife Society, the Wildlife Trust Organization, Colorado State University, and others have dramatically expanded the surveillance efforts. Additionally, 53 purchase orders are in place with 46 NAHLN laboratories to handle diagnostic screening.

Of the bird samples submitted, there have been 2,988 pools (pools consist of 1-5 samples) matrix positive on RT-PCR. A total of 442 samples were forwarded to NVSL for further characterization, of which 60 were RT-PCR positive for H5 and 0 were positive for H7.

A total of 4089 pools of environmental samples have been analyzed by the National Wildlife Research Center. Of these, 158 pools were matrix-positive and 12 individual samples were forwarded on to NVSL for further characterization.

International efforts continue to increase regarding wildlife issues and expanded surveillance for early detection. Agreements in Mexico and China are being amended to essentially double the effort in the respective countries. Surveillance in Mexico will be conducted in 28 priority wetland areas, and the Hebei area in China will be included to expand surveillance to coastal areas containing key habitats for migratory birds. Efforts in Greenland, Russia and South and Central America are being developed.

National Wild Bird AI Surveillance – U.S. Department of Interior (DOI)

Dr. Scott Wright, National Wildlife Health Center (NWHC), U.S. Geological Survey (USGS) reported on surveillance of wild birds for AI from the perspective of the U.S. Department of Interior (DOI). Increasing concern in 2005 over the potential for migratory birds to introduce HPAI H5N1 to North America prompted the White House Policy Coordinating Committee for Pandemic Influenza Preparedness to request that the U.S. Departments of Agriculture (USDA)

and Interior develop a plan for the early detection of HPAI H5N1 in the United States. Working with representatives from the Department of Health and Human Services, Association of Fish and Wildlife Agencies, and Alaska Department of Fish and Game, the "U.S. Interagency Strategic Plan for an Early Detection System for Highly Pathogenic H5N1" was approved and implementation began in April, 2006. The Plan consists of five strategies for early detection of HPAI H5N1:

- Investigation of morbidity and mortality events in wild birds;
- Surveillance in live wild birds;
- Surveillance in sport and subsistence hunter-killed birds;
- Sentinel species; and
- Environmental sampling.

The Plan is currently in full implementation, with initial efforts concentrating on subsistence hunts and live bird sampling in Alaska this past spring and summer, and nationwide investigation of wild bird morbidity and mortality events. Sampling of live-captured and hunter-killed birds is now, or will soon be, underway in the lower 48 states, as well as Hawaii, Pacific Island Trust Territories and Freely-Associated States. Species, locations, and numbers to be sampled were established in coordination with the four North American flyway councils and State and Federal representatives. Sample collection is a collaborative effort among the state and territorial fish and wildlife or natural resource agencies, DOI (U.S. Fish and Wildlife Service, U.S. Geological Survey, National Park Service), USDA-APHIS-Wildlife Services, and other agencies and NGOs.

As of October 12, 2006, 18,660 samples collected from wild birds, dead birds or environmental samples (bird feces) have been tested at the NWHC and reported in the web-based data system developed to report results from the Plan (see "HEDDS" below). HPAI H5N1 has not been detected in any of the samples to date. During the 2006 season (April 2006 – March 2007), a total of 75,000 – 100,000 samples are anticipated to be collected by all cooperators/collaborators.

During 2006, three states identified low pathogenicity avian influenza (LPAI) H5N1 in wild birds. In August, LPAI H5N1 was detected in samples from two mute swans in southern Michigan. These two swans were found during routine surveillance by APHIS Wildlife Services officials at the Pointe Mouillee State Game Area on the coast of Lake Erie. In Maryland, nine fecal samples from resident wild mallards during early August in Queen Anne's County tested positive for LPAI H5N1; these birds were sampled as part of a research project being conducted by the Ohio State University. In Pennsylvania, wild mallards trapped in late August by the Pennsylvania Game Commission as part of the Interagency Strategic Plan also tested positive for LPAI H5N1. In all of the above cases, the birds sampled were healthy and showed no signs of illness when captured. It is important to recognize that LPAI commonly occurs in wild birds, where it typically causes no noticeable clinical signs. These strains of the virus are not a human health concern. This includes LPAI H5N1, commonly referred to as North American H5N1. This strain of LPAI is very different from the more severe HPAI H5N1 circulating overseas, which is commonly referred to as the Asian H5N1.

A new web tool, the Highly Pathogenic Avian Influenza Early Detection Data System (HEDDS) is now available for scientists and the public to track results of testing of wild birds in the United States for HPAI H5N1 under the Interagency Strategic Plan. The site, available at http://wildlifedisease.nbii.gov/ai/, is part of a database and Web application housed at the NWHC in Madison, WI. Government agencies, organizations, and policymakers involved in AI

monitoring and response can access the database. Scientists can use the data to assess risk and refine monitoring strategies if HPAI H5N1 is detected in the United States. Public access is more limited but includes a map and a table showing the number of samples collected in each state. The 2006 surveillance year runs from April 1, 2006, to March 31, 2007. So far this year (as of October 13), 26,611 wild-bird samples have been entered into HEDDS. No cases of HPAI H5N1 have been detected. Most of the samples in HEDDS at this time are from Alaska, because this state is the first US stopover for birds from Asia and other continents where the HPAI H5N1 virus is present. HEDDS was produced by the National Biological Information Infrastructure Wildlife Disease Information Node, part of the NWHC. Several agencies are financially supporting the system, including the U.S. Fish and Wildlife Service, USGS, and USDA-APHIS. Participants include state wildlife agencies, universities, and nongovernmental organizations.

Bob Gerlach, Alaska State Veterinarian, reported to the committee on wild bird surveillance for HPAI H5N1 in Alaska. In 2005 and early 2006, HPAI H5N1 virus was spreading from Asia to Africa and across Europe, carried by the movement of domestic and migratory birds. The virus was responsible for the deaths of millions of domestic poultry, thousands of wild birds and over 100 people. Over 6 million birds from more than 35 different species migrate between Alaska and Asia. From the start, Alaska was purported to be the front line, the most likely point of the first introduction of HPAI H5N1 if it were to enter the United States.

The role of wild birds in the transmission or maintenance of HPAI H5N1 has not been well defined. The challenge was to develop and enact a plan to collect 15,000 samples from wild birds across the vast expanse of the state to identify the first introduction of the virus to the western hemisphere. These data would also be used to better understand the epidemiology of AIV in wild bird populations. The U.S. Interagency Strategic Plan was established for HPAI surveillance in wild birds (Jan 2006), in March 2006 and USGS, United States Fish and Wildlife Service (USFWS) and Alaska Department of Fish and Game established a strategy for Alaska based on the Pacific Flyway Council plan. This task was to be started immediately and would take a coordinated effort between several state and federal agencies. Domestic bird surveillance was coordinated with assistance from wildlife biologists. Response to domestic and wild bird morbidity and mortality events also was coordinated among private veterinarians, state animal health officials, and state and federal wildlife biologists. The communication of results of morbidity/mortality investigations and active surveillance and a response plan for detection HPAI were the most difficult challenges to resolve.

Currently, over 20,000 samples from wild and domestic birds have been collected; results show 250 samples positive for influenza A virus, 12 samples positive for H5, no HPAI, and no H5N1 (LPAI or HPAI). Interagency assessment of this season's work will take place this winter and surveillance and response activities will follow a similar strategy next year.

Bruce Morrison, Nebraska Game and Parks Commission reported on the developing National Fish and Wildlife Health Initiative. In September of 2005, the Association of Fish and Wildlife Agencies (AFWA), recognizing the need for a more effective approach to fish and wildlife health, passed a resolution calling for a National Fish and Wildlife Health Initiative to build the capacity of states to address the ever growing issue of diseases involving fish and wildlife resources. This resolution was followed in November of the same year with a resolution by USAHA supporting the development and implementation of a national plan under AFWA leadership. Both organizations recognized that the continued intentional or accidental introduction of foreign animal diseases and the reemergence of domestic pathogens would significantly impact fish, wildlife, domestic animal, and/or human populations and would require a well coordinated multi-agency response. In response to this concern and threat, the Association of Fish and Wildlife Agencies is leading a consortium of state, federal, university,

tribal, corporate, and nonprofit organizations in the development and implementation of a National Fish and Wildlife Health Initiative for the United States. The initiative will be a policy framework for interested parties to consult to minimize the negative impacts of disease issues in fish and wildlife, and ultimately will be expanded, in cooperation with Canada and Mexico, to encompass all of North America. The two overarching goals of the initiative are 1) to develop and enhance capacity in state fish and wildlife management agencies to effectively address health issues, and 2) to minimize negative impacts of health issues on fish and wildlife resources through development and implementation of science-based mgmt strategies. Although national in nature, the NFWHI will NOT mandate programs at the local level. The draft initiative has been developed and will be fine-tuned over the next few months with the goal of presenting it to AFWA and USAHA in autumn 2007.

Dr. Stephen M. Schmitt, Michigan Department of Natural Resources updated the committee on bovine tuberculosis in wild white-tailed deer in a portion of the state. Since 1994, the state of Michigan has recognized a problem with *Mycobacterium bovis* (bovine tuberculosis - TB) in wild white-tailed deer from a thirteen county area in northeastern Lower Michigan. In 2005, surveillance activities for bovine TB continued statewide, with an emphasis on the northern half of the Lower Peninsula. In white-tailed deer, 16 animals cultured positive from 7,363 deer submitted for testing.

Since the index cases were identified, 145,847 free-ranging deer have been tested for bovine TB; 527 infected animals have been found. Increasingly, the spatial epidemiology of the disease is revealing a highly focal, clustered pattern. Approximately 97% of all positive deer identified to date originated from a five county area. Moreover, within that area, the vast majority of positive deer were from Deer Management Unit (DMU) 452. Even within DMU 452, the spatial arrangement of cases is highly clustered, in spite of the fact that sampling effort has been relatively uniform geographically.

Strategies for eradication of bovine TB from Michigan wildlife continue to focus on 1) reducing deer population densities to biological carrying capacity and 2) reducing artificial congregation of deer by restriction or elimination of baiting and feeding. These strategies have been implemented through provision of extra rifle seasons and unlimited antlerless deer permits and by prohibition or restriction of deer baiting and feeding. In the five county area most affected by bovine TB, deer numbers have declined approximately 50% since 1995. The achievement of this substantial population reduction highlights the critical role that hunters have played in the control of bovine TB in Michigan. Nonetheless, persistent focal areas of high density on private land remain problematic. Since 2002, baiting and feeding have been prohibited in the seven counties from which 98% of all bovine TB positive deer have originated. Policy makers have committed to keeping these regulations consistent for a five-year period in order to improve compliance and enforcement. The overall scope of baiting and feeding has declined dramatically since 1997, with large scale feeding largely a thing of the past. While some illegal baiting and feeding continues to occur, the size of these sites is substantially reduced, and heightened enforcement is expected to reduce the practice further over the next several years.

While much work remains, substantial progress has been made towards eradication of bovine TB from Michigan wildlife. Apparent prevalence in the core area of the outbreak DMU 452 was 1.2% in 2005, a decrease of 76% since 1995. Trend analysis of prevalence data from 1995 to 2005 indicates a statistically significant decreasing trend. And two methods of estimating bovine TB transmission rate in the deer herd in DMU 452 are showing statistically significant decreasing trends.

Michigan's bovine TB intervention strategies are working; however, it is too early to claim victory in eradicating the disease. The need to stay the course is important, but will be difficult,

due to ever increasing pressure from a variety of sources to lessen these intervention strategies.

The intervention strategies have been successful in bringing down the average prevalence in DMU 452; however, there are clusters of disease in some townships that will be more difficult to manage. With that in mind, the State of Michigan is evaluating a new intervention strategy that may be more acceptable to many hunters and landowners. The new strategy is based on live-trapping and bovine TB-testing of wild deer, and removal of positive animals. And if a safe and effective bovine TB vaccine could be developed, then captured deer that tested negative for bovine TB could be vaccinated before release. This strategy is not intended to replace initial strategies, but may assist them in eliminating bovine TB from the deer herd.

The Michigan Department of Natural Resources (MDNR) pilot-trialed the new strategy in a township with relatively high bovine TB prevalence within DMU 452 during the winter of 2003. The results of the pilot are cause for optimism on a number of fronts. The project was well received and supported by the public. Appreciable numbers of deer were captured with reasonable efficiency and low mortality. Tracking and removal techniques worked well. The one facet of the project that failed was the blood test.

An effort to develop a more accurate blood testing procedure was the focus of the pilot during the 2004 and 2005 hunting seasons. Hunters were asked to collect blood from deer harvested in DMU 452, and to submit the blood and deer head to a deer check station. The lymph nodes from the deer heads were cultured for bovine TB and culture results compared with results from four bovine TB blood tests. One blood test (Rapid Test) that can be done in 10-15 minutes in the field with whole blood looks promising.

The MDNR is working with the United States Department of Agriculture researchers in Ames, Iowa to develop a bovine TB vaccine. Preliminary results are encouraging, and the vaccine appears to give some protection from disease. Vaccinated groups of deer given the vaccine orally or subcutaneously had fewer visible bovine TB lesions and less severe bovine TB lesions than unvaccinated deer. Assuming this is possible, it will take a minimum of 5-10 years to develop a safe and effective vaccine and to obtain approval for its use in a field situation.

In summary, Michigan is having more success eradicating bovine TB from a wildlife reservoir than any other place in the world. However, this success is fragile. We need to be diligent in maintaining our control strategies.

Dr. Michelle Powell, Minnesota Department of Natural Resources (DNR) reported on the bovine tuberculosis situation in the northwestern portion of the state where six infected cattle herds have been found. In July 2005, the Minnesota Board of Animal Health (BAH) discovered bovine tuberculosis (TB) in a beef cattle herd in Roseau County. The subsequent investigation of cattle movements from that herd led to the discovery of four additional infected herds in northwestern Minnesota. To date, all cattle from these infected herds have been depopulated; however, a sixth infected herd recently was identified that has not yet been destroyed.

During the fall 2005 firearms season, the Minnesota Department of Natural Resources (DNR) conducted surveillance for the disease in wild deer within a 15-mile radius of infected livestock operations. One deer, harvested within a mile of an infected cattle herd, was found infected with bovine TB (0.2% prevalence). Given the association of this deer with an infected cattle herd and the apparent absence of the disease in deer sampled in the larger surveillance area, this infection in deer was most likely a spillover from cattle. To reduce the number of potentially exposed deer, DNR issued shooting permits to landowners of infected cattle herds and 90 additional deer were sampled from January-May 2006. One additional infected deer was found. The strain of bovine TB from the infected cattle and both infected deer has been DNA-typed and the strains were found to be similar and consistent with bovine TB found in cattle in the southwestern U.S. and Mexico. The exact source of the infection is unknown.

In January 2006, Minnesota lost its bovine tuberculosis (TB) accredited-free status after the disease was discovered in cattle in northwestern Minnesota. A cooperative effort between DNR, the Minnesota Board of Animal Health and USDA is aimed at regaining the state's TB-free status as soon as possible. To that end, there will be additional surveillance in both wild deer and cattle in the previously infected areas as well as other parts of the state. The DNR is planning to collect a minimum of 1,000 samples from hunter-harvested deer in the bovine TB-infected area in northwestern Minnesota this fall. Additionally, the USDA is requiring a one-time, statewide sampling of 4,000 hunter-harvested deer this fall. Statewide sampling will be concentrated north of Brainerd and based on deer densities and proximity to the bovine TB-infected area.

Dr. Frank Galey, Chair of the Wyoming Brucellosis Coordination Team (WBCT) indicated that WBCT presented its report with 28 recommendations to Governor Dave Freudenthal and the Wyoming State Legislature in January 2005. Among the items addressed were that the recommendations of the team be followed in the immediate future to assure continued progress. The governor and legislature responded by funding the team to continue to meet biannually for the next biennium (through 2007).

Responding to that mandate, the WBCT met twice in 2006, once on May 4, 2006 in Lander, WY and again on September 14, 2006 in Pinedale, WY. Major issues addressed included commingling between wild elk and cattle and official responses to the commingling, the state's brucellosis status, efforts to address brucellosis in cattle and wildlife, legislative matters, litigation regarding the experimental test and removal project in an elk herd unit, and the MOU related to the Greater Yellowstone Interagency Brucellosis Committee (GYIBC).

During the winter, several serious (> 24 hours in contact) commingling incidents involving wild elk and cattle occurred. Most of the incidents were resolved between the herd owner, Wyoming Game and Fish Department (WGFD), and State Veterinarian's office; however, one case in the Jackson area became contentious. After much discussion in May, the team formed a subcommittee to work with the State Veterinarian to develop a commonly understood protocol to follow in future commingling events. This subcommittee developed a protocol that was agreed upon in September. The approach will be determined in individual herd plans for cattle, which were strongly endorsed by this group. It is understood that the WGFD will work with ranchers to minimize commingling via ongoing efforts and will continue to develop Brucellosis Management Action Plans (BMAP's) around each elk herd unit. It was noted that ranchers, not Wyoming Game and Fish Department employees, have the obligation to report significant commingling to the state or federal veterinary authorities.

Development of the state's MOU with the USDA was discussed in the May meeting. Consternation was expressed over the slow response from USDA officials after Wyoming responses. The governor's office decided to withhold action on the GYIBC MOU pending response from federal authorities about the state's petition for Class Free Status. These issues were resolved at the time of the September meeting when the state was awarded its Class Free Brucellosis Status. Governor Freudenthal's office then initiated work on the GYIBC MOU. Further, with encouragement from this team, the governor signed emergency rules that freed most of the state from continued, above-routine surveillance. However, according to the MOU with the USDA, a six-county area in northwest Wyoming must continue to test cattle on movement or according to approved herd plans. The team asked the state veterinarian to request that the USDA reconsider the six-county rule as much space in some of the counties is not in a high-risk area of commingling with brucellosis positive elk.

Efforts continue to address brucellosis in wild elk, wild bison, and domestic cattle. The Wyoming Game and Fish Department is implementing the team's recommendation that BMAP's for elk herd units in the region be developed by June 2007. Development of these plans is underway with three of seven plans completed as of September 2006. Two of the three

completed plans still need local and state approval, however. The USDA continues to work with ranchers to develop cattle herd plans for herds at risk of exposure in the region. Development of these plans has been very slow. At first, USDA personnel were pulled off task by the VS outbreak of 2005. Following that, ranchers became reluctant to work with authorities largely due to the dispute over commingling in Jackson. In May, the team recommended ranchers be encouraged to develop herd plans and progress was made during the summer. However, following the state's attainment of Class Free Brucellosis Status, we have been told that herd plan development has slowed again. The team will address this issue later this fall. Other, ongoing efforts addressed by the team included building fence to separate elk and cattle, and the successful completion of the first year of the test and removal pilot project at the Muddy Creek Winter Elk Feedground. The team supported the continuation of this five-year project.

The legislature has been very supportive in the state's bid to address the brucellosis hazard. The 2006 session was a biennial budget session. More than $1 million was allocated for wildlife brucellosis management efforts. Further, more than $2 million has been allocated to address testing costs, laboratory costs and other brucellosis related matters. The legislature also passed a livestock dealer registration bill, which was helpful in the state's petition to achieve Class Free Brucellosis Status. The legislature considered and rejected a bill banning the private feeding of wildlife. The WBCT considered this matter at both meetings and agreed that it did not survive because it was too broad. The team has a subgroup working with legislators in crafting a narrower scope, brucellosis- focused bill for the 2007 legislative session.

Other matters the team discussed included the pending litigation that is attempting to curtail the test and removal project as well as winter feeding of elk on federal property. The team also expressed a great deal of concern over the USDA's new wildlife disease management policy, which was seen as an attempt to usurp the state's primacy on wildlife management issues. The team endorsed the findings of the "Laramie Workshop" sponsored by USAHA that will address research needs for diagnosis, vaccination, and vaccine delivery for brucellosis of wild elk and wild bison.

The WBCT will meet again twice in 2007 and will continue to liaise with the GYIBC. If litigation issues are resolved, the WBCT intends to provide public relations support for the Wyoming Game and Fish operations at the Muddy Creek Feedground for this winter (2007). The team will also work to encourage development of brucellosis management herd plans by cattle herd owners as well as for the remaining elk herd units in this region.

Dr. Terry Kreeger, Wyoming Game and Fish Department updated the committee on brucellosis in elk in Wyoming. Elk feedgrounds were begun by Wyoming in the early 20th century to mitigate elk starvation. As brucellosis concerns in cattle increased, the feedgrounds served to prevent cattle and elk commingling. There are now 23 feedgrounds (22 state and one federal), feeding approximately 20,000 elk. Feedgrounds were designed to "shortstop" elk migration routes to prevent them from contacting cattle now occupying traditional elk winter ranges. But feedgrounds concentrated elk causing increased disease transmission. Brucellosis seroprevalence on feedgrounds is an order of magnitude higher than in non-feedground elk. Elk vaccination for brucellosis began in 1985; currently 22 of 23 feedground elk calves are vaccinated annually with strain 19 vaccine. Although seroprevalence data does not demonstrate statistical differences between vaccinated and unvaccinated elk, vaccination still may be effective in preventing abortions, even though the animals are seropositive. Developing winter habitat can decrease elk dependence on feedgrounds. Since 1990, over 70,000 acres have been improved, but such improvements take lots of time and money.

In 2003 and again in 2004, cattle herds in Wyoming were diagnosed with brucellosis. Epidemiologic investigations implicated infected elk and perhaps bison as the source. Wyoming subsequently lost its federal "brucellosis class free" status. Responding to the loss of free status, the governor of Wyoming convened the Wyoming Brucellosis Coordination Team and

charged it with identifying issues, describing best management practices, and developing recommendations related to brucellosis in wildlife and livestock in the state. The goal of the Team was: reduce and eventually eliminate brucellosis in wildlife, specifically addressing winter elk feedgrounds. After a year of meetings, the Wyoming Brucellosis Coordination Team developed several recommendations, the two most affecting wildlife were: (1) develop Brucellosis Management Action Plans (BMAPs) for each elk herd unit that has a feedground and (2) establish a five-year pilot project to reduce seroprevalence in the region where the first cattle brucellosis cases occurred. The operational definition of "reduction of seroprevalence" was the test and slaughter of feedground elk.

A large corral trap was constructed on the Muddy Creek feedground, the site of the first cattle exposure to brucellosis. The trap was monitored from a blind; when enough female elk were in the trap, the trap gates were remotely closed. Elk were herded into smaller alleyways and chutes for individual processing. Blood samples were taken from adult and yearling females; bulls and calves were ear-tagged and released. Bled elk were held overnight to run serology tests. A temporary laboratory ran serological tests on all cows and yearlings. Testing followed Uniform Methods and Rules (UM&R) criteria: card+, SPT+, Rivanol+. If one or more were positive, samples tested by competitive ELISA (cELISA). If the cELISA was positive, the animal was sent to slaughter. Fluoresence polarization assay was also done for validation purposes only. Females considered serologically negative were released. Seropositive elk were shipped to a USDA meat processor and packaged meat was donated to the public. At the processor, multiple tissues were taken for bacterial culture to compare with serologic results.

First year results of Test and Slaughter:

- 314 total captured (both sexes, all ages); 2 mortalities (1 trap, 1 transit)
- 171 adult and yearling females bled and tested
- 58 (34%) seropositive
- 18 (31%) culture positive
- Approximately 5,100 hours to design and implement program
- Total costs were $310,856 ($5,911 per elk removed)

Dr. Glenn Plumb, Chief of Natural Resources Branch, Yellowstone National Park, reported that in the past year, Yellowstone National Park (YNP) supported and participated in an array of cooperative brucellosis activities, as highlighted below.

The National Park Service (NPS) remains a charter member of the Greater Yellowstone Interagency Brucellosis Committee (GYIBC) and YNP sits on the GYIBC Technical SubCommittee. YNP remains committed to the goals and objectives of the GYIBC and supports signing of an updated MOU that reflects the needs and concerns of all participating agencies.

Through funding and personnel, the NPS and YNP strongly supported the USAHA working symposium entitled "Enhancing Brucellosis Vaccines, Vaccine Delivery and Surveillance Diagnostics for Elk and Bison in the Greater Yellowstone Area" held August 16-18, 2005 at the University of Wyoming. A Technical Report and comprehensive Road Map report have been developed and will be presented by Dr. J. Lee Alley at the USAHA Committee on Brucellosis meeting on Oct 18, 2006.

YNP is moving forward with an Environmental Impact Statement (EIS) on remote brucellosis vaccination of free-ranging bison inside the park. Based on the Record of Decision (ROD) in 2000 for long-term bison management at YNP and Montana, the park has initiated a program for vaccination of calves and yearlings captured under the Interagency Bison Management Plan. Expanded vaccination of free-ranging bison was discussed only briefly in the 2000 ROD with additional NEPA review required. YNP hopes to release a draft EIS in 2007

and will include analyses of three alternatives: no action (e.g. continuation of vaccinating captured calves and yearlings), remote vaccination of calves and yearlings, and remote vaccination of calves, yearlings, and adult females. Analyses include impacts on bison population ecology, bison disease status, effects on Threatened and Endangered species, park visitors, human health, social and economic implications. The University of Kentucky has worked very closely with YNP to develop quantitative simulation projections of the long-term effects of vaccination and these will be presented John Treanor at the USAHA Committee on Brucellosis meeting on Oct 18, 2006. Additional considerations are safety and efficacy of the delivery program that will take into account the seasonal movement and aggregation dynamics of the bison population. YNP acknowledges that there remains considerable uncertainties about the technologies and epidemiology of long term vaccination, and understands that long-term vaccination would need to be accompanied by long-term surveillance and science designed to improve our understanding of brucellosis in Yellowstone bison.

Recently, YNP signed an MOU with the University of California – Davis Wildlife Health Center (WHC) and Montana State University (MSU) to create the Yellowstone Wildlife Health Program. These parties have complementary scientific expertise and mutual interests in planning and implementing a long term wildlife and ecosystem health program and the purpose of this program is to develop and establish a long-term program focused on understanding and addressing priority wildlife disease and ecosystem health problems at YNP, and as a wildlife & ecosystem health-related subcomponent of the NPS Greater Yellowstone Network Vital Signs Monitoring Program.

Dr. Tom Linfield, Montana State Veterinarian updated the committee on bison management. The Interagency Bison Management Plan (IBMP) established a federal/state partnership to jointly manage the Yellowstone bison population. The agencies implementing the IBMP include the National Park Service, USDA Forest Service, USDA-Animal and Plant Health Inspection Service, Montana Department of Livestock, and Montana Department of Fish, Wildlife and Parks. The role each agency plays in implementing the IBMP is defined in the respective state and federal records of decision (ROD) and the subsequently established field operation procedures. The goals of the IBMP are to reduce the risk of transmission of brucellosis from bison to cattle; to preserve a viable, wild population of Yellowstone bison; to maintain Montana's brucellosis class free status; and to protect private property. The IBMP incorporates adaptive management principles, allowing the agencies to make adjustments to continually improve management policies and practices by learning from the outcomes of operational programs.

Under the IBMP, agency personnel monitor the two main bison exit corridors designated as the northern and western Special Management Areas (SMA's) – areas where the agencies have taken actions to maintain temporal and spatial separation between bison and cattle to appropriately manage the risk of brucellosis transmission to cattle. The IBMP employs several bison management tools—including hunting, hazing, capture, testing, shipment to slaughter, and lethal removal—to manage such risk. During the 2005-2006 "season," all of these tools were utilized. One hundred and forty-two hazing operations were conducted, including 118 at the northern boundary and 24 at the western boundary. A total of 1,308 bison were captured in twelve different capture operations- four at the western boundary and eight at the northern boundary, of which, 87 were consigned to the bison quarantine feasibility study. Nine hundred and thirteen bison were killed as a result of management operations (899 consigned to slaughter following capture, eight mortalities occurred at capture pen facilities, and six were shot in the field). Table 1 summarizes the actions implemented to manage Yellowstone bison.

Results from serological tests conducted on samples taken at slaughter facilities reveal that 43 % of the bison removed by management actions tested sero-positive for brucellosis. Bison abundance and distribution within and adjacent to the SMA's were monitored through

monthly surveys conducted from November to May depending on suitable weather conditions. The area of coverage is based on the monitoring needs as described in the interagency field operating procedures (December 2003). Population estimates are conducted twice per year in mid summer and in early winter. An August 2005 aerial survey estimated a bison population of 4,876. A February 2006 aerial survey estimated 3,456 bison, and the most recent survey, conducted in August 2006, estimated the bison population at 3900 animals.

Montana's first bison hunt in 15 years ended on February 15, 2006, with 40 bison harvested by hunters. Sixteen of the 50 permits were allotted to Montana Native American hunters. General permit hunters harvested 34 bull bison and tribal hunters harvested five bulls and one cow. Hunting took place primarily in the Eagle Creek area north of Yellowstone National Park with 32 of the 40 bison taken there, and eight in the West Yellowstone Basin area. The bison hunt was temporarily halted several times during the season to accommodate limited agency hazing of bison as agreed to under the IBMP prior to the hunt. Hunters were given a 24-hour notice of closure prior to actual closure. The temporary closures did not appear to limit any hunter's opportunity to harvest a bison, and every effort was made to maintain an opportunity to hunt in another hunting area during a closure. Hunters were asked to submit blood samples for routine brucellosis surveillance. Eighteen of 25 usable samples submitted tested seropositive for brucellosis. In addition to the state bison hunt, Idaho's Nez Perce Tribe exercised their treaty rights to hunt bison on their historical and traditional hunting grounds outside of Yellowstone National Park in Montana.

Brucellosis testing and vaccination of livestock managed near or adjacent to the special management areas along the northern and western boundaries of YNP continued during the 2005-2006 season. Entire herd tests were conducted in five cattle herds, including three in the western boundary area and two in the northern boundary area. All of the cattle tested were sero-negative. All vaccination-eligible cattle managed within the special management areas were verified as being official vaccinates (*Brucella abortus* strain 19 or strain RB51). Entire herd adult vaccination (*Brucella abortus* strain RB51) was conducted in two cattle herds, both in the northern boundary area.

The partner agencies met in September 2006 and developed recommendations regarding adaptive management strategies in the implementation of the IBMP. The recommendations included proposed adaptive management adjustments regarding hazing, capture, hunting, fencing strategies, herd management strategies, research strategies, and communication and information sharing strategies. All of the recommendations will advance the goals of the IBMP without increasing risk of disease transmission.

The wild bison population of the northern Greater Yellowstone Area remains free-ranging, reproductively vigorous, and genetically important for conservation of the species in North America. In addition, successful implementation of the IBMP allowed the livestock operations in and adjacent to special management areas along the northern and western boundaries of Yellowstone National Park to remain brucellosis-free, thereby maintaining Montana’s brucellosis Class Free status.

Table 1. Summary of actions implemented to manage Yellowstone bison during winter.

INTERAGENCY BISON MANAGEMENT PLAN - October 1, 2005 thru June 1, 2006				
MANAGEMENT ACTIVITY	**LOCATION**			**TOTALS**
	West Boundary --outside park--	**North Boundary --inside park--**	**North Boundary --outside park--**	
Brucellosis Risk Management				
Hazing				
Number of hazing operations	24	87	31	142
Mortality during hazing activity	2	0	0	2
Capture				
Number of capture operations	4	8	0	12
Total Bison Captured	59	1249	0	1308
Released (Not tested)	9	305	0	314
Transported to Slaughter (Not tested)	50	838	0	888
Transported to Slaughter (Tested)	0	11	0	11
Capture Pen Mortality	0	8	0	8
Lethal Removal - Agency shooting	4	1	1	6
Subtotal Brucellosis Risk Mgt Mortalities	**56**	**858**	**1**	**915**
Research Removal - APHIS/FWP Quarantine	**0**	**87**	**0**	**87**
Montana Bison Hunt				
Licensed hunts	8	0	32	40
Nez Perce treaty hunt	0	0	6	6
Subtotal Hunting Mortality	**8**	**0**	**38**	**46**
Traffic Mortality (see notes 1 & 2 below)	**15**	**4**	**0**	**19**
Estimated Natural Mortality & Predation (see note 3 below)	**10**	**440**	**0**	**450**
Total Bison Removals & Mortalities	**89**	**1389**	**39**	**1517**

1 - estimated 15 mortalities on Highway 191

2 – known four traffic mortalities across YNP

3 - estimated across entire park from historic overwinter mortality and predation rates (440 ~ 9% of early-winter population of ~ 4,900 bison)

Dr. Phil Mamer, Idaho Department of Fish and Game (IDFG) reported that the Idaho State Department of Agriculture (ISDA) quarantined a ranch in Bonneville County's Swan Valley in October of 2005 after identifying a possible case of Brucellosis in a cow that reacted positively to a Brucellosis test through the Market Cattle Inspection Program that was traced to the Swan Valley ranch. ISDA Veterinarians and staff tested the entire herd for Brucellosis. Ten additional cows reacted positively to these tests. Further tests [milk cultures from the suspect cows] confirmed the cattle are infected with *Brucella abortus* Biovar 1. A second herd of cattle was found that had purchased animals from the Swan Valley herd. These also tested *Brucella* positive causing Idaho to lose its Brucellosis Class-Free Status. Both herds were depopulated in December of 2005. The Swan Valley ranch is situated in an area through which numerous elk migrate in spring and fall. There are also elk that are winter residents in this area. This ranch is located near the Idaho Fish and Game Rainey Creek feedground. This feedground has been in existence since the late 1970's to keep elk from depredating on haystacks and cattle feed lines. The IDFG have a trap, test, and removal program on this feedground for seropositive elk. The apparent seropositive rate on this feedground has ranged from a high of 45% in 1999 to a low of 6% in 2005. Up to 500 elk are fed at this site depending on temperature, snow depth and risk to cattle near the mouth of Rainey Creek Canyon. *Brucella abortus* Biovars 1 and 4 have been isolated from elk on or from this feedground when tested and removed at the trap in Rainey Creek. Genotyping has been inconclusive for the Swan Valley cattle and the Rainey Creek elk due to time, Biovar differences and the effects of the Select Agents Regulations. IDFG requested the Wildlife Brucellosis Task Force be reinitiated and a report was rapidly completed with site-specific adaptive management plans approved by IDFG, ISDA, Idaho Cattle Association and the Idaho Farm Bureau. This was then formalized with a governor's executive order.

The ISDA developed Idaho's ISDA Brucellosis Action Plan and in cooperation with IDFG, specific Ranch Brucellosis Action Plans. These plans call for maintaining separation between elk and cattle through fencing of haystacks and feed areas, site specific increased hunting pressure and behavior modification on "problem elk", eventual elimination of any elk feed grounds, enforcement of rules against private elk feeding, and development of winter range. ISDA and USDA are conducting epidemiological investigations, which include identification, risk assessment and testing of all herds in the high risk area and there will be increased monitoring of elk and cattle and booster vaccination of cattle in the high risk area.

It had been four years since the last case of Brucellosis was identified in Idaho. Prior to the Conant Creek case in 2002, the most recent case in Idaho was in 1989. Idaho can apply to regain its Brucellosis-Free status if no new cases emerge before December of 2006.

Dr. Michael Gilsdorf, VS-APHIS reported to the committee that state disease classifications, within TB and Brucellosis Eradication Programs, are based upon the state's disease prevalence, disease eradication and/or control measures or mitigations, and the level of disease transmission risks to livestock populations within the state. When a disease that may be transmitted within a species or to other species, is detected in any animal species within a State, the level of disease transmission risk to the animal population of that state and other states is increased unless the risk of transmission is mitigated. State disease classifications are based on equivalent levels of disease prevalence, eradication and/or control measures, and levels of risk for disease transmission within and out of the state. Therefore, whenever a disease (which is transmissible to livestock species) is detected or is known to exist within an animal species within a state, we are proposing language for regulations that requires a management plan(s) be developed by the appropriate State authorities, approved by APHIS-VS, and implemented by the State to mitigate the risk of transmission of that disease to livestock species. The regulation is intended to provide assurance that the level of disease risk of transmission within and out of the state is equivalent to states of similar disease classification.

Drs. Dean Goeldner and Tom Gidlewski, VS-APHIS-USDA provided updated information to the committee regarding APHIS-VS efforts directed at chronic wasting disease (CWD). CWD has been discovered in free-ranging cervids in 11 states and in 41 captive cervid herds in nine states. There are currently four infected elk herds and one infected white-tailed deer herd that have chosen to remain under quarantine instead of depopulate.

In 2006, the CWD program depopulated one elk herd in the endemic area, which turned out to be infected, as well as a chronically infected white-tailed deer herd and a mixed elk and white-tailed deer herd for a total of approximately 110 animals. For the last three years, the program has paid for testing about 15,000 captive cervids per year. Demand for testing is expected to increase with the implementation of the program.

Rectal biopsy continues to be examined as a tool for CWD ante-mortem diagnosis. Hundreds of animals have been examined and the results look promising. Larger numbers need to be examined in order to make final conclusions.

On July 21, 2006, APHIS published its final CWD rule. Subsequently three petitions were received from organizations representing state agencies and officials challenging the interstate movement provisions in the rule and requesting a stay in the rule's implementation. Believing the petitions merit further consideration, APHIS published a notice of delay of implementation for the rule on September 8, 2006. The petitions will be published soon for public comment.

APHIS received approximately $18.5 million in appropriated CWD funding in FY 2006 including $2.44 million in congressional earmarks. The FY 2007 appropriations have not been passed by Congress; the president's budget requests $15.4 million for CWD. APHIS again made $5 million in CWD cooperative agreement funding available to state wildlife agencies in FY 2006. The formula for distributing the funds was revised after consultation with the Association of Fish and Wildlife Agencies. Forty-nine states applied for and received funding. APHIS also provided $750,000 for tribal CWD activities, the funding going to the Native American Fish and Wildlife Society and 20 individual tribes. After internal discussions, it was decided to leave the state and tribal wildlife cooperative agreements for CWD on a fiscal year basis, rather than moving them to a calendar year basis in FY 2007 with other VS agreements.

As some states reduce the amount of hunter-killed surveillance for CWD, APHIS is urging those states to utilize targeted and road-killed surveillance to increase the likelihood of detecting the disease.

Dr. Michael Miller, Senior Wildlife Veterinarian with the Colorado Division of Wildlife, provided a brief and lucid overview of recent progress and remaining needs in understanding various aspects of chronic wasting disease (CWD) epidemiology, diagnosis, and control. Dr. Miller alerted committee members to several upcoming research publications on CWD epidemic dynamics, host range, prion distribution patterns, management efforts, and new antemortem diagnostic approaches, and posed five questions that he considers most important to answer in future research: "Can we reliably predict the host range of CWD using non-experimental approaches?" "Why is CWD transmission so efficient?" "Can CWD foci arise from natural exposure to the scrapie agent?" "Does CWD affect populations and ecosystems?" "What can we *reasonably* do to control CWD?"

The remainder of Dr. Miller's presentation focused on opportunities for improving the efficiency of surveillance to detect new CWD foci in free-ranging wildlife by using structured, non-random sampling approaches. This strategy has been adopted by the World Organziation for Animal Health (OIE) and accepted internationally as the standard for bovine spongiform encephalopathy (BSE) surveillance. As outlined in the OIE International Animal Health Code ("Surveillance for bovine spongiform encephalopathy", Appendix 3.8.4, OIE 2006, http://www.oie.int/eng/normes/mcode/en_chapitre_3.8.4.htm), the structured, non-random

sampling strategy developed for BSE uses a point-based quota system that weights sample sources based on the likelihood of detecting disease in that subpopulation. This contrasts to the standard random sampling paradigm presently used as the basis for most CWD surveillance programs, wherein all sample sources are assumed equal with respect to disease detection probability and epidemiological "value." According to Dr. Miller, the main advantage of OIE's structured, non-random sampling approach is that it would allow agencies to combine several survey approaches (e.g., targeted surveillance, vehicle-kill surveys, and harvest surveys) in a straightforward and epidemiologically meaningful way, adding value for "high risk" samples (e.g., cervids showing clinical sighs of CWD). Dr. Miller suggested that we already have sufficient knowledge about CWD epidemiology to adopt this approach to ongoing surveillance. Critical elements would be defining target populations based on biological criteria, choosing desired prevalence thresholds for detection of foci, establishing a timeframe for sample collection based on natural disease course, calculating "point" quotas per target population based on prevalence thresholds, and assigning values to subpopulation (source) samples based on likelihood of infection as reflected published field data (e.g., males > females, middle-aged individuals > young, clinical suspects > vehicle kills > harvested animals). Dr. Miller concluded by pointing out that although the most immediate applications of this structured, non-random sampling surveillance approach might be in CWD surveillance, similar strategies could be devised to improve the efficiency of surveillance for detecting foci of other diseases like bovine tuberculosis or avian influenza in free-ranging wildlife populations.

Dr. Kevin Keel, Southeastern Cooperative Wildlife Disease Study reported that on September 9, 2005 the West Virginia Division of Natural Resources announced that a two-and-a-half year-old buck was determined to be positive for CWD. This deer was found in Hampshire County in close proximity to Virginia, Maryland and Pennsylvania. Special collection teams were dispatched to Hampshire County to collect deer within five miles of the index case. Of the 195 deer sampled from September 14 to October 14, four additional deer were found to be positive for CWD. Subsequently, during the first three days of the firearms seasons, 1,016 hunter-killed deer were sampled from throughout Hampshire County; however, none of the hunter-killed deer tested positive. A second special collection of 80 deer within one mile of the known positives led to the detection of four additional deer that were positive for CWD.

Initial observations suggested that the distribution of hunter-killed samples was relatively uniform throughout the County. However an evaluation of the number of hunter-killed samples at close proximity to the known positives revealed the statistical limitations of the sample size. The 256 samples collected within five miles of known positives are sufficient to detect CWD at a prevalence of 1.2% with a 95% confidence interval. However, the 17 hunter-killed samples collected within one mile of known positives were only sufficient to detect CWD at a prevalence of 16% or greater with a 95% confidence interval. The special collections resulted in the sampling of 146 deer in the one-mile margin. The total of 166 deer sampled within this region would be 95% certain to detect CWD at a prevalence of 1.5% or greater. The data available suggest that CWD is currently confined to a very small region in Hampshire County.