
SCWDS BRIEFS

A Quarterly Newsletter from the
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Wildlife Health Alert on Neurologic Disease in Ducks and Eagles

The National Wildlife Health Center of the U.S. Geological Survey (USGS) issued a wildlife health alert on February 8, 1999, regarding the recent finding of a neurologic disease of unknown cause in ducks in North Carolina as well as in bald eagles in Georgia, North Carolina, and South Carolina. It reads as follows: "Pathologists at the USGS National Wildlife Health Center (NWHC) in Madison, Wisconsin and the Southeastern Cooperative Wildlife Disease Study (SCWDS) at The University of Georgia have found changes in the brains of mallard, widgeon, and ringed-necked ducks from Woodlake, North Carolina, that are similar to the changes found in the brains of American coots and bald eagles with vacuolar myelinopathy. The disease had not previously been documented in species other than American coots and bald eagles. In addition, bald eagles collected from 4 new locations (near Woodlake, North Carolina; Aiken, South Carolina; and Strom Thurmond Lake and Lake Juliette, Georgia) and coots from Aiken, South Carolina, appear to also have the same brain disease. In Arkansas, at least 58 bald eagles and an unknown number of coots have died from this disease since it was first detected in 1994. A previous Wildlife Health Alert confirmed vacuolar myelinopathy in coots collected at Woodlake in North Carolina and Lake Juliette in Georgia.

"Vacuolar myelinopathy is a central nervous system lesion, diagnosed by microscopic examination of very fresh brain tissue. In affected birds it appears as open spaces in the white matter of the brain. Using electron

microscopy, scientists determined the spaces are caused by separation of the myelin layers that surround and protect the nerves. Using electron microscopy, the SCWDS pathologist has confirmed the lesion in 1 of the North Carolina mallards and in the Strom Thurmond Lake eagle. Electron microscopy confirmation of vacuolar myelinopathy lesions in the remaining ducks and eagles is pending.

"Affected birds have erratic flight or are unable to fly, may crash land, swim tipped to one side with one or both legs or wings extended, or be in the water on their back with their feet in the air. On land, birds stagger and have difficulty walking and may fall over unable to right themselves (appear intoxicated). Birds are usually alert and may bite when handled even if unable to escape capture. It remains unknown if the disease is "spreading" or if affected birds at other locations are recognized because more people are aware of the problem.

"All diagnostic, field, and laboratory efforts indicate the cause is most likely a toxin, either one that is naturally occurring or manmade. Tests have been unfruitful for the toxins previously associated with vacuolar myelinopathy in other species. Route of exposure to the toxin is not known at this time. Multiple agencies are continuing field, laboratory, and research efforts to determine the cause of the disease. Wildlife managers are encouraged to observe coots, waterfowl, and eagles and report any sick birds to the National Wildlife Health Center at 608-270-2400 or to the Southeastern Cooperative Wildlife Disease Study at 706-542-1741. If any freshly dead birds are found, please keep carcasses

chilled on ice or refrigerated, but not frozen, while you contact the above agencies." (Prepared by John Fischer)

Michigan TB Update

Bovine tuberculosis (TB) has been documented annually since 1994 in white-tailed deer in the northeastern portion of Michigan's lower peninsula (SCWDS BRIEFS Vol. 11, No. 2). Prior to this year, TB also had been diagnosed in 1 cattle herd, 1 captive deer herd, 5 coyotes and 2 raccoons (SCWDS BRIEFS Vol. 13, No. 4). More recently, TB has been confirmed in 2 additional Michigan cattle herds and in 1 black bear, all within the 5-county area where TB is endemic in free-ranging deer.

When TB was diagnosed in the first cattle herd in Michigan, the State's TB Accredited Free status was lowered to TB Accredited Free-Suspended. The recent diagnosis of TB in 2 additional bovine herds normally would have meant the loss of Michigan's TB Accredited Free status. However, the U.S. Department of Agriculture (USDA) has announced that Michigan would retain its current status of TB Accredited Free-Suspended for now. An interim rule is being developed to refine the USDA's TB program status levels and to describe the steps necessary for a state to achieve and maintain a "split" TB status. It is proposed that states with split status could declare that bovine TB exists in cattle and/or bison in one portion of a state while the remainder of the state remains recognized as TB-free.

With respect to TB in Michigan's free-ranging wildlife, several steps were taken in the last year toward the ultimate goal of eradication of bovine TB in Michigan. The Michigan Department of Agriculture placed a mandatory ban on supplemental feeding of deer in northeastern Michigan, which is believed to have contributed greatly to the spread of TB by causing unnatural congregations of deer and promoting extensive nose-to-nose contact at the feeding sites. Preliminary results indicate excellent compliance with the ban, and in the only court case to date, a judge recently denied a preliminary injunction

against the ban that had been sought by a small number of landowners in the area.

Other steps taken in the last year include liberalization of hunting regulations in northeastern Michigan to increase the deer harvest, especially for does. Preliminary results indicate good hunter success with marked increases in the number of deer and the percentage of does taken. This success is due largely to the education of hunters by the Michigan Department of Natural Resources and sportsmen's groups. The program emphasizes the need to reduce the density of deer to bring the population more in line with the carrying capacity of the land and to reduce the likelihood of transmission of TB among deer.

The large cooperative effort mounted against bovine TB in Michigan continues with extensive surveillance of northeastern Michigan's wildlife, cattle, goats, and captive deer and elk. More than 8,000 hunter-killed deer were examined for TB during the 1998 hunting season with 77 TB suspects detected. Increased surveillance of hunter-killed deer in the buffer zone adjacent to the endemic area detected 1 deer with TB in Otsego County, bringing to 6 the total number of counties with TB-infected free-ranging deer. Surveillance also continues among wild carnivores and omnivores that could acquire the TB bacteria by feeding on infected deer. (Prepared by John Fischer)

TB Regs Finalized for Cervids

USDA's Animal and Plant Health Inspection Service (APHIS) has published a *Final Rule on Tuberculosis in Captive Cervids* in the Federal Register (Vol. 63, No. 251, December 31, 1998, pp. 72104-72129). This Final Rule amends the federal regulations concerning bovine tuberculosis (TB) by adding provisions for all members of the family Cervidae that are held in captivity (deer, elk, moose, et al.) Formerly, the federal program only applied to cattle and bison. The new federal regulations set standards for TB testing for captive cervids moved interstate or exported to other countries. A voluntary herd

accreditation program has been devised, whereby participating captive cervid herds would be subjected to progressively less restrictive requirements for moving animals as a testing program is implemented and maintained.

There are to be 3 classes of captive cervid herds in regard to TB status: *Accredited*, *Qualified*, and *Monitored*. The *Accredited* herd status provides the greatest assurance of freedom from TB. To achieve *Accredited* herd status, captive cervid herds must test negative in 3 or more consecutive official whole-herd TB tests conducted at 9- to 15-month intervals. A *Qualified* herd is in the process of reaching accreditation status and has at least 1 negative whole herd test. The concept for the *Monitored* herd is different; it applies to captive cervid herds where it is not possible to capture and test every animal for a whole-herd test because the animals are held in large enclosures and/or are extremely wild. *Monitored* herd status is obtained by inspection of statistically acceptable numbers of cervids over time at approved slaughter establishments or diagnostic laboratories. The slaughter data can be supplemented by live animal TB tests on additional animals. Federal rules will allow cervids from *Accredited* herds to be moved interstate without a required TB test. Animals from *Qualified* herds and *Monitored* herds must have 1 negative TB test within 90 days prior to movement. All other captive cervids (animals from herds of unclassified status) must have 2 negative TB tests conducted no less than 90 days apart, and the last test must have been within 90 days or less.

The Final Rule also provides details on the administration and interpretation of official TB tests and the procedures for quarantining and investigating herds with test-positive animals. The establishment of federal regulations to combat TB in captive cervids can be viewed as an important milestone toward the final elimination of this disease in the captive cervid industry. Of interest to wildlife managers is the caveat that limits APHIS's *Final Rule* only to captive cervids, which are defined as "*all species of deer, elk, moose, and all other members of the family*

Cervidae raised or maintained in captivity for the production of meat and other agricultural products, for sport, or for exhibition." Whether there will be attempts to apply the current standards to the interstate relocation of wild cervids has yet to be determined. (Prepared by Victor Nettles)

READEO Test Exercise

On November 2, 1998, the U.S. Department of Agriculture (USDA) activated both its Eastern and Western Regional Emergency Animal Disease Eradication Organizations (READEOs) for a Test Exercise of the Animal Health Emergency Management System. The Test Exercise involved a simulated outbreak of a foreign animal disease that occurred simultaneously in Minnesota, California, and Florida. The Eastern READEO initially was assembled in Minneapolis, Minnesota, but as the scenario developed an additional task force was added in Tallahassee, Florida. The Western READEO was headquartered in Roseville, California. Also involved were USDA's Emergency Management Operations Center in Riverdale, Maryland, and the Foreign Animal Disease Diagnostic Laboratory at Plum Island, New York.

State fish and wildlife agency personnel for the READEO Wildlife Sections were activated in California and Minnesota. Mr. Joe Marcino with the Minnesota Department of Natural Resources (DNR) and Dr. Pam Swift with the California Department of Fish and Game (DFG) were present to fulfill their duties as State Wildlife Liaison Officers to the Western and Eastern READEOs, respectively. Drs. Mike Philo (USDA), Joseph Corn (SCWDS), and John Fischer (SCWDS) served as Wildlife Officers in Roseville, California; Minneapolis, Minnesota; and Riverdale, Maryland, respectively.

The simulated outbreak involved a hypothetical virus that was described as a highly contagious disease to all cloven-hoofed animals including cattle, swine, sheep, goats, deer, elk, and wild hogs. The agent was code-named "Nimby" but

was considered equivalent to a real foreign animal pathogen, foot-and-mouth disease virus. The initial concerns of the READEO Wildlife Sections were relative to what species of "Nimby-susceptible" wildlife were present in the affected areas, their population densities, game farms present in these areas, and hunting seasons that were in progress or about to begin. Timely information on wildlife populations, exotic game farms, and hunting seasons was provided by the California DFG and the Minnesota DNR.

Many of the READEO activities involved the Wildlife Section. An important activity of the READEO Wildlife Section was simulated surveillance of white-tailed deer, elk, and wild swine to determine if susceptible wildlife near infected livestock had been exposed to "Nimby." Hypothetical wildlife collections were planned for lands surrounding "Nimby-positive" premises within the quarantine zones, and broader surveillance was to be done outside the quarantine zones through examination of hunter-killed and road-killed deer. Wildlife rehabilitators were to be instructed not to accept deer from the quarantine zones and to relinquish any deer received to the READEO. In order to eliminate the potential for hunters to unknowingly carry the "Nimby" virus out of the quarantine zones via infected carcasses, hunting seasons were to be postponed indefinitely in the simulation in all affected counties in Minnesota, and a similar request was made in California. The Wildlife Sections also worked with the READEO Legislative and Public Affairs Officers to develop wildlife-specific information and education programs for hunters and wildlife organizations.

Once again, the "Nimby" Test Exercise demonstrated that a wildlife component must be anticipated as part of any foreign animal disease emergency and that it is prudent to have wildlife expertise built into the emergency response system. The READEO Wildlife Section is staffed by SCWDS, state, and USDA personnel with wildlife health expertise, and the roster of State Wildlife Liaison Officers is a key component. The Fish and Wildlife Agency in

each state has a designated person who has been appointed to the READEO as State Wildlife Liaison Officer. This person can provide valuable information on wildlife in the "home" state and can serve as a conduit through which the READEO can access available personnel, information, and equipment resources of his/her state agency. The combination of Wildlife Officers and State Wildlife Liaison Officers in this Test Exercise resulted in an active and efficient READEO response for wildlife, and the entire exercise demonstrated the importance of state and federal collaboration in animal health emergencies. (Prepared by Joe Corn and John Fischer)

Arkansas Elk Hunt

Elk were once found in much of the Southeast, and there has been considerable interest in restoration of elk to their historic range. The Arkansas Game and Fish Commission, in cooperation with private citizens, began an elk restoration project in the Ozark Mountains of northwest Arkansas in 1981. From 1981 to 1985, 112 Rocky Mountain elk from Colorado and Nebraska were introduced at sites near the Buffalo National River. Since that time, the Arkansas Game and Fish Commission and the National Park Service have conducted extensive habitat improvement projects, and the population has grown to about 450 animals.

In the fall of 1998, Arkansas held its first modern-day elk hunt as part of its elk management program. A limited number of hunters were issued special permits to hunt elk in Arkansas during September and December. Personnel from the Arkansas Game and Fish Commission, the National Park Service, and SCWDS were present to examine the animals that were harvested. We had a keen interest in these animals because SCWDS has received numerous requests for information on the health issues associated with elk reintroduction from state fish and wildlife agencies, state veterinarians, farm commodity organizations, and sportsmen. In response, SCWDS has prepared a *Model Health Protocol for Importation of Wild Elk for*

Restoration (see SCWDS BRIEFS Vol. 13, No. 3 and Vol. 14, No. 2). The Arkansas elk hunt was an excellent opportunity to evaluate the health status of a recently established population consisting of translocated elk.

SCWDS staff members examined and obtained samples from 17 elk. All elk examined appeared to be in good to excellent condition, and tests for diseases of major concern, i.e., chronic wasting disease, bovine tuberculosis, brucellosis, Johne's disease, and *Pasteurella* pneumonia, were negative. Serologic evidence of exposure to bluetongue, epizootic hemorrhagic disease, and leptospirosis was detected in some animals, but clinical signs or lesions resulting from these diseases were not evident. Parasitism due to lungworms, *Sarcocystis*, and ectoparasites was subclinical, and there was no evidence of blood parasites such as *Anaplasma*. However, there was histologic evidence suggestive of previous exposure to the deer meningeal worm, *Parelaphostrongylus tenuis*, which suggests that many elk can overcome infection with this parasite. Although some additional test results are pending, the data provided by this limited sample of Arkansas elk showed no cause for alarm. We hope to gather additional data on this herd during future hunts in order to fully assess its health status. (Prepared by Joe Corn)

Guidelines for CWD in Captive Elk

A Model Program for Surveillance, Control, and Eradication of Chronic Wasting Disease (CWD) in Domestic Elk was developed at the October 1998 meeting of the United States Animal Health Association (USAHA). This Model, which was developed through the initiative of the North American Elk Breeders Association, will be published in the USAHA Proceedings as a joint recommendation of the Committee on Wildlife Diseases and the Committee on Captive Wildlife and Alternative Livestock.

This Model sets minimum standards for herd surveillance and monitoring by calling for voluntary CWD testing of all elk 16 months or older that die in a herd. An annual herd inventory

with verification by a state or federal animal health officer would be made, and elk herds would obtain a graded status depending upon the number of years monitored without evidence of CWD. Animals could be transferred among herds of equal or lesser status.

In the event of a diagnosis of CWD in a captive elk herd, the Model outlines mandatory steps for herd disposition. The length of the quarantine period depends upon whether the state veterinarian believes there is evidence of spread of CWD within the herd as opposed to a single case. The minimum quarantine for high risk animals (those that were in contact with a CWD-positive elk) is 4 years. Herd surveillance, which includes mandatory death reporting and CWD testing on all dead animals, must be done for 5 years after the last CWD case is diagnosed. There are provisions for sacrificing and testing the high-risk animals in the herd. High risk animals are elk that were pen-mates of an affected elk for any time up to 1 year prior to the death of the affected animal. Trace-back and trace-forward elk herds must be monitored for 3 years from the date of exposure to the affected animal.

The Model has been distributed to all state veterinarians. Although the surveillance aspect in the Model is intended to be voluntary among elk farmers, it is likely that many state veterinarians will make it mandatory. A program to deal with CWD is greatly hindered by the lack of a proven test for live animals. Given this circumstance, the Model is a compromise that gives elk farmers a chance to prove that their herds are clean by long-term vigilance. Hopefully, a much-needed diagnostic test will surface soon so that the extent of the problem can be more clearly defined. Persons interested in a copy of the Model can contact SCWDS. (Prepared by Victor Nettles)

HD Preliminary Report

The 1998 Hemorrhagic Disease (HD) Surveillance Questionnaire has been returned by numerous cooperators, and a Preliminary report will soon be mailed. Several states have reported substantial virus activity during the summer and

fall of 1998. Essentially all of the virus isolates have been epizootic hemorrhagic disease virus serotype 2 (EHDV-2). Deer die-offs were reported in Arkansas, Illinois, Iowa, Kansas, Kentucky, Missouri, Nebraska, South Dakota, Tennessee, Virginia, and Washington. EHDV-2 was isolated from deer from Arkansas, Kansas, Missouri, Oklahoma, Tennessee, and Virginia. Presence of EHDV-2 virus genetic material, which is detected by the polymerase chain reaction (PCR) test, was reported for Iowa and Missouri. Several other states have reported focal losses or evidence of convalescent cases (Alabama, Georgia, Indiana, Maryland, Oklahoma, and South Carolina). The survey also disclosed that California is continuing to have outbreaks of deer adenovirus, a disease that mimics HD (see SCWDS BRIEFS Vol. 9, No. 3).

This year marks the 19th consecutive year for the HD survey. Awareness of the disease syndrome is increasing among wildlife managers, and we suspect that deer biologists will soon be factoring the impacts of HD occurrences into their deer population and harvest models. In addition, HD certainly has gotten the attention of some people who are keeping white-tailed deer in enclosures due to heavy death losses in HD-endemic areas.

Persons who are participating in the HD Surveillance Questionnaire are encouraged to review the Preliminary Report as quickly as possible and contact SCWDS if changes or additions are needed. (Prepared by Victor Nettles)

Our New Headquarters

It's been a long time coming, but it was worth it. SCWDS finally moved into a new building at the first of the year, and it is great! The new Wildlife Health Building, formerly the Industrial Arts Building, is located behind the old SCWDS building. To reach our new headquarters, travel south on Agriculture Drive past the main building of the College of Veterinary Medicine, turn left into the second parking lot, and drive to the Wildlife Health Building on the left. If you go

past the Driftmier Engineering Center on Agriculture Drive, you have gone too far.

Over a period of several months, the building was renovated, painted, and customized for our use. With modern laboratory facilities, we are far less dependent on laboratory space in other departments in the College of Veterinary Medicine where we once shared space and equipment for virology, bacteriology, and serology. Our laboratories are equipped with a new walk-in freezer, fume hood, biocontainment hoods, incubators, ultra-low freezer, microscopes, centrifuges, autoclave, and other laboratory equipment. Another real plus is that we have more than double the floor space of our old building, which finally provides ample office and work space for all of our staff. We now have an updated telephone system with voice mail for each staff member, and we retained our previous telephone numbers.

Much of the expense for the new building was derived from the sale of land generously given by former Athenians Roy and Mary Smith. Other funds came from donations to the Southeastern Wildlife Health Development Fund and from the College of Veterinary Medicine. We are grateful to Dr. Keith Prasse, Dean of the Veterinary College, and our former Dean, Dr. David Anderson, for their help and support to obtain these new facilities. There are still some items that we need, so if you are interested in contributing to our future growth, we invite you to contact our Director, Dr. Victor Nettles at 706-542-1741 for more information. (Prepared by Randy Davidson and Gary Doster)

Rabies Vaccine for Wildlife Personnel

The Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, has published a booklet entitled *Human Rabies Prevention--United States, 1999* that summarizes the recommendations of the Advisory Committee on Immunization Practices. The guidelines presented in this publication are much-needed; 16,000-39,000 persons receive post-exposure rabies treatment each year. Rabies

prevention and treatment should be of interest to most wildlife biologists, veterinarians, and animal health workers if they are working in areas where animal rabies is present. By definition, these people are considered to be in the "frequent-risk category."

Persons who have frequent exposure to potentially rabid wildlife (primarily bats, raccoons, skunks, coyotes, foxes, and other wild carnivores) should consider pre-exposure vaccination. A key element in the decision to take pre-exposure vaccine is the definition of "rabies exposure." Experts maintain that "Rabies is transmitted only when the virus is introduced into bite wounds or open cuts in skin or onto mucous membranes"... "Other contact by itself, such as petting a rabid animal and contact with

Pre-exposure vaccination does not eliminate the need for additional treatment when a person receives a rabies exposure; however, it will simplify the therapy. If a previously vaccinated person is bitten or scratched by a known or suspected rabid animal, he or she should have the wound cleansed and be given 2 booster doses of rabies vaccine 3 days apart. In contrast, if an unvaccinated person receives a rabies exposure, it is recommended that the patient receive wound treatment, 1 dose of rabies immune globulin, and 5 rabies vaccinations over a 28 day period. In either scenario, treatment should be administered by a physician. The *Human Rabies Prevention* booklet will be helpful to wildlife management agencies in making informed decisions as to which employees should be given pre-exposure vaccination. In addition, the information will be useful to explain the treatment protocol to personnel and the general public as problems

blood, urine, or feces of a rabid animal, does not constitute an exposure and is not an indication for prophylaxis." Pre-exposure vaccination for people consists of 3 injections over a 3- to 4-week period. The route of injection can be either intradermal or intramuscular depending upon the type of human rabies vaccine. Booster vaccination is recommended when a person's antibody titer drops below 1:5 dilution on a standard blood test. People with extremely high risk of exposure are encouraged to have their serum tested every 6 months; persons in the "frequent risk" category (e.g., many wildlife biologists) should be tested every 2 years. (Note: The cost of human rabies vaccine can vary. For reference, the vaccine cost for SCWDS personnel available through The University of Georgia is \$225 for the 3-shot series.)

arise. Copies of *Human Rabies Prevention* can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-9325 (Telephone 202-512-1800). The booklet also can be viewed on the CDC rabies web site <http://www.cdc.gov/ncidod/dvrd/rabies/> (Prepared by Victor Nettles)

Bat Rabies Brochure

In the last issue of the SCWDS BRIEFS we included an article announcing a new brochure produced by the Centers for Disease Control and Prevention entitled *Bats and Rabies*. We stated that a copy of the brochure was enclosed, however, due to an oversight, we failed to include it in the envelope. The brochure is enclosed with this issue, and we apologize for any inconvenience to our readers. (Prepared by Gary Doster)

Information presented in this Newsletter is not intended for citation in scientific literature. Please contact the Southeastern Cooperative Wildlife Disease Study if citable information is needed.

Recent back issues of *SCWDS BRIEFS* can be accessed on the Internet at SCWDS.org.

