



AUGUST 2021

NEWSLETTER

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69th ANNUAL WDA / 14th BIENNIAL EWDA JOINT VIRTUAL CONFERENCE



Illustration by Marcia Garcia Romero

AUGUST 31 - SEPTEMBER 2

69th Annual WDA / 14th Biennial EWDA Joint Virtual Conference

Six thought-provoking Plenary Talks

Reservoirs Sans Frontières: can ecology help us predict viral spill over risk from bats?

Dr. Olivier Restif, University of Cambridge, UK

Illegal wildlife trade and emerging infectious diseases: Pervasive impacts to species, ecosystems, and human health

Prof. A. Alonso Aguirre, George Mason University, USA

Wildlife through the lens of One Health: An African perspective

Prof. Anita Michel, University of Pretoria, South Africa

Understanding pathogen transmission in a solitary, secretive carnivore (*Puma concolor*)

Prof. Meggan Craft, University of Minnesota, USA

The Ecology, Economics and Evolution of Emerging Pathogens

Prof. Andrew P. Dobson, Princeton University, USA

The Mother of Invention: New Tools for an Old Foe

Dr. Daniel O'Brien, Wildlife Disease Laboratory, Michigan Department of Natural Resources, USA

Three Plenary Student Awardee Speakers

Feline leukemia virus (FeLV): an emerging threat to wild felids without protection from endogenous feline leukemia virus (enFeLV)

Dr. Elliot Chiu, Colorado State University, USA

An apathogenic virus predicts transmission dynamics of a pathogen and reveals paradoxes and synergies in pathogen management in the Florida panther (*Puma concolor coryi*)

Dr. Marie Gilbertson, University of Wisconsin, USA

Esophageal measurement of core body temperature in the Florida manatee (*Trichechus manatus latirostris*)

Dr. Molly Martony, Mystic Aquarium, USA

Conference Highlights

- 110 Oral Presentations on cutting edge subjects in all fields of wildlife health
- Sessions will be recorded and available to view until 2 weeks after the Conference
- Continuing Education Credits will be provided by RACE through American Association of Wildlife Veterinarians for the live interactive sessions as well as sessions viewed after the conference
- 3 WDA Student Award Competitions (e-posters)
- More than 200 e-posters that you can view conveniently from home

Conference Greening Activities

Conference Greening activities are being implemented as a commitment to sustainability:

A negative carbon footprint at our International Conference will be the *greatest contribution to combating climate change* that the Wildlife Disease Association has ever undertaken. We will additionally be compensating for past face-to-face WDA Conferences by contributing to the reforestation in areas of Cuenca, Spain that were devastated by wildfires.

Virtual Networking Area

Know Your organisation and contribute to its future at the:

- **WDA Business Meeting:** September 1, 15:00-17:00 Central European Summer Time (CEST) / 9:00 – 10:00 AM Eastern Daylight Time (EDT)
- **Student-Mentor Mixer:** August 31, 21:30 – 23:30 CEST / 3:30 – 5:30 PM (EDT)
- **Awards Ceremony:** Thursday, September 2nd, 15:00 – 16:30 (CEST) / 9:00 – 10:30 AM (EDT)

CAN'T WAIT TO SEE YOU THERE!

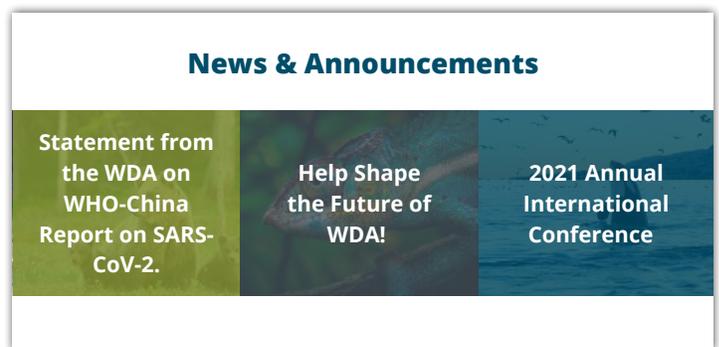
Registration slipped your mind? Late hour registrations may be possible by contacting cuenca2020@viajeseci.es or josefrancisco.ruiz@uclm.es

WDA IS GETTING A NEW WEBSITE AND WE NEED GREAT PICTURES



Arctic Fox Pups. Photo Credit: Emily Bouchard

We need *your* photos for the new WDA website.
Let's have images representing all sections and all taxa.
We are looking for two types of images, "Hero" and Content.
See examples below.



ALL PHOTOS SHOULD BE HIGH RESOLUTION.
Send your files to Peri Wolff at exec.manager@wildlivedisease.org.

Threat of Tuberculosis in Under-Recognized Species – TB in African Rhinoceros

Prof. Michele Miller, NRF South African Research Chair in Animal TB

Animal TB Research Group –

Dr. Leanie Kleynhans, Dr. Wynand Goosen, Dr. Tanya Kerr, Netanya Bernitz, Josephine Chileshe, Christina Meiring, Candice de Waal, Katrin Smith, Samantha Goldswain, Pamela Ncube

Tuberculosis, caused by one of the members of the *Mycobacterium tuberculosis* complex (MTBC), is the world's most deadly infectious disease, according to the World Health Organization. Although extensive resources and research have been committed to this disease in humans, the same is not true for animal tuberculosis, particularly in wildlife. This is especially true in developing countries where national control programs may not exist or be effectively implemented. In addition, many of these same countries also hold important wildlife populations that are threatened by habitat loss, poaching, and potentially disease. Due to the difficulty of detecting and monitoring diseases in wildlife populations, often the risk and threat of disease are under-recognized. Tuberculosis in rhinoceros has been reported in captive animals going back almost 200 years (Miller et al., 2015). However, due to the lack of clinical signs until disease is advanced and limited diagnostic techniques, cases are often missed until detection after death. Both *M. bovis* and *M. tuberculosis* can infect African rhinoceros species. Although an incidental case of *M. bovis* infection in a captive black rhinoceros that had been wild caught was reported in South Africa (Espie et al., 2009), the first documented case of fatal bovine tuberculosis was discovered in a black rhinoceros in Kruger National Park (KNP) in 2016 (Miller et al., 2017). Since that time, additional cases of incidental *M. bovis* infection have been found in white rhinoceros in KNP (Miller et al., 2018).

The presence of tuberculosis in a population results in quarantine, in turn restricting animal movement, including conservation programs. With the increasing need to move rhinoceros to safe locations due to poaching as well as reintroductions, quarantine is a significant complication for these populations. As with other species, understanding the risk of transmission and availability of accurate diagnostic tests are crucial to developing an effective management plan and to screen animals for translocation.

The Animal TB Research Group at Stellenbosch University has been conducting research on multiple aspects of TB



Prof. Michele Miller and members of her Animal TB research group perform respiratory tract endoscopy on immobilized white rhinoceros to collect samples for screening. (photo credit Dr. Peter Buss)

in rhinoceros. In vitro interferon gamma production assays have been studied to detect rhinoceros immune responses to detect infection (Parsons et al., Chileshe et al., 2019).

These blood-based tests provide a feasible method for screening rhinoceros for TB. In addition, other biomarkers are currently being investigated to improve detection. In order to determine risk of transmission, studies are also underway to improve detection of mycobacteria in secretions that can be collected by nasal or oral swabs, tracheobronchial lavage, or faeces.

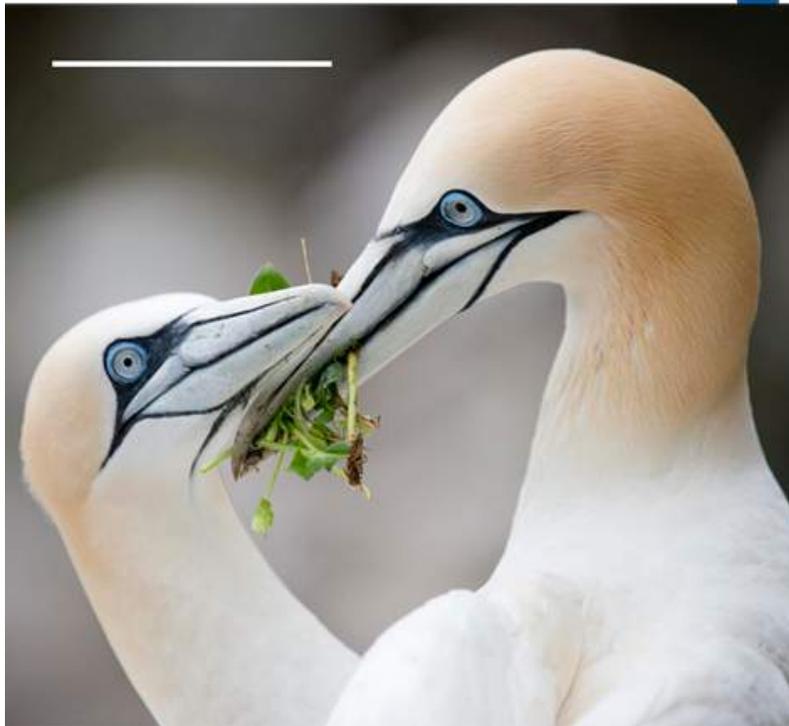
In pilot studies, rapid, accurate detection of even low levels of *M. bovis* bacilli can be detected in secretions using a widely available human TB PCR method, GeneXpert MTB/RIF Ultra (Cepheid). Substantial knowledge gaps remain with regards to TB in African rhinoceros. However, research to improve understanding transmission, susceptibility and pathogenesis in different rhinoceros species, and diagnostic techniques will facilitate our assessment of the impact of TB on rhinoceros and conservation programs.



Dr. Josephine Chileshe, of the Animal TB research group, collects blood sample from immobilized white rhinoceros for development of diagnostic cytokine assays for TB. (photo credit Prof. Michele Miller)

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ON THE COVER:

Northern gannets (*Morus bassanus*)
Cover photo by **Josh Jaggard**, wildlife photographer

To read it in full, check out the EWDA Section Page: <http://ewda.org/>

Interview with José Luiz Catão Dias

How did the idea of creating the Latin American Section of the WDA come about?



WDA

Wildlife Disease Association
LATIN AMERICA

The idea of creating the Latin American Section of the WDA (WDA-LA) arose in 2010, during the WDA International Annual Conference, which took place in Puerto Iguazú, Argentina. At that event, the first to be held in South America in the 70 years of history of the WDA, the various Latin American groups present met and discussed with the WDA board the prospect of re-creating the WDA-LA, as a first attempt to create a Latin American chapter had already occurred in the 90s, an attempt that failed in a short time. It was an intense and heated discussion, which showed, on one hand, the existing difficulties for the implementation of the idea, but also evidenced the willingness to work and the dedication of many researchers and students from our region to get involved in the consolidation of WDA-LA, recognizing the unique importance that the WDA exercises in the context of One Health in our region.

After the event in Puerto Iguazú, led by Dr. Marcela Uhart, various virtual meetings took place with the participation of various Latin American researchers, which allowed the development of a solid and committed proposal for the re-creation of WDA-LA.

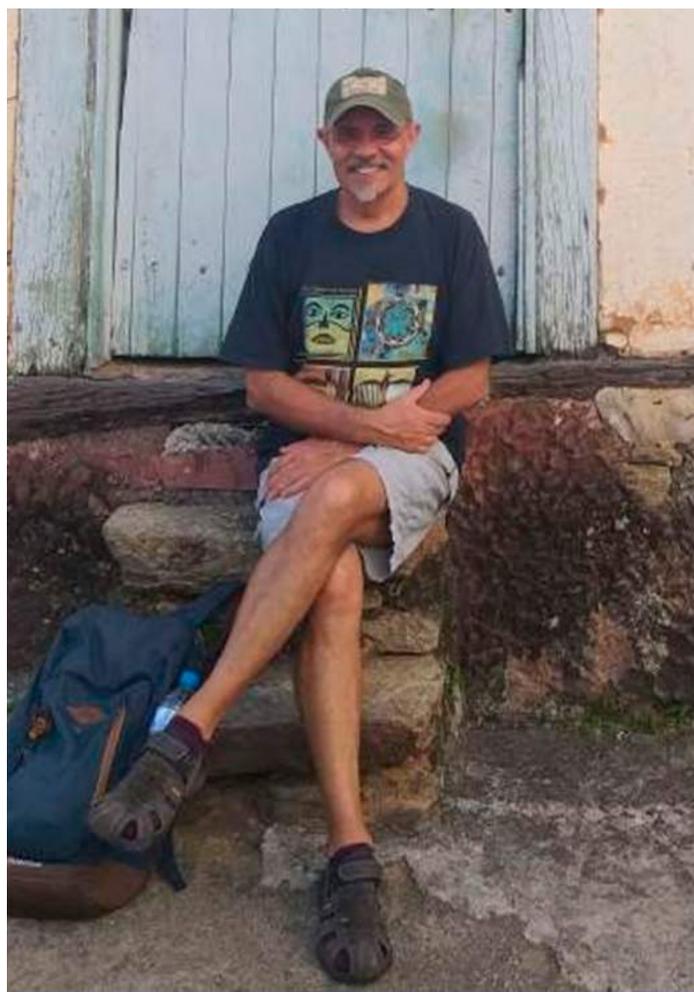
The proposal was brought to the WDA Board of Directors meeting during the Annual Conference in Quebec, Canada, in 2011. With the support of the CEO, the proposal was unanimously approved and confirmed at the WDA General Assembly.

What were the main challenges in that first moment? What was most difficult in the process of creating the Latin American Section of the WDA?

I believe that the main challenges at that first moment and that, in my opinion, still partially persist, were, on one hand, the sensitization of the Latin American colleagues to the proposal of having a Latin American sec-

tion that is capable of dialogue in conditions of equality with researchers from anywhere in the world, and from another, the real logistical, infrastructural and budgetary difficulties existing in our region.

I believe that we do research in Latin America of equivalent quality to what is carried out in any research center of world excellence. Of course, there are very import-



ant budgetary, labor, and managerial limitations that can limit the size of the project, but the quality of what is done is undeniable, so much so that the number of Latin American publications in relevant newspapers has continuously increased. This is an unequivocal demonstration of the quality of the science we carry out in our region! However, I see that there is still limited participation of researchers in our section, ignoring, in a certain way, that the collaborative work within the scope, coverage, and technical-scientific qualification of an association with the size of the WDA's history and legacy, which would greatly enhance what we do.

What is the importance of the WDA in the life of a student with aspirations beyond academia?

Belonging! The WDA is the most important, relevant, and rated international association oriented towards the study of wild fauna health in the context of One Health. It is a unique, culturally diversified and cosmopolitan group of professionals, researchers, and students focused on understanding, in the context of One Health, the role of diseases for the conservation of planetary biodiversity. Being able to belong, interact, share, and deepen technically and academically in this incredible network of people who share common interests in favor of biodiversity, animal and human health, and the balance of our ecosystems is a privilege and a constant source of learning and discovery.

For you, what is the main legacy of the WDA-LA ?

I believe that the main legacy of the WDA-LA is and will be to bring together potentials, bring together talents, foster experience and collaborative work in our region, and, in this way, contribute to the formation of generations of researchers directed for the conservation of our exuberant biodiversity.

What are the greatest challenges in this pandemic period in the context of health and diseases of wildlife?

I believe that the COVID 19 pandemic has made it difficult at first for the continuity of ongoing scientific projects, both those that occurred in laboratories and field work. This situation, in part, could be mitigated with the safe return of laboratory investigations; but, jobs in the field continue to suffer greatly.

Another aspect that greatly harmed research is the significant increase in its costs since the vast majority

of inputs are dollarized. This can be placed within the uncertainties regarding the financing of research in Latin America.

On the other hand, the pandemic set off all possible alerts regarding the need to address in a more forceful way the issues concerning the health of wildlife in the context of One Health!

What was the most important moment you have witnessed in your career at the WDA-LA?

For me, and of course, this is very personal, the most important moment of my career at the WDA-LA was the holding of the first biennial conference of the WDA-LA, which took place in September 2013 in São Paulo. During the period as Vice President of the Section, I was responsible for organizing the event, and for that, I had the collaboration of an incredible and extremely dedicated group of people. With that, I consider it to be vital to mention the name of Prof. Dr. Eliana Reiko Matushima, absolutely fundamental in the organization and execution of the conference.

As it was the first conference, we wanted it to be an unforgettable and highly motivating congress, a driving force that illuminated the path of the Section.

Fortunately, the event was a success, with 110 participants from 12 countries in Latin America, Europe, and the USA. We were honored with the presence of renowned researchers and motivated students, including the president of the international WDA himself, Dr. Thierry Work, a fact that signaled the importance that our region has in the direction of the WDA.

What do you expect from the WDA-LA in the next 10 years?

That it is strengthened and that the expectations that justified its creation in 2010 – to be part of a global entity that works with expertise, competence, and collaboratively in favor of the conservation of our wonderful biodiversity in the context of One Health, are fully achieved!

One Health: One Solution for Galapagos Conservation

Drs. Ainoa Nieto Claudín and Sharon Deem

As the human footprint expands into the last of the wild places remaining on Earth, isolated and remote archipelagos such as the Galapagos Islands are facing new challenges for conservationists, as they work to preserve the Islands unique and emblematic species and ecosystems.

For the millions of people living in cities and away from nature, it is easy to ignore the deep connection between humans and wild species and ecosystems. In Galapagos, by contrast, more than 25,000 people are living within a National Park, surrounded by fearless animals that remind us every day of the profound interdependence between the health of humans, animals, and our shared environments. This understanding is at the core of One Health—a global initiative of disciplines working together based on the simple truth that human health is dependent on animal and environmental health. No more, no less.

In many ways, Galapagos is a microcosm demonstrating the same threats to wildlife and ecosystems as we see elsewhere throughout the world. In Galapagos, and globally, these include habitat loss and fragmentation, land and marine pollution, illegal trade, introduced and invasive species (including infectious diseases), global warming, trau-

ma (boat and car strikes), and illegal hunting and fishing, among many others.

One example of the anthropogenic footprint in the Islands is that free-living giant tortoises in Galapagos are carrying antibiotic-resistant bacteria (Nieto-Claudín et al. 2019) that are much more prevalent within human-modified landscapes (Nieto-Claudín et al. 2020, in preparation). With humans in Galapagos living so close-and within- protected areas, the misuse of antibiotics to treat human and livestock bacterial infections, together with a lack of adequate waste management, allowed for strains of resistant bacteria to find their way into the wider ecosystem.

The consequences of this pollution may include serious negative health impacts on the endemic wildlife, the livestock species raised for consumption, and the human inhabitants and tourists.

Secondly, on Floreana, the inhabited island with the fewest humans in the Galapagos, almost 50% of their land bird species have been extirpated or are nearly so, since the arrival of the first human inhabitants. The combined effects of introduced mammals, large-scale habitat loss, and



Photo 1. Giant tortoise sharing the habitat with cattle at a private farm on Santa Cruz Island. Photo credit: Ainoa Nieto Claudín, CDF.



Photo 2. Small ground finch chick (Geospiza fuliginosa) died due to Philornis downsi infestation. Notice the malformation of the nostrils as well as larvae coming out of the body cavity. Photo credit: David Anchundia, CDF.

direct human persecution in Floreana were responsible for the extirpation of six bird species during the 19th century. Three additional species have been extirpated since 1960, likely due to the introduction of the parasitic fly, *Philornis downsi* (Dvorak et al. 2017). A potential spillover of disease (paramyxovirus-1 and adenovirus) from domestic to wild birds on Floreana was also described in 2011 (Deem et al. 2011). Moreover, recent findings report the presence of insect trypanosomatids associated with the invasive fly *P. downsi* (Pike et al. 2020). Alien species (mainly driven by human activity) may present a multifaceted threat to ecosystems into which they are introduced. In addition to the direct damage they may cause (unprecedented mortality of small birds in the case of *P. downsi*), they can also bring novel diseases and parasites, or even have the capacity to vector microorganisms that are already established in the ecosystem and cause harm.

The COVID-19 pandemic has been a wake-up call for people around the world: the way the most successful species on earth-humans- live, places dire consequences for the health of the entire planet, including human health (Deem & Brenn- White. 2020). But the pandemic is also giving us the opportunity to look for a change. Small day- to-day actions may have a significant conservation impact if we multiplied by the 7.8 billion people that call Earth home.

And of course, reducing the use of cars, a/c, and unnecessary travel will contribute to cleaner air for all animals and plants sharing our one planet.

Fortunately, Galapagos is doing its homework and several regulations have been recently implemented to control and reduce the negative impacts that human activities are causing to environmental integrity. Many plastic items are no longer legal, including plastic straws, and no single-use plastic containers may be distributed. The accidental introduction of species is under strict control and several products and materials are not allowed to be carried out by tourists nor local residents. Creative local initiatives have also appeared during the recent lock-down and sustainable and local food has never been easier to acquire. Challenges are still countless but joint efforts between governmental institutions, NGOs, scientists, private entities, and people who simply care about their families' health may result in a more sustainable and healthier planet. Working together we can all ensure that planetary resources are not at the service of just one single specie

Buying less, choosing plastic-free items, and reusing and recycling more will reduce our ecological footprint. Eating less meat and fish and sourcing food from local, sustainable producers will reduce the movement of plants and animals, and hence the incidence of new zoonoses (diseases shared between human and non-human animals). Avoiding toxic chemicals when treating pests will minimize the introduction of disruptive chemicals into the environment. Refusing to have exotic animals as pets will significantly reduce illegal trade and shared pathogens.

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ABOUT THE AUTHORS

Ainoa Nieto Claudín is a Spanish wildlife veterinarian. Since 2016, she has worked as a researcher for the Charles Darwin Foundation and the Saint Louis Zoo Institute for Conservation Medicine. She is currently conducting a health assessment of Galapagos tortoises as part of her PhD dissertation through the Complutense University of Madrid.

Sharon L. Deem is a wildlife veterinarian and epidemiologist with more than 20 years of experience in Conservation Medicine and One Health. She is the director of the Saint Louis Zoo Institute for Conservation Medicine (ICM) in St. Louis (Missouri, USA) and one of the principal investigators of the Galapagos Tortoise Movement Ecology Programme. Dr. Deem is the author of over 125 referred articles, 25 book chapters, and numerous non-referred papers. She is also the author of the 2019 book, *Introduction to One Health: An Interdisciplinary Approach to Planetary Health.*

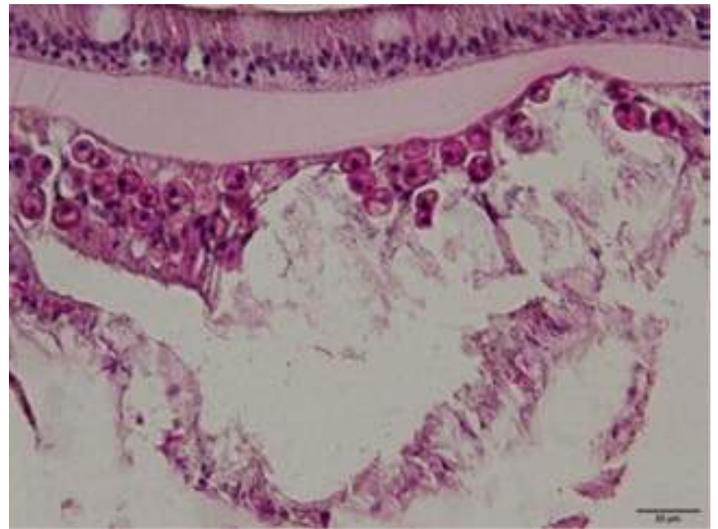
Stony Coral Tissue Loss Disease in Florida Reef Tract

Coral reefs are both ecologically and economically important, serving as nurseries for fisheries and generating income from tourism. Corals are related to jellyfish, have stinging cells, and their tissues host unicellular algae (zooxanthellae) that provide nutrients to the animal via photosynthesis. Since 2014, a wide variety of corals have been dying from unexplained causes throughout South Florida with mortalities ranging from North Miami to the Florida Keys. The mortality results from loss of tissues in affected corals and has been termed “stony coral tissue loss disease” (SCTLD). Unfortunately, this mortality follows long-term declines in dominant *Acropora* (*Acropora sp.*) that occurred in the 1990s-early 2000s pursuant to a massive die-off of urchins, the cause of which was never determined. Ongoing coral mortality is of concern in that it could eliminate the few remaining coral reefs in the region that survived earlier declines.

Various reasons for the cause of SCTLD have been suggested including infectious disease, global warming, or land-based pollution, however, none has been confirmed. Recently, a team from the Florida Fish and Wildlife Conservation Commission, George Mason University, and the U.S. Geological Survey National Wildlife Health Center – Honolulu Field Station microscopically examined corals affected by SCTLD. [Their findings](#) show that SCTLD results from an interruption in the relationship between the zooxanthellae and coral, leading to host tissue death. It is currently unclear whether this breakdown is initiated by the zooxanthellae or coral host cells, but the investigators were unable to find any evidence that infectious agents like bacteria, fungi, or parasites were responsible. Current efforts are now focused on determining what is failing first (the zooxanthellae or the coral host cells), as this will be important to manage SCTLD and mitigate its impacts. For additional information, contact Thierry Work, thierry_work@usgs.gov.

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Photomicrograph: focal lytic necrosis and fragmentation of the basal body wall and adjacent gastrodermis with necrosis and malformation of zooxanthellae (note that the overlying surface epithelium is intact; this particular lesion would be invisible from outside). (H&E, paraffin.) Photo credit Jan Landsberg and Yasu Kiryu, Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission.



*Great star coral (*Montastraea cavernosa*) colony showing areas of tissue loss with a bleached border. Photo credit Vanessa Brinkhuis, Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission.*

Yellow-headed blackbird mortality event in Arizona

In March 2021, the Arizona Game & Fish Department submitted six yellow-headed blackbirds (*Xanthocephalus xanthocephalus*) to the U.S. Geological Survey National Wildlife Health Center for diagnostic evaluation. The birds were part of a small-scale mortality event in Pima County, Arizona where birds were found dead or dying in a municipal park, with reports that moribund birds appeared to be convulsing.

Upon gross examination, no significant findings were present. The birds were in good nutritional condition, with various amounts of seeds in their stomachs and unremarkable digested content in the rest of the intestinal tracts. Microscopically, one bird had a focal area of acute hemorrhage in the brain, which was likely related to the reported convulsions.

All birds tested negative for avian influenza. Brain cholinesterase activity was not inhibited; organophosphate or carbamate insecticide poisoning was therefore unlikely. A pooled sample of stomach contents from the three examined birds was sent to the [Michigan State University Veterinary Diagnostic Laboratory](#) for toxicological analyses. Gas chromatography - mass spectrometry results were positive for strychnine.

Strychnine is used as a pesticide to control animal pests including rats, moles, gophers, and coyotes. Commercial baits are pelleted and often dyed red or green, which can sometimes be observed in stomach contents (Figure 1). Strychnine induces potent convulsions by competitive inhibition of glycine, an inhibitory neurotransmitter, resulting in unchecked stimulation of motor neurons affecting striated muscles. Stimulation of the extensor muscles results in generalized rigidity and seizures. Death occurs due to respiratory failure.

Since the 1970s, strychnine poisoning has been identified as the cause of 44 wildlife mortality events recorded in the



Crop contents from a mourning dove (*Zenaidura macroura*) found dead in a 2019 mortality event in Arizona (not the current case). A green coating is evident on the surface of the milo seeds, which can suggest strychnine. See the [Pathology Case of the Month](#) for additional information. Photo credit USGS National Wildlife Health Center.

Wildlife Health Information Sharing Partnership – event reporting system ([WHISPers](#)) with the majority of those events (51%) occurring since 2010. Eighty percent of these events occurred in the [Central and Pacific Flyways](#) and involved as many as 200 individuals. Strychnine mortality in wildlife has been reported year-round but occurs most frequently in winter months (November-March). Birds, particularly doves (family Columbidae), grackles (*Quiscalus sp.*), and blackbirds (family Turdidae), are commonly involved. Other affected avian species include Canada geese (*Branta canadensis*), American kestrels (*Falco sparverius*), and great-horned owls (*Bubo virginianus*). Events also periodically included small mammals such as squirrels (family Sciuridae) and rabbits (order Lagomorpha). Strychnine should be considered a potential cause of sudden death in birds and mammals, especially in locations where pesticide use is a possibility. For additional information on this event, contact Jaimie Miller (jaimiemiller@usgs.gov) or Anne Ballmann (aballmann@usgs.gov).

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Yellow-headed Black Bird. Photo Credit: Peri Wolff

Neurologic disease in Florida osprey

In April 2021, the Florida Fish and Wildlife Commission submitted five osprey (*Pandion haliaetus*) to the U.S. Geological Survey National Wildlife Health Center for diagnostic evaluation. These birds were among several adult and juvenile osprey that had been found in Lee County, FL, presenting with neurologic clinical signs including depressed mentation, ataxia, paresis, and tremors. A [red tide event](#) caused by a bloom of *Karenia brevis* was ongoing in the region. These birds had been admitted to the [Center for the Rehabilitation of Wildlife](#) in Sanibel, FL. While in rehabilitation, some of the birds received treatment for brevetoxicosis, antibiotics, and supportive care, but did not improve and were eventually euthanized. Other birds were euthanized soon after admission due to the poor prognosis for improvement.

Upon gross examination, birds were in fair to good body condition, indicating a recent onset of illness. There were no significant gross abnormalities to suggest a cause of the neurologic signs. Microscopically, there was lymphocyte depletion and necrosis in the spleen, a non-specific finding that can occur due to either infectious or toxic causes. Differential diagnoses for neurologic clinical signs in birds include trauma, viral diseases such as West Nile virus, bacterial diseases such as Bisgaard Taxon 40, or toxic diseases such as lead or mercury poisoning, brevetoxicosis, or botulism.

Subsequent to necropsy, multiple diagnostic tests were performed to rule out infectious and toxic causes, including avian influenza, West Nile virus, Newcastle disease virus, chlamydia, and brevetoxin. Toxicological analyses, including brain cholinesterase (to gauge exposure to organophosphate or carbamate insecticides) and gas chromatography-mass spectrometry (to detect toxic organic compounds), were also conducted. All tests have failed to reveal an etiology that would explain the observed neuro-



Osprey in Flight. Photo Credit: Ian Barker

logic clinical signs. A minerals panel, which includes mercury, selenium, lead, cadmium, and arsenic, among other compounds, was also unremarkable with the exception of relatively high levels of mercury and an elevated ratio of mercury to selenium in the liver.

Typically, selenium levels rise with rising mercury levels in soft tissue and selenium can serve to mitigate mercury's toxic effects. If mercury levels rise sufficiently high and insufficient selenium is available, mercury toxicosis can result. Mercury toxicosis can include effects on both the immune and nervous systems, as was noted in these birds. However, previous studies have suggested that piscivorous birds such as osprey are frequently exposed to and can tolerate relatively high levels of mercury without signs of overt toxicosis.

In the current case, additional testing is underway to better understand the mercury burden in these birds and assess the potential for mercury to be the cause of the clinical signs, as well as to continue to rule out other possible causes of disease. For additional information on this case, contact Julia Lankton, jlankton@usgs.gov.

White-nose syndrome surveillance update

White-nose syndrome (WNS) continues to spread across the United States and Canada since first emerging in 2006. In the spring of 2021, initial cases have been confirmed in Montana (Fallon County) and Wyoming (Crook County). The causative fungus, *Pseudogymnoascus destructans* (Pd), was initially detected in Montana and Wyoming in spring 2020 and 2019, respectively. Species involved include little brown bat (*Myotis lucifugus*), Northern long-eared bat (*M. septentrionalis*), and fringed bat (*M. thysanodes*). Pd was also detected on a big brown bat (*Eptesicus fuscus*) found dead at a residence in Baker, MT, however, no evidence of WNS was seen on histopathology. This represents the western-most detection of Pd on big brown bats in North America to date. WNS was also confirmed for the first time this winter in the Texas panhandle (Hardeman and Cottle counties) after being detected in 18 south-central Texas counties last year. WNS has now been confirmed in a total of 37 states.

Clinical signs suggestive of WNS were also observed on live cave bats (*M. velifer*) at one hibernaculum in New Mexico (De Baca County) and Pd was detected on bats and in environmental samples at this and another hibernaculum in Lincoln County, NM. Samples were not available for histopathological evaluation from either location, therefore WNS could not be confirmed.

Surveillance for this season is ongoing, including noninvasive screening of fresh bat guano deposited at above-ground roosts during spring emergence from hibernation. This sampling method proved successful last season for the early detection of Pd expansion into new areas at the leading edge of the fungus' known distribution (see the U.S. Geological Survey National Wildlife Health Center [report to the North American Wildlife and Natural Resources Conference](#), March 2021, for more details). For additional information, contact Anne Ballmann, aballmann@usgs.gov.

For additional information on the USGS National Wildlife Health Center see the following links:

- Main website: www.usgs.gov/nwhc.
- Disease Investigation Services: www.usgs.gov/nwhc/services.
- Report Mortality Events and Submit Specimens: www.usgs.gov/NWHC/submit.

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://whispers.usgs.gov/>

August 2021 Student Corner

Dear Worldwide Students,

As usual, we are happy to share some good news with you in the WDA newsletter!



European Student Chapter:

This year, the EWDA SC organized the first online student workshop at the 8th biannual EWDA Student Workshop: "Communicating science in wildlife conservation". The workshop covered a large area in science communication including scientific writing, presentations, communication with the public and politics, illustration and storytelling. A total of 81 people attended the workshop originating from the different European countries. The event was divided in three phases (lectures, presenta-



tions, and virtual student mentor mixer parties). We are happy to see that the workshop was a success and received excellent feedback from both speakers and participants.

In addition, the speakers were highly enthusiastic about the structure and programme, as some of them were keen to stay even longer than requested. The students were particularly captivated by the interesting lectures and activities, and were very grateful for the participation of 23 international speakers working in different non-governmental and governmental organizations.

If your student chapter is interested by holding an online event don't hesitate to have a look at our grant opportunities on <https://www.wildlifedisease.org/wda/STUDENTS/StudentResources.aspx>

August 2021 Student Corner

Monthly webinars:

Since last February we've been actively working on the organization of online webinars organized in collaboration with the Zoo and Wildlife Medicine Study Group (<https://www.zwmsg.org/>). So far, we've been lucky to work with highly motivated student chapters from the Latin American Section, University of California Davis and Virginia Tech.

Below is a reflection from Fernando, a member of the Latin America Student Chapter, who organized our first collaborative webinar in February:

"The experience as an organizer of the webinar session for the Joint Online Events along with the Student Chapters of the Wildlife Disease Association (WDA) and the Zoo and Wildlife Medicine Study Group (ZWMSG) was enriching and positive. I do really enjoy being part of the organizing committee of the event as a member of the Latin American Student Chapter along with Marianthi and Andres. We had the pleasure of receiving a lecture from Dr. Carlos Sacristán about the importance of molecular biology tools for the research of wildlife diseases and conservation. About a hundred people were

From Zoos and Wildlife Rehab Centers to Free Ranging Wildlife- Using Epidemiology to Improve Welfare and Help Save Species

Dr. Victoria Hall, DVM, MS, DACVPM

**26th August 2021, 11AM CST
ONLINE**

Registrations



Organised and sponsored by



connected to the webinar from all around the world. Moreover, it was quite exciting having many members of our chapter connected and participating actively in the session, demonstrating again the commitment and community feeling that is constantly growing among us. Hope to repeat this experience soon!"

You can watch here the rebroadcast of our last event here: <https://www.youtube.com/watch?v=JkUUlaByldM>

We are already working on the next events so don't forget to follow us to not miss any webinar!

Facebook group: [WDA student group](#)



New student chapters:

Welcome to our new student chapter:

North Carolina State College of Veterinary Medicine

Congratulations to Aswini Cherukuri and Elizabeth Browder, for creating this new SC! We are excited to start collaborating with you!