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- Online Journal
- Press Releases
- Online Submission and Review
- Author Video Guidelines (JWDV)
- Author Charges and Payment Information
- Advertise in JWD
- BioOne Report
- Altmetrics

JWD Supplements

JWD Aquatic Animal Articles

WDA Newsletter

- Current Issue
- Archive

Proceedings of Conference Publications

Reports from the Field - Open Access

Print this page

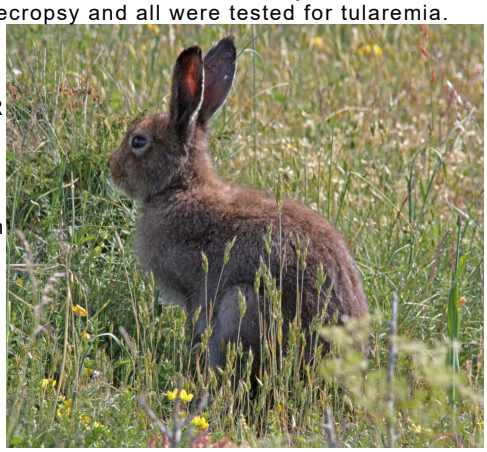
Newsletter

January 2016

News from the Nordic section: Focus on lagomorph diseases

Tularemia outbreak in the north of Sweden

At the end of July 2015, the National Veterinary Institute (SVA) began receiving reports of dead mountain hares (*Lepus timidus*) in the northern parts of Sweden. By the time reporting had ceased in the beginning of September, approximately 150 dead hares had been reported. The majority of hares were found along the coast in the counties of Norrbotten and Västerbotten. Thirty mountain hares were sent to SVA for necropsy and all were tested for tularemia. *Francisella tularensis*, the causative bacterium, was detected by either PCR or immunohistochemistry in 23 animals. The tularemic hares had numerous areas of necrosis in the spleen, liver and bone marrow, with variable involvement of other organs. Hares succumbed quickly to infection as all displayed acute sepsis. Concurrently within the same areas, humans also were diagnosed with tularemia. Tularemia is endemic in these areas and outbreaks occur every few years, typically in both hares and humans. Although other wildlife species may be affected, information on these species is scarce.



Detection of emergent lagovirus (Rabbit Hemorrhagic Disease Virus 2) in Sweden

A new type of Rabbit Hemorrhagic Disease Virus known as RHDV2 has been detected in Sweden. Screening of archived tissues from free-ranging rabbits (*Oryctolagus cuniculus*) collected through the National Veterinary Institute's (SVA) passive surveillance program identified RHDV2 in animals submitted from southern and mid-Sweden. SVA also identified RHDV2 in a domestic rabbit from Västra Götaland country that died from rabbit hemorrhagic disease in summer 2015. RHDV2, first detected in France in 2010 (Le Gall-Reculé et al, Vet Res 2013, 44:81), has since been reported in a number of European countries and Australia. RHDV2 also has infected certain hare species in southern Europe (e.g. Puggioni et al, Vet Res 2013, 44:96), suggesting that the presence of RHDV2 in Sweden also may have implications for wild hare populations.

Continued widespread myxomatosis in wild rabbits

Following an extensive myxomatosis outbreak in wild rabbits in 2014, myxomatosis continued to plague wild rabbit populations throughout 2015. In 2015, populations in Skåne, Kronoberg, Halland and Gotland counties were affected.

WDA SMALL GRANTS PROGRAM 2016

Carol Meteyer, Ian Barker, Ezequiel Hidalgo, Karrie, Bonnie Raphael, and Lisa Yon: WDA Small Grants Committee

The WDA Small Grants Program is an opportunity for members of the WDA to contribute to the WDA mission “to acquire, disseminate and apply knowledge of the health and diseases of wild animals in relation to their biology, conservation, and interactions with humans and domestic animals". The second year of the WDA Small Grants Program was a success, and three proposals received funding:

Update on diseases of importance in wildlife in Europe (manuscript published in JWD)
Lisa Yon, Dolores Gavier-Widén, Paul Duff $4385 USD

Bovine Tuberculosis in Wildlife - Overview and Update from South Africa: Publication of Disease Information from Bovine Tuberculosis Outreach Day
Michele Miller with numerous members listed from the BTB Study Group in South Africa $3811 USD

Development of avian protocols for Rehabilitation During Oiled Wildlife Response
Graeme Finlayson, Kerri Morgan, Louise Chilvers $2804 USD

The Small Grants Committee has sent out calls for proposals and you will be seeing those in WDA blast emails, the WDA website, and the WDA Newsletter. The available funding is $11,000 which the Small Grants Committee may use to fund multiple proposals. **The deadline for submissions will be January 15, 2016.** Guidelines and criteria used for scoring proposals will be detailed on the WDA website but briefly, the projects must support the Mission of the WDA. They must be completed in one year; must have defined and measurable goals; must not involve research, laboratory, or field studies; and the Project Lead must be a WDA member.

The committee will look favorably on proposals which reach the widest possible audience. We have included an example of the 2014 successful submission by Dr. Kevin Castle and colleagues (Special Supplement to the Journal of Wildlife Diseases: ‘Field Techniques that Improve Animal Welfare’) as an example. We look forward to the creative ways that our membership can further the mission of the WDA.

We appreciate your enthusiasm for the Small Grants Program and look forward to receiving your proposals in a few months.

The WDA Constitution and By-Laws must be reviewed and updated every 10 years

WDA Constitution changes must be approved by the WDA membership. Please review the proposed revised WDA Constitution, and be prepared to vote on February 1, 2016:
http://www.wildlifedisease.org/wda/ABOUTWDA/ProposedChangesinWDAConstitution.aspx

WDA continues to support student activities and welcomes three newly established Student Chapters!

Chapters at the University of Calgary, the University of California-Davis and Michigan State University were recently added to the list for a total of 16 WDA Student Chapters in North America, Europe and Australasia! Best of luck to all Student Chapters in your events and activities planned for 2016.

WDA Candidates for council members-at-large

In 2016 we will elect 2 Council members-at-large. The election for Council will begin February 1st and end March 31st and will be conducted by ballot/poll. You will be contacted by Allen Marketing and Management about the ballot when it is ready. Please see

http://www.wildlifedisease.org/wda/ABOUTWDA/WDAElections.aspx for more information.

Richard Chipman—USA: Member of WDA since 2007. Principal professional interests include resolving human-wildlife conflicts including the research and management of wildlife diseases with an emphasis on wildlife rabies. If elected to a three year term as a Council Member with the WDA, I would continue to work to promote the organization's mission and look for ways to attract more participation by wildlife biologists and others to continue to broaden the spectrum of professionals involved in the organization.

Heather Fenton-USA: I have been looking to play a more active role in the organization and continue to ensure there are opportunities for students and young professionals, particularly from countries with historically lower representation. I assisted colleagues with the WDA auction at a number of meetings, reviewed student chapter grants, established the WDA student Facebook page, and founded a WDA student chapter at the Western College of Veterinary Medicine as a veterinary student. The inclusive nature of the organization has always connected with me personally, particularly how collaboration and teamwork are encouraged.

Richard Anthony Kock- UK: Member of WDA for 25 years, developed regional initiatives for WDA, reviving the African section in 2002 and extending the section to be inclusive of the Middle East. I believe it important that WDA maintains its role, promoting the science of disease but it also needs to appeal to a wide community and not ignore some of the less esoteric elements, the social and political aspects, and the importance of wildlife as indicators of ecosystem health. WDA needs to be seen more outside of its comfort zone.

Tim Portas-Australia: I have been a member of the Wildlife Disease Association since 1995. From 2003 through until 2006 I served as Chairperson of the Australasian section; I served on the Time and Place Committee from 2014 to 2015; I was chair of the organizing committee for the 2015 Annual International Conference of the Wildlife Disease Association held at Maroochydore in Queensland, Australia. My vision for the wildlife disease association is, as a member of Council, to continue to develop the international reach and scope of the Association.

Stephen Raverty-Canada: I have been involved with the WDA Information Committee since 2012 and assisted with redesign of the website and contributed to ongoing efforts to expand media exposure to the WDA. With the global nature of many emerging and resurgent wildlife health concerns, international outreach of the WDA would be of particular interest to me.

USGS National Wildlife Health Center Quarterly Wildlife Mortality Report

July 2015 to September 2015

Written and compiled by the U.S. Geological Survey National Wildlife Health Center Epidemiology Team members: Anne Ballmann, Barb Bodenstein, Bob Dusek, Dan Grear, and Jenny Chipault, with contributions from Michelle Magagna, visiting pathology extern.

Highly pathogenic avian influenza in North America – 2015 third quarter update

The USGS National Wildlife Health Center (NWHC) continues to play an active role in surveillance and research into the emergence of highly pathogenic avian influenza (HPAI) viruses in North America. In the third quarter of 2015 (July – September), the NWHC tested 391 bird carcasses (Table 1) submitted from mortality and morbidity investigations nationwide. The NWHC also tested 4,758 swab samples from live or hunter-harvested waterfowl, primarily from the Mississippi and Atlantic Flyways, as part of the Interagency Surveillance Plan for Highly Pathogenic Avian Influenza in Waterfowl in the United States.

Nationally, there were no detections of HPAI virus in the third quarter of 2015 through the NWHC's mortality testing or through national surveillance samples collected from live or hunter-harvested birds. Samples from two mallards (*Anas platyrhynchos*) tested PCR positive for the Eurasian lineage HPAI H5 gene, which was first detected in North America in late 2014; however, virus was not isolated or sequenced from either sample. One sample was from a live mallard in Davis County, Utah in July and the second sample was from a hunter-harvested mallard in Morrow County, Oregon in November.

The NWHC is continuing to accept mortality and morbidity event submissions for HPAI testing under our expanded submission criteria. To date, no humans or other mammals have shown signs of disease from these particular viruses but field personnel handling live or dead wild birds should take appropriate precautions. For more information, see the USGS Role and Response to Highly Pathogenic Avian Influenza fact sheet.

Table 1. NWHC avian influenza tests of birds submitted for mortality investigation were all negative, July 1 – September 30, 2015.

Species group (Order)	AI tests
Ducks, Geese, Swans (Anseriformes)	91
Shorebirds, Gulls, Terns, Auks (Charadriiformes)	125
Raptors (Falconiformes, Strigiformes)	55
Seabirds and other Waterbirds (Ciconiiformes, Gaviiformes, Pelecaniformes, Procellariiformes, Podicidiformes)	31
Passerines and others (Passeriformes, Galliformes, Gruiformes, Coraciiformes, Columbimformes)	89
Third quarter total	391

Batrachochytrium salamandrivorans (Bsal): an emerging threat to salamanders

A newly identified fungal pathogen, *Batrachochytrium salamandrivorans* (Bsal), has caused mass mortality events and severe population declines in European fire salamanders (*Salamandra salamandra*). The fungus appears to be native to Asia and was likely introduced to naïve European salamanders via the pet trade. The host range and pathogenicity of Bsal in North American salamanders is largely unknown and it is likely that North American salamanders are at risk from imported pets. North America has the highest diversity of salamanders in the world and introduction of this pathogen could be devastating, not only to local populations but also to salamander biodiversity globally. The NWHC is working collaboratively with the USGS Amphibian Research and Monitoring Initiative (AMRI), zoological parks, resources management agencies, and researchers from around the world to understand the host and pathogen ecology; the epidemiology and pathogenesis of the fungus; diagnostic techniques for detection of the pathogen; the threats posed if Bsal is introduced into North America; and to create tools to prevent introduction and manage consequences, if introduced. The NWHC uses a molecular assay that can detect both *Batrachochytrium dendrobatis* (Bd) and Bsal in salamander species. The NWHC maintains a large collection of archived amphibian tissues and is in the process of screening these samples to determine if Bsal is already present (and previously undetected) in the United States. The assay will also be important for future surveillance efforts aimed at early detection of Bsal in the United States, should it be introduced. In addition, the NWHC recently completed a risk assessment to determine the likelihood of Bsal introduction and consequences of potential introduction for salamanders in the United States. For information on Bsal diagnostic and epidemiological activities at the NWHC, contact Dan Grear, NWHC Bsal Coordinator, dgrear@usgs.gov or C. LeAnn White, NWHC Wildlife Epidemiology and Emerging Diseases Branch Chief, clwhite@usgs.gov.

Brevetoxin detected in green tree frogs (Texas)

On September 16th 2015, a mortality event involving American green tree frogs (*Hyla cinerea*) at Padre Island National Seashore, Texas was reported by the National Park Service to the NWHC. An estimated 30 – 40 adult green tree frogs died, many after showing signs of neurologic impairment including tremors, weakness, and abnormal movements and postures. Two days previously, a red tide event (harmful algal bloom) began along the coastline of the park, roughly 1 km from where the frogs were found, and a storm accompanied by winds, surf, and high tides had occurred the morning of the observed mortality. There has since been no further green tree frog mortality, but increases in coyote (*Canis latrans*) and unspecified ground squirrel deaths at Padre Island National Seashore were noted in the following weeks.

Five green tree frog carcasses were submitted to and necropsied at the NHWC. All had adequate body fat reserves and food in their stomach, suggesting an acute death. Testing for ranavirus was negative. Due to the lack of necropsy findings, the clinical history of neurologic abnormalities, and the concurrent presence of the red tide, brevetoxin was considered as a possible cause of death. Samples sent to the Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute (St. Petersburg) for ELISA testing were preliminarily positive for brevetoxin. Testing performed by Texas A&M University on an additional six frogs and a ground squirrel from this mortality event were also positive for brevetoxin. Testing is on-going to further characterize this finding.

Brevetoxin is produced by *Karenia brevis*, the algal organism responsible for red tides. When present at high enough levels, this toxin can cause large fish die-offs. Mammals that ingest toxin can develop signs of neurological impairment followed by rapid death. The NWHC believes this to be the first documented incident of a harmful algal bloom associated with amphibian mortality. The route of exposure in this terrestrial, freshwater frog species whose diet consists of flies, mosquitos, and other small insects is unclear, but exposure may have resulted from absorption of the toxin through the skin.

Aquatic bird bornavirus in a Canada goose (Massachusetts)
In October, a wild Canada goose (*Branta canadensis*) observed having signs of neurological impairment while on the grounds of the Capron Park Zoo in Attleboro, Massachusetts was euthanized and submitted by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service to the NWHC for diagnostic evaluation. Clinical signs included intermittent circling and loss of coordination. No other wild or captive birds were reported to be affected. The necropsy revealed that both the esophagus and the gastrointestinal tract were dilated. Brain tissue tested positive for aquatic bird bornavirus-1 (ABBV-1) via culture and sequencing of the M gene at Texas A&M University. Histopathology revealed a severe non-suppurative meningoencephalitis consistent with ABBV-1 infection. Testing for avian influenza, West Nile virus, bacterial infections, lead toxicosis, and pesticide exposure was negative.

ABBV-1 is known to cause neurologic disease in several goose, swan, and gull species. These birds also may carry the virus subclinically. A related bornavirus infection associated with proventricular dilatation disease in psittacines (parrots) causes a similar array of neurologic and gastrointestinal clinical signs and is often fatal. At this point it is unknown whether ABBV-1 is capable of causing clinical disease in psittacines, but it is an important consideration as zoological parks represent potential areas for transmission of ABBV-1 to resident psittacine birds from local wildlife.

To view, search, and download historic and ongoing wildlife morbidity and mortality event records nationwide visit the Wildlife Health Information Sharing Partnership event reporting system (WHISPers) online database: http://www.nwhc.usgs.gov/whispers/

To request diagnostic services or report wildlife mortality: http://www.nwhc.usgs.gov/services/

Call for Nominations for the Tom Thorne and Beth Williams Memorial Award

The AAWV and WDA are seeking nominations for the Tom Thorne and Beth Williams Memorial Award.

Dr. Tom Thorne and Dr. Beth Williams were highly influential and revered members of the AAWV and WDA. Their dedication to the organizations, mentorship, scientific acumen, and plain collegiality were an inspiration to all. Their tragic death in 2004 left a huge void in the Wildlife community and to commemorate their distinguished services to both organizations, an award was created in their name.

The Award shall be presented to an individual, group or organization 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.

Nominations are open to all professionals and students in the field of wildlife health, regardless of membership in the AAWV or WDA.

Nominations shall consist of a letter stating the nominee's name, affiliation, brief biographical history and a description of the contribution or achievements for which the individual, group or organization are nominated.

Nomination letters shall specifically reference the nominee's contributions as they relate to the award criteria as outlined above.

Nomination letters should be sent to Peregrine Wolff (pwolff@ndow.org) or Marcela Uhart (muhart@ucdavis.edu) **March 1rst** is the deadline to submit nominations. The award committee consists of 3 members from the AAWV and 3 members from the WDA.