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## COORDINATOR COMMENTARY

By Dr. Thomas DeLiberto

With the assistance of state, tribal, federal, and private cooperators the NWDP had an incredibly productive year. Collectively, the program assisted partners with surveillance and management of 50 pathogens, toxins, or disease syndromes. Through implementation of the USA Interagency Early Detection System for Highly Pathogenic Avian Influenza in Wild Birds, the NWDP and state/tribal partners sampled 44,286 wild birds nationwide. Highly pathogenic avian influenza was not detected; however 405 samples from 152 locations in 33 states were confirmed H5 positive and 26 samples were confirmed H7 positive. This effort continued to provide invaluable data on the ecology of low pathogenic avian influenzas in the natural reservoirs, and on the development of risk models for predicting movements of these viruses into poultry populations.

The NWDP continued to implement the Feral Swine Comprehensive Disease Surveillance System. The program assisted 35 states and two territories with surveillance for pseudorabies, swine brucellosis, classical swine fever, toxoplasmosis, trichinellosis, porcine reproductive and respiratory syndrome, and porcine circovirus-2. Also, foot and mouth disease surveillance was conducted in 11 states, and sam-

ples were collected for African swine fever in 7 states. The Comprehensive Disease Surveillance System was expanded in 2010 to include swine influenza viruses. While the immediate interest was in the pandemic H1N1 strain, the long-term interest is in understanding how Type A influenzas move among wild birds, swine, and humans.

The NWDP continued its collaboration with the Centers for Disease Control's Division of Vector-Borne Infectious Diseases on implementation of the Sylvatic Plague and Tularemia National Monitoring and Surveillance System. Serologic samples were collected and tested from 37 states, and the National Plague and Tularemia Serologic Archive was established.

Emergency response, border issues, and international activities were again important components of the NWDP in 2010. The program provided technical assistance and capacity building in 29 countries and USA territories. Three significant accomplishments were the implementation of a memorandum of understanding between Wildlife Services and the Chinese Academy of Sciences, continued implementation of the North American Avian Influenza Early Detection System with Canada and Mexico, and the initiation of a collaboration with the US Army

Medical Research Unit-Kenya and the Department of Defense Global Emerging Infections Surveillance and Response Program to develop a regional zoonotic disease surveillance program in equatorial Africa.

Perhaps the most significant natural resources issue of 2010 was the Deepwater Horizon Oil Spill in the Gulf of Mexico. The NWDP played an active role in the national response effort by coordinating the mobilization of 82 Wildlife Services employees over five months. This effort was in addition to the mobilization of 26 wildlife disease biologists for six other emergency requests.

Once again the NWDP has provided important contributions to understanding and managing disease and other events impacting wildlife, agriculture, and people. Although impending budget reductions will dramatically affect the program's infrastructure and capabilities, the wildlife disease biologists, veterinarians, and support staff of the NWDP are committed to providing the very best professional expertise to our state, tribal, federal, and private cooperators with the available resources at our disposal. Together, we will continue to safeguard the global health of wildlife, agriculture, and people.

NWDP

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).

# DETECTION OF VERY VIRULENT INFECTIOUS BURSAL DISEASE IN CALIFORNIA

By Shannon Chandler

Infectious bursal disease is an avian birnavirus of economic concern to the poultry industry because of immune suppression in young chickens, mortality losses, decrease in egg production and quality, and decreased vaccination efficiency. Infectious bursal disease has been present in the USA since 1965. There are three strains of the virus: classical virulent, sub-virulent, and very virulent infectious bursal disease. The very virulent strain is a pathogenic strain of the virus first detected in Europe in the early 1980s. It was differentiated from other strains by its ability to produce 100% mortality rates in experimental situations. Since its initial detection, very virulent infectious bursal disease has spread rapidly through Europe, Africa, Asia and Latin America. The USA remained free of the strain until December 2008, when pullets from two neighboring ranches in Sonoma County, California tested positive for the virus. Since that initial outbreak, the California Animal Health and Food Safety Laboratory has confirmed the presence of the very virulent strain in Sonoma County six times. The spread of the virus from the ranches associated with the initial outbreak to other flocks (layers and broilers), as well as neighboring backyard poultry is of particular concern.



Wild turkeys (*Meleagris gallopavo*) in Sonoma County, CA

While chickens are the classical hosts for infectious bursal disease, turkeys, ducks, ostriches, quail, and pheasants may be asymptomatic hosts. The area surrounding the affected ranches consists of oak woodlands, which support large populations of wild turkey, *Meleagris gallopavo*. The California Department of Food and Agriculture and USDA/APHIS Veterinary Services requested assistance from Wildlife Services in testing wildlife in the area for infectious bursal disease. Wild turkeys were removed for a period of two months in September and October 2010. Juvenile birds (poults) were

requested for necropsy, however due to the lateness of the season, few poults were available for collection. Adult turkeys were trapped using modified pig corral traps and sub-adults were removed by shooting. Dominance structure of both the maternal and bachelor flocks prevented sub-adults from accessing bait locations, so shooting was the preferred method for this age group. All of the birds collected tested negative for very virulent infectious bursal disease. Wild Turkeys were commonly observed entering and exiting the perimeter of ranches where very virulent strain had been detected previously.

In 2009 and 2010, three additional backyard flocks have tested positive for the virus in different areas of the state (Marin, Yuba, and Riverside Counties.) At this time no links have been found between these new detection sites. Two of these outbreaks were determined to be genetically different viruses from those originally detected in Sonoma County, CA. Wildlife Services will continue to assist California Department of Food and Agriculture, and Veterinary Services in their investigations at the sites of current and future detections.



# MONITORING FOR CHRONIC WASTING DISEASE IN PENNSYLVANIA

By Kyle Van Why and Dan Emanuelli

At the request of the National Park Service, the Pennsylvania Wildlife Services program began the operational phase of a large white-tailed deer management project at Valley Forge National Historical Park. The goal was to remove 500 deer through sharpshooting and provide the meat to area food banks. Prior to donation, chronic wasting disease samples and



Kyle Van Why (WS-PA) and student intern Bethany Alexander collect samples from white-tailed deer

other herd health data were collected from harvested deer. The goal for chronic wasting disease sampling was 270 samples to assure a 95% confidence level of a disease free herd. Wildlife disease biologists from Pennsylvania and Maryland conducted the sampling efforts, and were assisted by other Wildlife Services' personnel and two

Student Conservation Association interns from the Park Service. Initially, there were some concerns that the sampling efforts would slow deer processing; however training provided by the wildlife disease biologists ensured an efficient sampling process.

During November and December, deer were harvested, processed, and all data were collected without causing delay to the shooting teams. In addition to chronic wasting disease samples from adult deer, measurements of chest girth,

weight, age, antler beam, tail fat index, and kidney fat index were collected from deer of all age classes. A total of 277 chronic wasting disease samples were collected during two weeks of operation, exceeding sampling goals. The possibility of additional sampling during autumn 2011 will be evaluated over the next year. The success of this project has strengthened the cooperative partnerships in wildlife management between the National Park Service and Wildlife Services.



## INVESTIGATING PNEUMONIA IN BIGHORN SHEEP IN WASHINGTON

By Darren Bruning and Donny Martorello

Morbid bighorn sheep (*Ovis canadensis*) in the Yakima River Canyon, Washington were first observed by the public in November 2009, and mortalities were confirmed in December 2009. The Washington Department of Fish and Wildlife suspected the morbidity and mortality event was a result of respiratory pathogens, similar to those that have affected bighorn populations in other states. Bighorn tissue samples were collected by Washington Department of Fish and Wildlife personnel in December 2009 and January 2010, and submitted to the Washington Animal Disease Diagnostic Laboratory. Respiratory disease-causing pathogens, *Pasteurella spp.* and *Mycoplasma ovipneumoniae* were cultured and identified from the tissue samples. Additionally, necropsy of several bighorn sheep carcasses from the Yakima River Canyon revealed the condition of acute pneumonia.

The Washington Department of Fish and Wildlife, in consultation with the Western Association of



Bighorn ram on South Umtanum Ridge, Yakima River Canyon, Washington (Photo: Dave Sinnett)

Fish and Wildlife Agencies Wild Sheep Working Group and Wildlife Health Committee, weighed multiple options for addressing this disease expression. These options were: 1) let the disease run its course; 2) selectively cull morbid bighorn sheep from the two affected subpopulations in the Yakima River Canyon; or 3) euthanize all bighorn sheep in

the two subpopulations. By February 2010, the State made a decision to pursue option 2

and initiate selective culling as part of a health monitoring program. The State's goal was to minimize transmission of the pathogens to healthy bighorn sheep and reduce the potential

for depressed lamb survival by selectively removing animals exhibiting clinical signs of pneumonia.

The Washington Department of Fish and Wildlife requested assistance from Wildlife Services' to conduct the cooperative bighorn sheep health monitoring operation. Wildlife Services

mobilized seven NWDP wildlife disease biologists and additional personnel from the Washington State Wildlife Services Program to assist in the effort. The multiple elements of this operation included: long distance observation to monitor and assess the general health of all bighorn sheep within the subpopulations; documentation of herd composition; identification of individual animals exhibiting clinical signs of respiratory disease; application of a health assessment protocol to determine the likelihood and severity of respiratory disease in each animal exhibiting clinical signs; lethal removal of individual bighorn sheep meeting the removal criteria of the health assessment protocol; and collection of samples from each lethally removed bighorn sheep.

The NWDP team also documented bighorn sheep carcasses that were discovered on the landscape during field op-

(Continued on page 4)

## WISCONSIN/MINNESOTA AVIAN INFLUENZA RESPONSE EXERCISE

By Paul Wolf and Barbara Bodenstein

The Division of Animal Health from Wisconsin Department of Agriculture Trade and Consumer Protection, Minnesota Board of Animal Health, Minnesota Department of Agriculture, and USDA APHIS Veterinary Services Programs from Minnesota and Wisconsin conducted a "cross border" Highly Pathogenic Avian Influenza training exercise in November, 2010. This 1½ days exercise focused on role playing of federal, state and industry partners in the Incident Command System and proper implementation of biosecurity protocols. The activity highlighted



Classroom lecture discussing avian influenza viruses.

the ability of animal health officials to work as a Unified Command in effectively responding to a highly pathogenic avian influenza outbreak in poultry on the Wisconsin/Minnesota border. The exercise also featured an agency executive briefing from both State Veterinarians to the combined Incident Management Team. This briefing was relayed via teleconference to Veterinary Services Area Emergency Coordinators in Raleigh, NC.

Recognizing that surveillance in wild birds would be an integral part of the

(Continued on page 5)

(Pneumonia, Continued from page 3)

erations, and collected samples from those carcasses. The samples collected from the carcasses aided in determining a chronology of pneumonia-related mortalities, and in establishing a relationship between the severity of respiratory disease conditions and the chronology of bighorn sheep mortalities.



Dave Sinnett (WS-AK), collecting samples from a bighorn sheep carcass. (Photo: Darren Bruning)

More than 1,800 health assessment observational periods were conducted on approximately 300 bighorn sheep during the operational period of 15 February through 31 March 2010. A total of 52 bighorn sheep from the west side of the river canyon were determined to meet the removal criteria of the health assessment protocol and were lethally removed using suppressed center-fire rifles. Samples were submitted to the Washington Animal Dis-

ease Diagnostic Laboratory for gross examination, histopathology, aerobic bacteriology, and Polymerase Chain Reaction testing. In addition, a subset of samples from this operation was submitted to the U.S. Geological Survey National Wildlife Health Center, as part of a cooperative effort between the NWDP, Washington Department of Fish and Wildlife, and U.S. Geological Survey to contribute to long-term bighorn sheep health studies.

Laboratory examination of the samples revealed gross and microscopic lesions of bronchopneumonia in almost all of the samples. Lung samples and sinus swabs were positive for *Mycoplasma ovipneumoniae* in all 52 animals. *Pasteurella trehalosi* and *Pasteurella multocida* were 2 other commonly isolated bacteria. Sinusitis and/or otitis were confirmed in 34 of the sampled bighorn sheep.

An analysis of the laboratory results tentatively suggested the primary pathogen of this disease expression was *Mycoplasma ovipneumoniae*. The prevalence of *Pasteurella* spp. differed both spatially within the canyon and temporally during the time period of field operations. The presence or absence of *Pasteurella* spp. may have

contributed to the severity of lesions documented by the laboratory and may have influenced mortality. Laboratory results also suggested an increase in severity of lesions from December 2009 to the end of field operations in March 2010.

Currently, review and analysis of laboratory results continue in an effort to identify all pertinent information that can contribute to defining and understanding this disease expression and the role of the identified pathogens. Washington Department of Fish and Wildlife has asked the NWDP to continue their involvement in investigation of this disease. Biologists from the NWDP continue to work in coordination with the State and other wildlife health partners to assist with continued monitoring and analysis of the health of bighorn sheep in the Yakima River Canyon.

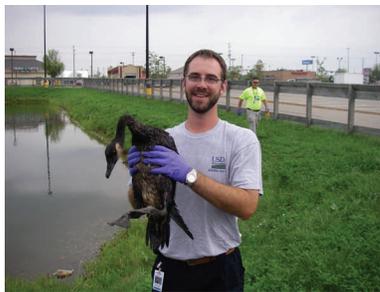


## ENBRIDGE OIL SPILL IN MICHIGAN

By David Marks

Wildlife Services responded to an oil spill that resulted from a pipeline rupture near Marshall, Michigan in which over 800,000 gallons of crude oil were released into a tributary of the Kalamazoo River. The 30-inch pipeline burst in the late evening on 26 July and Wildlife Services arrived on scene 2 August to assist the Wildlife Field Recovery Teams with capturing flight-capable, oiled birds. Wildlife Services joined the Wildlife Environmental Damage Assessment Branch under the Operations Section of the Incident Command System. The Branch was directed by the US Fish and Wildlife Service and also was comprised of representatives from the Michigan Department of Natural Resources and Environment, Focus Wildlife (a non-governmental organization that specializes in rehabilitating animals during oil spills), Enbridge Inc. (responsible party), and several private environmental

contractors. Wildlife disease biologist Dave Marks was ap-



David Marks (WS-MI) with oiled Canada goose.

pointed a Team Leader and tasked with developing and implementing capture methods for oiled birds capable of flight. Two other Wildlife Services employees were later mobilized and at times there were two Wildlife Services-led Wildlife Field Recovery Teams.

The majority of oiled birds during this incident were Canada geese (*Branta canadensis*).

The birds were found in a variety of locations ranging from urban settings such as city parks, parking lots, golf courses, and retention ponds to rural settings such as harvested wheat fields and farm ponds. The task of capturing these birds was daunting due to the variety of situations and because many birds could still achieve flight relatively quickly despite significant amounts of oil covering their feathers. Wildlife Services used a variety of capture methods that proved effective in different situations, including air cannon nets, Super Talon Net Guns, and alpha chloralose immobilization.

In rural areas, the air cannon net system proved to be the most effective capture method. Typically, rural areas involved a larger number of oiled birds. The air cannon net was deployed on two occasions (two different

sites) and successfully captured a total of 11 oiled Canada geese.

Probably the most challenging aspect of using the cannon net was the difference in behavior of oiled and clean birds. Oiled and clean birds appeared to be segregated, with clean birds demonstrating aggressive behaviors towards oiled birds. This made capture of oiled birds difficult because they were prevented from accessing cannon net bait sources. Such difficulties were overcome through extensive field observations and patience until oiled birds gained access to bait, or by slowly and methodically herding geese to the net.

In urban areas, Wildlife Services used the Super Talon Net Gun, and alpha chloralose immobilization to capture birds, although four birds (two

(Continued on page 5)

*(AI Exercise, Continued from page 3)*

response, NWDP wildlife disease biologists from Minnesota and Wisconsin were invited to participate. Other partners attending and participating were Minnesota and Wisconsin Civil Support Strike Teams of the National Guard, Minnesota Board of Animal Health, McFarlanes Game Farm, Golden Plump, Jennie-O Turkey Store, Minnesota Department of Natural Resources Wildlife Health Program, Wisconsin Department of Natural Resources, USDA Office of Inspector General, USDA Plant Protection and Quarantine, Minnesota Veterinary Diagnostic Laboratory, Wisconsin Veterinary Diagnostic Laboratory and the University of Wisconsin-Extension.

The first afternoon was filled with presentations given to the participants on general considerations for choosing the appropriate personal protective equipment when dealing with avian influenza investigations, an overview of the Wisconsin/Minnesota Civil Support Strike Team and their capa-



*Task Force/Strike Team: moving cattle gates while dressed in personal protective equipment.*

bilities to assist with logistics, a review of donning/doffing personal protective equipment and decontamination processes, overview of the Incident Command System and Wisconsin/Minnesota Incident Management Teams, overview of both states' response plans, carcass disposal techniques available and review of avian anatomy and proper sample collection protocols and submissions.

Wildlife Services' wildlife disease biologists provided an overview of the NWDP, highlighting several of the resources (equipment, personnel and technical expertise) that can be utilized during a Foreign Animal Disease outbreak. In addition, the wildlife disease biologists showcased the Minnesota mobile necropsy laboratory, which can be mobilized for emergencies and training exercises.

The outbreak simulation portion of the exercise began with an incident briefing for the incoming incident commanders, planning sections chief command staff, and general staff, which described the scenario in full detail for the supervisors and strike and task force teams. Observers also were identified and used to critique the ability of the field crews to complete tasks and adhere to proper biosecurity protocols. Each strike team consisted of 6-8 people, typically veterinarians, animal health technicians, inspectors and wildlife biologists. The strike teams then rotated through work stations that dealt with bird sampling and



*Paul Wolf (WS-MN) and other Task Force/Strike Team members packaging up biological samples*

specimen shipping, cleaning and disinfecting of equipment, setting up the decontamination lines and donning/doffing personal protective equipment. While the strike teams were collecting samples in the field, the command staff was meeting in the operations center to facilitate the information obtained from the strike teams to the unified commanders in charge. The command staff consisted of public information officers, safety officers, liaison officer, finance/admin section chief, logistics section chief, planning sections chief and the operations section chief. At the conclusion of the training, the entire group was debriefed through an operational period briefing to execute, evaluate and potentially revise the plan for the next operational period. This joint training exercise was an excellent demonstration of state, federal and industry collaboration to effectively plan, coordinate and implement a large scale HPAI disease control program using the Incident Command System.



*(Oil Spill, Continued from page 4)*



*Capturing Canada goose with a net gun.*

Canada geese, one mallard (*Anas platyrhynchos*), and one mute swan (*Cygnus olor*) were incapacitated enough to allow capture by hand. Wildlife Services was able to isolate small groups of geese with bait in areas where the birds were accustomed to being fed (e.g., parks), and successfully capture them using the net gun. In the areas where birds were unac-

customed to being fed, geese were not approachable to within the effective range of the net gun (i.e., 15-30 ft). In these circumstances, geese were slowly herded to areas where the net guns could be used. A total of 20 birds were captured using the Super Talon Net Guns.

Alpha chloralose immobilization was implemented at a city park to capture multiple groups of oiled Canada geese that were being reported by the public on a daily basis. In consultation with the US Fish and Wildlife Service, and the Michigan Department of Natural Resources and Environment, Wildlife Services developed a protocol to safely

use alpha chloralose and subsequently captured 9 oiled geese at the site.

After 4 weeks on scene, a total of 44 flight-capable birds were captured by Wildlife Services lead teams using a variety of methods. Wildlife Services also successfully live-captured an oiled beaver using snares. All captured animals were transferred to wildlife rehabilitation teams at the Wildlife Environmental Damage Assessment Branch Center. Besides being an effective element in the wildlife recovery efforts, Wildlife Services was able to establish a new working relationship with the cooperators involved in



*Canada geese sedated with alpha chloralose.*

emergency response to oil spills.



## NWDP UPDATES AND ACTIVITY REPORTS

By Tom DeLiberto

Over the last several years, the NWDP has expanded its collaborations to include well over 200 state, tribal, federal, private, and international partners. These partnerships have resulted in surveillance and management of over 50 pathogens, toxins, and disease syndromes affected wildlife, domestic animals, and people.

The NWDP also serves as Wildlife Services primary emergency response unit. Our wildlife disease biologist are trained as all-hazard first responders, and the program office coordinates training and mobilization of these and other personnel. Since 2003, the program office has coordinated responses or provided technical assistance to over 50 emergency requests including the Deepwater Horizon oil spill, Thailand Tsunami, hurricanes such as

Katrina, floods, and numerous disease outbreaks in wild and domestic animals, and people.

In an attempt to keep USDA and our partners current on NWDP activities, we maintain an internet page, and publish a variety of periodicals, such as The Carrier. Recently, we began producing three new periodicals. Two of them, the Plague Surveillance and Tularemia Surveillance Updates, are designed to provide semi-annual updates on our monitoring and surveillance projects for those diseases. These projects are cooperatively implemented with state agencies and the Centers for Disease Control, Division of Vector Borne Diseases. The third periodical is a weekly Program Activity Report. The intent of this report is to provide a brief overview of a specific issue being addressed by the NWDP staff in Fort Collins.

If you receive The Carrier electronically, you will automatically receive semi-annual updates of the Plague Surveillance and Tularemia Surveillance

Updates. However, in keeping with the spirit of minimize bulk email distributions, we have decided to post the weekly Program Activity Reports on our Internet Page. These can be found at:

[http://www.aphis.usda.gov/wildlife\\_damage/nwdp/par.shtml](http://www.aphis.usda.gov/wildlife_damage/nwdp/par.shtml)

As always, if you no longer wish to receive any of the NWDP periodicals, please send an email to:

[Thomas.J.DeLiberto@aphis.usda.gov](mailto:Thomas.J.DeLiberto@aphis.usda.gov).

I will ensure that your name is removed from our distribution list.

Thanks to all our partners in safeguarding the health of our wildlife, domestic animals, and public.

### RECENT NWDP PUBLICATIONS

**Blizzard EL, CD Davis, S Henke, DB Long, CA Hall, and MJ Yabsley. 2010. Distribution, prevalence, and genetic characterization of *Baylisascaris procyonis* in selected areas of Georgia. *Journal of Parasitology* 96:1128-1133.**

**Blizzard, EL, MJ Yabsley, MF Beck, and S Harsch. 2010. Expansion of *Baylisascaris procyonis* roundworms, Florida, USA. *Emerging Infectious Diseases* 16:1803-1804.**

**Dubey, JP, TA Felix, and OCH. Kwok. 2010. Serological and parasitological prevalence of *Toxoplasma gondii* in wild birds from Colorado. *Journal of Parasitology* 96:937-939.**

**Dubey, JP, BM Rosenthal, and TA Felix. 2010. Morphologic and Molecular Characterization of the Sarcocysts of *Sarcocystis rileyi* (Apicomplexa: Sarcocystidae) from the Mallard Duck (*Anas platyrhynchos*). *Journal of Parasitology* 96:764-770.**

**Jay, MT, M Cooley, D Carychao, GW Wiscomb, RA Sweitzer, L Crawford-Miksza, JA Farrar, D K Lau, J O'Connell, A Millington, RV Asmundson, ER Atwill, and RE Mandrell. 2010. *Escherichia coli* O157:H7 in feral swine near spinach fields and cattle, Central California Coast. *Emerging Infectious Disease* 13:1908-11.**

**Musante, AR, PJ Pekins, and DL Scarpitti. 2010. Characteristics and dynamics of a regional moose *Alces alces* population in the northeastern United States. *Wildlife Biology* 16:185-204.**

**Nemeth, NM, NO Thomas, DS Orahood, TD Anderson, PT Oesterle. 2010. Shedding and serologic responses following primary and secondary inoculation of house sparrows (*Passer domesticus*) and European starlings (*Sturnus vulgaris*) with low-pathogenicity avian influenza virus. *Avian Pathology* 39:411-418.**

**Root, JJ, KT Bentler, NM Nemeth, T Gidlewski, TR Spraker, and AB Franklin. 2010. Experimental Infection of Raccoons (*Procyon lotor*) with West Nile Virus. *American Journal of Tropical Medicine and Hygiene* 83:803-807.**

# STATE HIGHLIGHTS

## Western Region

### California

An Imperial County feedlot is under quarantine after a steer tested positive for rabies virus on October 28, 2010. The steer was imported from Mexico, but had been in the USA for 207 days prior to death. The Centers for Disease Control determined the rabies strain to be Arizona fox variant. This is the first time Arizona fox variant rabies virus has been detected in California. Wildlife Services specialists removed two coyotes (*Canis latrans*) and observed bats, feral cats, and feral dogs on and near the feedlot. All wildlife removed have tested negative for rabies virus. No additional steers have exhibited symptoms of rabies virus. Wildlife Services will continue to work with USDA Veterinary Services, California Department of Food and Agriculture, and California Department of Public Health to investigate the source of the infection.

### Colorado

Wildlife disease biologist Todd Felix has been working with Dr. J.P. Dubey at USDA's Agricultural Research Service on a collaborative project to assess the effect of elevation on the prevalence of *Toxoplasma*. Todd continues to assess field sites for this work throughout Colorado.

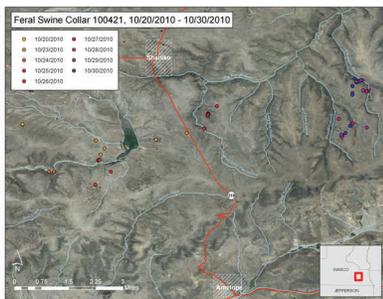
### Oregon

Wildlife disease biologist Brian Thomas is working with the Oregon Department of Fish and Wildlife to trap and fit four adult feral swine (*Sus scrofa*) with telemetry collars. Thus far, they have been able to collar two hogs from one area. One of the pigs wears a locally-made collar consisting of a Lojack sys-

tem, which police use to track stolen cars, that is matched with a standard VHF. The Lojack system only sends out a signal once a day, but can be tracked with any internet-enabled computer. The use of these collars has provided critical insights on the habits of feral swine. Movements of 7-8 miles a day are not unusual for boars.



The other pig that was collared was a 165-pound sow; that animal wears a more high-tech collar that the Oregon Department of Fish and Wildlife purchased with grant money from the local Soil and Water Conservation District. The collar uses satellites to monitor the movements of the animals every two hours. The State Invasive Species Biologist is working with Brian and is maintaining an up-to-date GIS map. The maps are e-mailed to land owners in the area in hopes they will concentrate hunting efforts in the areas known to have feral swine.



## Eastern Region

### Minnesota

Wildlife Services in Minnesota has entered into a cooperative agreement with The Minnesota



Department of Natural Resources (MNDNR) to screen wolves (*Canis lupus*) in Minnesota for major diseases and parasites that could have population-level impacts, as well as gather data on morphology & genetics. Wildlife disease biologist Paul Wolf has been gathering sampling equipment and providing feedback to the MNDNR regarding their sampling protocol. Biological samples, including ticks, ear punch, brain, feces, heart, blood and morphological measurements, will be collected from wolves removed by Wildlife Services personnel during wolf damage management activities. The MNDNR will screen for: heartworm, *Brucella canis*, *Leptospira* (6 serovars), *Neospora*, *Toxoplasma* spp., *Borrelia* spp., canine distemper, canine adenovirus 1 and 2, canine parvovirus, infectious canine hepatitis, fecal parasites, West Nile virus, and eastern equine encephalitis. To date, 120 wolves have been sampled.

### Maine, Maryland, Massachusetts, Minnesota, New Hampshire, Wisconsin

During the summer of 2010, a die-off of double-crested cormorants (*Phalacrocorax auritus*) (as well as several ducks and gulls) occurred. Mortality was first detected in the mid-

west, followed by the Atlantic coast. Birds from mortality events were submitted by wildlife disease biologists from each of the states to state labs, as well as the National Wildlife Health Center, National Veterinary Services Laboratories, and the Southeastern Poultry Research Laboratory. It was determined that birds were dying of a particularly virulent strain of Newcastle disease (vNDV).

Although vNDV in cormorants is not an uncommon occurrence, at least two species of gulls and American white pelicans also were positive for the vNDV. Mallards also were found dead during the outbreak, although the labs were unable to confirm NDV in these birds.

Typically, wild bird isolates are classified as non-virulent (lentogenic). However, virulent strains of NDV (vNDV) are periodically identified in wild birds in the Great Lakes Region.



These vNDV are of the mesogenic form and sporadically cycle through nestling and juvenile cormorants in summer nesting colonies. These vNDV are commonly called cormorant strains and are usually restricted to wild birds. However, if introduced to poultry, they could also cause moderate levels of morbidity and mortality in this species. Fortunately, the outbreak subsided without any poultry facilities being affected.

## National Wildlife Disease Program

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

## PHOTOS OF THE QUARTER



Mike Milleson (WS-FL) assisting Dr. Cunningham (Florida Wildlife Commission) with a necropsy of a Florida panther (*Puma concolor coryi*).



A Strike Team from a Minnesota/Wisconsin Avian Influenza Response Exercise collect samples from chickens.