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COORDINATOR COMMENTARY

By Dr. Thomas DeLiberto

During June, the NWDP held its annual necropsy and biosafety training, and Wildlife Disease Surveillance and Emergency Response Meeting at the National Wildlife Research Center in Fort Collins, CO. These two events, along with training in Emerging Diseases of Wildlife and Foreign Animal Diseases provide the core competencies for Wildlife Services Wildlife Disease Biologists and ensure that they are qualified to serve as first responders in all hazard emergencies. In addition to taking these required trainings, wildlife disease biologists received their annual respirator fit test, and obtained updates on sampling protocols for national surveillance projects, such as the comprehensive feral swine disease surveillance, bluetongue/EHD vector surveillance, and avian influenza.

At each year's meetings, we also announce the Wildlife Services' Wildlife Disease Biologist of the Year Award. This year the award was presented to David Marks (MI) for his exemplary service in assisting Wildlife Services, Michigan DNR, and other partners in wildlife disease surveillance, management and emergency re-

sponse.

Also recognized at this year's meeting were those NWDP employees who have moved on to new opportunities. Jerry Hill (WV) recently moved to Alaska where he is a biologist for the USFWS. Erika Kampe (CO) moved to Portland, OR to explore opportunities in the Northwest. Janean Romines (TX) is currently with the Wildlife Services Operational Support Staff in MD. Carl Betsill (NC) has decided to retire (again) and pursue the "good life." Maggie Mills (CO) is now a budget analyst for the Justice Department in Washington DC. Finally, Seth Swafford (CO) recently moved to Columbia, MO where he is now the Wildlife Services State Director. All of these colleagues and

friends will be missed, but we wish them all the best in their endeavors.

Adapting to change, such as the personnel turnover mentioned above, can be difficult. Especially for those of us in federal service, where change seems to occur slowly. This is partially by design; government programs and laws should be insulated from rapid changes in public opinion and policy decisions. Periodically, though, some dramatic events occur that can result in rather large changes in our personal lives as well as in the government. The current economic recession is one of those events, affecting Americans at almost every level. We in the NWDP are no exception, and similar to programs throughout state and federal governments, we will need to do our best to collectively provide services on protecting human, agricultural, and ecosystem health with fewer resources. This will likely mean eliminating programs such as the HPAI Early Detection System and decreasing emergency support functions. These changes will be difficult for us and our customers to accept, but I am confident that the dedication and professionalism that you have demonstrated over the years will continue to result in great accomplishments for WS, APHIS, and the country.



Tom DeLiberto (right) presenting Dave Marks the NWDP Wildlife Disease Biologist of the Year Award

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

DEEPWATER OIL SPILL RESPONSE UPDATE

By Dr. Richard Minnis

After 87 days, the Deepwater Horizon oil spill was finally contained. Estimates indicate that 4.9 million barrels of oil leaked into the Gulf of Mexico, impacting 650 miles of shoreline. In comparison, the Exxon Valdez dumped 257,000 barrels in Prince William Sound.

The US Fish and Wildlife Service reports 1,769 live birds captured and 3,606 dead birds recovered. A total of 642 of the live captured birds have been released into unaffected areas of the Gulf. Wildlife Services assisted the response efforts by providing wildlife surveys, recovery of oiled and dead animals, and deterring birds from using oiled habitats. Since 3 May 2010, Wildlife Services deployed 67 biologists, technicians, and budget personnel to Louisiana, Mississippi, Alabama, and Florida. As of August 4, 2010, Wildlife Services has captured a total of 411 birds and recovered 2 sea turtles and 1 porpoise.

Wildlife Services personnel have been instru-

mental in training other wildlife professionals and recovery team members. Trainings on the use of CODA capture devices and other net systems was provided to State and Federal biologist working the spill. Knowledge and expertise in



Wildlife Services employees prepare to trans-

fer the use of GPS was shared with other agencies. Our personnel also received training from other agencies as the spe-

cialized ACETA aviation training on net gunning from helicopters hosted by USFWS.

The Deepwater Horizon oil spill continues to dramatically impact the Gulf Coast ecosystem and economy. While impacts will take months, if not years to fully understand, one thing is clear; Wildlife Services has again demonstrated its capabilities to efficiently respond to emergencies. Wildlife Services personnel maintain valid certifications and training on Hazardous Waste Operations and Emergency Response (Hazwoper), Incident Command Systems, foreign animal disease detection, biosecurity, field necropsy, rapid deployment, and numerous other skills. Such preparedness will continue to provide the country with all-hazard emergency response support when Wildlife Services expertise is required.

NWDP INTERNSHIP IN HAWAII

By Samuel M. Goldstein

The USDA offers internship opportunities to college students who wish to enhance their agricultural knowledge and gain a competitive edge in their career development by providing on-the-job training and experience. The NWDP supports this initiative and other outreach activities that seek to educate and inform the public on current issues pertaining to our nation's agriculture. The NWDP is participating in the internship program by mentoring an undergraduate student in Animal Science from the University of Hawaii. Upon completion of her internship in December 2010, Ms. Andrea Guerrero will present her experiences to her advisory com-

mittee and receive college credit toward her degree.

Ms. Guerrero's internship program with Wildlife Services will combine office, laboratory, and field experiences demonstrative of the effort that is needed to study diseases in wildlife. During the first several weeks of the internship, Ms. Guerrero has had the opportunity to collect surveillance samples from wild birds for detection of highly pathogenic avian influenza and collect blood samples and nasal and oral swabs from feral swine as part of the NWDP's comprehensive feral swine disease surveillance program. Additionally, she has observed a field necropsy of a feral pig, processed

blood for sero-surveillance of diseases in feral swine, and packaged surveillance samples for shipment to diagnostic laboratories. As the internship pro-



*Wildlife Services student intern
Andrea Guerrero*

gresses, Ms. Guerrero will assist with tracking and managing identification bands used for studying bird populations, conduct data analyses used to manage wildlife populations and diseases, and provide written reports regarding her understanding of scientific literature, as well as monthly reports of her internship experiences.

Collaborating with the internship program of the University of Hawaii has helped to strengthen USDA- university relationships. The University of Hawaii has already requested that Wildlife Services participate in additional student internship opportunities.

Correction

In the last issue of *The Carrier* (Vol. 2, Issue 2), we unintentionally omitted the name of Dr. Candelaria Daniels as co-author on the article "Rapid Field Screening for Avian Influenza Virus and Other Pathogens." Dr. Daniels is a microbiologist for the Department of Defense Veterinary Food Analysis and Diagnostic Laboratory, and was instrumental in the validation testing of the JBAIDS system on wild bird avian influenza samples. The NWDP sincerely regrets the error.

WILD BIRD TISSUE REFERENCE ARCHIVE

By Ted Anderson, Katie Brown and John Baroch

The Wildlife Services NWDP, Wild Bird Tissue Reference Archive is pleased to announce a call for sample loan requests. Initiated in 2006 as a partnership between Wildlife Services and the National Animal Health Laboratory Network (NAHLN), the Wild Bird Tissue Reference Archive has grown to be a valuable repository now housing over 250,000 wild bird surveillance samples. This collaboration has been a critical piece of Wildlife Services' effort to establish a system for early detection of highly pathogenic avian influenza (HPAI) in the United States. While highly pathogenic H5N1 avian influenza has not been found in North

America, many of the samples have been critical in characterizing the distribution and movement of low pathogenic avian influenza in North American wild birds and assay development.

The Wild Bird Tissue Reference Archive holdings consist of oropharyngeal and cloacal swab samples, and environmental samples, representing over 140 species. The preponderance of samples are from waterfowl and shorebirds. The samples are associated with a detailed database of information including species, gender, age, collection date and location. All samples were initially screened via rRT-PCR for presence of type A avian

influenza at one of the participating NAHLN labs and subsequently accessioned into the archive for long term storage at 80°C. At present, approximately 15,000 samples have tested positive via matrix assay for type A influenza. The archive is not currently accessioning H5/H7 positive samples but has plans to do so in the near future.

The Wild Bird Tissue Reference Archive is open and accessible to other agencies, universities, and organizations. It is proving to be an invaluable resource for a variety of studies including AI-related research, assay validation, emerging disease diagnostics, and retrospective disease

studies. The archive is housed at the Colorado State University Veterinary Diagnostic Laboratory and is jointly administered through a cooperative agreement by Wildlife Services and Colorado State University. We invite inquiries and proposals. Requests for loans are considered on a case by case basis.

To inquire about sample loans or place a request, please contact the archive supervisors:

John Baroch (970-266-6308 or John.A.Baroch@aphis.usda.gov) and Dr. Kristy Pabilonia (Kristy.Pabilonia@colostate.edu or 970-297-4109).

NATIONAL RABIES AND WILDLIFE DISEASE MANAGEMENT PROGRAMS' WHITE PAPER INITIATIVE ON CLIMATE CHANGE

By Timothy P. Algeo

The effects on human and animal health from predicted changes to earth's climate are of concern to wildlife managers, public and animal health specialists, and the public at large. While some aspects of predicted climate change remain controversial, there is no denying a current global warming trend, nor that this trend is related, at least in part, to human activity. With temperature increases of 0.2°C per decade expected, according to the Intergovernmental Panel on Climate Change, concerns over potential effects to the health of people and animals are warranted.

Given that Wildlife Services' mission "...to provide federal leadership in managing problems caused by wildlife...", includes that we protect people, domestic animals, and natural resources from zoonotic infectious diseases such as rabies, tularemia, and Highly Pathogenic avian influenza (HPAI) H5N1, we need to plan for climate change-related developments in the same manner in which we plan for exigencies such as bird strikes, vaccine barrier breaches, and nuisance wildlife translocations (e.g., the brown tree snake). To that end, the National Rabies Manage-

ment Program (NRMP) and NWDP are reviewing climate change-related literature, assessing potential impacts in relation to zoonotic diseases, and outlining plans for responding to changes in disease distributions. As a first step, the NRMP-NWDP are jointly preparing a white paper on climate change that includes proposed steps toward our preparedness for effects to zoonotic diseases.

What we know

Most of the literature on climate change and infectious diseases is related to vector-borne diseases such as malaria, dengue, west Nile virus, and Lyme dis-

ease, all of which are maintained and spread by climatically sensitive arthropods. Given the sensitivity of these vectors to environmental conditions, they are considered the most susceptible to potential climate change shifts in temperature, precipitation, and other factors. In some cases, climate change impacts have already been detected in vector-borne diseases (e.g., dengue in Mexico). While climate change-related effects on zoonotic disease reservoirs such as rodents, meso-carnivores, bats and birds may initially be less pronounced, climate is among

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

BEING NEGATIVE CAN BE A POSITIVE!

By Brandon Schmit and Seth Swafford

In July 2010, the NWDP began collecting feral swine samples as part of a larger National Animal Health Laboratory Network (NAHLN), Veterinary Services (VS), and Wildlife Services cooperative negative cohort project investigating African swine fever (ASF) and foot-and-mouth disease (FMD). FMD and ASF are classified as foreign animal diseases in the U.S. This negative cohort project serves to evaluate and improve current diagnostic and communication protocols for these and other foreign animal diseases.

FMD exists in roughly two thirds of the world and outbreaks continue to have large economic impacts. ASF is a contagious, often fatal, disease of swine that presents with clinical signs similar to classical swine fever and has

caused recent outbreaks in Italy, Russia and the Republic of Georgia. FMD and ASF do not cause disease in humans but their potential risk to swine and wildlife warrants validation of testing protocols to support future surveillance programs. Diagnostic tests may perform differently in various wildlife species or between populations of wildlife that live and feed in different geographic regions. It is important to determine if diagnostic tests can accurately identify negative animals.

The role of NWDP on the negative cohort project is to provide samples for validation of rRT-PCR tests for FMD and ASF in feral swine. Oral swabs will be collected from 750 feral swine for

FMD testing, and 300 whole blood samples will be obtained and tested for ASF. The rRT-PCR tests may be validated for use in feral swine if they are shown to have acceptable levels of false positive rates (specificity).

This study also serves to assess procedures and processes related to sample collection, testing, and communication, which will improve ASF and FMD surveillance projects.

State	FMD Samples	ASF Samples
Arkansas	35	0
California	100	50
Florida	70	50
Georgia	60	50
Hawaii	100	50
Kansas	25	25
Mississippi	40	25
North Carolina	60	0
Oklahoma	75	50
South Carolina	35	0
Texas	150	0
TOTAL	750	300

Sample targets for foot-and-mouth disease (FMD) and African Swine Fever (ASF) in feral swine

SWINE INFLUENZA VIRUS SURVEILLANCE IN FERAL SWINE POPULATIONS

By Kelly L. DeBaene, Mark Lutman, and Seth Swafford

Feral swine are an invasive species in the U.S., with populations estimated above 5 million individuals. Their distribution covers at least 35 states. These animals invade rural areas as well as urban environments such as landfills, parks, and residential backyards. In addition to causing significant damage to habitats and property, the possibility for disease transmission among feral swine and domestic animals, humans, and other wildlife is a major concern. Feral swine carry at least 30 viral and bacterial diseases that can be transmitted to humans, wildlife, and livestock.

Swine play a unique role in the epidemiology of type A influenza viruses in that they have similar cellular receptors to both birds and humans. This unique characteristic makes swine capable of being infected with multiple subtypes of type A influenza viruses and allows swine to serve as "mixing vessels" through genetic re-assortment of avian,

human, porcine and mixed influenza subtypes. The 2009 pandemic novel H1N1 is an example of a type A influenza virus that contains an assortment of genes from humans, birds, and pigs, including swine genes of



Wildlife Services student intern, William Simmons collects a blood sample from a euthanized feral pig

Eurasian origin that had not previously been detected in North America. Because feral swine are capable of virus re-assortment and are increasingly interacting with humans, domestic animals, and wildlife (including waterfowl which are a known avian influenza reservoir), there is concern that feral swine could carry both novel and preexisting type A influenza viruses to and from populations of susceptible species.

The NWDP will be adding swine influenza virus surveillance to its comprehensive feral swine disease surveillance project in October. Current plans for conducting SIV surveillance under the comprehensive project include performing an antibody sero-survey to determine which feral

swine populations in the U.S. have been exposed to type A influenza viruses and map the distribution accordingly. The second component of the plan is to revisit these SIV 'hot spots' and collect nasal swab samples for antigenic detection and genetic sequencing of viruses. Consequently, this surveillance project will increase knowledge of the distribution of type A influenza viruses in feral swine across the U.S., determine if novel H1N1 currently exists in U.S. feral swine and if so, determine the apparent prevalence and distribution of the virus. A secondary objective includes investigating and detecting novel influenza strains in order to completely understand the epidemiology of SIV in feral swine populations. With this information, Wildlife Services can better assist its cooperators with the implementation of effective disease control strategies, feral swine management, and appropriate policy decisions.

ASIA PACIFIC CONFERENCE ON WILDLIFE BORNE DISEASES

By Dr. Dale Nolte

The NWDP collaborated with the Chinese Academy of Sciences (CAS), Bureau of Life Sciences and Biotechnology (BLSB) and the Chinese State Forestry Administration, Department of Wildlife Conservation and Nature Reserve Management to sponsor the Asia Pacific Conference on Wildlife Borne Diseases. The conference was hosted by the CAS Institute of Zoology (IOZ) in Beijing, China on 19-23 July 2010. Approximately 120 participants attended the conference representing 15 countries. Objectives of the meeting were to share scientific expertise on wildlife-borne diseases among scientists; promote exchange among scientists and resource officials; provide an opportunity for promoting collaboration among countries within the Asia-Pacific region; and encourage exchange with other countries.

Numerous scientific papers were presented during the conference, including those on specific diseases (e.g., avian

influenzas, Japanese encephalitis, avian cholera, plague, west Nile virus), responses to previous outbreaks and emerging diseases (e.g., African swine

reported on wildlife diseases of concern in their respective countries, along with discussing efforts to address those concerns. Global organizations

potential for collaborations.

Cooperation and information exchange was a theme reinforced throughout the conference. During opening and closing comments NWDP stressed the need to improve awareness of wildlife disease issues and to enhance cooperation among biological, agricultural and human health sectors within and among countries. Although it is critical for countries to work together when addressing emerging wildlife disease issues, it is equally important for individual scientists and managers to have the capacity to exchange

information. To achieve this goal, NWDP and CAS announced a plan to establish an Asia Pacific Wildlife Disease Communications Network by the end of 2010. More than 60 persons representing 10 countries and 5 international organizations have already expressed interest in develop-

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Asia-Pacific Conference on Wildlife Borne Diseases



Participants of the Asia-Pacific conference on Wildlife Borne Diseases

fever, avian influenzas, rabies, primate diseases), and technologies being developed to assist in disease detection (e.g., rapid diagnostic tests). NWDP contributed by giving a keynote address on the concept of "One Health", and presentations on the Wildlife Services Rabies Management Program and a review of plague. Country representatives

also contributed their perspective regarding developing global capacity to reduce threats posed to agriculture and human health by emerging wildlife diseases. Formal presentations instigated many informal discussions among participants; including differences and similarities of wildlife borne disease issues among countries and

RECENT NWDP PUBLICATIONS

[Wu, B. C Wang, G Dong, Y Guo, DL Nolte, TJ Deliberto, J Xu, M Duan, and H He. 2010. New Evidence Suggests Southern China as a Common Source of Multiple Clusters of Highly Pathogenic H5N1 Avian Influenza Virus. Journal of Infectious Diseases 202:452-458.](#)

[Fischer, JW, RE Joos, MA Neubaum, JD Taylor, DL Bergman, DL Nolte, and AJ Piaggio. 2010. Lactating North American Beavers \(Castor canadensis\) Sharing Dens in the Southwestern United States. The Southwestern Naturalist 55:273-277.](#)

[Schmit, BS, TM Primus, JC Hurley, DJ Kohler, and SF Graves. 2010. Response of Captive Skunks to Microencapsulated Tetracycline. Journal of Wildlife Diseases 46:1024-1028.](#)

[Spraker, TR, KI O'Rourke, T Gidlewski, JG Powers, JJ Greenlee, and MA Wild. 2010. Detection of the Abnormal Isoform of the Prion Protein Associated with Chronic Wasting Disease in the Optic Pathways of the Brain and Retina of Rocky Mountain Elk \(Cervus elaphus nelsoni\). Veterinary Pathology 47:536-546.](#)

[Stoner, TD, S Krauss, RM BuBois, NJ Negavetich, DE Stallknecht, DA Senne, MR Gramer, SR Swafford, TJ DeLiberto, EA Govorkova, and RG Webster. 2010. Antiviral Susceptibility of Avian and Swine Influenza of the N1 Neuraminidase Subtype. Journal of Virology 10.](#)

[White, SN, KI O'Rourke, T Gidlewski, KC VerCauteren, MR Mousel, GE Phillips, and TR Spraker. 2010. Increased Risk of Chronic Wasting Disease in Rocky Mountain Elk Associated with Decreased Magnesium and Increased Manganese in Brain Tissue. The Canadian Journal of Veterinary Research 74:50-53.](#)

[Dubey, JB, C Rajendran, LR Ferreira, OCH Kwok, D Sinnott, D Majumdar, and C Su. 2010. A New Atypical Highly Mouse Virulent Toxoplasma Gondii Genotype Isolated From a Wild Black Bear in Alaska. Journal of Parasitology 96:713-716.](#)

[Caudell, JN, SA Schwiff, and MT Slater. 2010. Using a Cost-Effectiveness Model to Determine the Applicability of OvoControl G to Manage Nuisance Canada Geese. Journal of Wildlife Management 74:843-848.](#)

(Climate Change Continued from page 3)

other key factors that regulate vertebrate species distribution and abundance. Hence, changes in their distributions in response to climatic effects will in turn affect where important zoonotic diseases such as H5N1 avian influenza, rabies, leptospirosis, and the Hantaviruses occur.

The Challenge

Most Wildlife Services personnel are trained in the traditional principles of wildlife management. However, with zoonotic disease surveillance and management as an increasingly important segment of the work conducted by the program, additional specialized training in fields such as epidemiology, public health, and GIS have grown in importance. As a consequence, Wildlife Services leadership should determine how best to address these training needs so that the program can continue to fulfill its mission in the face of challenges relating to climate change. Given that relatively few wildlife biologists emerge from academia cross-trained in these disciplines, Wildlife Services will likely need to offer specialized opportunities to existing employees and consider the growing needs for this expertise among new recruits. Also, the program is well suited for a leadership role in collaborating with universities to affect curricula changes; Wildlife Services played a similar role in the late 1980's in assisting universities and the Wildlife Society incorporate wildlife damage management curriculum into degree and professional programs. As a result of those efforts, wildlife damage management regained a prominent role in the broader wildlife management discipline.

While the new challenges before us may be even tougher in the face of the recent national economic downturn, it is critical to

strategically develop wildlife management programs that will be capable of addressing climate change effects on disease in wildlife.

How to Meet the Challenge

In addition to working with universities and organizations such as the Wildlife Society to provide wildlife graduates with skills necessary to work on climate change issues, Wildlife Services can take a number of steps to increase preparedness for the anticipated effects of climate change. Some of these include:

1. Expansion of national and cross-border zoonotic surveillance agreements and activities (such as the recently signed North American Rabies Management Plan), especially in areas where there are projected changes in zoonotic disease distribution resulting from climate change.
2. Increase inter-agency collaboration through agreements for the sharing of information and resources when needed.
3. Expansion of personnel training in epidemiology, public health, and GIS-related fields.
4. Review geographic and programmatic distribution of financial, physical and personnel resources relative to the potential for range expansion of certain zoonoses and other human-wildlife conflicts.

Summary

Predictions for climate change vary in terms of impact and expected outcomes.



Snow cover across North America from February 2-9, 2002. "Control + left click" the link below to access time series animations showing changes in snow cover during the winter of 2001-02. As you play the movies, notice how snow cover builds up in the early fall and melts by late spring in the Northern Hemisphere.

<http://earthobservatory.nasa.gov/IOTD/view.php?id=2657>

Regardless, the development of expertise in managing potential changes in the intensity and distribution of zoonotic diseases (as well as the effects of other human-wildlife conflicts) is crucial for wildlife professionals to meet the challenges of a future consisting of increased human-wildlife interactions. A proposed effort to increase appropriate types of cross-training among Wildlife Services personnel, the development of appropriate contingency plans, the signing of cross-border and inter-agency cooperative agreements to enhance collaboration in the spirit of "One Health", and considerations for the potential re-positioning of personnel and resources to meet emerging needs while maintaining a focus on the current workload are viewed as priorities. A joint NRMP-NWDP white paper is in preparation as a first step to elaborate on the action items outlined here.

(Conference Continued from page 5)

ing the network. Persons interested in joining the network should contact Drs. He Hongxuan (hehx@ioz.ac.cn) or Dale Nolte (Dale.L.Nolte@aphis.usda.gov).

The conference also provided an opportunity for Wildlife Services and CAS to hold their first bilateral working group meeting. This group is part of the Memorandum of

Understanding recently signed by Wildlife Services and BLSB to strengthen their joint commitment for cooperation and coordination on issues such as wildlife diseases. Drs. Fuwen Wei and Dale Nolte will serve as bilateral leads for their respective agencies. Activities will include continued cooperation on workshops and conferences addressing wildlife disease issues, joint support for special issues in scientific journals, support for the Asia Pacific Wildlife

Disease Network, and rodent control to protect agricultural fields and products. NWDP and IOZ will collaborate on training specialists working for the Chinese State Forestry Administration to collect biological samples and conduct wildlife disease surveillance. The bilateral working group also will collaborate on future exchange of scientists and other staff between China and U.S.

STATE HIGHLIGHTS

Western Region

Idaho

Wildlife Disease Biologist Scott Stopak continued implementing improvements to the NWDP emergency response trailer this month. Improvements included replacement of the exterior light battery, corroded generator battery cables, peeling ladder non-skid treatment, broken sway-bar stabilizer trailer attachment, and replacement of rubber matting on beavertail with aluminum skid plate, installation of wider, rear-facing flood lights and a retractable front door step. A collapsible 10' x 10' sun shade was also purchased. The trailer was included in a joint showing with the Idaho State Department of Agriculture's (ISDA) emergency response trailers. Approximately 25 individuals from the ISDA and the Idaho Department of Fish and Game attended.



Arizona

Wildlife Disease Biologist Bill Sparklin continued trapping midges (*Culicoides* spp.) in the Chino Valley/Prescott area as part of a project to map the distribution of bluetongue and Epizootic hemorrhagic disease (EHD) vectors. *Culicoides* spp. are vectors for bluetongue and EHD viruses, but the particular species of midges involved in disease transmission in Arizona are not well known. Light traps are set at sites near water for 3 nights every other week in order to capture emerging midges. This project is scheduled to run into late September 2010. Other states involved in the project include Indiana and Georgia.

Oregon/Washington

Wildlife Disease Biologist Darren Bruning served as co-

instructor for a Wildlife Capture, Handling, and Chemical Immobilization course at Oregon State University. Along with Instructor Dr. Jack Mortenson of Veterinary Services, other co-instructors included Wildlife Services biologists Brian Thomas (OR) and Aaron Loucks (WA). Scott Stopak (ID) attended the course and contributed

knowledge, expertise, and experience to lecture and laboratory exercises. The course included an

overview of history, application, and legal requirements of chemical immobilization, human and animal safety, post-capture care of animals, review of capture equipment, calculating doses of immobilization pharmaceuticals, as well as a physical capture and restraint techniques.

Oklahoma

Wildlife Disease Biologist Patrick Whitley captured 20 Cattle Egrets from a rookery in Oklahoma County for a disease study being conducted by Colorado State University. Cattle Egrets are being tested to determine if they are a suitable host for the Japanese encephalitis virus. Whitley was assisted on this project by State Director Kevin Grant (OK), Wildlife Biologist Philip Robinson, and Wildlife Specialists Pat Murphy and



Eastern Region

Pennsylvania/Washington/Wisconsin

Wildlife Disease Biologists Kyle Van Why (PA), Darren Bruning (WA), and Barb Bodenstern (WI) coordinated the collection of serum samples from Canada geese captured as part of a collaborative project led by the Southeastern Cooperative Wildlife Disease Study (SCWDS). The project is evaluating the effectiveness of using resident Canada geese as sentinels for detection of avian influenza virus on regional and local scales. Most of the goose samples collected are obtained through Wildlife Services Integrated Goose Management Projects.

Minnesota

In May, the Minnesota Department of Natural Resources (MNDNR) and Wildlife Services entered into a cooperative agreement to collaborate on a timber wolf disease research project. Samples collected from wolves will be

screened for major diseases and parasites that could have population-level impacts. Data also will be collected on morphology & genetics. Wildlife Disease Biologist Paul Wolf has been assisting with assembling sampling equipment and providing feedback to the MNDNR regarding their sampling protocol. Wildlife Services personnel will collect ticks, tissue samples (i.e., ear punches, brain, feces, heart, blood), and take a number of morphology measurements. The MNDNR will screen samples for heartworm, *Brucella canis*, *Leptospira* (6 serovars), *Neospora*, *Toxoplasma*, *Borrelia*, canine distemper, canine adenovirus 1 and 2, canine parvovirus, infec-

tious canine hepatitis, gastrointestinal parasites, West Nile virus, and eastern equine encephalitis. To date, Wildlife Services personnel have collected samples from 27 wolves for this study.

New Hampshire/Vermont

Wildlife Disease Biologist Tony Musante provided technical assistance to the Vermont Fish and Wildlife Department and the Quebec Ministry of Natural Resources on a project to reintroduce spruce grouse to a Wildlife Management Area in Essex County, VT. The spruce grouse is endangered in VT and



the state is translocating individuals captured in Quebec, Canada as part of a long-term reintroduction and radiotelemetry monitoring project. Prior to the birds being able to pass through customs they are required to have negative exotic Newcastle disease and avian influenza test results and have appropriate health certificates through the Canadian Food Inspection Agency. Wildlife Services provided the Quebec Ministry of Natural Resources avian influenza sampling kits, shipping materials, and protocols/procedures for sampling and export/import. A total of 60 birds are anticipated in the final year of this project.

National Wildlife Disease 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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PHOTOS OF THE QUARTER



Disease surveillance was combined with nesting bird protection during an arctic fox removal project in Alaska. Photo: David Sinnett



Students at Oregon State University participate in a wildlife capture class. Instructors included Brian Thomas and Darren Bruning with assistance from Scott Stopak. Photo: Brian Thomas