

WDA Students

This year, 20 professionals and 40 students from Europe, North America, Africa and South-East Asia, gathered for four days not only to share knowledge on infectious diseases at the human and animal interface, but also and maybe foremost to take part in mentoring activities and eye-opening discussions. The

program of the workshop strived to illustrate the broad role of global health scientists, as teachers of state-of-the-art science for coming generations of global health scientists, as advisers for policy makers, and as educators for the general public. The transmission of knowledge and skills was the main

objective of the workshop, and communication its main tool, used by student and professional participants coming from a wide variety of disciplines, including human medicine, veterinary medicine, biomedical science, biology, ecology, evolutionary biology, mathematics, astrophysics, and journalism, and from both the public and private sectors. We thank all the participants for their contribution to the workshop, proving once more the synergistic

potential of multi-disciplinary communication – the outcome of these four days was successful far beyond what we had expected.

The Third EWDA Student Workshop was financially supported by Les Pensieres, conference centre of the Mérieux Foundation, the Bill and Melinda Gates Foundation, GlaxoSmithKline Biologicals, Merial, Novartis Vaccines and Diagnostics, Intervet SPAH, ViroClinics, Roche, EVL, the French Game and Wildlife Agency (ONCFS), the General Council of Haute-Savoie, and the Wildlife Disease Association.



Participants in the Third EWDA Student Workshop

The next EWDA Student Workshop is planned for spring 2011, and calls for a new student organizing committee (as part of the EWDA Student Chapter call

for new officers). We would like to invite motivated students to take this wonderful opportunity to take part in such a fun endeavor! We are delighted to announce that Mr. Paul-Maurice Morel and the team of Les Pensieres generously proposed to host upcoming EWDA student workshops, as they beautifully suit the multi-disciplinary and educational vision of Dr. Charles Mérieux in our fight against infectious diseases. We're looking forward to the next workshop!

News from the Field



National Wildlife Health Center's Quarterly Wildlife Mortality Report

<http://www.nwhc.usgs.gov>

Leucistic Tiger salamanders in Yellowstone National Park (WY)

Tiger salamanders (*Ambystoma tigrinum melanostictum*) were monitored and collected from Slough Creek area of Yellowstone National Park as part of a summer survey. Large numbers of apparently healthy tiger salamanders were found in pools, some of which had severely reduced amounts of black pigment (melanin) in the skin of their heads, bodies and limbs. This condition is known as leucism or leucistic variation, where

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melanin in skin cells is severely reduced. Leucism is different than albinism where the skin pigment, melanin, is completely absent. Leucism occurs in a variety of different species. Partial leucism is seen occasionally in other species of wildlife and is referred to as "piebald." During the monitoring of this population of tiger salamanders, a die-off of the aquatic larvae occurred. Healthy animals collected prior to the die-off, sick, and dead salamanders were submitted to NWHC for diagnostic examinations. A ranavirus was isolated from one of the sick salamanders and is the presumptive cause of the die-off. Additional diagnostic tests are in progress. Ranaviral infections are a well-recognized cause of mortality in free-living larval tiger salamanders in Western States and Canada (from Arizona to Saskatchewan). This tiger salamander population in Yellowstone National Park appears to have a unique genetic composition, and this mortality event may be the first occurrence of ranavirus-associated deaths in salamanders within the Park.

Multiple Sandhill crane mortality events in north central Oklahoma (OK)

Lesser sandhill cranes in north central Oklahoma were plagued by a variety of mortality events this winter. Biologists from Salt Plains National Wildlife Refuge responded to a die-off of over 100 cranes in early November. Carcasses examined at NWHC were found to have experienced extreme trauma and had multiple fractures and lacerations without any external evidence of injury. Severe winds during a storm event were the likely cause of death. In late December and mid-January, two separate events occurred with cranes being found dead in peanut fields. The first event involved about 24 birds and the second was 160 birds. The cranes were consuming the peanuts and are suspected to have died from mycotoxin poisoning. Mycotoxins are produced from fungus that grows on the peanuts in appropriate conditions. These fields normally have waste peanuts plowed under the soil, but wet conditions prevented farmers from tilling the fields.

Unusual mortality event in California brown pelicans (CA)

In mid-December, a higher than normal number of California brown pelicans were being submitted to rehabilitation facilities. Sick and disorientated pelicans were being found along the coast from San Francisco down to Los Angeles. The International Bird Rescue and Rehabilitation Center estimated that 300-400 pelicans, both adults and juveniles, were affected. Carcass testing by multiple state and federal labs revealed a variety of findings, including infarcts on the feet (suggestive of frostbite), anemia, and emaciation. Many sick pelicans responded to supportive care in rehabilitation. Field information from Oregon indicated that substantial numbers (~5,000) of brown pelicans were present on East Sand Island at the Columbia River in Oregon in December when typical migration is mid-November. Extremely cold weather during the week of December 10 occurred around the same time that the pelicans started to move south. Corroborating pathology findings and field data indicate that severe winter weather and subsequent forced migration were responsible for some of the observed morbidity and mortality. California brown pelicans have recently been proposed for de-listing so understanding impacts of mortality events is critical for continued overall population health.

Soybean impaction in North Dakota waterfowl (ND)

A concerned citizen found nearly two dozen mallards and Canada geese sick and dead in Wells County, North Dakota at the end of October and reported them to North Dakota Game and Fish. The birds appeared to be engorged with soybeans and were emaciated. Sick birds had limp necks, but some were still capable of flying. Examination of carcasses at NWHC found that each bird had a severely distended esophagus with moist soybeans causing pressure necrosis. Blood vessels in the neck above the blockage were swollen with blood suggesting that the obstruction was preventing venous return. Soybean impaction has been previously described in waterfowl when soybeans dry in the field and swell with water after ingestion. This area of North Dakota had weather conditions reported as a wet summer with a dry fall.

Infected faucet snails detected at Lake Winnibigoshish (MN)

For the second consecutive year, Lake Winnibigoshish experienced avian mortalities this autumn due to intestinal trematode infections with *Sphaeriodotrema globulus* and *Cyathocoytle bushinesis*. Mortalities also were detected at nearby Bowstring Lake (MN) for the first time. An estimated 857 birds died, primarily lesser

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scaup and American coots. Snail surveys conducted this summer at Lake Winnibigoshish found the invasive host snail, *Bithynia tentaculata*. Parasite infection rate for snails was between 0-93% with the highest prevalence occurring near shore. All 3 trematodes, *S. globulus*, *C. bushinesis*, and *Legyionimus polyoon* were detected. In some instances, a single snail was infected by more than 1 species of metacercariae, the intermediate life stage of the parasites. Trematode-related waterfowl mortalities in the Upper Mississippi River NWR (WI) also occurred this spring and fall; mortality estimates were 2500-3500 birds, representing a decrease of 80% from 2007 mortality estimates. One possible reason is that lesser scaup were observed flocking in greater numbers at lower pools of the refuge where *Bithynia* populations are lower. Trematodiasis events have occurred annually at Upper Mississippi River NWR since 2002 with the death of between 50,000-60,000 individuals since its discovery in 2002.

Botulism E bird mortalities down for the Great Lakes in 2008

Avian mortalities attributed to botulism type E in the Great Lakes between Jun - Dec 2008 were significantly less than last year's estimated total of 17,125 birds despite similar beach survey efforts. Carcass tallies for Lake Ontario were 162 birds and estimate 1628 dead. Lake Erie reported 458 carcasses with estimates of mortality as high as 2005 birds. Lake Michigan reported 234 carcasses. Although total mortalities were low in 2008, the distribution of affected birds expanded further south (Emmet County, MI) along the western shore of Lake Michigan than previously recorded. Lakes Huron and Superior reported no bird mortalities attributed to botulism E. Common loons and various gull species remain the primary birds affected. Type E avian botulism has caused the deaths of thousands of fish-eating birds per year since 2000. Carcasses were received by NWHC for confirmation of botulism type E in 2008 from Lakes Michigan (MI, WI) and Erie (PA), including Sleeping Bear Dunes National Lakeshore in Michigan. Botulinum type C toxin also was identified as the cause of death at some locations including the Kingston, ON (CAN) area and Presque Isle State Park (Erie, PA), earlier in the summer before Type E intoxication was detected.

Avian cholera die-offs in AR waterfowl and Arctic sea ducks (Nanavut)

A die-off event of over 1000 waterfowl, including primarily lesser snow geese, greater white-fronted geese, mallards, and northern pintails, occurred in 3 northeastern Arkansas counties beginning in late November and lasted several weeks. Carcasses were found at a water impoundment area at Bald Knob NWR as well as harvested rice fields in Poinsett and Lawrence counties. Avian cholera was determined to be the cause of death. This is only the second avian cholera die-off recorded from AR. The last event in 2001 involved 206 birds at a private duck club. Another large avian cholera outbreak occurred in Hudson Strait and East Bay Migratory Bird Sanctuary on Southampton Island in the northern Hudson Bay (Nanavut, CAN) colonies this winter. An estimated 1500 common eiders died. According to the National Wildlife Research Centre (Ottawa), East Bay accounts for 1/3 of all breeding female eiders and there is potential for population impacts.

Quarterly Wildlife Mortality Report October 2008 to December 2008

State	Location	Dates	Species	Mortality	Diagnosis	Labsites
AR	Bald Knob NWR, Lawrence County, Poinsett County	11/25/08-12/03/08	Lesser Snow Goose Greater White-fronted Goose Northern Pintail Mallard	1,000(e)	Avian cholera	NW
AR	Lawrence County, Sharp County	10/24/08-10/31/08	Unidentified Deer	25 (e)	Epizootic Hemorrhagic Disease suspect	UNK
AZ	Maricopa County	10/01/08-ongoing	Northern Flicker Mourning Dove	26	Open	NW
CA	Fresno Metropolitan Flood Control District	11/01/08-11/03/08	American Coot Western Canada Goose	16	Botulism suspect	NON
CA	Hayward Shoreline Park, Alameda County	09/10/08-11/17/08	Northern Pintail American Coot	450 (e)	Botulism suspect	NON

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			Mallard			
			Ruddy Duck			
			Northern Shoveler			
			Green-winged Teal			
			American Wigeon			
			Cinnamon Teal			
CA	Klamath Basin NWR	12/02/08-12/07/08	Lesser Snow Goose	30 (e)	Avian cholera	NW
			Greater White-fronted Goose			
CA	Lassen Volcanic National Park	09/23/08-10/31/08	Boreal Toad	111 (e)	Viral Infection: Ranavirus	NW
			Long-toed Salamander			
CA	Los Angeles County	12/15/08-01/15/09	California Brown Pelican	400 (e)	Emaciation/ Starvation	CAF, NW
					Frostbite	
					Anemia	
CA	Redwood National Park, Humboldt County	12/19/08-12/31/08	American Coot	300 (e)	Undetermined	UCD
CA	Sutter NWR, Butte Sink NWR	12/19/08-02/14/09	Gadwall	682 (e)	Avian cholera	NW
			American Wigeon			
			American Coot			
			Ruddy Duck			
			Eared Grebe			
CAN	Hudson Strait, Northern Hudson Bay	12/03/08-12/31/08	Common Eider	1,500 (e)	Avian cholera	CCW
GA	Hart County	09/28/08-10/04/08	Brown-headed Cowbird	20 (e)	Toxicosis: Famphur	SCW
ID	Ammon, Bonneville County	12/29/08-01/02/09	Mallard	200 (e)	Aspergillosis	ID
KS	Barton County	12/29/08-01/15/09	Greater White-fronted Goose	243	Avian cholera	NW
			Canada Goose			
KS	Rice County	12/16/08-12/23/08	Greater White-fronted Goose	190	Toxicosis: strychnine	NW
			Canada Goose		Toxicosis: salt	
			Mallard			
KY	Marshall County	12/09/08-12/10/08	Mallard	15	Predation	NW
			American Wigeon			
MN	Lake Winnibigoshish, Bowstring Lake	10/20/08-11/04/08	Lesser Scaup	857 (e)	Parasitism:	NW
			American Coot		<i>Cyathocotyle bushiensis</i> ,	
			Redhead Duck		Parasitism:	
			White-winged Scoter		<i>Sphaeridiotrema globulus</i> ,	
					Parasitism: coccidiosis	
MN	Mallard Lake	10/04/08-10/23/08	Ring-necked Duck	12 (e)	Lead poisoning	NW
			Redhead Duck			
ND	Bowdon, Wells County	10/28/08-10/31/08	Mallard	20 (e)	Impaction: soybean	NW
			Canada Goose			
ND	Stump Lake, Nelson County	10/31/08-11/05/08	Mallard	30 (e)	Aspergillosis	NW
NJ	Hibernia Mine, Mount Hope Mine, Delaware Water Gap NRA	12/28/08-ongoing	Little Brown Bat	10,000 (e)	Fungal Infection:	NW
			Northern Long-eared Bat		White-Nose Syndrome,	
					Emaciation	
NY	Clinton County	10/21/08-10/30/08	Canada Goose	12	Aspergillosis	NY

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NY	Hudson River, Washington County	12/05/08-12/31/08	Greater Snow Goose Mallard	58	Parasitism: <i>Sphaeridiotrema globulus</i>	NW, NY
OH	Stark County	10/24/08-10/30/08	European Starling	200 (e)	Emaciation, Toxicosis suspect	NW
OK	Burlington, Alfalfa County	11/06/08-11/08/08	Lesser Sandhill Crane	109	Trauma: storm	NW
OK	Cherokee, Alfalfa County	10/19/08-10/20/08	Common Grackle	100 (e)	Trauma	NW
OK	Cleo Springs	12/28/08-12/29/08	Lesser Sandhill Crane	24	Mycotoxigenicosis suspect	NW
OR	Ashland, Jackson County	12/01/08-12/31/08	Black-tailed Deer	12 (e)	Viral Infection suspect	OR
OR	Yamhill County	12/09/08-12/10/08	Canada Goose Taverner's Canada Goose Western Canada Goose	20 (e)	Open	NW
OR	Jefferson County	12/09/08-12/10/08	Mallard	23 (e)	Open	NW
OR	Ankeny NWR	09/04/08-09/05/08	Bullfrog	12	Viral Infection: Ranavirus	NW
OR	Staats Lake, Marion County	10/24/08-ongoing	Cackling Goose	20 (e)	Aspergillosis	NW, OR
PA	Shindle Iron Mine, Dunmore Slope Coal Mine	11/25/08-ongoing	Eastern Pipistrelle Little Brown Bat	375 (e)	Fungal Infection: White-Nose Syndrome, Emaciation	NW
<u>Updates:</u>						
AZ	Tumacacori National Historic Park	05/25/08-07/31/08	Bewick's Wren Lucy's Warbler Yellow Warbler	8	Undetermined	NW
CA	Tule Lake NWR	08/10/08-09/08/08	Northern Pintail Gadwall Mallard	1,000 (e)	Botulism type C	NW
CAN	St. Lawrence Estuary, Gulf of St. Lawrence	08/05/08-08/31/08	Beluga Whale Harbor Porpoise Smelt Northern Gannet Common Eider Northern Fulmar Double-crested Cormorant Shad Gray Seal Harbor Seal Razorbill	1,000 (e)	Toxicosis: Saxitoxin	OT
CT	New Milford, Winchester, Roxbury	03/17/08-05/01/08	Big Brown Bat Northern Long-eared Bat Little Brown Bat	7	Fungal Infection: White-Nose Syndrome suspect, Emaciation	NW, UCT
FL	Brandon	05/02/08-05/14/08	Muscovy Duck	21	Duck plague	SCW
FL	Davie	09/15/08-09/17/08	Muscovy Duck Mallard	13	Open: botulism suspect	UNK
FL	Pinellas County	05/07/08-05/08/08	Muscovy Duck	2	Duck plague	FL, OT, SCW

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FL	Sanford	06/12/08-06/26/08	Mallard	11	Botulism type C	FL, NW
MA	Chester Mines, Egremont	01/15/08-05/01/08	Eastern Pipistrelle Northern Long-eared Bat Little Brown Bat	300 (e)	Open	NW
MN	Apple Valley	09/08/08-09/30/08	Mallard	37	Botulism type C	NW
NY	Hailes Cave, Williams Preserve Mine, Williams Hotel Mine, Schoharie Cave	01/01/08-05/01/08	Big Brown Bat Little Brown Bat	5775 (e)	Fungal Infection: White-Nose Syndrome Emaciation	COR, NW
NY	Main Graphite Mine	9/28/08-9/30/08	Little Brown Bat	7	Open: trauma suspect Parasitism: intestinal	NW
OK	Major County	02/04/08-02/07/08	Unidentified Sandhill Crane	85 (e)	Mycotoxycosis suspect Trauma	NW
OR	Crook County	03/26/08-06/08/08	Golden Eagle Red-tailed Hawk	11 (e)	Toxicosis: Famphur	NW
VT	Aeolus Cave, Elizabeth Mine, Brattleboro Pomfret	01/01/08-05/01/08	Little Brown Bat Northern Long-eared Bat Big Brown Bat Eastern Small-footed	10,000 (e)	Fungal Infection: White-Nose Syndrome Emaciation/ starvation	NW
WA	Moses Lake	03/20/08-03/24/08	Ring-billed Gull	50 (e)	Undetermined	NW
WI	Pools 7, 8, 9 Upper Mississippi River NFWR	09/15/08-11/17/08	American Coot Lesser Scaup Blue-winged Teal	1163 (e)	Parasitism: <i>Cyathocotyle bushiensis</i> , Parasitism: <i>Sphaeridiotrema globulus</i>	NW
WI	Milwaukee Harbor, Egg Harbor Beach	09/10/08-11/13/08	Ring-billed Gull Herring Gull Double-crested Cormorant	50 (e)	Botulism type E	NW, WI, WV
WY	Yellowstone Na. Park	07/14/08-08/20/08	Tiger Salamander	7	Genetic malformation	NW

(e) = estimate, *** Mortality estimate not available at this time, "suspect" = Diagnosis is not finalized, but field signs and historic patterns indicate the disease.

California Animal Health Food Safety Lab Network (CAF), Canadian Cooperative Wildlife Health Center (CCW), Cornell University (COR), Florida Fish and Wildlife Conservation Commission (FL), Idaho Wildlife Health Laboratory in Boise (ID), No diagnostics pursued (NON), USGS National Wildlife Health Center (NW), NY State Department, DEC, Division of Fish, Wildlife & Marine Resources (NY), Oregon State Diagnostic Laboratory (OR), Other (OT), Southeastern Cooperative Wildlife Disease Study (SCW), UC Davis (UCD), University of Connecticut Wildlife Laboratory (UCT), Unknown (UNK), Wisconsin Department of Natural Resources Wildlife Health Lab (WI), Wisconsin Veterinary Diagnostic Laboratory (WV)

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