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SCWDS BRIEFS

A Quarterly Newsletter from the

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CWD News, July 2012

The comment period has been reopened until August 13, 2012, for the USDA-Animal and Plant Health Inspection Service (APHIS) interim final rule to establish a national chronic wasting disease (CWD) herd certification program and minimum requirements for interstate movement of deer, elk and moose in the United States. The interim final rule amends the 2006 APHIS CWD final rule that never was put into effect.

According to APHIS, *"the rule establishes a national program that provides uniform herd certification standards and will support the domestic and international marketability of U.S. cervid herds. Participation in the program will be voluntary. The changes made to the CWD rule will not preempt state or local laws and regulations that are more restrictive than APHIS' regulations, with the exception that cervids that are eligible to move interstate may transit a state that bans or restricts the entry of such animals en route to another state."*

The interim final rule includes several changes from the 2006 final rule in addition to the preemption issue. The entire rule and instructions for submitting comments are available at http://www.aphis.usda.gov/newsroom/2012/06/pdf/cwd_rule.pdf.

The Texas Parks and Wildlife Department announced on July 10 that two wild mule deer had tested positive for CWD. The animals were tested as part of the enhanced surveillance program implemented in far west Texas following detection of CWD in free-ranging deer in the Hueco Mountains of New Mexico during the 2011-2012 hunting season. More information can be found at http://www.tpwd.state.tx.us/.

In Wisconsin, CWD was found in a wild deer for the first time in the northern part of the state more than 100 miles from the nearest known cases of CWD in wild or captive deer. The 3½-year-old doe from Washburn County was euthanized and tested in March. A ban on deer baiting and feeding in all counties within ten miles of the positive deer likely will take effect this autumn, as will testing of hunter-killed deer in the area, to determine if additional wild deer are affected. Access additional information at http://dnr.wi.gov/.

In Missouri, CWD now has been confirmed in a total of ten captive white-tailed deer following the depopulation of a shooting enclosure in Macon County. The first positive animal was found in the enclosure in 2011, and follow-up surveillance surrounding the facility detected the first two free-ranging deer in the state with CWD. Additional surveillance has brought this number up to a total of five wild deer, all in close proximity to the infected enclosure. In response, the Missouri Department of Conservation (MDC) has designated a six-county CWD containment area. Within this area, measures have been implemented to reduce the transmission and spread of CWD among free-ranging deer. They include: restriction of feeding wild deer and placing salt or mineral licks in the containment area to prevent unnatural congregating of deer; removal of antler point restrictions for buck harvest to increase the harvest of yearling bucks, which are more likely to disperse widely from the area in which they were born; and recommendations to prevent removal of deer tissues containing the CWD prion from the area. The MDC website contains additional information: http://mdc.mo.gov/.

The Iowa Department of Natural Resources announced in late July that the state has found its first case of CWD. The captive whitetail was

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in a shooting enclosure in Davis County, and this facility is now under quarantine. Davis County lies in southeastern Iowa on the border with Missouri. More than 42,500 wild deer and 4,000 captive deer and elk have been tested for CWD since Iowa began its surveillance program in 2002. See http://www.iowadnr.gov/ for more information.

In May it was announced that CWD was confirmed for the first time in a captive herd of red deer in the United States in Minnesota. Red deer belong to the same species as elk (*Cervus elaphus*), and their susceptibility previously was demonstrated under experimental conditions (SCWDS BRIEFS Vol. 27, No. 1). Additional information can be found at: http://www.bah.state.mn.us/.

The susceptibility of reindeer to CWD was confirmed recently following oral inoculation with infectious material from a white-tailed deer. The addition of *Rangifer* to the list of CWD-susceptible cervid genera brings the total number up to four. Results of the reindeer study conducted by U.S. and Canadian researchers can be found in *PLoS One*. 2012; 7(6):e39055. Epub 2012 Jun 18. (Prepared by John Fischer)

Does Heat + Drought = HD?

Since May and June of this year, there have been scattered reports of deer mortality from southeastern states. So far, a few diagnostic samples have been submitted to SCWDS for hemorrhagic disease (HD) virus detection, and one epizootic hemorrhagic disease virus (EHDV)-2 has been isolated from white-tailed deer in North Carolina. In addition, a single deer from Virginia and another one from Tennessee have tested positive for EHDV-6 by reverse transcription polymerase chain reaction (RTPCR). These RTPCR results are regarded as preliminary, and SCWDS currently is attempting to confirm them through genetic sequencing and additional virus isolation studies.

Epizootic hemorrhagic disease virus-6 is one of many exotic orbiviruses that have been detected in the United States during the past 10 years, and with the exception of 2011, this virus has been confirmed in deer every year since its original detection in 2006. Although confirmed cases have come from both captive and wild deer in Arkansas, Indiana, Illinois, Michigan, Missouri, and Texas, large scale mortality events associated with EHDV-6 have not been documented.

SCWDS typically does not disseminate preliminary results but is doing so now in order to solicit samples from suspected HD cases. Extensive drought and high temperatures this year warrant increased vigilance for deer mortality due to HD, and early reports of suspected HD activity appear to be validating this concern. Hemorrhagic disease can be confirmed only thorough diagnostic testing, and virus isolation offers the added opportunity to detect exotic orbiviruses such as EHDV-6. Please contact SCWDS if we can assist with confirmation of suspected HD cases. (Prepared by David Stallknecht)

Cats on Candid Camera

Domestic cats are a common sight in urban and suburban neighborhoods throughout the world, and the number of cats is growing. Cats are America's favorite pet, and there are an estimated 50-60 million free-roaming pet cats in the United States today. A great deal of controversy surrounds the issue of roaming domestic cats in the environment with some groups supporting their presence and others opposing it because of the potential impacts on the health of native wildlife, as well as on the health of the cats. Nowhere is this more controversial than in the debates over Trap-Neuter-Release programs for feral cats, and additional information is needed to evaluate the implications of roaming cats in the environment.

Researchers with SCWDS, UGA Warnell School of Forestry and Natural Resources, and the National Geographic Society recently used animal-borne video cameras to study the behavior of pet cats roaming in suburban Athens, Georgia. The study did not evaluate the activities of feral cats because of the difficulty of frequent, repeated captures necessary to recharge the recording equipment. Specifically, we investigated cat-wildlife interactions and risk behaviors (crossing roads and direct contact with other roaming cats, etc.) that can potentially impact the health of the cat. Point-of-view video cameras (KittyCams) were attached for one year to 60 pet cats that are allowed by their owners to roam outdoors. Animal-borne video cameras have been used previously to study a variety of

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marine mammals, penguins, sea turtles, as well as lions and grizzly bears. For the roaming cat research, the cameras were outfitted with a motion sensor, LED lights, a transmitter, and the capability to record for up to ten hours before needing recharging.

We collected an average of 37 hours of footage from each of 55 cats. Approximately 44% of the free-roaming cats regularly stalked, chased, or captured native reptiles, small mammals, birds, and invertebrates. Videos revealed that cats ate or abandoned the majority of their captured prey with less than one quarter of the captured prey deposited at the cats' residence. Previous studies of wildlife depredation by pet cats counted prey returned to the cats' households; however, as was documented here, these studies likely underestimated the rate of predation, because cats do not bring all captured prey back to the residence.

Eighty-five percent of the cats exhibited at least one risk behavior during one week of roaming. The most common risk factors included: crossing roads (45% of cats), encountering other cats (25%), eating and drinking substances away from home (20%), exploring storm drain systems (20%), and entering crawlspaces (20%). Male cats more frequently engaged in risk behavior than female cats, and older cats engaged in fewer risk behaviors than younger individuals. Additionally, our results indicated that the more time cats spent roaming outdoors in suburban neighborhoods, the more risk factors they experienced. The notion that roaming poses multiple threats to the health of pet cats is well known. Roaming cats are subject to traumatic injuries and death from other roaming cats, predators, vehicles, as well as to infectious disease, toxins, and other hazards. To date, no other study has identified the range and frequency of risk behaviors that cats experience while roaming.

We currently are sharing images, videos, and statistics at www.kittycams.uga.edu. In addition, a brochure and other available educational materials focus on improving the welfare of wildlife and cats by sharing information on cat-wildlife interactions and the risks associated with allowing pet cats to roam freely in the environment. The website also provides links to additional online resources. (Prepared by Sonia Hernandez)

Gray Bats and WNS

White nose syndrome (WNS) is caused by the fungus *Geomyces destructans*; it was first detected in 2006, and has since caused massive mortality in a number of North American bat species. On May 29, 2012, *G. destructans* was confirmed in two gray bats (*Myotis grisescens*) from caves in Tennessee, representing its first detection in this endangered species.

Gray bats are found primarily in cave regions of Alabama, Arkansas, Kentucky, and Tennessee, with smaller populations in neighboring states, and they are one of the few bat species that dwell in caves year round. In the winter, gray bats concentrate in a small number of deep, vertical hibernacula that trap cold air. In the spring they disperse to numerous warmer caves and segregate by gender. Gray bats are heavily dependent on aquatic insects and have a preference for foraging in riparian areas where mayflies are especially abundant.

In 1976, the gray bat was listed as endangered due to population declines related to habitat destruction and human disturbance. The Gray Bat Recovery Plan was implemented in 1982, and as of 2007, the species had increased approximately 104%. This recovery plan has focused on habitat protection through identification of high priority hibernacula and maternity caves for the species. Many important gray bat caves have been protected through a combination of land acquisition and closure of cave entrances, as well as signage and/or fencing of surrounding habitat. According to the U.S. Fish and Wildlife Service, the species is recovering and gray bat numbers have increased significantly in many areas throughout its range.

Despite the recent increase in gray bat numbers, the species warrants continued protection from human disturbance if further recovery is to be possible. Human disturbance of hibernacula causes bats to arouse prematurely from winter hibernation and use up energy reserves that are needed to last until emergence in the spring.

Pesticide use also has posed a significant risk to gray bats. Modern pesticides such as organophosphates and carbamates are highly toxic cholinesterase inhibitors that do not bioaccumulate but kill bats and other wildlife

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acutely. In 2005, continuing exposure to potentially fatal concentrations of banned pesticides was identified through analysis of contaminants found in gray bat guano in Arkansas caves. In addition to the direct toxic effects of pesticides, aquatic pollution that reduces mayfly and other important insect prey abundance may have severe effects on gray bat populations.

The discovery of WNS in gray bats may prove to be more devastating to the species than human disruption and pesticide use combined. In 2009, the U.S. Fish and Wildlife Service predicted that "the potential spread of WNS to gray bats would likely be catastrophic and would surely result in an immediate reversal in the recovery that has been achieved to date across the range of the species."

Gray bats generally exist in large colonies in a limited number of caves. They migrate long distances seasonally among different hibernacula, maternity caves, and bachelor sites. Gray bats are at an increased risk of coming into contact with other bat species infected with WNS because of these migrations and the tendency to co-roost with other bat species that also migrate large distances.

The U.S. Fish and Wildlife Service predicted that the vulnerability of *Myotis grisescens* to extinction would be high if mortality rates from WNS were similar to those seen in bat species in the northeastern United States. The threat is of such magnitude that there would be a need to revise the Gray Bat Recovery Plan should WNS spread to this species.

The recent discovery of WNS in two gray bats from Tennessee indicates the potential for a disaster among recovering populations of endangered *Myotis grisescens*. Although the causative fungus (*Geomyces destructan*) was isolated from the bats, to date there has been no documentation of WNS mortality in gray bats. It can only be hoped that this remains true in the future. (Prepared Martha Hensel, Ohio State University College of Veterinary Medicine)

California or Bust

Dr. Kevin Keel, Chief of the SCWDS Diagnostic Service and all-round utility fielder when it comes to wildlife health issues, is moving to the University of California (UC)-Davis School of Veterinary Medicine to become an Assistant Professor of Pathology. Kevin came to SCWDS in 2004 after completing his PhD in pathology at the University of Arizona. He received his BS at The University of Georgia (UGA) and completed his MS with SCWDS assessing the role of white-tailed deer in anaplasmosis in the Southeast. Kevin then attended the UGA College of Veterinary Medicine, and after graduation completed a pathology residency at UC-Davis.

It is a gross understatement to say that Kevin will be missed by the colleagues he has worked with during the last eight years to investigate, characterize, research, and manage wildlife health problems. Although it is impossible to list all of them, some of the projects and issues Kevin has worked on include chronic wasting disease testing of more than 60,000 wild deer in the Southeast, white nose syndrome diagnostics and research, wildlife disease workshops for biologists across the country, investigation of wildlife mortality events, legislative issues with wildlife health implications, and many more. Always willing to help, Kevin answered thousands of phone calls and emails to assist wildlife managers, public health officials, and veterinarians everywhere as they dealt with wildlife health issues. We cannot thank Kevin enough for all that he has done for SCWDS and its supporters, and we wish him the very best in California.

Recent SCWDS Publications Available

Below are some recent publications authored or co-authored by SCWDS staff. Many of these can be accessed online from the web pages of the various journals. If you do not have access to this service and would like to have a copy of any of these papers, let us know. Many can be sent to you electronically with minimum effort; others will be mailed to you. For your convenience, please indicate requested publications, fill out the form on page 7, and check the appropriate box to receive either an electronic copy or a hard copy and return it to us: Southeastern Cooperative Wildlife Study, College of Veterinary Medicine, University of Georgia, Athens, GA 30602.

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