Midwest Fish and Wildlife Health Committee Meeting

May 20-21, 2008
Two Harbors, MN

Hosted by:

Minnesota Department of Natural Resources

Meeting Time and Place

May 20 – 21, 2008 Two Harbors, MN

Attendance

Representatives from 9 state fish and wildlife agencies (CO, IA, KS, MI, MN, ND, NE, SD, WI), the United States Dept. of Agriculture/ Wildlife Services (USDA-WS), USDA- Agricultural Research Services (ARS)/National Animal Disease Center, US Dept. of the Interior/Geological Survey/ National Wildlife Health Center, and Iowa State University/Department of Natural Resource Ecology and Management attended this year's Midwest Fish and Wildlife Health Committee Meeting. A total of 18 individuals were in attendance.

Executive Summary

The Midwest Fish & Wildlife Health Committee conducted its annual meeting May 20-21, 2008 at Superior Shores Resort in Two Harbors, Minnesota. The states of Colorado, Iowa, Kansas, Michigan, Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin were represented. Also attending were representatives from USDA-APHIS-Wildlife Services, USDA-Agricultural Research Service/National Animal Health Center, USGS-National Wildlife Health Center, and Iowa State University - Department of Natural Resource Ecology and Management. The states of Illinois, Indiana, Kentucky, Missouri, and Ohio, and the Canadian Provinces of Manitoba, Ontario, and Saskatchewan were not represented.

Rebecca Humphries, Chair of Association of Fish and Wildlife Agencies (AFWA) Fish and Wildlife Health Committee and Director of the Michigan Department of Natural Resources, 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 capability 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 Initiative has been passed and a steering committee was formed last year. This steering committee has met twice and is continuing to work on the creation of a charter. The steering committee decided that forming both federal and non-governmental organization caucuses was premature at this point in the development of the Initiative; however, the issue of a lack in tribal representation has been resolved. USDA has offered to help the steering committee develop a simple survey to assess the authorities and capacities to address fish and wildlife health issues that will be sent out to all state directors. A “toolbox” for new state directors to better understand fish and wildlife health issues and gauge their readiness to respond to crises is also under development. The next meeting of the steering committee will be in the fall of 2008. Minutes of this meeting will be circulated through AFWA’s Fish and Wildlife Health Committee members.

Dave Schad, member of AFWA Fish and Wildlife Health Committee and Chair of the Lead Toxicosis Committee, and Director of the Minnesota Department of Natural Resources, led a discussion on this issue of lead in venison. With both North Dakota and Minnesota's Departments of Health pulling venison off food shelves, the complexity of the issues was discussed as it involves state department of health, agriculture, and wildlife as well as sporting industry, ammunitions manufacturers, and more. There is increasing concern in how this issue will affect venison donation programs and hunting traditions across all the Midwest states. Dave mentioned a meeting planned for June 4, 2008 in which state agencies, meat processors, sporting industry representatives, ammunitions manufacturers, and Centers for Disease Control will be in attendance. Outcomes of this meeting are expected to be: 1) provide guidance on how food shelf programs may be run to minimize health-related issues, 2) provide guidance to hunters to make informed decisions to minimize their health risks, and 3) identify both ongoing research and new studies to address gaps in current knowledge base on the issue. Dave also pointed out that the lead in venison issue goes beyond a human health concern and is a real concern for wildlife health as well (e.g., bald eagles, California condors, etc.). Michelle Carstensen, Minnesota DNR, discussed the research Minnesota has done thus far on assessing the distribution of lead in food-shelf venison in the state and concluded 26% of 1,000 lbs collected statewide had some lead, and the type of processing facility (16% of USDA-inspected vs. 37% of retail processing facilities had some contaminated samples) appeared to be an important factor in the level of lead contamination. Dave Garner, Chief of Iowa's DNR, discussed the importance of gaining support from fisheries and the need to make people aware of non-lead alternatives.

Each state provided an update on the wildlife disease issues within their jurisdiction (see Appendix III). For your convenience, an index of disease by state is included in Appendix IV.

Ann Hutton of the National Wildlife Health Center also provided an update on several disease outbreaks and mortality events (see Appendix V).

Paul Wolf, USDA-WS, provided an overview of the results of the 2007 national avian influenza surveillance efforts.

Julie Langenberg, Wisconsin DNR, led a discussion on Chronic Wasting Disease (CWD). There is a CWD workshop planned for July 15-16, 2008, hosted by USGS-NWHC, to help determine 1) detection surveillance that works and is cost effective, and 2) how to best monitor to evaluate prevalence and spatial trends. The expected product from this workshop is a white paper. Julie discussed several important questions related to CWD. First, does CWD spread and prevalence increase? Recent studies in WY have detected a 27% prevalence in white-tailed deer, with higher prevalence in females (32%) than males (22%); which is contrary to previous studies that have suggested that older males are more likely to be infected with CWD. Wisconsin's CWD prevalence has remained largely unchanged in the last 6 years, and Julie suggested that perhaps it's too early to tell if this means the disease is in its early stages and waiting to increase or stable. Second, can CWD pose significant long-term risk to wild deer populations and the hunting economy? Wyoming data suggests that CWD is a major cause of mortality in white-tailed deer, either directly or indirectly, and limits population growth. In Wisconsin, early human dimensions research has suggested that hunting will decline if prevalence reaches high levels (the "ick" factor). Lastly, can you manage CWD to decrease its impacts? Julie believes that CWD management requires a dramatic and sustained reduction in deer populations. Recreational hunting alone will not control CWD, as hunters to not view themselves as disease control agents. Bottom line…if you are a state that does not have CWD, implement preventative measures to minimize risk of introduction. If you do have CWD, then sustain management goals and monitoring and support additional research.

Julie Blanchong, Iowa State University - Department of Natural Resource Ecology and Management, presented information about her research on landscape genetics and the spatial distribution of CWD in Wisconsin. Julie's project is aimed at identifying how landscape features influence population genetic structure and dispersal distance and direction. Her objective is to understand if deer population genetic structure can be used to identify barriers to gene flow (i.e., deer movement) and explain the current spatial distribution of CWD in WI. Her findings thus far suggest that prevalence was correlated with the degree of differentiation from the CWD-core area. The next steps for this project include working with Iowa DNR to model where CWD might appear first in the state if it were to spread from WI. Julie is also working on an extension project in Iowa on educate the public about feral hogs. Lastly, Julie is working with wildlife rehabilitation centers to evaluate if they are collecting data that could be used to help detect disease presence (e.g. sentinel animals).

Michelle Carstensen, Minnesota DNR, provided an overview of the bovine tuberculosis outbreak in cattle and wild deer in the northwestern corner of the state. To date, the have found 18 wild deer with the disease and 11 infected cattle herds. An intensive winter deer removal project was just completed, removing approximately 1,000 deer in the localized area where the disease has been found (January population estimate was 800 +/- 130 deer), and 8 new "suspect" deer have been discovered. Minnesota DNR will be conducting hunter-harvested surveillance again this fall, as well as again liberalizing the fall hunting season to encourage the taking of more deer in the infected area. The discovery of additional infected cattle herds this past year has resulted in the state's status being downgraded to Modified Accredited, and the state is currently seeking split-state status with USDA. Further, legislation recently passed to allow for a cattle buy-out program in the infected area.

Steve Schmitt, Michigan DNR, continued the discussion of bovine tuberculosis in wild deer, providing an update on Michigan's activities. Last fall's surveillance indicated a decrease in prevalence from the past year; and the long-term decreasing trend for disease prevalence remains statistically significant. However, an outlier deer was detected with the disease in Shiawassee county. Genetic testing of this 1.5 year-old doe suggested that it was not similar to other deer in that area, although it did have the same strain of bovine TB as deer in the endemic area. Testing of deer within 10 miles of this case did not find additional infection. Field research is continuing, including the trap, test and cull pilot project as well as vaccine development.

Mitch Palmer, USDA-ARS, provided an overview of bovine tuberculosis vaccine development. Mitch's project has expanded the research previously conducted with the Pasteur BCG vaccine in red deer in New Zealand. Mitch found that vaccinated animals had fewer total lesions and fewer advanced stage lesions. An additional study with an oral vaccine (Danish strain) showed even more promise, as the delivery system appeared feasible for wild deer and the protection from disease development was improved over the Pasteur strain.

Julie Langenberg, Wisconsin DNR, gave a presentation on botulism E in the Great Lakes. This disease has an historical incidence in fish; however, there has been a re-emergence of the disease and possibly linked to invasive species (round gobi, zebra mussels, etc.). It is believed that decaying Cladophora algae in the sediment may contribute to toxin production in mussel beds; vertebrate species than ingest the mussels and the bacteria is spread up the food chain resulting in waterfowl mortality events. Research needs include confirmation of toxic sources for fish and birds, the population level effects in birds, and a better understanding of non-avian mortalities. There is a meeting in late June 24-25, 2008 on botulism E in the Great Lakes to be held in Detroit, MI.

Tom Hutton, USDA-Wildlife Services, provided an update on feral hogs in the Midwest. Feral hogs are known carriers of 30 diseases and 37 parasites that can affect wildlife, pets and people. States with feral hog populations need tougher penalties for intentional releases. Also, more information is needed to educate conservationists, the general public, agencies, legislators, law enforcement, prosecutors, and judges. There is also a need to collect more blood samples from feral hogs to help with the early detection of pseudorabies, swine brucellosis, and the possibility of other foreign animal diseases.

During the wrap-up, the committee decided the location of the 2009 meeting would be in Colorado, 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. And, as a reminder, this is the Midwest Fish and Wildlife Health Committee Meeting and we would like to see more Fish Health Specialists attend the future meetings.

Director Information Items

CHRONIC WASTING DISEASE SURVEILLANCE WORKSHOP

In December of 2002 the US Geological Survey's National Wildlife Health Center (NWHC) convened a 3-day workshop in Madison, WI, to develop guidance on surveillance strategies for chronic wasting disease (CWD) in free-ranging deer and elk. The mission of the workshop was to provide a technique-oriented focus for designing, developing, and implementing CWD surveillance programs for free-ranging cervids. The workshop resulted in a white paper ("Surveillance Strategies for Detecting Chronic Wasting Disease in Free-Ranging Deer and Elk;" http://www.nwhc.usgs.gov/publications/fact_sheets/pdfs/cwd/CWD_Surveillance_Strategies.pdf) that has been used by numerous jurisdictions as the basis for their ongoing CWD surveillance activities.

In 2007, the Midwest Association of Fish and Wildlife Agencies, on behalf of the states, requested that USGS sponsor and conduct a follow-up workshop, designed to address two specific CWD surveillance topics: (1) how should states that have not detected CWD in their free-ranging populations continue to conduct detection surveillance in an efficient and cost-effective manner; and (2) how can states with CWD in their free-ranging populations best conduct surveillance to monitor changes in disease prevalence and geographic distribution, again, in a more efficient and cost-effective manner?

In response to this request, the USGS is organizing a two-day workshop to address these critical surveillance questions. The workshop is scheduled for Tuesday and Wednesday, July 15-16, 2008 at the NWHC in Madison, WI.

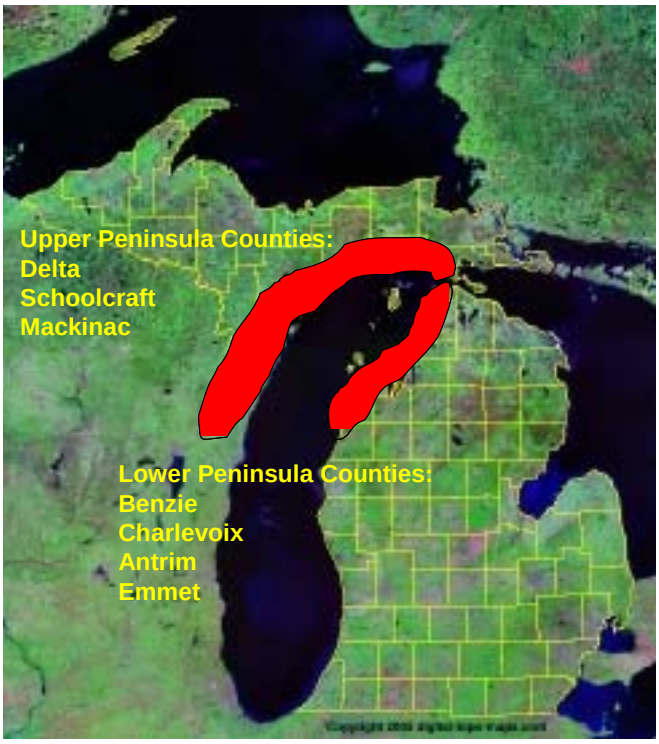
TYPE E BOTULISM

Botulism is a paralytic condition brought on by the consumption of a naturally occurring toxin produced by the bacterium *Clostridium botulinum.* The toxin produced during growth of the bacterium is one of the most poisonous substances known. There are 2 types of botulism detected in wildlife, Type C and Type E. Type C occurs in bottom sediments and occurs annually, to some degree, in the Great Lakes states. Type E botulism is associated with the ingestion of fish and occurs mainly in gulls, loons, mergansers, grebes, and cormorants and has been less common. Type E botulism has occurred annually in at least one of the Great Lakes (Lake Erie, Lake Ontario, and/or Lake Michigan) since 1998. This correlated with the introduction of Zebra and Quagga mussels and Round gobies (species native to the Black and Caspian Seas, which are located between Turkey and Russia). The bacterium *C. botulinum* Type E is found in bottom sediments, in aquatic invertebrates, and in the gut of fish.

In Lake Michigan, low water levels, excessive algae (Cladophora) growth, and the presence of non-indigenous aquatic species (Zebra and Quagga mussels and the Round goby) has led to the re-emergence of this disease. The Cladophora algae growth creates non-aerobic conditions in which the bacteria proliferate. Zebra and Quagga mussels feed on bottom sediments in these beds of algae, thus obtaining the bacteria. The mussels are then, in turn, fed upon by the gobies. Gobies become sick and/or die due to the botulinal toxin and the live or dead fish is then eaten by a fish-eating bird. This results in a Type E botulism die-off occurring coincidentally in fish and birds.

Type E botulism had not been commonly seen in either Lake Huron or Lake Michigan in recent years with only a few cases reported. However, in 2006, die-offs of horned grebes, red-necked grebes, common loons, double-crested cormorants, herring gulls and ring-billed gulls were reported in Lake Michigan in both the Upper and Lower Peninsulas of Michigan and a small mortality event occurred in the Green Bay and Door County area of Wisconsin.

In 2007, die-offs of Horned Grebes, Red-necked Grebes, Ring-billed Gulls, Herring Gulls, a Bald Eagle, White-winged Scoters, Common Loons & Long-tailed Ducks were reported on the Lake Michigan shoreline in both the Upper and Lower Peninsulas of Michigan and a small mortality event occurred in the Green Bay and Door County area of Wisconsin.



2006-2007 Type E Botulism Die-offs

Increases in Cladophora algae, and mussel and goby populations in Lake Michigan have been observed, with this combination of factors likely resulting in mortality of waterbirds due to Type E Botulism becoming an annual event. It is likely that the disease will eventually be reported from the upper portion of Lake Huron.

ADDRESSING FERAL SWINE POPULATIONS IN MAFWA STATES

Recognizing feral swine as one of the most destructive, invasive, vertebrate species in the United States, the Midwest Association of Fish and Wildlife Agencies, the American Association of Fish and Wildlife Agencies and the United States Animal Health Association have passed resolutions calling for feral swine control. While these resolutions are an essential first step toward addressing the problem, these resolutions must be followed by concerted action to stem the increasing number and distribution of feral swine in the Midwest.

Feral swine are conservatively estimated to cause $800 million/year of damage in the United States. They cause $52 million of agricultural damage in Texas annually. They are a major reservoir, amplifier, mixing vessel and vector for diseases that affect people, pets, livestock and wildlife as presented to the Midwest Association Directors in “Disease Risks Associated with Increasing Numbers and Distribution of Feral Swine in the United States”. Feral swine should be treated with the gravity and commitment to eradication with which the diseases they carry would be treated. While small, isolated herds currently may be free of disease, they will almost certainly become infected from illegal releases of infected swine or from expansion of infected populations in states to the south. Discoveries of pseudorabies in Nebraska, Wisconsin, Michigan

and Missouri and swine brucellosis in Iowa in the last few years are evidence of the illegal movements of infected swine that are occurring.

Feral swine continue to increase in number and distribution. North Dakota has confirmed feral swine in three areas of the state, and has unconfirmed reports in 3-4 other counties. In so doing, it joins Missouri, Kansas, Illinois, Colorado, Iowa, Indiana, Nebraska, Ohio, Michigan and Wisconsin with feral swine populations, leaving only South Dakota and Minnesota among the MAFWA states without confirmed populations.

Adequate investment now can allow MAFWA states to avoid the fate of Texas and other states which are being devastated by feral swine. The key to success with the least cost is to quickly and aggressively attack the problem on public and private land with a variety of techniques when feral hogs are discovered. Both Nebraska and Iowa appear to be controlling their populations using this approach. In other MAFWA states with larger populations and different terrain and cover, controlling feral swine will be harder and more expensive, but it can be done. The most recent eradication effort on Santa Cruz Island cost approximately $1000/pig for direct control. This must be considered a minimum cost for direct control since it took place on a 96 square mile island and herds on the U.S. mainland will be harder to contain and eliminate. While that cost is substantial, it pales in comparison to the damage caused by these animals, and to the ultimate cost if their numbers continue to increase and they become infected with a serious foreign animal disease.

While funds generally become available when diseased feral swine are discovered, similar resources are not available to control feral swine themselves. MAWFW states must work to muster the resources to address the problem before a serious disease becomes entrenched in their feral swine, rather than after. It will take the concerted efforts of all the MAFWA states, and agricultural and natural resource stakeholders within the states, to insure that adequate state and federal funds are made available to address this problem.

MAFWA should consider:

1. Writing letters to the Congressional delegations of all MAFWA states asking that funds be appropriated to control this destructive, invasive species through a matching grant program to states that have a functioning feral swine task force and a written plan for feral swine control/eradication and disease testing.
2. Contacting the other U. S. fish and wildlife associations to enlist their support of this effort to establish a feral swine control/eradication grant program.
3. Contacting the United States Animal Health Association (USAHA) to enlist their support of this effort to establish a feral swine control/eradication grant program.

Each state should consider:

1. Contacting state political leaders to support state appropriations to address the problem.
2. Enlisting the support of state agricultural departments and stakeholders to encourage Congress and state legislatures to pass such appropriations.
3. Energize natural resource stakeholders to support both state and federal appropriations to address the problem.

LEAD IN VENISON

Ecological studies in recent years have shown that small fragments of lead from bullets can be spread broadly into the meat of deer shot by hunters. These lead fragments have been found to be toxic to the wildlife, such as eagles that feed on the carcasses. However, a recent study of bullet fragments in rifle-killed deer from North Dakota has led to concerns in Midwestern states about risks of lead exposure associated with human consumption of venison, and specifically concerns about pantry-donated venison. Although food pantry donation programs have been a significant focus, the issue is broader, and includes venison consumed by hunters as well. As such, representatives from North Dakota, South Dakota, Iowa, Minnesota, Michigan and Wisconsin Departments of Human Health, Agriculture and Natural Resources held a joint meeting on June 4th, 2008 in Minneapolis regarding the potential for human exposure to lead among those consuming venison.

Time and Place of Next Meeting

The next meeting of the Midwest Fish and Wildlife Health Committee will be in Colorado in late April or early May 2009 at a location to be determined.

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