



## National Wildlife Health Center's Quarterly Wildlife Mortality Report

### **Avian Cholera in Waterfowl in California and Nationwide (CA)**

Tulelake and Lower Klamath National Wildlife Refuges experienced substantial mortality from avian cholera this spring. U.S. Fish and Wildlife Service refuge managers reported nearly 2000 dead birds were collected as part of their disease control operations. Snow geese and Ross' geese comprised 90% of the birds collected. The mortality event began in early March and subsided in mid to late April. Avian cholera events are annual events at the refuges. The mortality totals in 2009 were less than those in 2008 that lasted two and a half months with mortality estimated at 4500 birds. Cold weather conditions contribute to avian cholera outbreaks by concentrating birds in certain migration stopover locations. Prompt collection and disposal of carcasses removes the causative bacteria, *Pasturella multocida*, from the environment. Additional avian cholera outbreaks in early 2009 totaling several hundred birds occurred at Kern and Butte Sink NWR, both in California. Lesser outbreaks were documented in the Mississippi and Central Flyways at Bellrose Waterfowl Reserve, IL; Hackberry Flat Wildlife Management Area, OK; and Rainwater Basin Wetland Management District, NE.

### **Avian Salmonellosis Mortality Confirmed in Numerous States (AL, GA, ID, MD, ME, MI, MN, NY, NC, TN, VA, VT, WA, WI, WV)**

Recent outbreaks of avian salmonellosis (*Salmonella typhimurium*) have been confirmed in wild birds across several states since January 2009. Suspected salmonellosis mortality also was reported from CA, UT, ME, and PA. Concerned citizens across the country have reported finding dead or distressed wild birds near their homes and bird feeders. Public concern most likely is heightened due to the recent *Salmonella* cases in humans and numerous product recalls. There currently is no evidence that the strains found in dead wild birds this year are the same strains of *Salmonella* that prompted the recalls in peanuts, pistachios, or wild bird seed. Large-scale mortalities of passerines using feeding stations are common across the United States and often occur during times of increased supplemental feeding, such as winter and spring. Smaller outbreaks of salmonellosis are reported yearly, but there is no indication that this year's mortality estimates are higher than previous years.

### **Magellanic Penguin Mortality in Chile**

In a report from Chile, an estimated 1380 Magellanic penguins (*Spheniscus magellanicus*, Forster, 1781) died and were washed up on The Pines section of beach in Queule in late March. Specimens were collected and examined at the Southern University of Chile in Valdivia. Most of the examined birds had abundant fat, and some were found to have eaten sardines. There were histological lesions consistent with asphyxia and organ congestion. There was no indication of viruses or toxicants, but several specimens had a necrotic hepatitis similar to avian cholera. There was a fleet of fishing vessels off the coast using floating nets for anchovy and sardines; some fishermen admitted penguins were caught in the nets. Officials speculate that the number dead could be twice as high due to carcasses floating at sea. Magellanic penguins migrate north with juveniles following the sardines. There were mortality events between 1991-1996 involving Humboldt penguins caught in fishing nets off the coast of Chile. Investigators suggested future management actions should include creation of an emergency group to respond to future mortality events in birds, mammals, and fish, as well as a coordinating entity between state, federal, and university resources. Information provided by Dr. Roberto Schlatter, Southern University of Chile.

### **Research Progress on White-nose Syndrome of Bats**

Scientists are fervently working to uncover the mystery of bat white-nose syndrome (WNS), an emerging disease, that is responsible for the loss of nearly half million insectivorous bats of 5 species in the eastern United States. Little brown bats and eastern pipistrelles have been particularly hard hit with as many as 90-100% of the population wiped out at some winter hibernacula. State, federal, academic, and non-profit organizations have partnered to investigate the disease, its impact on bat populations, and management options. Infection and transmission trials investigating

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the fungus, now known as *Geomyces destructans*, as the primary cause of WNS have been carried out at the NWHC. Other studies in which the NWHC are involved include soil sample surveys to determine *G. destructans* distribution relative to affected hibernacula, summer bat surveys for evidence of latent infections, and evaluation of possible treatment or control options. Concern about possible human-vectored transmission caused the USFWS to issue cave closure recommendations to reduce the risk and speed of disease spread to sites in the Midwest where much larger winter hibernacula occur.

## Request for Wildlife Mortality and Morbidity Event Reporting (All States)

The Quarterly Wildlife Mortality Report, published in the Wildlife Disease Association's newsletter, is intended to inform wildlife professionals of wildlife events of interest. The authors kindly request that investigation reports of recent die-offs of mammals, birds, amphibians, and reptiles be submitted for inclusion in the publication and on the related website ([http://www.nwhc.usgs.gov/mortality\\_events/ongoing.jsp](http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp)). Credit will be given to appropriate diagnostic laboratories. The Quarterly Mortality Report represents the most current information available to the USGS National Wildlife Health Center at the time of publication. 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 email: [jbradsby@usgs.gov](mailto:jbradsby@usgs.gov).

### Quarterly Wildlife Mortality Report—January 2009 to March 2009

State	Location	Dates	Species	Mortality	Diagnosis	Labsite
AK	Fairbanks North Star County	02/12/09-02/13/09	Common Redpoll	8	Trauma	NW
AL	Anniston, Calhoun County	03/13/09-04/06/09	Pine Siskin	8	Salmonellosis	NW
ANT	Coronation Island, South Orkney Islands	01/01/09-02/04/09	Adelie Penguin	5 (e)	Starvation	NW
AZ	Freestone District Park, Maricopa County	02/16/09-03/15/09	Unidentified Cormorant Mallard Unidentified Egret Great Blue Heron	15	Undetermined	NW
CA	Kern NWR	01/11/09-02/05/09	American Coot Ruddy Duck Northern Shoveler Redhead Duck Gadwall American Wigeon Ring-billed Gull Ring-necked Duck Northern Pintail	450 (e)	Avian cholera	NW
CA	Bay Delta, San Joaquin County	01/20/09-01/24/09	Tundra Swan	50 (e)	Avian cholera suspect	NON
CA	Los Angeles County	12/18/08-01/15/09	California Brown Pelican	400 (e)	Emaciation	CAF, NW
CA	Tule Lake NWR	03/07/09-04/22/09	Ross' Goose Lesser Snow Goose Cackling Goose	1,922	Avian cholera	NW
CA	Van Damme State Park	01/29/09-03/28/09	Bullfrog	18	Undetermined	NW
CL	Caleta Queule	03/28/09-03/31/09	Magellanic Penguin	1,380	Entanglement: Fishing Line	OT

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CT	Town of Cheshire, New Haven County	02/07/09-02/08/09	Canada Goose	7	Aspergillosis	UCT
CT	Hartford County Litchfield County	01/27/09-05/30/09	Little Brown Bat Eastern Pipistrelle Northern Long-eared Bat	100 (e)	Fungal Infection: White-Nose Syndrome	NW
FL	Duval and Brevard Counties	01/01/09-04/03/09	Loggerhead Sea Turtle Green Sea Turtle	200 (e)	Open	UFL
FL	Lake Lena and Spirit Lake, Polk County	02/25/09-02/25/09	Laughing Gull Ring-billed Gull	25 (e)	Enteritis: hemorrhagic	FL, NW
FL	Broward County	02/10/09-02/12/09	Unidentified Egret Unidentified Duck	21 (e)	Botulism suspect	NON
FL	Rotenberger WMA	02/27/09-02/28/09	Double-crested Cormorant Roseate Spoonbill Great Blue Heron	14	Electrocution	NFL
GA	Multiple counties	03/08/09-05/21/09	American Goldfinch Pine Siskin Northern Cardinal House Finch	45 (e)	Salmonellosis	SCW
IL	Bellrose Waterfowl Reserve, Pulaski County	01/08/09-01/16/09	Lesser Snow Goose Northern Shoveler	25 (e)	Avian cholera	NW
IL	Waukegan Harbor, Lake County	03/04/09-03/05/09	Lesser Scaup American Coot	6	Open: emaciation	NW
	Neosho Wildlife Area	02/01/09-02/03/09	BuffleheadKS Green-winged Teal Mallard	70 (e)	Open	NW
KS	Russell Springs, Logan County	01/04/09-01/06/09	Wild Turkey Badger Raccoon	50 (e)	Toxicosis: zinc phosphide Toxicosis: chlorophocinone	SCW, UCD
LA	Acadia County	01/13/09-01/19/09	Brown-headed Cowbird Red-winged Blackbird	150 (e)	Undetermined	NCA, NW
LA	Natchitoches County	01/08/09-01/12/09	Lesser Snow Goose Ross' Goose	240 (e)	Hepatic lipidosis	NW
MA	Hampden County Norfolk County Middlesex County	02/02/09-05/30/09	Little Brown Bat Northern Long-eared Bat Eastern Pipistrelle	900 (e)	Fungal Infection: White-Nose Syndrome suspect	NON
MD	Deep Creek Lake State Park, Garrett County Leeds, Androscoggin County	02/19/09-04/12/09 01/25/09-01/25/09	Pine Siskin Mallard	200 (e) 12	Salmonellosis Trauma: impact	NW ME NW
ME	Multiple counties	02/15/09-05/04/09	Pine Siskin	100 (e)	Salmonellosis suspect	NON

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			Common Redpoll			
MI	Ann Arbor	12/26/08-02/15/09	American Crow	25 (e)	Open	NW, MI
MI	Multiple counties	02/14/09-04/15/09	Pine Siskin	300 (e)	Salmonellosis	MI
			Common Redpoll			
			American Goldfinch			
			Northern Cardinal			
	Fergus Falls, Wright County	10/01/08-02/01/09	American Tree Sparrow Trumpeter Swan	40 (e)	Lead poisoning, Emaciation, Trauma	MN MNS
MN	Carlton County	02/20/09-04/15/09	Pine Siskin	50 (e)	Salmonellosis	NW
			Common Redpoll			
MO	Osage City, Cole County	02/04/09-02/07/09	European Starling	50 (e)	Gout: visceral, Toxicosis suspect	NW
MT	Choteau, Teton County	12/26/08-01/15/09	Mallard	90 (e)	Undetermined	NW
NC	Cape Hatteras National Seashore	12/25/08-02/10/09	Hooded Merganser Bufflehead	80 (e)	Emaciation, Trauma	NW
NC	Caldwell and Moore Counties	02/15/09-04/30/09	American Goldfinch Pine Siskin	95 (e)	Salmonellosis	NW, SCW
NE	Multiple Counties	02/24/09-03/15/09	Green-winged Teal American Coot Greater White-fronted Goose Ross' Goose American Wigeon Canada Goose Mallard Lesser Snow Goose Northern Pintail	350 (e)	Avian cholera	NW
NE	Lake Ogallala, Keith County	02/03/09-02/05/09	Common Merganser Unidentified Goldeneye	31 (e)	Trauma: impact	NW
NH	Merrimack and Grafton Counties	02/20/09-05/30/09	Little Brown Bat Northern Long-eared Bat	3	Fungal Infection: White-Nose Syndrome	NW
NV	Washoe County Hudson River, Multiple Counties	11/15/08-01/05/09 01/06/09-03/11/09	Northern Leopard Frog American Crow	6 58	Fungal Infection: chytrid, Viral Infection: Reo virus-like CPE, Enteritis: hemorrhagic, Airsacculitis,	NWNY NW, NY
	Ulster County, Washington County, Putnam County, Clinton County, Essex County	01/27/09-05/30/09	Big Brown Bat Indiana Bat Eastern Pipistrelle Little Brown Bat	4,450 (e)	Parasitism Fungal Infection: White-Nose Syndrome	NY NW
NY	Multiple counties	03/06/09-04/15/09	Pine Siskin	15 (e)	Salmonellosis	NY

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			House Sparrow			
OH	West Salem, Wayne County	03/22/09-03/24/09	European Starling	19	Trauma	NW
OH	Green Township, Mahoning County	03/23/09-03/25/09	American Robin	10 (e)	Trauma	NW
OK	Cleo Springs, Major County	01/12/09-01/14/09	Lesser Sandhill Crane	160 (e)	Mycotoxycosis suspect	NW
OK	Hackberry Flat WMA, Tillman County	01/19/09-02/04/09	Ross' Goose	100 (e)	Avian cholera	NW
PA	Blair County	02/26/09-02/26/09	Canada Goose	54	Trauma: weather suspect	PA
SD	Kyle, Jackson County	03/31/09-04/01/09	Porcupine	10	Trauma suspect	NW
SD	Lacreek NWR, Bennett County	03/09/09-03/20/09	Mink Beaver	4	Tularemia	NW
TN	Multiple counties	02/09/09-03/31/09	American Goldfinch Purple Finch Pine Siskin	50 (e)	Salmonellosis	SCW
TX	Aransas NWR	01/14/09-04/30/09	Whooping Crane	23 (e)	Emaciation, Predation, Viral Infection suspect	NW
TX	Corpus Christi Ship Channel, Nueces County	01/15/09-04/03/09	Eastern Brown Pelican	31 (e)	Emaciation, Parasitism: coccidiosis	NW
VA	Floyd County	02/01/09-03/31/09	American Goldfinch	100 (e)	Salmonellosis suspect	NON
VA	Bath County Giles County	02/15/09-05/30/09	Eastern Pipistrelle Little Brown Bat	26	Fungal Infection: White-Nose Syndrome	NW
VA	Richmond County	01/09/09-01/12/09	Ring-billed Gull Laughing Gull Herring Gull Unidentified Black-backed Gull	70 (e)	<i>Clostridium perfringens</i> suspect	SCW
VT	Orange County, Windsor County, Rutland County, Washington County, Windham County	01/30/09-05/30/09	Northern Long-eared Bat Little Brown Bat	350,000 (e)	Fungal Infection: White-Nose Syndrome	NW
VT	Multiple counties	02/09/09-04/30/09	Pine Siskin American Goldfinch	35 (e)	Salmonellosis	NW
WA	Thurston County	01/16/09-02/01/09	Pine Siskin Unidentified Finch	70 (e)	Salmonellosis	NW
WA	Wapato Lake, Pierce County	02/02/09-02/04/09	Common Merganser Mallard	8	Open	NW
WI	Multiple Counties	02/20/09-05/18/09	Pine Siskin American Goldfinch Purple Finch Common Redpoll	270 (e)	Salmonellosis	WI

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			House Finch Northern Cardinal Black-capped Chickadee			
WI	Upper Mississippi River NWR	03/23/09-05/19/09	Lesser Scaup Ring-necked Duck American Coot Canvasback Bufflehead Ruddy Duck	1,500 (e)	Parasitism: <i>Sphaeridiotrema globulus</i> , Parasitism: <i>Cyathocotyle bushiensis</i>	NW
WI	Lake Michigan, Multiple Counties	03/05/09-03/31/09	Unidentified Goldeneye Unidentified Scaup	100 (e)	Emaciation	WI
WV	Multiple Counties	02/12/09-04/22/09	Pine Siskin American Goldfinch Purple Finch	30 (e)	Salmonellosis	NW, SCW
WV	Hamilton and Trout Caves, Pendleton County	01/24/09-05/19/09	Eastern Pipistrelle Northern Long-eared Bat Little Brown Bat	50 (e)	Fungal Infection: White-Nose Syndrome	NW, SCW
<u>Updates:</u>						
AZ	Maricopa County	10/01/08-12/15/08	Northern Flicker Mourning Dove	26	Undetermined, Toxicosis suspect	NW
NY	Suffolk County	06/24/08-09/12/08	Southern Leopard Frog Unidentified Fish	165	Perkinsus-like organism Fungal Infection: Chytrid suspect	NW
MD	Montgomery County	11/01/08-12/31/08	Eastern Box Turtle	6	Viral Infection: Ranavirus Viral Infection: Ranavirus suspect	NW
MI	Delta, Emmett, Mason, Oceana, and Schoolcraft Counties	06/27/08-11/18/08	Ring-billed Gull Double-crested Cormorant Horned Grebe Red-necked Grebe Common Loon Herring Gull White-winged Scoter Mallard	135 (e)	Botulism type E	MI
MI	Sleeping Bear Dunes National Seashore	06/30/08-11/29/08	Ring-billed Gull Double-crested Cormorant Common Loon Herring Gull Caspian Tern Least Sandpiper Common Merganser	104 (e)	Botulism type E	NW, OT
PA	Presque Isle State Park	05/26/08-11/25/08	Ring-billed Gull American Crow Common Loon Great Blue Heron Herring Gull	364 (e)	Botulism type C, Botulism type E, Trauma, Aspergillosis	NW

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Unidentified Waterfowl  
WY Yellowstone National Park 05/01/08-10/01/08 Timber (Gray) Wolf 45 (e) Distemper, Sarcoptic Mange NON

(e) = estimate, "suspect" = Diagnosis is not finalized, but field signs and historic patterns indicate the disease.

California Animal Health Food Safety Lab Network (CAF), Florida Fish and Wildlife Conservation Commission (FL), Michigan Department of Natural Resources (MI), Minnesota Department of Natural Resources (MNS), Michigan State University (MSU), North Carolina State Lab (NCA), Ashland National Forensics Laboratory (NFL), No diagnostics pursued (NON), USGS National Wildlife Health Center (NW), NY State Department, DEC, Division of Fish, Wildlife & Marine Resources (NY), Other (OT), Pennsylvania Animal Diagnostic Lab (PA), Southeastern Cooperative Wildlife Disease Study (SCW), UC Davis (UCD), University of Connecticut Wildlife Laboratory (UCT), University of Florida (UFL), Wisconsin Department of Natural Resources Wildlife Health Lab (WI)

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The Quarterly Wildlife Mortality Report is available at <http://www.nwhc.usgs.gov>

To view New and Ongoing Wildlife Mortality Events Nationwide visit [http://www.nwhc.usgs.gov/mortality\\_events/ongoing.jsp](http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp)

## Species:

**Avian:** Adelle Penguin (*Pygoscelis adeliae*); American Coot (*Fulica americana*); American Crow (*Corvus brachyrhynchos*); American Goldfinch (*Carduelis tristis*); American Robin (*Turdus migratorius*); American Tree Sparrow (*Spizella arborea*); American Wigeon (*Anas americana*); Black-capped Chickadee (*Parus atricapilla*); Brown-headed Cowbird (*Molothrus ater*); Bufflehead (*Bucephala albeola*); Cackling Goose (*Branta hutchinsii*); California Brown Pelican (*Pelecanus occidentalis californicus*); Canada Goose (*Branta canadensis*); Canvasback (*Aythya valisineria*); Caspian Tern (*Hydroprogne caspia*); Common Loon (*Gavia immer*); Common Merganser (*Mergus merganser*); Common Redpoll (*Carduelis flammea*); Double-Crested Cormorant (*Phalacrocorax auritus*); Eastern Brown Pelican (*Pelecanus occidentalis occidentalis*); European Starling (*Sturnus vulgaris*); Gadwall (*Anas strepera*); Great Blue Heron (*Ardea herodias*); Greater White-fronted Goose (*Anser albifrons*); Green-winged Teal (*Anas crecca*); Herring Gull (*Larus argentatus*); Hooded Merganser (*Lophodytes cucullatus*); Horned Grebe (*Podiceps auritus*); House Finch (*Carpodacus mexicanus*); House Sparrow (*Passer domesticus*); Laughing Gull (*Leucophaeus atricilla*); Least Sandpiper (*Calidris minutilla*); Lesser Sandhill Crane (*Grus canadensis canadensis*); Lesser Scaup (*Aythya affinis*); Lesser Snow Goose (*Chen caerulescens*); Magellanic Penguin (*Spheniscus magellanicus*); Mallard (*Anas platyrhynchos*); Mourning Dove (*Zenaidura macroura*); Northern Cardinal (*Cardinalis cardinalis*); Northern Flicker (*Colaptes auratus*); Northern Pintail (*Anas acuta*); Northern Shoveler (*Anas clypeata*); Pine Siskin (*Carduelis pinus*); Purple Finch (*Carpodacus purpureus*); Redhead Duck (*Aythya americana*); Red-necked Grebe (*Podiceps grisegena*); Red-winged Blackbird (*Agelaius phoeniceus*); Ring-billed Gull (*Larus delawarensis*); Ring-necked Duck (*Aythya collaris*); Roseate Spoonbill (*Platalea ajaja*); Ross' Goose (*Chen rossii*); Ruddy Duck (*Oxyura jamaicensis*); Trumpeter Swan (*Cygnus buccinator*); Tundra Swan (*Cygnus columbianus*); White-winged Scoter (*Melanitta fusca*); Whooping Crane (*Grus americana*); Wild Turkey (*Meleagris gallopavo*).

**Mammalian:** Badger (*Taxidea taxus*); Beaver (*Castor canadensis*); Big Brown Bat (*Eptesicus fuscus*); Eastern Pipistrelle Bat (*Pipistrellus subflavus*); Indiana Bat (*Myotis sodalis*); Little Brown Bat (*Myotis lucifugus*); Mink (*Mustela vison*); Northern Long-eared Bat (*Myotis septentrionalis*); Porcupine (*Erethizon dorsatum*); Raccoon (*Procyon lotor*); Timber Wolf (*Canis lupus*).

**Amphibian:** Bullfrog (*Rana catesbeiana*); Northern Leopard Frog (*Rana pipiens*); Southern Leopard Frog (*Rana sphenoccephala*).

**Reptile:** Eastern Box Turtle (*Terrapene carolina carolina*); Green Sea Turtle (*Chelonia mydas*); Loggerhead Sea Turtle (*Caretta caretta*).

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