

Newsletter of the Wildlife Disease Association

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Members' Corner

Summary of the 59th International Wildlife Disease Association Conference

From May 30th to June 4th 2010, the 59th International Wildlife Disease Association Conference was held in Puerto Iguazú, Argentina, a short ride from the breathtaking UNESCO World Heritage Iguazú Falls. This event marked two historic moments for the WDA: the first annual conference to be held in Latin America and the first time the Association invested in simultaneous translation to facilitate the sharing of knowledge across regions.

The conference was a great success. We welcomed 256 participants from 27 countries, with 128 participants from Latin America, 21 from Europe, 11 from Australasia, 3 from Africa and 93 from North America. Over 40 of the attendees were students. The entire organizing team made sure this meeting will be a tough act to follow!

This year's conference theme was "Ecosystem health in the Neotropics: a growing challenge". Sessions focused on the influence of human activities on

disease phenomena in wildlife and the implications for wildlife conservation and public and ecosystem health. The emphasis was on the "One Health" concept of examining health and disease holistically across the human-wildlife-domestic animal interface. The scientific program included 99 oral presentations, 125 posters and 4 symposia. The substantial Latin American contributions to the scientific program accounted for 29% of oral and 70% of poster presentations. The Scientific Committee, headed by Dolores Gavier Widén and Pablo Beldomenico, and assisted by seven extremely dedicated volunteers, did an amazing job.

The social program began on Sunday night with a student-mentor mixer followed by a welcome reception for all participants. On Monday, a typical Argentine 'asado' (barbecue) served at the picnic by the Iguazú River was enhanced by 'caipirinhas', hours of live music and impromptu dancing. This year, the traditional WDA auction to raise funds for student awards and activities was bilingual and twice the fun thanks to Dave Jessup and Alonso Aguirre. On Wednesday, we took a break from the intensity of the sessions and spent a sunny afternoon at Iguazú National Park, including a wild boat ride on the Iguazú River - and a refreshing "shower" under the waterfalls! We left the park exhilarated by the views of the falls as well as sightings of toucans, monkeys, river otters, coatimundis, vivid butterflies and much more. Finally, we had our traditional Thursday banquet with award presentations, a demonstration of Argentine tango, and of

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course, more dancing!

A fantastic team helped me put together this year's conference and I want to especially thank Pablo Beldomenico, Virginia Rago, Hebe Ferreyra, and Luciano La Sala for their tireless efforts. We had wonderful volunteer support from Hernan Argibay, Damien Joly, Sharon Deem, Andrea Caselli, Carolina Marull, Andrea Chirife, Judy Uhart, Elizabeth Chang Reissig, and many, many others too numerous to mention in this small space – we are grateful to all of you whose generous volunteer efforts and convivial spirit made this such a unique, stimulating and enjoyable conference!

We also thank our conference sponsors: the Centers for Disease Control and Prevention, the US Geological Service, the US Department of Agriculture/APHIS, and the American Association of Wildlife Veterinarians, whose generous contributions allowed us to offer competitive registration fees and increased regional representation at the meeting. In addition, we thank Iguazú National Park for waiving entrance fees to conference participants for the full week of the conference, and for donating the boat tour to the falls.

I think attendees will agree that this conference in Argentina broke some new ground for our professional society, and will help increase contributions from Latin America to future WDA conferences and activities. As a noteworthy first step, 51 professionals from Latin America chose to become WDA members by the end of the conference.

Thanks to all of you who made the long trip to South America. We hope you enjoyed yourselves as much as we enjoyed your visit.

Hasta pronto,

Marcy Uhart

Increased WDA Membership Fees for 2011

Ed Addison

When we start renewing our memberships for 2011 this autumn, the fees will have increased. Regular fees will increase to \$110 [\$100 for only the digital version of the JWD], student member fees to \$50 [\$40 for only the digital version of the JWD] and associate member fees to \$30.

While few of us like to pay more for things, in reading the following hopefully you will conclude that we still have an inexpensively priced membership with a remarkable variety of services as compared to other science societies that pay to publish their own journal.

In dealing with a sizeable deficit, our Council found that our regular fees for 2010 were the 24th lowest fees out of 29 other generally comparable societies. Comparatively our student membership fees were even lower, being 24th lowest out of 26 similar science societies.

From 2003 to 2010 operating expenses of the Association more than doubled. In contrast, during the past eight year period, regular fees had increased a maximum of \$1.25/year and student fees had increased \$0. It is no surprise that our memberships are comparatively so inexpensive and that we are facing sizeable deficits in 2010 and again in 2011.

What added services and benefits have we realized during the past eight years?

The list is long:

- an electronic format for the *Journal of Wildlife Diseases* [JWD] distributed through one of the premier platforms available
- 48-65% more pages published in the JWD in 2010 as compared to most prior years
- electronic access to the program and abstracts of many of our previous international conferences including exclusive access for members for material from the past two conferences
- electronic access to a membership directory updated almost daily promotion of opportunities for employment via free access on our Association website
- free electronic alerts on any number of topics of your choice sent to your e-mail account about newly appearing papers in over 1300 major journals on the HighWire Press [HW] platform

- access to full PDFs of all papers referenced in JWD papers and that are published in the other 1300 plus journals on the HW platform
- an automated system to assist authors and editorial staff in submission and management of manuscripts to the JWD
- ability to renew or take out new memberships through electronic payment
- an Editor for the JWD who is committing the majority of work time to the editorship
- the services of a part-time consulting executive manager.

WDA professional membership dues remain affordably low despite the wide variety of benefits and services that they provide.

The above are all new services that we can benefit from individually. Collectively, we are a publisher and, as a group, there is much we have gained and contributed in eight years. This includes partnering with the Wildlife Conservation Society Global Health Program to provide free electronic open access to all issues of the e-JWD to the 113 countries of the world with the least developed economies, a free five-year trial distribution of all issues of the e-JWD to all countries in Latin America and free access to anyone, anywhere to digital copies of all but the most recent 18 months of e-JWD issues.

We continue to enjoy the benefits of:

- membership and collegiality among an international group of colleagues whose work represents the broadest range of approaches in the study of the health of wildlife
- reduced registration fees for our annual international conferences [for regular and student members but not associate members]
- reduced author page charge fees
- quarterly newsletters and
- Continued high quality print copy of the JWD.

It is my hope that you feel that our new member-

ship rates remain very well priced. I am proud to be a member of the WDA along with each of you!

Results of 2010 WDA Election

Very good voting response from members led to 295 ballots being submitted. As ever, we had excellent candidates and the following people were elected: **Jane Harms, student councilor; Mark Pokras, member-at-large; and Julia Langenberg, member-at-large.** Allowing one's name to stand for office is a special service to an organization and we thank all our candidates for doing so.

2010 Conference Award Recipients

Distinguished Service Award [DSA]

The Distinguished Service Award is the highest award of the WDA. The 2010 recipient is **Robert G. McLean**. Bob's contributions to the WDA are a definition of distinguished service. During nine years on the WDA Council Bob served as Member-at-Large, Vice President, President and Past President. In addition, Bob was program chair of the highly successful WDA annual conference held in Fort Collins, Colorado in 1991. Bob served on and chaired many committees over the years. With the *Journal of Wildlife Diseases*, he was a frequent reviewer, an Assistant Editor for more than 10 years and later served on the Editorial Board for more than 10 years. Bob also served as one of the trustees of the Carlton M. Herman Founder's Fund of the WDA. We salute you, Bob, and thank you both for your vast contributions and for being a role model to others in providing the kinds of service upon which societies like ours are dependent!

Emeritus Award [EA]

The EA is presented to a person retired from their profession and who, in the opinion of the WDA Council, has contributed significantly to the study of wildlife diseases. **Danny B. Pence** is the 2010 recipient of the WDA Emeritus Award. Dan's career was marked by highly significant contributions. He retired as professor after more than 35 years at Texas Tech University [TTU]. As a teacher, Dan served on more than 35 graduate student committees and received an Excellence in Teaching Award from TTU. Dan has published more than 150 papers in prime journals in addition to monographs, chapters in books, etc. Dan's service as a reviewer for at least 25 journals and membership on the Editorial Boards of five journals reflect the high regard in which he is held in many societies.

We are very fortunate that the WDA was one such society of interest to Dan. Dan is the longest serving Editor of the *Journal of Wildlife Diseases*, having served 10 years. He also continued to serve on the Editorial Board of the *Journal* for many years between and following his terms as Editor. Dan also served on the WDA Council for 13 years. The WDA Distinguished Service [DSA] was presented to Dan in 1991. Dan is a parasitologist and like numerous highly productive parasitologists of the latter half of the 20th century, he was attracted in his research to biology of parasites in wildlife. Congratulations Dan!

Tom Thorne and Beth Williams Memorial Award

The Tom Thorne and Beth Williams Memorial Award is jointly presented by the American Association of Wildlife Veterinarians [AAWV] and the Wildlife Disease Association [WDA]. The award is presented in memory of our deceased colleagues, Tom and Beth, in acknowledgement of either an exemplary contribution or achievement combining wildlife disease research with wildlife management policy implementation or elucidating particularly significant problems in wildlife health. Our incoming WDA executive manager, **David A. Jessup**, is the recipient of the Award in 2010. Dave joins Michael Miller of Colorado, USA and Gary Wobeser of Saskatchewan, Canada as recipients of the Award.

Dave's illustrious career has been with the California Department of Fish and Game from which he is soon to retire. Dave's contributions have been multi-faceted with research on a wide diversity of topics. Perhaps most prominent have been Dave's studies on cervids, sea otter and bighorn sheep. His contributions to the better management of bighorn have been acknowledged with awards from both the Desert Bighorn Council and the Wild Sheep Foundation. Dave has assumed prominent roles in both associations sponsoring the award having been president of both the AAWV [twice]

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and the WDA amongst many other contributions. Congratulations, Dave, on receipt of this special award!

Assistant Editors of the *Journal of Wildlife Diseases*

The volunteer work of Assistant Editors of the *Journal of Wildlife Diseases*, much like that of the Editor, is ongoing. They are always 'on call', they are not elected for a term that has a defined end and they remain month in, month out among the busiest of volunteers in our Association. We see some of the Assistant Editors

Volunteer work of Assistant Editors of the Journal of Wildlife Diseases, is a continuous task. They remain month in and month out among the busiest of volunteers in our Association.

at annual conferences and their names are listed on the inside front cover of each issue of the *Journal* but they often keep a fairly low profile. At present, our Editor, Jim Mills, has 19 Assistant Editors working with him. We would like to introduce them through a 'mini-bio' and photo. This issue we introduce Charles Rupprecht and Lena Measures.



Charles Rupprecht

Charles completed his university education in the United States graduating with a B.A. at Rutgers University, New Jersey [1977]; a M.S. from University of Wisconsin [1980]; a V.M.D. from the School of Veterinary Medicine, University of Pennsylvania [1985]; and a Ph.D. from the University of Wisconsin [1986]. During part of this period and following through to 1992, Charles worked at the Wistar Institute in Philadelphia, Pennsylvania. Following a brief term as associate professor at Thomas Jefferson University also in Philadelphia, Charles moved in 1993 to the position of Chief, Rabies Program, Centers for Disease Control and Prevention, Atlanta, Georgia, a

Charles Rupprecht, Assistant Editor of the JWD

position that he continues to occupy. Charles has served in many other capacities, has received many awards and recognitions and has been an author of more than 250 publications.

Within the WDA, Charles was the recipient of the Terry Amundson Best Student Presentation Award in 1986. He has the somewhat dubious distinction of being the recipient of the WDA 'Duck' Award in 1992. Charles has served on a great many WDA committees over the years, including being one of the people most involved in bringing the *Journal of Wildlife Diseases* into electronic format. He has also served as Member-at-Large on the WDA Council. Charles attends many annual conferences and has been an Assistant Editor with the *Journal* since 1997, a period of 14 continual years of volunteering. From us all, Charles, many thanks!

Lena Measures

Lena was born in Montreal, Quebec, Canada. In the mid-1970s, Lena went to the University of Guelph in Ontario, Canada where she completed her undergraduate studies and then a M.Sc. and Ph.D. in wildlife parasitology with Roy Anderson, himself a very involved member of the Wildlife Disease Association. Following postdoctoral research with John Holmes at the University of Alberta, in 1989 Lena became a re-



Lena Measures, Assistant Editor of the JWD

Lena has authored over 60 prime papers in addition to the many other forms of presentation of research.

search scientist with Fisheries and Oceans Canada where she remains to the present. Working at the Maurice Lamontagne Institute on the shores of the St. Lawrence River, it is no surprise that Lena has focused on health of marine mammals. Lena has authored over 60 prime papers in addition to the many other forms of presentation of research.

Within the WDA, Lena was the recipient of the Terry Amundson Best Student Presentation Award in 1983

and the Student Research Recognition Award in 1985. Lena has served on a number of WDA committees, attends many annual conferences and has been an Assistant Editor with the *Journal* since 2001. From us all, thank you Lena!

Nominations for 2011-2012 WDA Council

The WDA Nominations Committee is preparing a slate of potential candidates for the consideration of the WDA Council. This coming year, members will vote to fill the positions on Council of President, Vice President, Secretary, Treasurer and two Members-At-Large.

Ideally, candidates have a good understanding of the Association through their volunteer contributions. However, in previous years, some less experienced members have also been suggested, placed on the slate, elected and have brought new and different ideas to Council.

The purpose of the Nominations Committee is to receive suggestions, gather information on proposed candidates and make recommendations to Council. The 2010-2011 Nominations Committee is comprised of Charles van Riper, Margo Pybus, Terra Kelly and Ed Addison [chair]. Please submit your suggestions to Ed Addison at ecolink@rogers.com and include the following:

- Name of possible candidate
- Degrees earned; place and date
- Former positions held; place and date
- Present position; title and location
- Member of WDA since...
- Previous WDA activities
- Affiliations with relevant professional and scientific societies
- Interests associated with mission of the WDA
- Personal agenda statement: Outline of personal goals for the WDA if elected.
- Name of sponsoring member

The committee can receive suggestions up to, but no later than, 15 November 2010.

WDA Students

WDA Student Awards

Graduate Student Research Recognition Award

Jeff Lorch
Molecular and Environmental Toxicology Center
University of Wisconsin - Madison

Student Scholarship

Sara Hamer
Department of Fisheries and Wildlife
Michigan State University

Student Presentation Award

Taiana Costa
Department of Pathology
College of Veterinary Medicine
The University of Georgia

Student Presentation, Honorable Mention

Terry Fei Fan Ng
College of Marine Science
University of South Florida

Best Student Poster

Julie Ducrocq
Canadian Cooperative Wildlife Health Center
University of Montreal

Student Poster, Honorable Mention

Bret Muter
Department of Fisheries and Wildlife
Michigan State University

WDA Section News

Losavar: Lower Shabelle Veterinary & Range Association, Somalia

About the Association

LOSAVAR is a non-government association that is comprised of vets/vet assistants, including zoo-technician professionals from Eight Districts of Lower Shabelle Region. There are 43 registered professionals, vet/vet assistants and animal production specialists. The aim in establishing the association is to revive and restore the livestock delivery services which collapsed as a result of the absence of the central government of Somalia. The collapse of services caused livestock health and production problems for the livestock communities.

The LOSAVAR Association develops activities for the livestock communities in the LOSAVAR areas regarding animal health and production, DISS (Diseases Information Surveillance System), surveillance, marketing and gathering of information in a participatory approach.

Vision

We want to be a credible, functional, sustainable and self-reliant regional livestock association that delivers service for all the needs of the livestock sector and community in our zone.

Mission

We strive for improvement of livestock health, production and marketing systems for the local community in the zone, with continued collaboration of local stakeholders including relevant NGOs and donors.

Activities

a) Previous Activities

The LOSAVAR Association will take on service contracts from livestock traders, international organizations and private companies or persons, and donors according to the veterinary privatization law and regulations of the country. This Association has been working closely with many different organizations from 1993 up to 1996 such as FAO, ICRC, OXFRAM, CEFA and Islamic organizations such as Hay'atul Aulya. The activities included vaccination, treatments, and drug distribution training of CBAWS.

b) From 2000 – 2004 the LOSAVAR Association has been working with PACE (Pan-Africa Control of Epizootics) and has implemented projects of DISS such as survey, sampling, information gathering, awareness raising, funded by PACE under OAU/IBAR.

c) The Project of Itinerary Training Program (ITB3) was completed and about ten professionals of vet/vet assistants from eight Districts of the region have participated in the 1-year course.

d) Two members of the association have also participated in the annual meeting of livestock association of Arab Countries in Morocco.

Current Activities

SAHSP (Somali Animal Healthy Service Project) is expected to start in the Lower Shabelle Region and will carry out DISS activity and vaccination with the collaboration of LOSAVAR.

Nordic Section Quarterly Report

Stranded Fin Whale in Denmark

Anne Sofie Hammer, (ansh@vet.dtu.dk), National Veterinary Institute, Denmark

In June the Danish National Centre of Wildlife Health participated in the necropsy of a 17 m long male fin whale (*Balaenoptera physalus*) stranded in Vejle fjord. Preliminary results indicate that the whale was in poor body condition, but without significant pathological lesions, excluding some lesions of physical trauma and bruising acquired during the period the whale was stranded in the fjord. The whale has been estimated as 15 years of age. Various samples from the whale have been taken and will be submitted for analysis for specific infections etc. The last time a fin whale was stranded in Denmark was in 1923.

Trichinella infection found in a Baltic Grey Seal

Marja Isomursu (marja.isomursu@evira.fi), Finnish Food Safety Authority, Fish and Wildlife Health Research, and Mervi Kunnasranta, Finnish Game and Fisheries Research Institute, Finland

Trichinella spp. are very common in Finnish wildlife, especially in red foxes (*Vulpes vulpes*), raccoon dogs (*Nyctereutes procyonoides*), lynx (*Lynx lynx*) and wolf (*Canis lupus*). In some regions, the *Trichinella* prevalences can reach 50-85% in these host species (Airas et al. 2010). The most common *Trichinella* species is the cold-tolerant *T. nativa*, followed by *T. spiralis*, *T. britovi* and *T. pseudospiralis*. The Baltic Sea is located in Northern Europe and connected to the North Sea. Three seal species inhabit the Baltic Sea: grey seal (*Halichoerus grypus*), Baltic ringed seal (*Phoca hispida botnica*) and harbour seal (*Phoca vitulina*). The grey seal population has increased in the northern part of the sea in the last two decades and limited hunting is now legal in Finnish and Swedish waters. The supply of seal meat for human consumption is

therefore also increasing. As a consequence, a survey on the occurrence of trichinellosis in Finnish seals was initiated in 2008 as a joint effort by the Finnish Food Safety Authority Evira and the Finnish Game and Fisheries Research Institute. We collected muscle samples (tongue or combined sample of tongue, diaphragm and hind leg muscle) from hunted grey seals, ringed seals killed for scientific purposes or, in a few cases, seals found dead during 2008-2009. The frozen samples were examined during 2008-2010. From each animal, 20 g of muscle was examined by digestion method. Samples were pooled in batches of five. When a positive result was obtained, the procedure was repeated on individual samples. *Trichinella* species were identified by Multiplex-PCR. Out of 169 grey seals examined, one (0.6%) was positive with a density of 0.2 lpg. *T. nativa* was identified from a 13 year-old female grey seal shot in the Bothnian Sea (the northernmost part of the Baltic Sea). All ringed seals (N=59) were negative. This is the first finding of *Trichinella* infection in Baltic seals as far as we know. The infection route remains uncertain but indirect infection from carrion-eating marine invertebrates is a possibility. Our finding emphasizes the importance of proper meat inspection of seals intended for food in areas of high infection by *Trichinella* spp.

Reference:

Airas, N., Saari, S., Mikkonen, T., Virtala, A.M., Pellikka, J., Oksanen, A., Isomursu, M., Kilpelä, S.S., Liml, C.W., Sukura, A. 2010. Sylvatic *Trichinella* spp. infection in Finland. *J. Parasitol.*, 96(1), 67–76.

Bloating in Common Frogs in Norway

Bjørnar Ytrefhus, Even Thoen, Turid Vikøren and Marianne Gilhuus, National Veterinary Institute, Oslo, Norway

An outbreak of “bloat” among frogs was reported to involve a substantial number of frogs in a pond close to Oslo in the middle of April. The pond is a conservation area known for its population of frogs. Reportedly, the frogs swelled up, exploded (!) and died. NVI received four cadavers and four live Common frogs (*Rana temporaria*) for examination. Three of the cadavers were too decomposed to allow any investigation. The fourth cadaver, also severely decomposed, was a female. The belly of this animal had large ruptures on both sides of the abdomen, from which a gelatinous, transparent material seemed to have poured out (see figure). The same material, consistent with the gelatinous part of the frog spawn, was found in the dorsal part of the body cavity of the frog, while eggs

where found in the caudoventral part of the body cavity. The gastric ventricle and the intestines were intact and no other lesions were found in this animal. Cultivation from the gelatinous masses and the body cavity for bacteria, mycobacteria, fungi and yeast and cultivation from skin swabs for fungi and yeast did not reveal any specific findings. Two of the live frogs were euthanized soon after reception. These male frogs weighed 45 and 47 g and had generalized edema but no specific pathoanatomical signs were found. The two remaining frogs, a male and a female, were kept at NVI and euthanized two weeks after reception. At that time they weighed 34 and 26 g, respectively. No macroscopical lesions were found in these animals. Histological examination of tissues from skin, brain, heart, lung, liver, kidney and intestines did not reveal findings that could explain the outbreak, though different types of parasites (trematodes in the gastric ventricle, coccidia in the intestines and nematodes in the kidneys) were inconsistent findings. Cultivation of samples from muscle, liver and body cavity from the first male showed growth of *Vibrio parahaemolyticus* from all organs, while *Pochinia suchlaspora*, *Pochinia bulbilosa*, *Epa-cris microphylla* and *Mortierella* sp. were cultivated from the liver. Cultivation of corresponding samples for bacteria, mycobacteria, yeast and fungi from the other euthanized frog revealed no specific findings. Swab samples from skin from the two males that were euthanized first were also cultivated for fungi and yeast but did not reveal any specific pathogen.

In conclusion, we did not find any specific cause of the outbreak. The findings in the female with ruptured abdominal walls and two of the males leads us to speculate if they have become victims to some sort of abnormal body fluid and electrolyte balance, perhaps associated with the unstable weather and temperature conditions in the pond so early in the season.

“Bloating” is a term used on many web pages dedicated to Amphibia, describing fluid accumulation in body cavities and tissues. According to Mitchell and Tully (2009) a disease called “Edema syndrome” characterized by marked excess fluid subcutaneously and in coelom, is caused by “bacterial septicaemia (esp. *Flavobacterium* spp.); renal, cardiac, or hepatic failure; toxic insult; poor water quality.” However, we have not managed to find any scientific description of the phenomenon and its etiology. Actually, as suggested by Duffus (2009) there seem to be a surprising scarcity of published studies of basic

pathological and biological investigations of amphibian disease, taking into consideration the emphasis laid on disease-related amphibian decline as a sign of global environmental change.

References:

Mitchell, M.A. and Tully, T.N. 2009. Manual of Exotic Pet Practice, Saunders Elsevier, St. Louis, Missouri, USA

Duffus, A.L.J. 2009. Chytrid Blinders: What Other Disease Risks to Amphibians Are We Missing? *EcoHealth* 6 (3), 335-339



Female frog cadaver with bilateral rupture of the abdominal wall. Gelatinous, transparent masses seem to have poured out of the

The findings in the female with ruptured abdominal walls and two of the males leads us to speculate if they have become victims to some sort of abnormal body fluid and electrolyte balance, perhaps associated with the unstable weather and temperature conditions in the pond so early in the season.



National Wildlife Health Center's Quarterly Wildlife Mortality Report

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

California brown pelican mortality along the Pacific Coast (California, Oregon)

For the second consecutive winter, California brown pelicans were stranded along the Pacific coast. Emaciated and weak adult and juvenile pelicans were found in unusual places along the western coast from southern California to northern Oregon. Rehabilitation centers, such as the International Bird Rescue and Rehabilitation Center in San Pedro, have 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 have been 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 phenomena such as El Niño events. The recent El Niño may have contributed to the reduction in forage fish and the 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 had recovered.

Lead toxicosis in geese (Louisiana)

In February 2010, the USGS-National Wildlife Health Center (NWHC) was contacted about a large avian mortality event involving several hundred snow geese in Vermillion Parish, Louisiana. The

cause of death was suspected to be aflatoxicosis or avian cholera due to the species involved, the 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 1930s. As a result, NWHC, in partnership with 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 for this mortality event 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 that were previously heavily hunted with lead and target and skeet ranges that still 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.

Pneumonia outbreaks in bighorn sheep across western states (Montana, Washington, Utah, Nevada)

Multiple herds of bighorn sheep in several states experienced mortality from pneumonia outbreaks during winter 2009-2010. Montana was the first to observe mor-

tality in mid-November and at least four herds from three different counties were affected. 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 reported mortality in two distinct herds 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 treatment with antibiotics and culling sick sheep to control outbreaks and to prevent transmission to nearby herds. 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. Populations that experience outbreaks subsequently have low recruitment of lambs, as reported in South Dakota's Custer State Park. A variety of bacterial pathogens have previously been identified in the pneumonia-complex, including *Mycoplasma* spp., *Pasteurella multocida*, *Pasteurella trehalosi*, and *Mannheimia haemolytica*, in addition to respiratory viruses and lungworm infections. Pneumonia is a challenging issue for management of bighorn sheep 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. Further 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>.

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 for 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. 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.

Request for wildlife mortality and morbidity event reporting (all states)

The USGS-National Wildlife Health Center 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 this report. Credit will be given to appropriate diagnostic laboratories. The report can also be found online at http://www.nwhc.usgs.gov/mortality_events/ongoing.jsp.

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.

Quarterly Wildlife Mortality Report

January 2010 to March 2010

State	Location	Dates	Species	Mortality	Diagnosis	Labsite ^a
AL	Pelican Island	01/06/10-02/01/10	Eastern Brown Pelican Unidentified Gull Double-crested Cormorant Unidentified Tern Unidentified Dolphin	100 (e)	Emaciation: starvation	NW
AL	Florence	03/17/10-03/18/10	American Crow	15	Undetermined	NON
AZ	Santa Cruz County	03/21/10-03/22/10	Turkey (Wild) American Goldfinch	8	Undetermined	NW
CA	Multiple Coastal Oregon and California	01/15/10-02/15/10	California Brown Pelican	1,500 (e)	Starvation	CFG, NW, OSR, SWD
QC*	Les Collines- de-l'Outaouais County	01/01/10-05/07/10	Little Brown Bat	12	Fungal Infection: white-nose syndrome	CCW, NW
FL	Lake Lena	01/12/10-01/14/10	Laughing Gull	40 (e)	Enteritis: hemorrhagic	FL, NW
FL	South and Central Florida	01/08/10-01/31/10	Manatee Crocodile or Alligator Unidentified Fish Unidentified Turtle	1,200 (e)	Trauma: weather suspect	NON
FL	St. Petersburg	01/04/10-02/28/10	Eastern Screech Owl	35	Emaciation: starvation	FL, NW
ID	Market Lake WMA	03/23/10-04/07/10	Lesser Snow Goose Tundra Swan American Wigeon Canada Goose Ross' Goose	62	Avian cholera	ID, NW
KS	Rawlins County	01/21/09-02/22/09	Lapland Longspur Unidentified Avian	80 (e)	Trauma	SCW
LA	Calcasieu County	01/03/10-01/03/10	American Coot	18 (e)	Trauma: gunshot	SCW
LA	Calcasieu Point	01/03/10-01/06/10	Brown Pelican, NOS	12 (e)	Starvation	SCW
LA	Grand Cote NWR	01/19/10-01/25/10	Lesser Snow Goose	32	Aflatoxicosis	NW
LA	Mandalay NWR	02/01/10-04/22/10	Purple Gallinule American Coot	3,000 (e)	Avian cholera	NW
LA	Vermilion County	02/01/10-03/01/10	Lesser Snow Goose	600 (e)	Lead poisoning	NW, SCW
MD	Allegany County	03/05/10-05/08/10	Little Brown Bat Northern Long-eared Bat	16 (e)	Fungal Infection: white-nose syndrome	NW
MN	Lake Pepin	01/12/10-****	Mallard	8 (e)	Open	NW
MS	Yazoo NWR	01/12/10-01/19/10	Lesser Snow Goose Mallard Ruddy Duck Ross' Goose Common Moorhen	35 (e)	Aflatoxicosis	NW
MT	West Riverside	01/12/10-****	Bighorn Sheep	60	Pneumonia	MT
MT	Schmitz Lake	03/01/10-04/01/10	Painted Turtle	600 (e)	Emaciation, starvation suspect	NW
MT	Upper Rock Creek Area Herd	01/23/10-****	Bighorn Sheep	50 (e)	Pneumonia	MT
NE	Clark WPA	03/07/10-03/11/10	Lesser Snow Goose Ross' Goose Cackling Goose Redhead Duck American Wigeon	57 (e)	Avian cholera	NW

News from the Field

NE	Harvard WPA	03/02/10-03/05/10	Fathead Minnow Bullhead Plains Leopard Frog	450 (e)	Open	NW
NE	Utica	03/10/10-03/14/10	Lesser Snow Goose Canada Goose Greater White-fronted Goose	220 (e)	Aflatoxicosis suspect	NW
NV	East Humbolts Range	12/10/10-****	Bighorn Sheep	102	Pneumonia	NV
OH	Eaton	01/13/10-01/27/10	American Robin Mourning Dove European Starling	200 (e)	Toxicosis suspect	NON
OH	Coshocton County	12/22/09-02/16/10	American Crow	50 (e)	Viral Infection: Reo virus-like isolate	NW
OH	Youngstown	01/11/10-01/17/10	American Crow	60 (e)	Viral Infection: Reo virus-like isolate	NW
OK	Sequoyah NWR	12/04/09-01/20/10	Lesser Snow Goose Ross' Goose Mallard	35 (e)	Aflatoxicosis	NW
ON*	Peterboro and Hastings Counties	03/03/10-****	Little Brown Bat Northern Long-eared Bat	100 (e)	Fungal Infection: white-nose syndrome	CCW, NW
ON*	Timiskaming District	01/15/10-****	Little Brown Bat Northern Long-eared Bat	100 (e)	Fungal Infection: white-nose syndrome	CCW, NW
OR	Multiple Coastal Counties Oregon and California	01/15/10-02/15/10	California Brown Pelican	1,500 (e)	Starvation	CFG, NW, OSR, SWD
OR	Staats Lake	03/24/10-03/30/10	Cackling Goose Mallard	6	Undetermined	NW
OR	Summer Lake WMA	02/24/10-03/15/10	Lesser Snow Goose Northern Pintail	5 (e)	Avian cholera	NW
PA	Blair County	2/9/10-****	Bat, NOS	50 (e)	Fungal Infection: white-nose syndrome presumptive	NON
PA	Huntingdon County	01/27/10-****	Bat, NOS	3,000 (e)	Fungal Infection: white-nose syndrome presumptive	NON
TX	Lubbock County	01/07/10-01/20/10	Boat-tailed Grackle Canada Goose	21 (e)	Trauma suspect	NW
TX	Seabrook	01/03/10-01/22/10	Brown Pelican, NOS	15	Emaciation	NW
UT	Goslin Mountain Sheep Herd	02/01/10-****	Bighorn Sheep	26	Pneumonia	UT
VA	Centreville	03/02/10-03/09/10	Canada Goose	8 (e)	Lead poisoning	NW
VT	Lamoille County	02/05/10-05/30/10	Little Brown Bat	200 (e)	Fungal Infection: white-nose syndrome presumptive	NW
WA	Trout Lake	02/20/10-03/20/10	Red Crossbill	10	Trauma	NW
WI	Upper MS River NWFR	03/24/10-04/29/10	Lesser Scaup American Coot Ruddy Duck Common Goldeneye	778	Parasitism suspect	NW
WI	La Crosse County	02/23/10-03/13/10	Mallard	32 (e)	Open	NW

Updates:

NY	Suffolk County, Multiple sites	01/28/08-05/05/08	Southern Leopard Frog	180 (e)	Fungal Infection: Chytrid, Viral Infection: Ranavirus, Parasitism: Perkinsus-like organism, Trauma	NW
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(e) = estimate, * Canadian Province, **** Cessation date not available at this time.

News from the Field

Suspect diagnosis = diagnosis is not finalized, but field signs and historic patterns indicate the disease.

^a Canadian Cooperative Wildlife Health Centre (CCW), Disease Laboratory of the California Fish & Game (CFG), Florida Fish and Wildlife Conservation Commission (FL), Kissimmee Diagnostic Laboratory (KDL), Idaho Wildlife Health Laboratory (ID), Montana Fish, Wildlife and Parks Diagnostic Lab (MT), No diagnostics pursued (NON), USGS National Wildlife Health Center (NW), Oil Spill Response Team (OSR), Southeastern Cooperative Wildlife Disease Study (SCW), Sea World of San Diego (SWD), Utah Division of Wildlife Resources (UT).

Written and compiled by: Anne Ballmann - Eastern US, LeAnn White – Central US, Krysten Schuler - Western US, Jennifer Bradsby – Field Investigation Team Case Manager.

To report mortality or receive information about this report, please contact the USGS National Wildlife Health Center, 6006 Schroeder Road, Madison, WI 53711

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

Species

Avian: American Coot (*Fulica americana*); American Crow (*Corvus brachyrhynchos*); American Goldfinch (*Carduelis tristis*); American Robin (*Turdus migratorius*); American Wigeon (*Anas americana*); Boat-tailed Grackle (*Quiscalus major*); Cackling Goose (*Branta hutchinsii*); California Brown Pelican (*Pelecanus occidentalis californicus*); Canada Goose (*Branta canadensis*); Common Goldeneye (*Bucephala clangula*); Common Moorhen (*Gallinula chloropus*); Double-Crested Cormorant (*Phalacrocorax auritus*); Eastern Brown Pelican (*Pelecanus occidentalis occidentalis*); Eastern Screech Owl (*Otus asio*); European Starling (*Sturnus vulgaris*); Greater White-fronted Goose (*Anser albifrons*); Lapland Longspur (*Calcarius lapponicus*); Laughing Gull (*Leucophaeus atricilla*); Lesser Snow Goose (*Chen caerulescens*); Mallard (*Anas platyrhynchos*); Mourning Dove (*Zenaida macroura*); Lesser Scaup (*Aythya affinis*); Northern Pintail (*Anas acuta*); Purple Gallinule (*Porphyrio martinica*); Red Crossbill (*Loxia curvirostra*); Redhead Duck (*Aythya americana*); Ross' Goose (*Chen rossii*); Ruddy Duck (*Oxyura jamaicensis*); Tundra Swan (*Cygnus columbianus*); Wild Turkey (*Meleagris gallopavo*)

Mammalian: Bighorn Sheep (*Ovis canadensis*); Little Brown Bat (*Myotis lucifugus*); Manatee (*Trichechus manatus latirostrus*); Northern Long-eared Bat (*Myotis septentrionalis*);

Amphibian: Plains Leopard Frog (*Rana blairi*); Southern Leopard Frog (*Rana sphenocephala*);

Reptilian: Painted Turtle (*Chrysemys picta*);

Fish: Bullhead Minnow (*Pimephales vigilax*); Fathead Minnow (*Pimephales promelas*);

Training, Education and Employment Opportunities

Lindsay Wildlife Museum Opening

Director of Veterinary Services at the Lindsay Wildlife Museum in Walnut Creek, CA. Position is open until filled. Send cover letter, resume and three references to:

Executive Director, Lindsay Wildlife Museum,
1931 First Avenue,

Walnut Creek, CA 94597 or email: jobs@wildlife-museum.org. See Lindsay Wildlife Museum's website at <http://www.wildlife-museum.org>

For complete employment and training opportunity listings, please visit the WDA website at: <http://www.wildlifedisease.org/opportunities.htm>

Bear Manager Required at Animals Asia Foundation

Highly motivated and experienced animal professionals are required to work with rescued Asiatic Black Bears at our China Bear Rescue Centre in Chengdu, Sichuan Province, China or Vietnam Bear Rescue Centre.

To apply please forward cover letter and CV (stating position you are applying for) and completed [Job Application form](#) with expected salary to: hrhkg@animalsasia.org

Epidemiology of Emerging Infectious Disease Opportunities Available

Epidemiology Position # 1

Position will be located at the Wildlife Health Center, One Health Institute at the University of California in Davis, California, USA. For more information on the Wildlife Health Center, go to

<http://www.vetmed.ucdavis.edu/whc>.

Epidemiology Position # 2

Wildlife Conservation Society, Nanaimo BC

To apply to the above positions please email curriculum vitae, a statement of research interests, and contact information for 3 current references to:

Celina Roy (croy@wcs.org)

Program Assistant, Wildlife Conservation Society
Nanaimo BC, Canada

Please include in your subject line your last name and PREDICT-EPI-MAY-10-UCD if applying for the UC Davis position, PREDICT-EPI-MAY-10-WCS if applying for the WCS position, or PREDICT-EPI-MAY-10-Both if applying for both positions

Review of applications began on May 28, 2010 and will continue until the positions are filled.

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Newsletter of the

Wildlife Disease Association

Funding Opportunities for Wildlife Researchers

The Morris Animal Foundation established the Betty White Wildlife Rapid Response Fund in March 2010 to give wildlife researchers timely monetary aid to respond to unexpected events - such as natural disasters and emerging diseases - that result in the immediate need for animal health research. Individual grants from the fund will range in amounts between \$5,000 and \$50,000.

Unlike traditional MAF research grants, there is no deadline for submission - a grant application can be submitted at any time during the year. Proposals will be reviewed by MAF's Wildlife Scientific Advisory Board, and applicants will be notified of funding decisions within ten business days of application.

Further information and proposal guidelines are available at the Morris Animal Foundation Web site: <http://www.morrisanimalfoundation.org/for-grant-seekers/maf-rapid-response-fund.html>

Cornell University Residency Position

The Department of Biomedical Sciences, Section of Anatomic Pathology at Cornell University and the Global Health Program, Department of Pathology and Disease Investigation at the Wildlife Conservation Society (WCS) in New York City seek applications for one resident position in Zoo and Wildlife Pathology to begin on July 1st, 2011.

Additional information for the program is available by contacting Dr. Sean McDonough, Department of Biomedical Sciences, Section of Anatomic Pathology, T4-018 Veterinary Research Tower Cornell University, Ithaca, NY 14853-6401, telephone (607) 253-3336, or email, raemail@cornell.edu.

Applicants are strongly encouraged to visit the following program websites

(<http://www.vet.cornell.edu/biosci/pathology/residency.cfm>; <http://www.wcs.org> and

<http://www.wcs.org/conservation-challenges/wildlife-health.aspx>) for more information about the application process, to download the application face page and to learn more about our programs.

Training, Education and Employment Opportunities

Ph.D. Graduate Research Assistantship: Climate change and metapopulation structure of desert bighorn

We seek outstanding applicants for a Ph.D. Assistantship to study genetic structure, genetic diversity, and impacts of climate change on desert bighorn sheep in 10 national parks in the western United States. The project is a collaboration involving Dr. Clinton Epps of Oregon State University:

<http://fw.oregonstate.edu/labs/epps/index.htm>, Dr. Ryan Monello of the National Park Service (NPS), and researchers from other academic institutions, NPS, and other agencies. The student will lead the design and implementation of field sampling, genetic analyses, and spatially-explicit metapopulation models to determine how metapopulation structure and climate change affect persistence of desert bighorn sheep on park service lands.

Last Date to apply: August 2, 2010

Website: <http://www.oregonstate.edu>

Contact: Clint Epps

Email: clinton.epps@oregonstate.edu (Preferred)

Phone: 541-737-2478

Residency Training in Zoo and Wildlife Pathology – University of Illinois

The Zoological Pathology Program/Veterinary Diagnostic Laboratory (VDL) and the Department of Pathobiology at the University of Illinois, College of Veterinary Medicine, in association with Chicago's Brookfield Zoo, Lincoln Park Zoo, and John G. Shedd Aquarium are seeking applications for a training position in Zoo and Wildlife Pathology.

Interested applicants should submit a resume, veterinary college transcripts, letter of career goals, and three letters of reference to: Dr. Karen Terio, Chair, Zoo Resident Search Committee, LUMC Bldg 101 Rm 0745, 2160 S First Ave, Maywood, IL 60153, phone: 708-216-1185, Fax: 708-216-5934, or email: kterio@illinois.edu.

Meetings and Conferences

European Wildlife Disease Association (EWDA) Conference, Vlieland, 13-16 Sept. 2010

The ninth EWDA conference will be held from 13 to 16 September 2010, on the Dutch island of Vlieland. For the latest information, look at <http://www.ewda-2010.nl/>

Canadian, Mexican, USA: Trilateral Meeting Registration Now Open!

The meeting will be held on South Padre Island, Texas from 24-25 October, 2010

To register for the meeting, please visit the link below and follow the instructions.

Link: www.aazv.org

Registration Instructions: If you wish to register for this two-day meeting ONLY, you will find the registra-

tion item immediately following "SPOUSE/GUEST REGISTRATION" on the AAZV website. The fee is \$250. If you plan to register for the full AAZV/AAWV Conference and wish to attend the Sunday "Trilateral Trans-boundary Wildlife and Ecosystem Health Workshop", you may register for it toward the end of the registration where the Workshops are listed. Note that the fee for the workshop is \$75 if you also register for the full AAZV/AAWV Conference, and this entitles you to attend both the Trilateral Meeting and the full Conference. You do not need to also register for the Trilateral Meeting if you have registered for the full Conference and the Trilateral Workshop. Please note, you must be a member of AAZV, CAZWV, KALAANKAB or AAWV to attend Sunday's workshop. If you are registering for the two-day Trilateral Meeting ONLY, you must select option #8 below ("Wet lab/Workshop or Trilateral Meeting Only") before selecting "Canadian, Mexican, USA Trilateral Meeting" below that.

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