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COORDINATOR COMMENTARY

By Dr. Thomas DeLiberto

Many of our cooperators are familiar with all the great work that the National Wildlife Disease Program (NWDP) does assisting them with wildlife disease surveillance and management here in the United States. However, our partners, and some of you, may not be as familiar with the international efforts of the NWDP with agencies in other countries and non-governmental organizations to build infrastructure and conduct surveillance for wildlife diseases internationally. In this issue of the Carrier, we have focused on some of the international activities of the NWDP.

Over the last 3 years, the NWDP has assisted 31 countries in developing capacity to conduct surveillance and respond to outbreaks of disease in wildlife. Most of this work has focused on training other government biologists and veterinarians in

sampling wildlife for diseases of concern. We also have established multi-year, collaborative surveillance projects in countries such as Canada, Mexico, Greenland, China, and Indone-



Todd Felix and Dr. Hongxuan He of the Chinese Academy of Sciences—Institute of Zoology prepare a mist net for sampling wild birds at an agricultural facility in China

sia. All of these capacity building and surveillance activities have focused on a One Health approach toward understanding and managing diseases in wildlife, domestic animals, and humans.

One of our more recent accomplishments has been the development of a joint US-China collaboration on the study and management of emerging infectious diseases in wildlife. This effort focuses on improving our understanding and management of diseases of concern to both countries and is spearheaded by the Chinese Academies of Science and the NWDP. In addition to developing joint research and surveillance projects, the collaboration will also seek to implement exchange programs for students and scientists.

All of the NWDP's international projects discussed in this issue, have been part of a larger international effort to address infectious diseases across species, improving the world's capability in predicting epizootics of infectious diseases and minimize their impacts on animals and humans.



FIRST REPORT IN GREENLAND

By John Baroch and David Sinnett

Alaska wildlife disease biologist David Sinnett and three other Alaska Wildlife Services biologists visited a remote area of Greenland in July, 2008. Their objective was to find, capture, and sample Greater Snow geese and Canada geese for H5N1 highly pathogenic avian influenza (HPAI) surveillance.



David Sinnett, left, holds a Ross's goose while Terry Smith holds a much larger Greater Snow goose.

Northwest Greenland is also occupied by other goose species which winter in parts of Europe, where H5N1 HPAI has been found. They may come into contact with North American geese that wander to Greenland, creating a poten-

(Continued on page 3)

The wildlife drawings on this page are original artworks created by the National Wildlife Disease Program's Wildlife Technicians Erika Kampe (prairie dog) and Sarah Goff (ducks).

INTERNATIONAL OVERVIEW

By Dale Nolte

The transmission of infectious diseases by wildlife are of global concern. Wildlife species are active in almost every environment, and often there is the potential for their interaction with domestic animals and humans. Seasonal migrations, or natural dispersals of many species can spread pathogens and disease significant distances; migrations can range for thousands of kilometers, crossing many countries and covering multiple continents. These movements are generally only rudimentarily understood and impossible to control. Whether these species serve as potential bridge species to transmit diseases, or as hosts to enable pathogens to persist is often unknown, and potential problems are not frequently investigated.

International collaborations increase our understanding of potential threats and knowledge of emerging zoonotic diseases. Collaborative workshops and scientific exchanges provide valuable experiences for our scientists to work with foreign diseases before they enter the United States. These activities also provide an opportunity for us to share our experiences with disease monitoring systems with countries eager to establish similar networks. Working alongside biologists from other countries also increases the trust and familiarity among agencies that is essential when preparing for or responding to an emerging issue.

Potential movements of diseases towards or within North America by wildlife are a focus of the Wildlife Services National Wildlife Disease Program (NWDP). Although highly pathogenic avian influenza remains a primary interest, awareness of and concern for other potential threatening diseases is growing. Trilateral Working Group meetings with the United States, Mexico, and Canada

continue to be a means to share information on HPAI surveillance activities. Direct communication with Mexican Ministries of Agriculture (SAGARPA), and Natural Resources (SEMARNAT) in Mexico identifies shared surveillance goals and objectives. The NWDP continues to support avian influenza surveillance activities in Mexico through an agreement with Wildlife Trust; this



Sick bar-headed goose at a mortality event near Doroo Tsagaan Lake, Mongolia (photograph provided by Dr. Nyambayar Batbayar, Director Wildlife Science and Conservation Center of Mongolia and the Ornithology Laboratory, Institute of Biology, Mongolian Academy of Sciences).

past year we provided a biologist to assist with trainings and surveillance activities on Lagunas de Alvarado wetlands. Similarly, collaborations on avian influenza surveillance activities in Canada through an agreement with the University of Saskatchewan is underway. Wildlife Services biologists attended a workshop in Canada to increase knowledge and experience in waterfowl capture and avian influenza sampling. A joint Canada and United States project in Ecuador enables monitoring of blue-winged teal from their breeding to wintering grounds, along with monitoring other species and increasing capacity for wildlife disease surveillance. The NWDP also has an interest in the health of birds

that may migrate to North America from neighboring countries. Recently we coordinated with the Danish Veterinary and Food Administration and the Danish National Environmental Research Institute to conduct avian influenza surveillance in Greenland. Although direct support for avian influenza surveillance in eastern Russia was curtailed this past fiscal year, we maintained communication

responding to wild bird mortality; 3) surveillance, research and technology transfer; and 4) regional cooperation.

The NWDP collaborated with the Chinese Academy of Sciences – Institute of Zoology to co-sponsor a workshop to enhance cooperation on addressing avian influenza in wildlife species potentially moving among the Asian and American continents. Scientists from Canada, Mongolia, and Russia, joined the workshops to exchange information. Discussions focused on avian influenza but also included talks on other established or emerging wildlife diseases that were of regional concern. Topics included an overview on the role of wild animal pathogens in human and animal health, basic concepts of disease ecology, consideration for components of a global wildlife health program with emphasis on disease surveillance, along with methods and issues associated with responses to disease occurrences. The NWDP co-authored editorial comments for an upcoming issue of *Integrative Zoology*, which will embody

content of the workshop, including papers on general health and zoonotic diseases (Li et al., 2009; Sun et al., 2009) and wildlife surveillance and reporting (Parmley et al., 2009; DeLiberto et al., 2009).

The NWDP provided financial support and guidance for an international workshop on wild bird surveillance in Santiago, Chile. The Wildlife Conservation Society organized the activity in cooperation with the Chilean Servicio Agrícola y Ganadero. The workshop brought together a multidisciplinary group of people from the South American region including ornithologists, researchers, biologists, veterinarians, academics, students, and representatives of the poul-

with Russian scientists to continue an awareness of current activities.

The NWDP supported three international workshops during fiscal year 2009 to improve existing knowledge of wild birds' role in the spread or persistence of avian influenza. We requested IUCN to organize a regional workshop in Dhaka, Bangladesh. We collaborated with IUCN, and FAO along with appropriate Bangladesh government agencies and research institutes to identify training components and develop an agenda. Following speaker presentations, participants addressed specific issues for Bangladesh, including 1) awareness, communication and capacity development; 2) re-

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WILDLIFE DISEASE SURVEILLANCE IN MEXICO

By Luis Lecouna, John Baroch, Ana Lilia Sandoval, and Yovanka Toxqui

Since the mid-1990's, Mexico and the USA have established bi-national agreements to cooperate not only on public health issues, but also on domestic animal and wildlife health concerns. The latter agreements pertain to wildlife disease surveillance as a result of the establishment of the Wildlife Program in the USDA/APHIS Office in Mexico City.

The bi-national collaboration is a sensitive and complex process that requires more than the simple agreement of the counterparts. It establishes a permanent process of negotiation to develop coordinated activities, in terms of bi-national plans and perspectives that include the Mexican Ministries of Health (SALUD), Agriculture (SAGARPA), and Natural Resources (SEMARNAT), as well as the USDA/APHIS/Wildlife Services Program and the Rabies Section of the Centers for Disease Control.

The focus of the agreements to date has been on five main issues that represent the goals, objectives, field activities, and collaborative perspectives related to: 1) wildlife disease surveillance systems, 2) rabies management, 3) early detection of H5N1 avian influenza in wild birds, 4) technical training in the laboratory and the field and, 5) educational and profes-

sional exchanges.

In 2005, Wildlife Services presented a proposal to the Mexican agencies for the "Bi-national Plan of Wildlife Disease Monitoring and Surveillance in the Common Border". As a part of this proposal, limited activities for plague and tularemia monitoring in prairie dogs and wild carnivores were developed in selected states.

Also, Wildlife Services has a permanent collaboration with Veterinary and International Services on bi-national plans for the monitoring and control of bovine tuberculosis, plague, Brucellosis, chronic wasting disease, and other diseases. There is a special focus on deer in the border region (Texas in the U.S., and the 4 Mexican states of Chihuahua, Coahuila, Nuevo Leon and Tamaulipas).

An important focus of bi-national collaboration is the

Project for Early Detection of H5N1 Avian Influenza in Wild Birds. This project began in the 2006-2007 season with training in avian influenza diagnostics at the National Veterinary Services Laboratory in Ames IA. Soon after, 4,694 wild bird samples were collected at selected wetlands in Mexico, and 15 matrix positive samples were identified. During the 2007-2008 season a total of



Mark Lutman trains Mexican wildlife officials to use canon nets

4,344 wild bird samples were collected, with 86 matrix positive samples. In the most recent collecting season (2008-2009), 2,427 wild bird samples were collected; diagnostic results are pending.

A major accomplishment of the last year was the establishment of a diagnostic laboratory in Guasave, Sinaloa, to support avian influenza and other wildlife disease surveillance. The bi-national negotiation supported the Collaboration Agreement with the National Polytechnic

Institute, Wildlife Trust, and the USDA/APHIS. The laboratory was established in the Interdisciplinary Center of Integral and Regional Development Research with the participation of the Autonomous University of Chihuahua and Ducks Unlimited-Mexico. The project was supported by the Mexican Ministries SEMARNAT and SAGARPA.

Other activities are focused on training and professional exchanges. The USDA/APHIS has offered annual support to officials of SALUD, SAGARPA, and SEMARNAT for training in wildlife necropsy, epidemiology, and in the diagnosis of foreign animal diseases. Fourteen Mexican officials have been trained during the last five years.

The last few years have seen significant progress and notable successes in cooperative domestic animal health and wildlife disease surveillance and management between Mexico and the U.S. Advances in bi-national collaboration sometimes do not appear to be progressing as rapidly as some cooperators may desire, but the primary goal is to build effective links for working together to meet new challenges and accomplish current activities and goals.

(First Report in Greenland ~ Continued from page 1)

tial route for the spread of the HPAI virus. One particularly small bird was found mixed in with the snow geese. After examining body measurements and photographs of the bird, ornithologists at the Greenland Institute of Natural Resources, and Aarhus University, Denmark, have declared this as the

first documented Ross's Goose in Greenland. Ross's Goose is a closely related but smaller white goose species that normally



Example of distinctive head and bill morphology of Ross's goose (left) and greater snow goose.

breeds in the central Canadian arctic and west to Alaska.

Additional information on this discovery can be found on the Greenland Institute of Natural Resources website: [http://natur.arcticcomm.com/index.php?id=623&L=3&no_cache=1&sword_list\[\]=goose](http://natur.arcticcomm.com/index.php?id=623&L=3&no_cache=1&sword_list[]=goose)

DEPOPULATION OF A CWD POSITIVE CAPTIVE ELK IN MINNESOTA

By Tom Gidlewski

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy (TSE) of deer, elk, and moose. The disease was first recognized as a clinical "wasting" syndrome in mule deer at a wildlife research facility in Colorado in 1967. The disease is thought to be transmitted by an abnormal form of a normal protein, known as prion protein, commonly found in the central nervous system and lymphoid tissues. Although CWD is only known to infect a few species of the deer family, concern that the disease could eventually infect livestock and people, and its potential impact on wild deer and elk populations, have resulted in state and federal surveillance and control programs.

In January, 2009 an elk from a farmed Minnesota herd tested positive through slaughter surveillance for CWD. The case was confirmed by the USDA, APHIS, Veterinary Services, National Veterinary Services Labo-

ratory in Ames, IA. Veterinary Services, the State of Minnesota and the herd owner agreed to depopulate the herd. This depopulation was a huge under-



Kelly Neisen of Veterinary Services organizes the necropsy trailer

taking requiring the removal, sampling, and disposal of over 500 elk.

Wildlife Services was asked to assist with the depopulation. Tom Gidlewski, assistant National Wildlife Disease Program (NWDP) coordinator, reviewed appropriate sample collection

and submission techniques with the specimen collection team. Paul Wolf, the Minnesota wildlife disease biologist, coordinated the euthanasia team.

Prior to initiating the depopulation, Wildlife Services conducted a site visit in cooperation with the Minnesota Board of Animal Health and Veterinary Services. After careful review of the facilities, it was decided that shooting activities would be conducted from an elevated platform within the barn overlooking a

300' X 300' fenced primary enclosure that was surrounded by four secondary enclosures. The elevated platform provided optimal visibility to monitor the animals, a safe structure for personnel to work in, and minimized stress in the elk from the presence of personnel on the site.

The depopulation was treated as an all hazards incident under the Incident Command System. Veterinary services provided daily guidance and updates to the Minnesota Board of Animal Health and the USDA. Wildlife Services provided operational assistance to humanely euthanized the animals at the direction of Veterinary Services. The Minnesota Board of Animal Health did an excellent job handling the media inquiries.

Depopulation was conducted in darkness to minimize animal stress. Wildlife Services safely and humanely euthanized 558 animals over nine days. Three additional animals were discovered to be infected. While it was unfortunate that this herd was infected with CWD and had to be depopulated, this case demonstrated the capability of state and federal agencies to effectively plan and safely conduct a large disease control project on captive wildlife using the Incident Command System.

(International Overview ~ Continued from page 2)

try industry, to discuss avian influenza surveillance in wild birds. Attendees represented Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Perú, Uruguay, and Venezuela. The workshop successfully met the goals of 1) strengthening capacity to conduct avian influenza surveillance; 2) increasing knowledge about the virus in wildlife; 3) exchanging information regarding wild bird surveillance and public health emergencies in South America (identifying strengths and needs at country and regional levels); 4) establishing links among government agencies and international organizations, encouraging and facilitating collaboration within the region. The NWDP also is co-sponsoring separate workshops in northern and southern Chile to further support future surveillance activity.

The NWDP supported and participated in surveillance activities in Asia. Continued collaboration with the Chinese Academy of Sciences to evaluate potential avian influenza risks on major wetlands in China is one of the goals. Scientists from the Vietnam Department of Livestock Health visited the program office in Fort Collins, Colorado as part of a scientific exchange.

The NWDP is working cooperatively with Colorado State University and is active in Indonesia. Students from Bogor Agricultural University are investigating the epidemiology and potential disease spread from wild bird markets. There also is a cooperative effort with Colorado State University and the Center for Indonesian Veterinary Analytical Studies to conduct a longitudinal study that addresses the interaction of domestic ducks with wild birds and rodents.

The NWDP collaborated with the Mongolian Academy of Sciences – Ornithology Laboratory to collect samples from Bar-headed Geese populations across their breeding range in Mongolia. The study expanded ongoing avian influenza surveillance activities and will determine whether antibodies exist in the geese's range in Mongolia. The surveillance team encountered a bird event mortality on Doroo Tsagaan Lake in July. Dead species included bar-headed geese, whooper swans, common golden eyes, ruddy shelducks, and Mongolian gulls. These species have been previously identified as being susceptible to highly pathogenic avian influenza H5N1 in Mongolia, and diagnostic testing to determine the cause of this mortality event continues.

A few international activities have been identified for fiscal year 2010 and additional opportunities will likely arise as

the year progresses. The NWDP will continue collaborative surveillance work in Canada, China, Ecuador, Greenland, Indonesia and Mexico; technical trainings will occur in Chile.

The NWDP will continue to support graduate students and provide technical assistance in Indonesia. A scientific conference addressing wildlife and avian influenza is targeted for Thailand with a subsequent publication. There also is potential for a Regional Asian Wildlife Avian Influenza Conference similar to the one held in 2007. The NWDP is also working with the Chinese Academy of Sciences—Institute of Zoology to host a wildlife disease conference in Beijing during May 2010. The meeting will address avian influenza issues but also will expand to other zoonotic wildlife diseases that may pose threats to agriculture or humans.

COMPREHENSIVE FERAL SWINE DISEASE KICK-OFF

By Seth Swafford

October 1st marked the kick-off of Wildlife Services' National Wildlife Disease Program's comprehensive feral swine disease surveillance and monitoring project. Every year the project is initiated with a meeting with Veterinary Services, followed by a conference call with wildlife disease biologists, then distribution of the annual Feral Swine Disease Procedures Manual. The project has been largely successful in the past due to the cooperative nature of working with state agricultural departments and state wildlife agencies to take advantage of hunter-killed feral swine, feral swine removed during wildlife damage management projects, and most importantly sampling feral swine in high risk areas such as the wildlife-livestock interface. This type of opportunistic surveillance has also helped reduce disease threats by controlling feral swine in counties with commercial swine operations.

Relatively few changes will take place during the upcoming year regarding diseases of interest. Classical swine fever (CSF) re-

mains the focal point of surveillance by providing an early warning system to a possible foreign animal disease incursion. This focus is closely followed by the important monitoring of brucellosis and pseudorabies in feral swine. The endemic disease information has been proving useful to many state agricultural departments, and in the case of brucellosis detections, also important to the Centers for Disease Control. There has also recently been an interest by one of our largest stakeholders, the domestic swine industry, to test feral swine for Toxoplasmosis and Trichinae. Through another year of working closely with the USDA Agricultural Research Service, the feral swine serum archive will be leveraged to continue determining distributions and prevalence of these parasitic diseases.



Feral hogs in New Mexico.
Photo submitted by Justin Stevenson, 2009.

One of the largest changes for the upcoming year will be diagnostic testing of feral swine sera. With the exception of feral swine samples from Texas, feral swine sera will only be tested for CSF at the Foreign Animal Disease Diagnostic Laboratory. Feral swine sera from Texas will be sent locally to the Texas Veterinary Medical Diagnostic Laboratory for testing. This change marks an important step forward in working with the National Animal Health Laboratory Network to move serological testing for CSF into the Network. To reduce expenses and shipping

confusion, diagnostic testing for brucellosis and pseudorabies will be performed through the feral swine serum archive. Sera for pseudorabies testing will be batched and redistributed to either the Washington Animal Disease Diagnostic Laboratory or the Wisconsin Veterinary Diagnostic Laboratory. Brucellosis testing will occur within the National Wildlife Disease Program with assistance from the National Veterinary Services Laboratories. Diagnostic testing of feral swine sera for Toxoplasmosis and Trichinae will remain unchanged during the upcoming year.

The year has started on a solid foundation with a plan to collect and test at least 2100 feral swine for the above mentioned pathogens. With great support from Veterinary Services, State agricultural departments, State wildlife agencies, and USDA Agricultural Research Service, we are confident another year of surveillance and monitoring will prove beneficial to protecting American agriculture, wildlife, and human health.

MEET NWDP'S NEW HIRES

By Amelia Lavelle

Wes Gaston was recently selected as the Alabama Wildlife



Disease Biologist. Wes is originally from Americus, GA. He received his BS in biology from Bob

Jones University and his MS in Wildlife Sciences from Auburn University where he conducted research on feral pig survival, home range, and habitat use on Lowndes County Wildlife Management Area. Wes was a wildlife specialist for Alabama Wildlife Services for two and a half

years prior to accepting his current position.

Patrick Whitley was recently selected as the Oklahoma Wildlife Disease Biologist. Pat grew up in Sulphur, OK, playing sports, hunting and fishing. He attended Southeastern Oklahoma State University in Durant, graduating with a BS in Wildlife Conservation and a minor in Biology. Pat began working for Wildlife Services in 1995. His first duty station was in Salina, OK, where he worked in Delaware, Mayes, and Rogers Counties. He then transferred to Atoka and Bryan Counties in southern Oklahoma, where he

worked for the next 11 years as a Wildlife Specialist. While on this assignment, he dealt primarily with beaver, coyote, and feral hog damage management issues.

Keira Wood is a new student intern in NWDP's main administration office and is currently attending Colorado State University majoring in animal science and agribusiness with a minor in microbiology. After graduation, she plans to pursue a career in agriculture biosecurity.



Ramsey Sullivan is a new student intern in NWDP's main office currently attending Colorado State University majoring in Fish, Wildlife, and Conservation Biology.



Jennifer Godleski is a new student intern in NWDP's main office and is currently attending Colorado State University majoring in Fish, Wildlife, and Conservation Biology, with a concentration in wildlife biology.



ESTABLISHING COLLABORATIONS TO UNDERSTAND HPAI MOVEMENT IN INDONESIA

By Dennis Kohler

Highly pathogenic avian influenza (HPAI) H5N1 has established itself as an endemic disease in Indonesia, and mortalities in humans and domestic poultry from HPAI infection continue to remain high. While some of the cultural practices (i.e. wild animal markets) that have been ongoing for generations may contribute to the persistence of the virus in Indonesia, wildlife are believed to play a key role in the epidemiology of this disease, but precisely what role wildlife play has yet to be defined.



Dr. Kristy Pabilonia, left, of Colorado State University instructs a member of CIVAS on blood collection from a songbird

Colorado State University, in collaboration with Wildlife Services National Wildlife Disease Program (NWDP), has ongoing projects on HPAI in Indonesia (West Java) to elucidate the role of wildlife and wild animal markets on the ecology. This work has established a research veterinary diagnostic laboratory in Indonesia at Bogor Agricultural University. The laboratory is currently in the process of assaying approximately 8000 HPAI diagnostic samples that have been collected from the region. Earlier this year, the Indonesian-US collaborative team completed a cross-sectional study on the prevalence of avian influenza in domestic ducks, and is now in the process of conducting a longitudinal study that will focus not only on domestic ducks, but will expand and include wild birds and rodents.

The work in Indonesia currently focuses on domestic poultry,

human-poultry interactions, and free ranging wild birds and mammals. One aspect that

has come to our attention in Indonesia is the role that live wild animal markets play in the daily lives of Indonesians. These markets are supplied with wildlife (i.e. birds, mammals, and reptiles) that have been captured from the surrounding regions; the animals are co-mingled in very close proximity with very little segregation, creating opportunities for virus transfer between species. Animals are purchased live and kept as pets or slaughtered for human consumption, creating a unique human/wildlife interface that could perpetuate the HPAI epidemiological ecology of the virus and pose another route of exposure to human infection.

Wildlife Services, in collaboration with Colorado State University and Bogor Agricultural University, are partnering to conduct wild animal market surveillance and testing in conjunction with ongoing investiga-

tions of HPAI in Indonesia. The NWDP will contribute funding and technical expertise in supporting the work of three graduate students from Bogor Agricultural University. The initial studies will focus on understanding the wild animal market networks, and answering such questions as where do the animals originate, are there intermediate collections points, and where are the distribution paths and endpoints? This work will also include collecting samples from captive wild birds and wild mammals for human use or consumption in

the markets. Samples will be tested for the presence of viral RNA and antibody to HPAI virus. Samples will also be collected from drinking water provided for the wild animals for the presence of viral RNA.

National Wildlife Disease Program personnel in conjunction with Colorado State University researchers traveled to Indonesia recently to meet with

officials at Bogor Agricultural University to develop a basic course of study for the graduate students and set goals for the projects. Also NWDP and Colo-

rado State University scientists provided training on the proper techniques of handling and bleeding small birds from the jugular vein, as well as the proper technique of collecting wild birds using mist nets.

In cooperation with the Center for Indonesian Veterinary Analytical Services (CIVAS), the NWDP-Colorado State University team traveled to field sites in the Tangerang District northwest of Jakarta to collect swabs and serum from sentinel ducks at two different production facilities. The Tangerang District has been one of the more active Districts for HPAI outbreaks in village-raised poultry and waterfowl. Production facilities in three districts (including Tangerang) will be targeted for mist net operations and rodent trapping for HPAI surveillance in wild animals. The team will



Dr. Dale Nolte assists Dr. Kristy Pabilonia with blood collection from a domestic duck.

also document possible interactions among wild birds, rodents and the domestic ducks at each facility. Samples from the wild birds and rodents will be analyzed for the presence of HPAI RNA and antibodies to the virus. The data obtained from these projects will be valuable in

determining what role these wild birds and rodents play in maintaining or perpetuating HPAI in Indonesia and possibly elsewhere.

http://www.aphis.usda.gov/wildlife_damage/nwdp/

STATE HIGHLIGHTS

Eastern Region

Bovine Tuberculosis

Indiana Wildlife Disease Biologist Joe Caudell and Wildlife Services personnel assisted with the depopulation of a Bovine Tuberculosis-positive mixed, captive cervid herd in Franklin County, Indiana. Wildlife Services' role was to assist with the removal of captive deer, assist with surveillance in free-roaming wildlife, and conduct verification activities inside the fenced area to ensure that the depopulation was complete and successful. The premises consisted of about 60 - 80 animals (elk, red deer, fallow deer, and sika deer) in a 100 acre pen consisting of mixed deciduous hardwoods with a heavily browsed understory.

Chronic Wasting Disease

Chronic wasting disease (CWD) was identified in a captive elk facility in Olmsted County (SE Minnesota). Wildlife Services' Wildlife Disease Biologist Paul Wolf, District Supervisor John Hart, and State Director Gary Nohrenberg helped organize and collaborate with USDA-APHIS Veterinary Services and the Minnesota Department of Natural Resources (MNDNR) to

provide assistance with sampling and depopulating the captive herd. Depopulation was tentatively scheduled to begin in mid-September. Veterinary Services coordinated operational logistics and indemnity agreements with the producer/owner.

In response to the discovery of CWD in the captive elk herd, the MNDNR is conducting surveillance around the infected premises through the fall deer hunting season. Paul Wolf is working with the MNDNR Wildlife Health staff to coordinate the potential mobilization of several NWDP Disease Biologists to assist with fall deer surveillance in the Olmsted County area.

Rabbit Mortality Investigation

Wildlife Disease Biologist Tom Hutton of Missouri was contacted in early spring to investigate a mortality event of Eastern cottontail rabbit. A military installation had been experiencing an Eastern cottontail rabbit population explosion. Browsing pressure became severe, and approximately 80 rabbits were trapped and euthanized during April and May to protect ornamental plantings.

Beginning about July 1, base personnel began finding numerous rabbits lying dead on lawns; the majority were found in the northern corner of the base. Approximately 40 rabbits were found and removed in about two weeks. Military personnel contacted a local Wildlife Control Office and were told that there had not been a similar situation at the nearby airport.

Tom Hutton inquired about pesticide poisoning, but military personnel reported that insecticide use on the base was not common, but when necessary, use licensed applicators. The last insecticide application was to "bomb" spiders in buildings on the west side of the base almost two years ago; the last herbicide use on the base was to spray weeds in March/April 2009. The area with the heaviest rabbit mortality received little spraying.

The Centers for Disease Control tested five rabbits for *F. tularensis* using two different methods; none tested positive. The overall pathology for each animal was not typical for tularemia or plague. Mice were also inoculated with liver and spleen tissue from the collected rabbits, but remained healthy indicating that tularemia was not the likely cause of mortality. The investigation is ongoing.

erators and ranch owners from a two-year project that studied the spread and maintenance of Aleutian Disease (AD) on mink ranches throughout Idaho. Aleutian Disease is a parvovirus that produces a slowly progressive, wasting and immunosuppressive syndrome in mink. The clinical signs of AD range from poor production to losses of kits and adults. Transmission of AD occurs directly through contact with an infected mink, or indirectly by contamination of feed, water, and equipment or clothing with feces, urine or saliva. The Disease can also be spread from the dam to her kits. Once clinical signs are present, mortality usually ensues.

An issue of concern is the role that wildlife may play in perpetuating the virus in domestic mink. Idaho Wildlife Disease Biologist Scott Stopak partnered with Dr. Mark Drew, an Idaho Dept. of Fish and Game Wildlife Veterinarian, to report the initial results of the second round of AD surveillance activities.

Dr. Drew and Scott Stopak investigated biosecurity procedures in place at mink ranches, as well as the feed used for domestic mink. Wildlife were trapped in areas inside and surrounding the facilities. Diagnostic tests were performed on all captured animals (i.e., wild mink, raccoon, striped skunk, and feral cats); the results are still pending.

To deter the spread of AD from farm to farm, Dr. Drew and Scott Stopak believe there should be improved procedures to increase biosecurity on the farms to include foot baths and/or changes of clothing for farm visitors including, the drivers of feed trucks, feed delivery personnel, farm employees that visit other farms, salespeople, and pelting crews.

Western Region

Plague and Tularemia

Colorado Wildlife Disease Biologist Todd Felix collected Nobuto blood samples and approximately 600 fleas from 14 coyotes (10 from Kiowa County and four from Moffat County) removed during wildlife damage management activities. Additionally, he processed Nobuto blood samples collected from 54 animals - mostly coyotes - by various Wildlife Specialists and Wildlife Biologists in Colorado during wildlife damage management activities. The Nobuto samples were submitted to the Centers for Disease Control for continued plague and tularemia surveillance; the fleas were collected as part of a collaborative research effort to study the genetics of *Pulex spp.*

Aleutian Disease

A report was delivered to coop-



Personnel performing a necropsy on a deer utilizing the NWDP Emergency Response Laboratory.

National Wildlife Disease Surveillance and Emergency Response Program

For more information on the Wildlife Services Wildlife Disease Program in your state, please call 866-4 USDA WS, or contact the following staff:

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For All-Hazard Emergencies Involving Wildlife
Call: 970.266.6363 or toll-free 1.877.303.6363

AVIAN INFLUENZA TRAINING IN CANADA

By Mark Lutman

In early August, Environment Canada hosted a tri-lateral waterfowl workshop followed by two weeks of waterfowl surveys, capture, banding, and avian influenza (AI) surveillance. On August 10th, wildlife disease biologists Scott Stopak and Mark Lutman assisted Canadian Wildlife Services on a two week work detail in the Provinces of New Brunswick, Nova Scotia, and Prince Edward Island; concurrently, three Ecuadorian biologists visited Canada to participate in the same waterfowl workshop. The Ecuadorian biologists each went to a different province (Saskatchewan, Ontario, and New Brunswick) and worked with waterfowl banding crews to gain as much hands-on experience as possible during the month of August. Stopak and Lutman helped operate 16 swim-traps that were spread out over 10 wetlands on the borders of Nova Scotia and New Brunswick. Once waterfowl were captured, the biologists banded, aged, sexed, collected avian influenza samples from the various waterfowl species (10), and took biological



Scott Stopak

samples (feathers) from adult blue-winged teal for isotope analysis. At night, the WDBs captured waterfowl with the aid of an airboat and nets. This specialized technique was very useful in targeting waterfowl species that shy away from funnel traps. Data from over 800 AI samples and 300 isotope samples will be provided to USDA in a short report upon conclusion of this project.

Canadian Wildlife Services wildlife biologist Keith McAloney provided an in-depth history of Canada's duck band recovery data, and also provided an outstanding history of the local area and its development since it was initially settled.

The waterfowl capture, sampling, and banding activities observed were extremely educational and some of these techniques have been incorporated into Idaho's current HPAI surveillance activities. Upon returning to Idaho, Stopak collaborated with Idaho Department of Fish and Game to collect waterfowl species with the use of an airboat.

Mark Lutman



Mark Lutman

RECENT NWDP PUBLICATIONS

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