

Meeting Time and Place

The Midwest Fish & Wildlife Health Committee conducted its annual meeting April 6-7, 2010 at Bismarck, ND.

Attendance

Representatives from 6 state fish and wildlife agencies (KS, MI, MN, ND, NE, and SD) and the United States Department of Agriculture - Wildlife Services (USDA-WS), Native American Fish & Wildlife Society, and Three Affiliated Tribes (TAT) Game & Fish attended this year's Midwest Fish and Wildlife Health Committee Meeting. A total of 13 individuals were in attendance. In addition, we had representatives from 6 state fish and wildlife agencies (WI, KS, IA, IL, IN, and MO), the United States Geological Survey, the National Wildlife Health Center, and the Missouri Department of Agriculture participating in the meeting via WebEx.

Ohio, Kentucky, and the Canadian provinces of Manitoba, Ontario, and Saskatchewan were not represented.

Executive Summary

Status of the National Wildlife Health Initiative

Rebecca Humphries, Chair of the Association of Fish and Wildlife Agencies' (AFWA) Fish and Wildlife Health Committee and Director of the Michigan Department of Natural Resources and Environment, led a discussion via conference call on the status of the National Fish and Wildlife Health Initiative.

The two over-arching goals of this initiative are to:

- Facilitate establishment and enhancement of state, federal, and territorial fish and wildlife management agency capacity to effectively address health issues involving free-ranging fish and wildlife;
- Minimize the negative impacts of health issues affecting free-ranging fish and wildlife through surveillance, management, and research.

The steering committee, formed in 2007, completed a 2009 survey of state agencies aimed at understanding capacities and authorities; results of the survey are pending. A similar survey is being prepared by the federal government and expected to be available to state agencies in the near future. The National Conservation Need proposal is going to focus on gap analysis (capacity or authority), which in the past few years has funded fish and wildlife training, human dimension project, and fish pathology training. The steering committee also recognized a need for staff support to keep the activities of the Initiative moving and may consider bringing on a Master's student if \$30,000 in funding can be identified. The committee is also moving forward with developing a white nose syndrome workgroup (John Gassik of Kentucky as chair), and would like to encourage participation by interested parties. The Initiative also called for both a federal and NGO caucus, but the federal component may be challenging, due to data privacy issues, and may need to be reconsidered. There will be a meeting on August 25th in Georgia between USDA-Veterinary Services and state directors to discuss health issues.

Julie Langenberg (WI) asked Director Humphries what the best approach would be to make their wildlife health database available to other state agencies and encourage data sharing. Director Humphries responded that a work group may need to be developed to address this database issue. If such a database was housed within a state agency, it would fall under privacy laws within that state or other agencies; thus, we really need to think about how to protect the information yet make it useful to others.

A second question by Julie revolved around the Initiative's involvement in climate change conversations. Director Humphries responded that the Initiative's funding was built under the climate change umbrella, but there is currently no major focus on specifics of climate change and potential impacts within the Initiative. A possibility would be to have a special joint session to discuss this issue. Steve Schmitt (MI) pointed out that the Canadians are currently working on a survey that addressed climate change and was disseminated to all state agencies in the U.S. Director Humphries concluded that she will try to work through the climate change committee within AFWA to see if a special joint session may be organized.

Steve Schmitt (MI) asked the question of where the Initiative is regarding funding, as ultimately that was one of the major goals. Director Humphries responded that the tool kit has been slimmed down to a 1-2 page brochure and is being used to talk to Congress. There has been more attention on invasive species at Congress recently, and some disease-related issues have surfaced, which may help the Initiative gain attention. There is also a concern that many state directors (8 of 13) will be turning over in the near future, and this will be a challenge in terms of leveraging legislators in support of the Initiative.

Finally, Julie Langenberg (WI) asked if AFWA has ever gone on record in support of National Animal ID for livestock. Director Humphries replied no, but encouraged this committee to pass a resolution on this issue and she will bring it to the summer director's meeting.

Disease Reports

Each state represented, the Native American Fish & Wildlife Society, and the National Wildlife Health Center provided an update on the wildlife disease issues within their jurisdiction (state updates in Appendix III of the full report).

White-nose Syndrome in Bats

David Blehert, USGS National Wildlife Health Center, provided an overview of white-nose syndrome (WNS). There are approximately 45 bat species in the U.S.; of which 23 use hibernation as an obligate winter survival strategy and all WNS-affected bat species have been hibernators (versus migrators).

WNS was first discovered in Albany, NY, in winter 2006-07, and has now been identified in 10 additional states. There are 6 insect-eating bat species affected thus far, and the disease appears to occur while hibernating. Some bats have been able to recover from the disease once active again in the spring. Estimated losses have exceeded 3 million bats in 3 years. Within some populations, there has been nearly 100% mortality. One of the 6 affected bat species, the Indiana, is also listed as an endangered species. Approximately 10% of the Indiana bat population may have been affected. There are 14 hibernating bat species in the west that may be vulnerable to the disease, should it get that far.

WNS is spreading because even these nonmigrating bat species disperse (some banding studies show 200-mile movements). Circumstantial evidence led to the discovery that the disease agent involved was actually a fungus (not a parasite, bacteria, or virus). This new species of fungus, *Geomyces destructans*, can only grow in cold, damp environments (cannot grow at room temperature). Currently, there is about a week turnaround to test for WNS in the lab. A bat does not mount an immune response to the invasion of the fungus during hibernation. The fungus starts on the surface and then migrates interior

through the dead skin layer. Damage to the wings actually kills the bats because of disruption of heat dissipation, water control, gas exchange and blood pressure regulation. They are looking for the fungus in environmental samples, as fungi typically have an environment reservoir. There are current efforts to control human movements, as a strategy to manage the spread of this disease. We can't control bat movements, but we can work to prevent human-related transfer. Can the spread be slowed? We are not sure, but perhaps there are some limiting environmental conditions that might come into play. The issue of immunity remains unclear. Are there any anti-fungal treatments? We are not sure, but some initial trials being tested in the East have not looked promising.

Dave Redell, Wisconsin Department of Natural Resources Bureau of Endangered Resources, is a contact for those interested in helping with coordination of bat samples to researchers for genetic studies of Midwest bat populations. He is a member of the Midwest Bat Working Group and can be reached at 608-261-8450 or email David.Redell@wisconsin.gov

Wind Power Mortalities

Clayton Derby, Western Ecosystems Technology, Inc. (an environmental consulting company based in Wyoming) provided an update on the wind-wildlife issue. Avian mortality, caused by collisions with equipment, became apparent in 1994. The mortality rate is <3 fatalities per megawatt (MW) per year on average. Raptor mortality is associated with high raptor use, which is most prevalent in the West. Transition to larger, slower turbines has decreased raptor mortality. Bat mortality became a concern in Buffalo Ridge, MN. The size of the turbine does not seem to correlate with bat mortality. Bat mortality exceeds bird mortality; most of it occurs in the fall. Causes of mortality are direct strike or barotrauma (lungs ruptured from a low pressure pocket). Rates are about 40 bats per MW per year. Current efforts to reduce bat mortality include curtailment; changing the cut-in speed even by 1-2 m/sec can significantly reduce mortality. Threatened and endangered species, such as the Indiana bat, condor, and whooping crane, are of major concern. Songbirds are less of an issue, as are waterfowl and waterbirds. In terms of habitat loss due to wind power, the impact is really due to disturbance, such as lek disturbance or displacement for sharp-tailed grouse, prairie chickens, etc. Wind power is also thought to have a negative effect on nesting for some game bird populations in the West.

USDA-Wildlife Services Update

Tom Deliberto provided an update on wildlife disease activities of his agency. Regarding feral swine disease surveillance, classical swine fever (exotic), pseudorabies, and swine brucellosis have occurred in 32 states with approximately 2,200 swine sampled. Beyond disease concerns, the issues of crop and wildlife habitat destruction related to feral swine are tremendous. Plague and tularemia continue to be a concern at the human and wildlife interface, as well as threatened, endangered or sensitive wildlife species. The primary emphasis has been to improve the "baseline" knowledge of where these diseases are and what wildlife species are involved. Regarding avian influenza, collectively, all parties have collected >400,000 samples nationwide. Through this effort, we have gained a better understanding of what low pathogenic avian influenza strains are present in North America. H5's are very common in waterfowl, depending on when and where you look. There will be another year of cooperative agreements with states for 2010, but unclear if there will be continued AI active surveillance beyond that. Outside the US, USDA-WS work has been downsized due to budget constraints, but a lot of projects with China are ongoing.

Lastly, USDA-WS has been involved in emergency response efforts, including bovine tuberculosis (MN and IN), asian carp (IL), bighorn pneumonia complex (WA), and sea turtle mortality (FL).

Lead in Wildlife

Lloyd Fox (KS) led a discussion on the lead issue. He recalled that at the last Kansas commission meeting, a wildlife rehabber came in with pictures of an eagle that she had rehabilitated with lead poisoning; she was also a deer hunter and concerned about feeding lead to her children. There has been more activism about lead in KS and Iowa. The western association is trying to deal with the lead issue from the perspective of its impact on California condor and incidence of lead in ravens. It appears these birds are acquiring the lead from big game hunting, and this is occurring at levels sufficient to cause population problems for these species. The western association is trying to come out with a position statement about lead. Further, Lloyd brought up concern about lead in the prairie dogs towns also. He believes the vast majority of hunters (60-70%) are opposed to being forced into using nontoxic shot or bullets. Can this committee have a role? Julie (WI) recommended that perhaps our committee should encourage state directors (via AFWA) to clean up the act of their own state agency first (lead by example).

GonaCon Procedures & Permits

Lloyd Fox (KS) led a discussion on the use of GonaCon in fertility control. Current studies relating to the efficiency of this drug for controlling overpopulation of deer (as an example) are weak. A handout was shared with the committee from AFWA, which was a letter to EPA addressing concerns with this control measure. Tom DeLiberto (USDA-WS) pointed out that if GonaCon gets registered, it would be under USDA-WS and would require cooperation and approval from the relevant state agency to actually administer to wildlife. Tom also pointed out that there are going to be other similar products coming into the marketplace soon, so states should be ready to respond accordingly.

Chronic Wasting Disease (CWD) Update & Discussion

Paul Shelton began the discussion by providing an overview of CWD management efforts in Illinois. Illinois believes that CWD does not have to be purely a surveillance exercise, as they want to do long term management. In a recent public survey, most respondents wanted all means and methods applied to manage CWD and it was a very important issue. Hunters, of course, want to use hunting as a general strategy, but were open to other methods. A majority of hunters (72%) wanted to increase the sharpshooting (SS) effort, and 86% of the public agreed. About 50% are okay with killing the entire deer population in infected areas to control CWD. However, this survey was done before reality set in that deer numbers will be dramatically reduced. All significant increases in deer removals have been due to SS, not hunting effort. They have removed 7,500 deer via SS, as lower deer densities are assumed to reduce disease transmission rates. Illinois has been evaluating their management efforts of the first 6 years with the disease. They did not see significant declines in deer numbers until after 3 consecutive years of SS, and then this strategy made a real impact. The SS program was very affective at reducing deer densities. An evaluation of how SS changed disease prevalence rates showed it impacted the rates in young deer (more years of SS reduced prevalence in fawns/yearlings). By sex, SS had no affect regarding males, but did reduce the odds of females becoming positives by 50%. If the young deer represent the probability of new deer becoming infected (force of infection), then SS has had a positive impact at reducing disease prevalence. The affect of SS is less on males because they are more mobile, whereas adult female stay in their home range and are more vulnerable.

Bryan Richards (USGS) continued the CWD discussion with prevalence data from Wyoming that showed the disease increased from 12% in 1997 to >35% in 2009; corresponding to adult males removed from 4 hunting areas. This shows that prevalence can get high over a relatively large geographic area (growing at 10%/yr). In one hunt area, CWD prevalence is >35% and deer population trends suggest decline (can't say cause-effect, but interesting). In WI, CWD prevalence has been increasing over the past

8 years in adults (males @ 5%/yr and females @ 7%/yr). In the yearling dataset, female prevalence rate is going up 18%/yr and disease can limit lifespan and overall reproductive output. In Colorado, quoting a recent Miller et al. article, about a 50% population decline in mule deer population near Boulder has occurred in the last 20 years. Life expectancy was 5 years higher if not infected with CWD. Heisey et al. monograph is currently in press, *Ecological Monographs (Linking Process to Pattern)*, and shows that CWD became established earlier in a high deer density area, and it has subsequently increased relatively independent of deer density in Wisconsin. Also, lowering deer density adjacent to areas with CWD establishment may reduce the likelihood that CWD will spread...take home management message! Thus, reducing deer in the area surrounding an outbreak might be your best bet!

Julie Langenberg commented that the mean CWD surveillance weight for both mule deer and elk (CO dataset) shows if you assign a 1 to an adult male, then yearlings are less useful (.25), adult females about 0.5 as useful, and suspect deer are extremely useful (10-12x as useful as an adult male and 40x as useful as a yearling) for detecting CWD. The WI dataset matches this ranking system as well. The point here is that in WI's hunter-harvested surveillance, we end up with a LOT of yearling samples. Bottom line- there is no magic tool for surveillance, but we are learning a lot. Bryan further cautioned that these datasets are being derived from areas with endemic infection and a long standing outbreak, thus new states looking for CWD or a recent infection might not follow these demographics.

On the funding issue, the committee discussed increasing/decreasing funding from the federal government and how to design a surveillance program around that. In states without CWD, rotating surveillance every 2-3 years might be okay, whereas states with the disease that want to better track changes in prevalence and distribution should test annually. Steve Griffin (SD) brought up the idea that if a state does not use all the federal funds (like SD), can they return the unused portion back into the CWD pot for other states that are actively managing the disease can draw from? Where does the unused CWD funding go?

Bovine Tuberculosis Update in Minnesota

Michelle Carstensen provided an overview of the bovine tuberculosis outbreak in cattle and wild deer in the northwestern corner of the state. To date, they have found 27 wild deer with the disease and 12 infected cattle herds. Fall 2009 hunter-harvested surveillance efforts yielded approximately 1,500 samples and only 1 TB-positive deer. However, this animal (3.5 year old male) was located 2.2 miles to the west of the core area and resulted in an expansion of the original 164 mi² core. An intensive winter deer removal project (ground SS) was just completed, removing 450 deer in the localized area where the disease has been found (January population estimate was 422 deer), and no obvious clinical cases of the disease were detected (final culture results will not be available until late summer). Minnesota DNR will be working to renegotiate the current sampling requirements with USDA to reduce the sampling burden as deer numbers are reduced and quotas become more difficult to reach. The state was granted Split-State Status in 2008, following a cattle buy-out program that removed 46 of 68 herds from the endemic area. The DNR has committed to conducting deer surveillance for bovine TB for 5 years of consecutive zero positives detected.

Bovine Tuberculosis Update in Michigan

Steve Schmitt provided an update to the committee on Michigan's efforts to manage bovine TB. Recent testing has focused mostly on the 5-county region, but they did test 367 in a 10-mi radius around the outlier TB-positive case detected in southern MI in 2007. In 2009, about 5,700 deer were tested and found 31 positives. Twenty-one of the 31 positives from 2009 were from DMU 452, the core area. Prevalence in the core area is about 1.9%, down from 5% in the mid-1990's. Thus far in 2010, 213 deer have been removed by landowner disease control permits and 6 positives have resulted. One deer in 2010 was found in Cheboygan County, a new county, resulting in a 10-mi radius circle needing additional surveillance because it's outside the Modified Accredited Zone. The last 5 years of surveillance has not shown a continued decreasing trend in prevalence, it has stabilized instead, around 2%. Force of infection has shown a 57% decline in transmission rates over the long-term (1995-2009); however, it has only been a 4% decline in the past 5 years (explains why the prevalence has been relatively flat over the last 5 years). Why has the transmission rate flattened? Deer numbers have been increasing in recent years and feeding/baiting has continued to be a problem. Michigan is limited by its management tools, and thus must rely on hunters who aren't harvesting enough antlerless deer. Other tools remain on the horizon, including a vaccination program, TB blood testing, and disease modeling.

Moose Health in Minnesota

Erika Butler (MN) provided an update on Minnesota's hunter-harvested moose herd health assessment project. The purpose of this project, which was initiated in 2007 in response to MN's declining moose population, is to screen hunter-harvested (and presumably healthy) moose (*Alces alces*) for a variety of disease agents. The results are intended to indicate which diseases the northeast Minnesota moose population is being exposed to as well allowing for comparisons between similar testing completed on non-hunting moose mortalities from the same population. From the 2007-2009 hunting season, samples were collected from 372 moose. Positive results confirm moose were exposed to, though not necessarily ill from, eastern equine encephalitis, West Nile Virus, malignant catarrhal fever, *Neospora*, anaplasmosis, bovine herpes virus 1, bovine viral diarrhea virus 1 and 2, *Leptospira sp*, and parainfluenza virus 3. All results were negative for *Mycobacterium paratuberculosis*, brucellosis, blue tongue virus, epizootic hemorrhagic disease, chronic wasting disease, and bovine tuberculosis. Examination of whole brains has found evidence of migration tracts, likely due to *P. tenuis* (brainworm) infection, and evaluation of whole livers has allowed for the development of ranking system used to evaluate damage caused by liver flukes.

Director Action Item

Resolution in Support of Animal Identification

The committee discussed a resolution in support of animal identification. All committee members voted in favor of the resolution, no nays.

SUPPORT FOR NATIONAL AND STATE LIVESTOCK INDIVIDUAL ANIMAL IDENTIFICATION REQUIREMENTS

WHEREAS, the Midwest Association of Fish and Wildlife Agencies (MAFWA) states are concerned about management of diseases shared between livestock and free-ranging wildlife, such as brucellosis, bovine tuberculosis, and chronic wasting disease; and

WHEREAS, livestock is defined as domestic and non-traditional (e.g. captive wildlife) farmed animals;

WHEREAS, the MAFWA states are concerned about the potential impacts of infected livestock on free-ranging wildlife populations and their habitats; and

WHEREAS, the MAFWA believes that individual livestock animal identification and premise registration are critical to identifying the origin of infected livestock and to epidemiologic investigations for risk assessment and control of diseases shared between livestock and free-ranging wildlife; and

WHEREAS, USDA's current National Animal Identification System (NAIS) is a voluntary program and only applies to inter-state transport; and

WHEREAS, Federal and State efforts to implement livestock individual animal identification and premise registration systems are currently inadequate to address MAFWA's concerns on the origin of, and intra- and interstate movements of livestock.

NOW, THEREFORE, BE IT RESOLVED, that the Midwest Association of Fish and Wildlife Agencies at its annual meeting in Indianapolis, IN, on June 27-30, 2010, supports further development and implementation of Federal and State programs that mandate universal livestock individual animal identification, including mandatory premise registration. These programs should include requirements for individual animal identification for all livestock, applying specified alternative animal identification systems additional to ear tags, such as implanted microchips/transponders.

AWFA Federal Appropriation Recommendations for the 2013 Federal Budget

The committee decided on the following funding recommendations:

- Ranking #1 is Chronic Wasting Disease for \$20M
- Ranking #2 is Bovine Tuberculosis for \$20.6M (justified by the new states that are testing wildlife (IN, NE, SD, etc.)
- Ranking #3 is Aquaculture/VHS for \$18M
- Ranking #4 is Invasive Species for \$22.6
- Ranking #5 is Avian Influenza \$60.2M
- Ranking #6 is Brucellosis for \$13M

The committee also recommended funding for USDA-APHIS-WS for the Wildlife Disease Monitoring and Surveillance program for \$8.0 million. This program funds free wildlife disease assistance to states, such as CWD and TB surveillance and participation of wildlife disease biologists in state agency wildlife disease management activities.

Time and Place of Next Meeting

During the wrap-up, the committee decided the location of the 2011 meeting would be in South Dakota, either in late April or early May. This year's meeting was judged a success and we want to thank the Directors who sent representatives to this meeting and encourage those who did not to consider sending one to next year's meeting.

Submitted by: Stephen M. Schmitt, Chair
 Michelle Carstensen, Vice-Chair