

July 2010  
Issue 3

## Newsletter of the USGS National Wildlife Health Center

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## Founder and emeritus director of NWHC receives honorary degree

Dr. Milton Friend – founder and emeritus director of the USGS National Wildlife Health Center (NWHC) was honored by the University of Wisconsin – Madison during the May 14, 2010 Commencement Ceremony with the honorary degree of Doctor of Science (DSc). Dr. Friend was recognized for his broad-reaching contributions in the wildlife disease field and for the advancement of

wildlife health as a focus for the conservation of free-ranging wildlife populations.

Dr. Friend is best known for his role in developing the NWHC following the disastrous duck plague epizootic that struck the Lake Andes National Wildlife Refuge. In January 1975 he transferred from his position with the U.S. Fish and Wildlife Service (FWS) as Chief, Section of

Pesticide – Wildlife Ecology at the Denver Wildlife Research Center to initiate the NWHC.

During his 23 year tenure as Director, the NWHC rapidly gained national and international recognition for its performance in addressing wildlife disease events and issues.

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## California brown pelican mortality along the Pacific Coast

For the second consecutive winter, California brown pelicans were stranded along the Pacific coast. Reports of adult and juvenile pelicans being found in unusual places, emaciated, and weak were made along the western coast from southern California to northern Oregon. Rehabilitation centers, such as the International Bird Rescue and Rehabilitation Center in San Pedro had several hundred pelicans under their care. A multi-agency effort to examine the causes of morbidity and mortality included California Department of

Fish and Game, Sea World – San Diego, USGS National Wildlife Health Center, and U.S. Fish and Wildlife Service. Preliminary diagnosis was emaciation due to food shortages of fish, such as anchovies and sardines, coupled with harsh winter weather. No infectious pathogens were identified. The feathers of some affected birds were reported to have loss of waterproofing and research is ongoing to determine the cause of the soiled feathers. Ocean conditions and marine fisheries can be significantly impacted by

climate phenomenon such as El Niño events. The recent El Niño may have contributed to the reduction in forage fish and increased severity and number of winter storms observed along the western coast of the U.S. In 2009, pelicans remained in their northern range in Oregon during freezing temperatures, resulting in emaciated and frostbitten birds arriving in southern California. The California brown pelican was recently removed from the federal endangered species list because population levels have recovered.

## NWHC Biological Technician presented with the WDA Student Research Recognition award



Jeff Lorch,  
NWHC Biological Technician

Jeff Lorch, a National Wildlife Health Center (NWHC) Biological Technician and University of Wisconsin Ph.D student working on White-Nose Syndrome with the NWHC was presented with the Wildlife Disease Association (WDA) Student Research Recognition award at the Association's 2010 annual meeting in Puerto

Iguazu, Argentina. Lorch was recognized for his research on "Exposure of healthy bats to *Geomyces destructans* causes lesions diagnostic of white-nose syndrome".

NWHC wildlife disease specialists Jonathan Sleeman, Valerie Boschler, Tonie Rocke, Thierry Work, and Krysten Schuler, also provided a

workshop at the annual conference on Field Investigation of Wildlife Mortality to Latin American members of the WDA. This workshop, presented in English and Spanish, covered an introduction to the work at NWHC, challenges in field investigations, necropsy videos, and case study reviews.

## Founder and emeritus director of NWHC receives honorary degree

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In addition to diagnostic, field response and research activities, training of students and field personnel was given high priority for building the capacity to address wildlife disease nationally and internationally.

Dr. Friend's personal commitment to sharing his concerns and knowledge about wildlife disease with others is reflected in his appointment as an adjunct full professor of Animal Health and Biomedical Sciences at the University of Wisconsin-Madison where he continues to volunteer by providing lectures in several courses; his induction into the University of Wisconsin Teaching Academy; continued involvement as a faculty member in the Envirovet program; instructional contributions provided at the Master of Science program in Wild

Animal Health in London, England for several years prior to retirement; numerous wildlife disease workshops provided for wildlife professionals; and seminars and guest lectures provided at universities and other locations within North America and abroad. He maintains an active public speaking role that includes presentations in grade schools, at community public service organizations and at various sportsman organization meetings. He also continues to mentor students and visiting scientists seeking to enhance their ability to combat wildlife disease for the benefit of free-ranging wildlife populations.

Dr. Friend stepped down as NWHC Director in 1999 to accept a special assignment from Secretary of the Interior Bruce Babbitt. That assignment involved the development and oversight of a science program to address environmental health issues, including mass

bird mortality at California's Salton Sea. His contributions included establishment of the Salton Sea Office and a collaborative on-site wildlife disease program. He served as Chief Scientist and Executive Director for the Science Office and as Chair for the multi-agency Salton Sea Science Committee. The ensuing scientific findings served to separate myth from reality about conditions at the Sea and supported two major symposiums. The papers from the second symposium were published as a special issue of the prestigious scientific journal, "Hydrobiologia". The collective effects of the Science Committee and the findings from scientific investigations conducted provided the foundation for a requested Salton Sea management plan submitted to the U.S. Congress.

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## Lead toxicosis in geese in Louisiana

In February 2010, the USGS-National Wildlife Health Center (NWHC) was contacted about a large avian mortality event, occurring in Vermillion Parish, Louisiana involving several hundred snow geese. The cause of death was suspected to be aflatoxicosis or avian cholera due to the species involved, time of year, and recent diagnosis of these diseases in other nearby locations in Louisiana. However, field necropsies identified the presence of lead shot in the gizzards of some birds. The submitter from Louisiana was unaware of any recent reports of avian mortalities associated with lead poisoning in this area and NWHC's only record for

avian lead poisoning in Vermillion Parish was from the 1930's. As a result, NWHC, in partnership with biologist from local U.S. Geological Survey, U.S. Fish and Wildlife Service, and Louisiana Department of Wildlife and Fisheries, conducted a field investigation to determine the extent of the mortality, species involved, and primary cause of death. When the die-off ended in late February 2010, total mortality was estimated to be approximately 600 geese, consisting primarily of snow geese and a few white-fronted geese. The primary cause of death was determined to be lead poisoning. NWHC is continuing to work with interested parties on potential management

recommendations. The use of lead shot for hunting waterfowl was banned in 1991 in the U.S.; however, there have been at least thirteen large-scale mortality events involving several hundred to thousands of birds due to lead toxicosis since the ban. Continued exposure to lead may occur in areas that have high densities of lead pellets in the soil and sediment, such as lands heavily hunted with lead and target and skeet ranges that allow lead ammunition. NWHC recently produced a fact sheet on lead toxicosis that can be downloaded from: [http://www.nwhc.usgs.gov/publications/fact\\_sheets/pdfs/lead\\_poisoning\\_wild\\_birds\\_2009.pdf](http://www.nwhc.usgs.gov/publications/fact_sheets/pdfs/lead_poisoning_wild_birds_2009.pdf).

## White-nose syndrome range expansion in winter 2009/2010

White-nose syndrome (WNS), a fungal infection of the skin in hibernating bats associated with unprecedented winter mortality in North American bat populations, was confirmed histologically on bats in two new states (Maryland, Tennessee) and two Canadian provinces (Ontario, Quebec) this past winter season. Affected states now total eleven since the disease was first recognized near Albany, New York, in Winter 2007/2008, with more than 60 sites involved. Clinical signs of disease continue to occur at confirmed hibernacula in subsequent

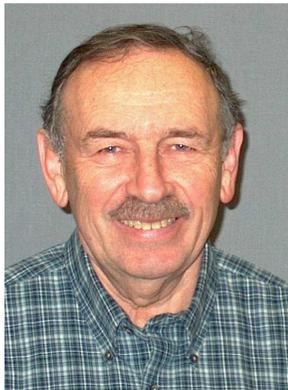
seasons. In addition, the genetic signature of *Geomyces destructans*, the presumptive causative agent of WNS, has recently been identified on three new *Myotis* species (*M. grisescens*, *M. velifer*, and *M. austroriparius*) in Missouri, Oklahoma and Virginia, respectively, as well as on female little brown bats arriving at two separate maternity colonies in New Castle County, Delaware, in early May. Histologic evidence of the disease has yet to be confirmed in these new species. Little to no mortality has been reported associated with this apparent westward expansion of the fungus and it remains to be

seen if WNS will develop and manifest similarly in warmer, drier climate zones. Current estimates of bat population declines since the emergence of WNS are as high as 97% in some areas. The USGS National Wildlife Health Center, along with many partners, continues to play a primary role in WNS research. Further information on new developments related to WNS and other wildlife health related issues appear in the Wildlife Health Bulletins at [http://www.nwhc.usgs.gov/publications/wildlife\\_health\\_bulletins/index.jsp](http://www.nwhc.usgs.gov/publications/wildlife_health_bulletins/index.jsp).

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## Founder and emeritus director of NWHC receives honorary degree



Dr. Milton Friend, NWHC founder and emeritus director

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Dr. Friend's diverse scientific contributions are reflected in a long list of publications that includes two award winning books, "Field Manual of Wildlife Diseases" and "Disease Emergence and Resurgence: The Wildlife-Human Connection.

When asked about his career, he responded, "I

have been blessed by being provided the opportunity to live the impossible dream. My journey was made possible by the mentoring of several key individuals, the assistance provided by numerous co-workers and other highly committed conservationists I have been privileged to encounter and a highly supportive family. I wish everyone could be so

privileged in their own career journey."

## Pneumonia outbreaks in bighorn sheep across western states

Multiple herds of bighorn sheep in several states experienced mortality from pneumonia outbreaks during winter 2009-2010. Montana was the first to observe mortality in mid-November and at least four herds were affected from three different counties. Washington was next to report sick sheep in the Yakima River Canyon, primarily on the west side of the river. Sick sheep were observed coughing and had difficulty moving. Nevada also experienced mortality in two distinct herds, reported in mid-December. Utah had an outbreak in February where they eliminated a small herd to prevent transmission to a larger group nearby.

Management activities this year included culling sick sheep to control outbreaks and prevent transmission

to nearby herds and treatment with antibiotics. Pneumonia in bighorn sheep is often fatal and affects all age groups. Preliminary disease mortality estimates range from 50-80% of individuals within affected herds. The potential exists for surviving bighorn sheep to serve as carriers, and populations that experience outbreaks subsequently have low recruitment of lambs, as reported by South Dakota's Custer State Park. A variety of bacterial pathogens have previously been identified in the pneumonia-complex, including *Mycoplasma* spp., *Pasturella multocida*, *Pasturella trehalosi*, and *Mannheimia haemolytica*, in addition to respiratory viruses and lungworm infections. Pneumonia is a

challenging issue for bighorn sheep managers because of the difficulty associated with identifying the disease agent, remote locations, and limited management options. This year was unique because of the large number of outbreaks and few indications of a potential source or cause. Further investigations are in progress. Additional information is provided by the Western Association of Fish and Wildlife Agencies Wild Sheep Working Group Summary: Winter 2009-2010 Bighorn Sheep Die-offs (3/16/10) or <http://www.wafwa.org/html/wswg.shtml>.

## NWHC scientist to present at 9<sup>th</sup> International Mycology Congress

National Wildlife Health Center scientist Carol Meteyer will give a presentation entitled "Bat White-nose Syndrome *Geomyces destructans* in the United States: Strategies of a Novel Fungal Pathogen" at the 9th International Mycology Congress, which will take place from August 1-6 in Edinburgh,

Scotland, UK. The IMC is presented by the International Mycological Association, a non-profit organization that represents the interests of over 30,000 mycologists worldwide. This year's meeting will focus on five themes: cell biology, biochemistry and physiology; environment, ecology and interactions;

evolution, biodiversity and systematics; fungal pathogenesis and disease control ; and genomics, genetics and molecular biology.

## National Wildlife Health Center diagnostic services and submission guidelines

The National Wildlife Health Center (NWHC) provides complete diagnostic services, which includes direct access to Field Investigation Team (FIT) Wildlife Disease Specialists to assist field personnel with carcass submission, wildlife disease questions, or outbreak management support through phone, email, and on-site assistance.

The FIT are regionally based and are sources of information for choosing appropriate diagnostic specimens, communication and interpretation of results, and field response activities.

Timely submission of suitable samples and a comprehensive event history are key components toward determining the correct diagnosis.

Prior to submission, contact a member of the FIT to obtain shipping approval and discuss shipping arrangements.

Freezing/thawing impedes isolation of some pathogens and damages tissues. The NWHC prefers chilled specimens if they can be sent within 24-36 hours of collection or death. The FIT will provide guidance on freezing samples on a case-by-case basis. As a general guideline, if you cannot call or ship within 24-36 hours, freeze the animal(s).

Specimens should be shipped by overnight service, Monday through Wednesday, to guarantee arrival at NWHC before the weekend. If specimens are fresh and need to be shipped on Thursday or Friday, special arrangements can

be made with a FIT member.

A specimen history form and tracking number are required before specimens arrive at the Center. These may be sent to a FIT member either electronically or by FAX. Packages will not be opened if a specimen history form does not arrive first.

Instructions for collection and shipment of avian and mammalian carcasses, as well the required specimen history form, can be found at our website.

[http://www.nwhc.usgs.gov/mortality\\_events/reporting.jsp](http://www.nwhc.usgs.gov/mortality_events/reporting.jsp)

Due to new restrictions, specimens should be sent to the National Wildlife Health Center, Necropsy Loading Dock. The new address can be found on the shipping instructions.

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*A specimen history form and tracking number is required before specimens arrive at the Center.*

**USGS National Wildlife Health Center**

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(608) 270-2400

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We're on the Web!  
Visit us at:  
<http://www.nwhc.usgs.gov/>

**To report a wildlife mortality event, contact a member of the NWHC Field Investigation Team**



*If your agency is involved in an event that is not reported, please contact:*

Western U.S.:  
Dr. Krysten Schuler,  
608-270-2447,  
[kschuler@usgs.gov](mailto:kschuler@usgs.gov)

Eastern U.S.:  
Dr. Anne Ballmann,  
608-270-2445,  
[aballmann@usgs.gov](mailto:aballmann@usgs.gov)

Central U.S.:  
Dr. LeAnn White  
608-270-2491  
[clwhite@usgs.gov](mailto:clwhite@usgs.gov)

Nationwide, single animal cases only:  
Jennifer Bradsby,  
608-270-2443,  
[jbradsby@usgs.gov](mailto:jbradsby@usgs.gov)

**National Wildlife Health Center Honolulu Field Station**

The Honolulu Field Station was established in 1992 to serve state and federal agencies in Hawaii and the Pacific.

throughout the Pacific Ocean.

Dr. Thierry Work  
Wildlife Disease Ecologist  
PO Box 50167  
300 Ala Moana Blvd.  
Honolulu, HI 96850  
Phone: (808) 792-9520  
FAX: (808) 792-9596

The Honolulu Field Station is based in Honolulu, Hawaii, but we have operated in many islands and archipelagoes

Mortality events in this region may be reported to a member of the Field Investigation Team (Western U.S.) or to the Honolulu Field Station.

[thierry\\_work@usgs.gov](mailto:thierry_work@usgs.gov)

For more information, please contact:

**Disclaimer**

Information presented in this newsletter represents the most current data available to the USGS National Wildlife Health Center at the time of publication. For mortality event details, we encourage researchers to contact us to acquire data directly.

External request forms for mortality information can be obtained from Jennifer Bradsby at 608-270-2443 or by email: [jbradsby@usgs.gov](mailto:jbradsby@usgs.gov).

For citable information or general information regarding the Center, please contact Gail Moede Rogall, Information Specialist/Outreach Coordinator, at 608-270-2438 or by email: [gmrogall@usgs.gov](mailto:gmrogall@usgs.gov)

Information presented in this newsletter is not intended for citation as scientific literature.

**Words for thought...**

“When one tugs at a single thing in nature, he finds it attached to the rest of the world.”  
~John Muir