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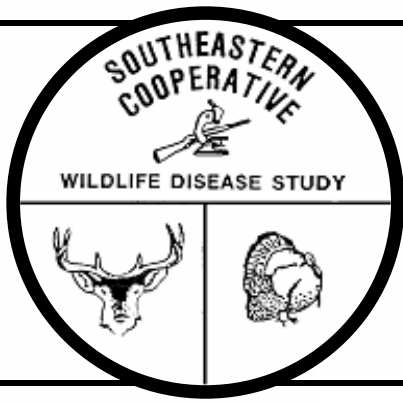
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SCWDS BRIEFS

A Quarterly Newsletter from the
Southeastern Cooperative Wildlife Disease Study
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Public Comments Solicited on CWD Rule

The final rule on *Chronic Wasting Disease (CWD) Herd Certification Program and Interstate Movement of Farmed or Captive Deer, Elk, and Moose* was published in the Federal Register by the U.S. Department of Agriculture, Animal Plant and Health Inspection Service (APHIS) on July 21, 2006 (SCWDS BRIEFS, Vol. 22, No. 2). The rule was the result of efforts that go back at least to 1998 when a model program for CWD surveillance, control, and eradication was presented to the United States Animal Health Association (USAHA). The final rule was to be implemented on October 19, 2006; however, on September 8, 2006, APHIS announced a delay in the effective date of the rule (Federal Register Vol. 71, No. 174, p. 52983). On November 3, 2006, APHIS announced that it was soliciting public comments on three petitions it had received concerning the final rule and will consider all comments it receives on or before December 4, 2006 (Federal Register, Vol. 71, No. 213, pp. 64650-64651).

The announcement on November 3, and accompanying press release from APHIS stated, "We recently received three petitions requesting a delay in the effective date of the CWD rule and reconsideration of several requirements of the rule. We are currently evaluating the merits of these petitions, and...are making the petitions available for public review and requesting comments on them." The petitions are from the Association of Fish and Wildlife Agencies, National Assembly of State Animal Health Officials, and USAHA.

APHIS invites the public to comment on any of the issues raised by the petitions, but is particularly interested in receiving comments related to the following areas:

- *Consider the alternatives of implementing a federal interstate movement standard versus allowing individual state standards to apply. What hardships or benefits would each alternative impose?*
- *With respect to the spread of CWD, in addition to the requirements established by the APHIS CWD rule, what additional safeguards do states need to mitigate or reduce the risk of disease transmission and why are they needed?*
- *What practical or operational problems may be expected from the final rule and from the alternatives suggested by the petitions? How could they be alleviated; and*
- *Are there any alternatives that could address the petitioners' concerns, other than allowing the movement requirements of individual states to take precedence over the federal standard?*

The petitions may be viewed and comments may be submitted electronically by going to www.regulations.gov, then select "Animal and Plant Health Inspection Service" from the agency drop-down menu, then click on "Submit." In the Docket ID column, select APHIS-2006-0118 to submit or view public comments and to see supporting and related materials. Comments also may be reviewed at USDA, Room 1141, South Building, 14th St. and Independence Ave., S.W., Washington, DC, between 8 a.m. and 4:30 p.m., Monday through Friday, excluding holidays. To facilitate entry

into the comment reading room, please call (202) 690-2817. Following evaluation of the comments, APHIS will announce the future direction of the federal CWD program. (Prepared by John Fischer)

New Funding for SCWDS AI Research

SCWDS researchers recently received research support from the U.S. Centers of Disease Control and Prevention (CDC) for a project entitled "Avian Influenza Viruses in the Environment: What is the Probability of Human Contact and Transmission?" This work represents a three-year collaborative effort between researchers at SCWDS and several other state and federal agencies. Besides CDC, SCWDS is working with individuals with the Georgia Department of Public Health, USGS' Georgia Water Science Center, the Minnesota Department of Health, and five other entities within the University of Georgia: the School of Public Health; the Institute of Ecology; and the College of Veterinary Medicine's Poultry Diagnostic and Research Center, Department of Pathology, and Department of Infectious Diseases. The goal of this research is to identify and understand the risks associated with environmental sources that may provide a conduit for transmission of avian influenza viruses (AIV) from avian species to humans. There are three broad objectives: (1) To estimate potential AIV loads associated with environmental sources of potential public health significance and to identify the factors that may enhance or limit persistence of AIV in these sources; (2) To conduct a quantitative risk assessment of the public health risk associated with potential environmental sources of AIV; and (3) To determine the potential for AIV to infect mammals.

This research will evaluate AIV from wild and domestic birds, including highly pathogenic avian influenza viruses (HPAI). The first objective relates to understanding potential sources for transmission (contaminated water, feces, environmental surfaces, and avian tissues and carcasses). For each potential source, experimental and field studies will be used to

provide a standardized approach to evaluate and understand AIV environmental persistence, and attempts will be made to validate results with field-collected samples. For the second objective, we will conduct risk assessments related to potential human contact with AIV through environmental exposure. Risk assessments and risk management plans will be developed in collaboration with the state health departments in Georgia and Minnesota. In this work we will provide an interactive framework to capture input from other state health departments, as well as CDC. For the third objective we will test the ability of AIVs to replicate in a mammalian cell line and in vivo (mice, ferrets, and cats). This objective is designed to add perspective and to provide an estimate of potential outcome associated with AIV contact. The recent documentation of direct avian-to-human transmission of H5, H7, and H9 AIV and the mortality associated with HPAI H5N1 infections have redefined existing paradigms related to human influenza emergence. While this does not imply that such risks are new or extreme, these findings have resulted in a multitude of unanswered questions related to human AIV risks associated with direct or indirect avian contact.

We also have received support from the Southeast Poultry Research Laboratory, ARS, USDA (SEPRL), which will allow for the continuation of collaborative research that has been ongoing between our groups since 1998. The goals of this work are to better understand the natural history of these viruses in wild bird populations and to provide recent "wild type" AIV (especially H5 and H7 viruses) for genetic analyses at SEPRL. The latter is extremely important because this AIV collection has and will continue to provide a comprehensive "library" of viruses to support future research in viral genetics and to understand the origin and potential for AIV movement from wild to domestic animal populations.

The Morris Animal Foundation recently granted a Fellowship Award to SCWDS graduate student Dr. Justin Brown for a project entitled "The Role of Aquatic Environments in Avian Influenza Persistence and Subtype Diversity." Justin has

been an extremely productive addition to our graduate program and this grant will provide financial support for the final two years of his PhD program.

The information gained through all of this work will not only provide a much improved understanding of AIV epidemiology and natural history, but from a practical side it will increase our ability to reduce AIV transmission opportunities and will provide guidance for better targeted surveillance. We sincerely thank the funding agencies and organizations for these opportunities and look forward to collaborating with the many scientists involved in this work. (Prepared by David Stallknecht)

Hemorrhagic Disease 2006

We have had a large number of isolations of bluetongue virus (BTV) and epizootic hemorrhagic disease virus (EHDV) of unusual diversity during 2006. To date, we have isolated EHDV-1 from white-tailed deer in Mississippi and Missouri and EHDV-2 from deer in Colorado, Georgia, Illinois, Kansas, Louisiana, Mississippi, Missouri, and Texas. BTV was isolated from deer in Kansas (BTV-17), Kentucky (BTV-17), and Missouri (BTV-10, BTV-11, BTV-17). All isolations came from free-ranging and captive white-tailed deer, and among these there have been two noteworthy observations: The isolation of EHDV-2 from a Texas white-tailed deer in March and the isolation of BTV-10, BTV-11, BTV-17, EHDV-1, and EHDV-2 from deer in a single state, Missouri.

We have not previously isolated EHDV or BTV outside the period July-December, and to our knowledge the March isolation of EHDV-2 from a Texas deer represents the first "spring" isolate of EHDV or BTV ever reported from North American wildlife. This isolation supports a theoretical maintenance cycle in which these viruses are maintained throughout the year via vector-to-animal transmission. Such transmission would have to take place in areas such as Texas where the *Culicoides* vectors occur throughout the year or are sporadically present throughout the cooler months, and maintenance

would be enhanced by a long-term viremia as seen with BTV and EHDV in white-tailed deer. The fact that such transmission has not been reported previously may be associated with low infection prevalence during this period, as well as host resistance. Although a very high percentage of deer are infected with BTV and EHDV in Texas (as determined by high antibody prevalence), there generally are few reports of morbidity or mortality associated with these infections (see SCWDS BRIEFS Vol. 17, No. 4).

The isolation of five BTV/EHDV serotypes from white-tailed deer in a single season in a single state is unprecedented. Most of the isolates have been EHDV-2. This was unexpected, due to a large number of hemorrhagic disease reports from Missouri in 2005. EHDV-2 was the only virus isolated and was believed to be responsible for this activity, consequently, we would expect herd immunity against EHDVs to be fairly high in 2006. It is unknown why so many different serotypes of these viruses have occurred in Missouri this year, but it is interesting that most of them have come from captive deer, which may be a reflection of better detection and diagnostic investigation of affected animals.

Update on BTV-1 surveillance in Louisiana:

The first detection of BTV-1 in the United States occurred in 2004 when SCWDS isolated the virus from a free-ranging white-tailed deer in Louisiana (see SCWDS BRIEFS Vol. 21, No. 1). Since then, SCWDS has been conducting follow-up surveillance of wild deer in southern Louisiana in cooperation with the Louisiana Department of Wildlife and Fisheries (LA DWF), and the USDA-APHIS National Veterinary Services Laboratories (NVSL). In 2004, NVSL tested 146 BTV ELISA-positive serum samples collected from deer between 2000 and 2003 for antibodies to BTV-1 and found no evidence of previous exposure to BTV-1. During 2005, with the assistance of LA DWF, SCWDS collected and tested serum samples from 399 hunter-killed deer and 123 (31%) were positive on the ELISA test for BTV. Virus neutralization tests were conducted on all of these positive samples at SCWDS (BTV-10, 11, 13, 17) or NVSL (BTV-

1, 2). Antibodies to BTV-1 were detected in 38 of these animals, but the serologic data did not clearly indicate exposure to BTV-1. All of the BTV-1 positive samples reacted to one or more native BTV serotypes, suggesting a potential for cross reactions. However, based on antibody titers to individual serotypes, there were six samples that provided possible, but not confirmatory, evidence of BTV-1 exposure. These samples came from Allen (1), Cameron (1), St. Mary (3), and Vernon (1) parishes. The cluster in St. Mary Parish (only 32 deer were sampled in this parish) is suggestive of BTV-1 exposure, and this is the parish in which BTV-1 was detected in 2004. To date, all evidence suggests that if currently present, BTV-1 is highly localized in the immediate area where the virus was initially detected. During 2006, additional samples will be collected in the immediate vicinity of St. Mary Parish. (Prepared by David Stallknecht)

VS in the Western U.S.

On August 17, 2006, USDA-APHIS-VS-National Veterinary Services Laboratories in Ames, Iowa, confirmed vesicular stomatitis (VS) in a 10-year-old horse on a premise in Natrona County, Wyoming. This is the third consecutive year that VS has been diagnosed in livestock in the western United States. Prior to this case, the last case of VS in the United States was confirmed in Colorado in December 2005. VS is internationally reportable and is classified by the World Organization for Animal Health (OIE) as a multi-species disease. The disease is characterized by blister-like lesions in or around the mouth, on the dental pad, tongue, lips, nostrils, hooves, and teats. Affected animals usually recover in about two weeks if there are no complications such as secondary infections.

In 2004, 294 premises in Colorado, New Mexico, and Texas were quarantined under state authority. On these quarantined premises, 405 equines, 63 bovines, and 2 llamas infected with VS were identified over an 8-month period. During 2005, 584 equines in nine states (AZ, CO, ID, MT, NE, NM, TX, UT, and WY) and 202 bovines in six states (CO, MT, NE, NM, UT, and

WY) were diagnosed with VS. So far in 2006, 16 equines and 10 bovines in two Wyoming counties, Natrona and Converse, have been diagnosed with VS. As in 2004 and 2005, the VS New Jersey virus (VSNJV) has been identified as the serotype.

The detection of VS in livestock in 2006 is unusual in that the index case was not detected until August 17. Typically, the first cases are reported in late spring or early summer. For example, the index cases in 2004 and 2005 were reported on May 18 and April 27, respectively. In addition, it is unusual that VS has been detected in livestock during three consecutive years. Molecular analysis of the virus isolates confirms that the 2006 viruses are closely related to viruses isolated in 2004 and 2005. This suggests that the virus was maintained during the winter months, possibly in a mammalian host or, more likely, in an insect vector that overwintered in the adult stage, or by transovarial transmission in an insect vector. Transovarial transmission of VSNJV has been demonstrated in different species of sand flies, the known endemic VSNJV vectors, but has not yet been demonstrated in confirmed or suspected epidemic vectors, such as black flies, mosquitoes, or biting midges. It will be interesting to see if the virus makes it through another winter and to know how it was maintained through the winter months. As is usual with understanding the natural history of VSNJV, we are left with more questions than answers. (Prepared by Danny Mead)

Wyoming Regains Class Free Brucellosis Status

On September 12, 2006, the USDA-Animal and Plant Health Inspection Service (APHIS) upgraded the brucellosis classification of Wyoming from Class A to Class Free. The change was announced through publication of an interim rule and request for comments in the Federal Register (Vol. 71, No. 179, pp. 54402-54404). The comment period remains open until November 14, 2006. The primary effect of the change in brucellosis classification is relief of

certain restrictions for interstate movement of cattle from Wyoming.

Wyoming lost its Class Free status after *Brucella abortus* was confirmed in November 2003 in a small cattle herd in Sublette County, with subsequent confirmation in January 2004 of infected cattle that were moved from this herd to a Washakie County feedlot (SCWDS BRIEFS, Vol. 19, No. 4). The apparent source of infection for the Sublette County herd was infected free-ranging elk in the area. The state's brucellosis classification recently was upgraded because Wyoming had found no known brucellosis in cattle for 12 months preceding classification as Class Free. The last brucellosis infected cattle herd was depopulated in December 2004 and since then no affected herds have been identified.

Only two states, Idaho and Texas, currently have Class A brucellosis status, the remaining states are Class Free. Idaho lost its Class Free Status in January 2006 following confirmation of *B. abortus* infection in a Bonneville County cattle herd and in a heifer that had been shipped from this herd to another Idaho ranch (SCWDS BRIEFS Vol. 21, No. 4). As in Wyoming, the apparent source of brucellosis for the Idaho cattle herd was infected elk in the area. The infected Bonneville County herd is in the vicinity of an elk feedground that was established in the 1970s to prevent elk from depredate on haystacks and cattle feed lines. A test-and-remove program conducted by the Idaho State Department of Agriculture and the Idaho Department of Fish and Game has detected seroprevalence levels from 45% in 1995 to 6% in 2005 in elk at this feedground.

Brucella abortus infection, as indicated by the presence of antibodies, was first documented in the Greater Yellowstone Area (GYA) in free-ranging bison in 1917 and in elk in the 1930s. Spillover of the organism from infected domestic cattle was the suspected source of infection. Management of brucellosis in livestock and wildlife in GYA is highly complicated by involvement of a plethora of state and federal agencies with authority and responsibility, as well as numerous and diverse stakeholders

ranging from livestock producers to hunters and anti-hunters. A variety of management techniques, ranging from vaccination to hazing and slaughter of wildlife, have been or continue to be employed in the difficult effort to control brucellosis in this area, and research into the efficacy of additional techniques is an area of intense interest. (Prepared by John Fischer)

Yellowstone Wildlife Health Program

Yellowstone National Park (YNP) recently signed a Memorandum of Understanding (MOU) with Montana State University and the University of California, Davis, School of Veterinary Medicine Wildlife Health Center to establish the Yellowstone Wildlife Health Program, focused on understanding and addressing priority wildlife disease and ecosystem health problems at Yellowstone National Park. Initial five-year funding is being provided by the Yellowstone Park Foundation.

The Yellowstone Wildlife Health Program goal is to design and implement a long-term wildlife health assessment program to monitor and evaluate wildlife diseases and health indicators as a subcomponent of the Greater Yellowstone Network Vital Signs Monitoring Program. Specific objectives of the program include:

- Facilitation of cooperation among scientists seeking competitive grant funds to investigate wildlife health issues.
- Development of an outreach program, including educational materials for field courses on wildlife health, that provides information for the public, faculty, and federal and private funding agencies.
- Development of on-site wildlife veterinary services, including veterinary support for animal handling activities, disease surveillance, and disease outbreak investigation, including field evaluation, necropsy and specimen sampling.
- Establishment and coordination of on-site or cooperative wildlife disease diagnostics and field and laboratory research capacity.
- Facilitation of wildlife health professional capacity development, as well as research

by veterinary students, graduate students, postdoctoral fellows, and post-graduate researchers.

The mission of YNP includes protection and improved knowledge of natural and cultural resources and associated values within their broader ecosystem and cultural context. Under the MOU, which became effective October 15, 2006, the program will develop information and mechanisms to understand and address present or future diseases, including brucellosis in bison and elk, West Nile virus in birds, whirling disease in trout, and hantavirus in small mammals, because they have the potential to alter the outcome of YNP's mission. (Prepared by Glenn Plumb, Yellowstone Center for Resources)

Current and Previous SCWDS Students Recognized by WDA

Dr. Justin Brown recently lengthened the long list of SCWDS award winners (including himself) when he received the Wildlife Disease Association's Wildlife Disease Graduate Student Research Recognition Award at the group's annual meeting held in Storrs, Connecticut, in August 2006. This award is given annually to the student judged to have the best research project in the field of wildlife disease. The winner receives a plaque and up to \$2,000 to cover travel, housing, registration, and other expenses related to attendance of the annual meeting. Plus, the winner is designated as the featured speaker during the Student Presentation Session at the conference. Justin was recognized for his PhD research project entitled "Persistence of H5 and H7 Avian Influenza Viruses in Water." Justin is a native Virginian and received his DVM degree from the Virginia-Maryland Regional College of Veterinary Medicine in 2004. He came to SCWDS later that year to pursue a PhD in veterinary pathology and immediately distinguished himself by winning the WDA Scholarship Award at the 2004 meeting of the association held in San Diego, California.

A previous SCWDS graduate student also was recognized and highly honored at the same meeting. Dr. Paul Barrows, who earned MS and PhD degrees at SCWDS, received this year's WDA Distinguished Service Award. This is the highest award of the Wildlife Disease Association and is given "...to honor a WDA member of long standing who, by his/her outstanding accomplishments in research, teaching and other activities, including participation in WDA affairs, has made a noteworthy contribution furthering the aims of the Wildlife Disease Association."

Paul received his DVM degree from Michigan State University in 1967. After a short stint in private practice, he joined the U. S. Army Veterinary Corps in 1970. After becoming established in the Corps, Paul entered a graduate program at SCWDS. He received his MS degree in 1975 with Dr. Frank A. Hayes as his major professor and returned to active duty. A few years later the army sent him back to SCWDS for more schooling, and he completed his PhD degree at SCWDS in 1981 with the duties of major professor shared by Drs. Frank A. Hayes and A. Katherine Prestwood.

Paul was an army captain when he first came to SCWDS, but he attained the rank of colonel and in 1995 became Chief of the U.S. Army Veterinary Corps and Director of the Department of Defense Veterinary Service Activity. During his career he received numerous military awards and decorations and civilian recognitions, including the James A. McCallum Award for Excellence in Veterinary Medicine and Public Health given by the Association of Military Surgeons of the United States, and the Distinguished Alumni Award from the Michigan State University College of Veterinary Medicine. Paul retired from the U. S. Army Veterinary Corp in 2000 but has remained active in WDA affairs in many ways, including filling numerous important committee appointments and serving as president of the organization in 2002-2003. The WDA Awards Committee could not have selected two recipients more worthy than Drs. Brown and Barrows, and we are proud of both of them and their association with SCWDS. Congratulations! (prepared by Gary Doster)

New Field Manual Available

One of Dr. Randy Davidson's last efforts before he retired in November 2005 was to completely revise the SCWDS *Field Manual of Wildlife Diseases in the Southeastern United States*. Just before Randy left he shipped the completed text and illustrations for the 3rd edition of the manual to the printer. After proofing and editing various drafts along the way, we now have the finished product in hand. Considerable changes were made in the new edition, including addition of new topics, rearrangement of some sections, addition of selected readings for most topics, and deletion of some minor topics. The expanded scope of the new manual is evident when compared to the earlier editions: The 1st edition published in 1988 has 309 pages; the 2nd edition published in 1997 has 417 pages; and the new edition has 448. There are 138 pictures and illustrations, most of which are in color. As with the former issues, the manual is printed on high-quality water-resistant paper, has a tough vinyl cover, and is the same convenient 4 3/4 X 7-inch size.

This handbook is an important tool for wildlife biologists and others in recognizing the more common diseases and parasites of the major wildlife species in the Southeast. Also, because most species of wildlife found in the Southeast are indigenous to many other areas of the country, educators, students, veterinarians, farmers, and sportsmen everywhere can benefit from this ready source of information. The 1st edition of the Field Manual won the Outstanding Book Award from the Southeastern Section of

the Wildlife Society in 1989, and this edition promises to be an even better product.

Sales will be handled by the American Association for Vocational Instructional Materials (AAVIM), a non-profit organization that deals exclusively with the development and distribution of career and academic instructional materials. Orders can be placed by mail, (AAVIM, 220 Smithonia Road, Winterville, GA 30683-9527), FAX (706-742-7005), or telephone (1-800-228-4689). Cost of the new manual will be \$25, plus shipping and handling. Shipping rates are \$4 for orders up to \$50, 8% for orders of \$51-\$200 net, and 5% for orders of \$201 or more net. Payment can be by VISA, MasterCard, check, money order, or purchase order. Georgia residents must add 7% sales tax. Foreign orders can be placed with AAVIM *proforma* invoices. AAVIM will calculate the cost of the order and shipping charges and return the invoice for payment. Payment must be made in U.S. funds payable through a U.S. Federal Reserve Bank. An order form is attached and can be photocopied and reused as needed, or copies may be downloaded from our website at www.SCWDS.org.

There are some copies of the 2nd edition of the manual left that we are offering at the bargain price of \$10 each and they can be ordered using the same order form as the new edition. These would be a great buy for students on a limited budget. (Prepared by Gary Doster)

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Information on SCWDS and recent back issues of SCWDS BRIEFS can be accessed on the internet at www.scwds.org. The BRIEFS are posted on the web cite at least 10 days before copies are available via snail mail. If you prefer to read the BRIEFS on line, just send an email to Gary Doster (gdoster@vet.uga.edu) or Michael Yabsley (myabsley@uga.edu) and you will be informed each quarter when the latest issue is available.