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# Newsletter

July 2017



## Lowland Tapir Health and Long-Term Conservation in Brazil

*By Renata Carolina Fernandes Santos, Lowland Tapir Conservation Initiative (LTCI), Institute for Ecological Research (IPE), Brazil*

The lowland tapir is the largest terrestrial mammal of South America and is currently listed by the IUCN/SSC Red List of Threatened Species as Vulnerable to Extinction. The Lowland Tapir Conservation Initiative (LTCI) is a nationwide research and conservation effort carried out under the auspices of the Brazilian NGO IPE – Instituto de Pesquisas Ecológicas (Institute for Ecological Research). The LTCI was first established in 1996 and since then has been using tapirs as ambassadors for the conservation of the biomes where they occur. The LTCI has included studies on tapir ecology, demography, health, genetics, habitat requirements and effects of habitat fragmentation, as well as environmental education, community engagement and habitat restoration efforts. Long-term assessments of the health of wild tapir populations in different Brazilian biomes under various levels of environmental disturbance have been an important component of the LTCI work since its establishment.



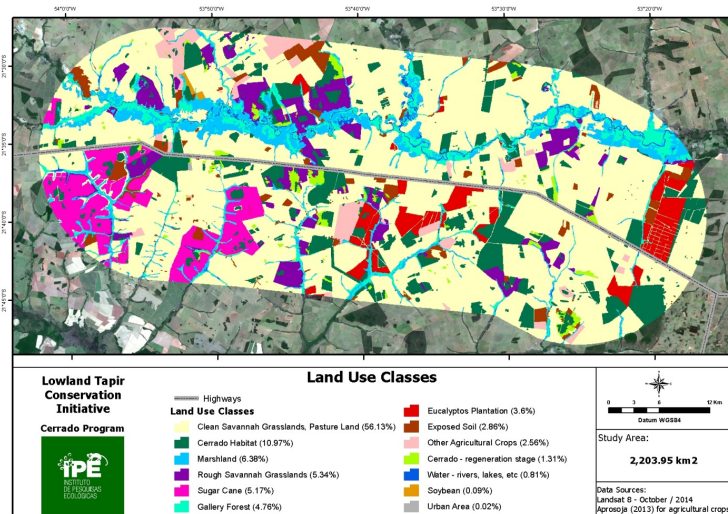
LCTI



Tapir noted in Cerrado study area with ear abnormality

The Atlantic Forest Tapir Program (1996-2007) had a health component which was mainly focused on designing field veterinary protocols and gathering basic tapir health information in a protected area and surrounding forest fragments. Thirty-five tapirs were captured and sampled. The Pantanal Tapir Program (2008-on going) health assessment focuses on identifying the major risk factors for tapir health and viability in the long-term, understanding the implications of the interface between tapirs and domestic animals, and explaining the role of the environment in the epidemiological cycles of infectious agents. Sixty-one tapirs have been captured and sampled, and our ability to monitor individuals through telemetry, camera traps and frequent recaptures over the past nine years has given us the opportunity to make the Pantanal tapir population a model for long-term disease risk analysis. Tapir populations in the Atlantic Forest and the Pantanal biomes were considered healthy and the hematology, biochemistry, urinalysis, and microbiology results obtained in these biomes were already published (Medici et al. 2014). In the Cerrado (2015-on going), the most threatened Brazilian

biome, the main goal is to investigate the effect of different threats occurring in the region (road-kill, poaching, environmental contaminants) on tapir health. To date, we have captured 30 tapirs and performed 30 necropsies of tapir road-kill in this biome.



### LCTI Map of study site in Cerrado

The Cerrado is the most extensive woodland/savannah in South America, and is considered a Global Biodiversity Hotspot. However, this region is also the epicenter of economic development of Brazil, and the wildlife in this biome faces a multitude of threats including deforestation, road-kill, poaching, fire, land use change, and pesticides. Our study area is ca. 2,200km<sup>2</sup> of a Cerrado landscape including natural habitat (12% of the study area including Cerradão fragments, gallery forests, and marshland), pasture land, agriculture, Eucalyptus plantations, and highways (*see map above*). Tapirs are herbivores that have large area requirements, and might connect different forest patches or different ecosystem types within their wide home range. When crossing from one patch of forest to another, they might use anthropogenic areas within the landscape matrix, including agricultural crops, cattle ranching, and rural communities. This can result in higher exposure to a variety of health threats.

Preliminary results have provided significant findings, and it seems we are not dealing with a healthy tapir population in the Brazilian Cerrado. Physical examinations are showing some remarkable alterations, particularly in tapirs' teeth, which include absence of some teeth, fractures, periodontitis, and gingival retraction. Two of the recently captured males had almost no front teeth. One of the hypotheses is that the food resources in the Cerrado study site are not suitable to maintain the dental health of tapirs. Experts on veterinary odontology have been contacted to help with exploring possible reasons for these alterations. One male recently captured and radio-collared did not have its right ear. It seemed to be an old injury and apparently, this ear has been ripped off long ago. In addition, some animals are in bad body condition and present injuries and wounds that are not usually seen in healthy individuals. An adult male was captured with a severe penis injury, which is most certainly compromising his reproduction. Most of the injuries found in tapirs in the Cerrado seem to have been caused by trauma, but the causes of these abnormalities are not clear.



**LCTI images: Tapir physical exam abnormalities – dental disease (*right*) and ear trauma (*left*)**

Thus far, the findings from physical examinations have been supported by laboratory exams. Although the sample size needed for the statistical analysis of the data has not been reached yet, it is already evident that the Cerrado tapir population present has higher leukocyte counts in comparison with the Atlantic Forest and Pantanal tapir populations. The leukocyte or white blood cell count measures the body's ability to respond to stress or a variety of health conditions, and increases may indicate certain diseases or infections.

Another important component of the tapir health assessment in the Cerrado are necropsies of fresh tapir carcasses from road-kill. Several individuals submitted to necropsy presented macroscopic alterations of the liver and kidneys, and the top differential is currently the chronic over-exposure to pesticides used in surrounding monoculture plantations (particularly sugar cane, soybean and corn). Biological samples from necropsies are under toxicological

and histopathological evaluation in partner laboratories. In addition, 100 decomposed tapir carcasses were sampled for toxicological evaluations (organochlorines, organophosphates, pyrethroids, carbamates, and heavy metals including cadmium, lead, copper, and manganese). Preliminary analysis already shows evidence of several environmental contaminants in these samples. Investigating the effect of pesticides on tapir health is a core goal of the health assessment in the Cerrado.

Another activity regarding toxicological evaluation has been a systematic search of online resources (databases of governmental agencies, media articles and open-access research) related to environmental contamination in the Cerrado of Mato Grosso do Sul State, where our study area is located. This information will be crossed with our toxicological findings in tapir samples.

The LTCI Health is applying the principles of the One Health approach, and has a focus on attaining optimal animal, human and environmental health. Therefore, assessing the health of humans and domestic animals in the region is also important. A semi-structured questionnaire was developed based on potential human health issues which also includes questions regarding livestock management and pet care, such as vaccination and vermifugation protocols and clinical signs observed in each domestic species. To date, 30 interviews were performed with members of the local community in the Cerrado study site and all this information will be used for the detection of potential health hazards in the region. In addition, parasitological exams have been performed in 43 fecal samples from tapirs and 40 fecal samples from domestic animals, including horses, cattle, sheep, and dogs. The parasitological analysis of domestic animals will provide important information about parasite maintenance and dissemination between different host species, which is an important non-invasive tool for health assessments.

Furthermore, this project includes a Veterinary Training Program, and the capture expeditions have been used as opportunities to provide training for Brazilian veterinarians who will be better prepared to play a role on conservation in the future.

This project aims to design effective strategies to mitigate potential health risks not only for tapirs but also for humans, livestock, wildlife, as well as for environmental health, by focusing on the One Health approach. We believe that the combination of ecological and epidemiological data in wildlife research is critical to ensure the long-term survival of threatened species, and we expect that results from this project might be used to develop tools and strategies for conservation medicine that will be relevant to many other wild species worldwide.

Medici EP, Mangini PR & Fernandes-Santos RC. 2014. Health Assessment of Wild Lowland Tapir (*Tapirus terrestris*) Populations in the Atlantic Forest and Pantanal Biomes, Brazil (1996-2012). In: Journal of Wildlife Diseases, 50(4):817-828.

All pictures courtesy of LTCI-IPÊ.

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The WDA 2018 conference planning committee sends their best wishes to the participants of the upcoming WDA 66th Annual International Conference in Chiapas, Mexico. To those attending, we invite you to stop by our table for more information on the 2018 conference and fun promo items! Next year's conference will be held in St. Augustine, Florida, with nearby access to many local natural and historical attractions.

### **Congratulations to new WDA Council! Election results as reported April 24, 2017:**

President: Debra Miller

Visit our website for additional conference or sponsorship information:

Vice-President: Carlos das Neves

[www.conference.hawaii.edu/wda2018](http://www.conference.hawaii.edu/wda2018). Check back often, as we will be posting updates frequently.

Secretary: Maria Forzan

Treasurer: Mike Ziccardi

You can also join our mailing list to receive email updates by [clicking here](#). If you have any questions, contact conference coordinator, Kristin Zupancic, at [kzupancic@hawaii.edu](mailto:kzupancic@hawaii.edu).

Council at Large: Holly Ernest and Lisa Yon.



# 67th Annual International Conference **WILDLIFE DISEASE ASSOCIATION** August 5-10, 2018 | St. Augustine, FL | USA

*Connecting Wildlife Health, Conservation and Management in a Changing World*



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## Student Award Recognition

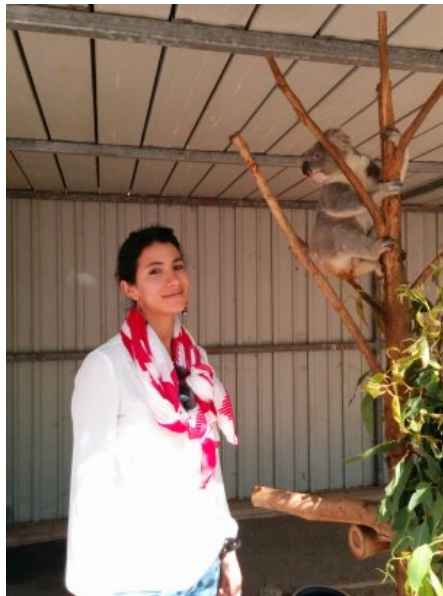
Congratulations to these recipients! We would like to congratulate them on a job well done and provide a little more information about their backgrounds:

### *Winner of the Student Recognition Award: Viviana Gonzalez-Astudillo*

Viviana Gonzalez-Astudillo is finalizing her PhD at the School of Veterinary Science at The University of Queensland in Australia. She applied for her current position as a PhD student because it focused on a combination of epidemiology and her long-term interest, veterinary pathology, applied to wildlife. Her thesis has focused on estimating the causes of the decline of koalas in southeast QLD, one of the areas in Australia where a sharp decrease of koala population has been observed for the past 20 years. She is pursuing this with a focus on utilizing epidemiological methods, as well as expanding into underexplored, exciting research of koala health, such as fracture healing.

Although this is her first occasion working with these unique marsupials, her interest in wildlife pathology stems from early in her veterinary education. She holds a veterinary degree from Colombia, and being a Latin-American veterinarian interested in wildlife pathology is challenging as training opportunities are scarce. The original instigation of her career in wildlife disease research began with her honours project in seroprevalence of *Leptospira* in captive native mammals, funded by Morris Animal Foundation, and awarded first place in MAF's wildlife competition. Her continued interest in the domestic-wildlife interface lead her to join subsequent studies looking into plausible zoological species reservoirs, and another assessing the potential role that invertebrate fauna could play in urban settings. Following a rotation at the Southeastern Cooperative Wildlife Disease Study at The University of Georgia,





she began a master's degree. This reaffirmed her interest in wildlife diseases, in particular with a project exploring aspects of avian ecology that influence haemoparasitic infection and their effects on avian health. Following graduation, she received a fellowship to work at the Robert Koch Institute from the German Academic Exchange Service in molecular biology of *Entamoeba* species of endangered gorillas.

As a future wildlife disease expert, she considers herself fortunate to have had the opportunity to receive wildlife training overseas at a world-class facility with her supervisors, Dr Rachel Allavena and Dr. Joerg Henning and wishes to apply the knowledge acquired to join efforts to mitigate the threats diseases pose to wildlife conservation and to understand the interconnections with ecosystem resilience, human and domestic animal health. She will be forever thankful for the WDA in nominating her as the 2017 Graduate Student Research Recognition Award and she looks forward to a long-standing relationship with the Association.

#### **Winners of the Student Scholarship Award – Carolyn Hodo and Charlayna Cammarata**

Carolyn Hodo has spent the last few years researching host associations, reservoir status, and clinical outcomes of *T. cruzi* infection in wild and domestic animal hosts, including dogs, bats, coyotes, raccoons, and non-human primates. This research serves to answer important questions about *T. cruzi* transmission cycles in the southern US, including the role of certain animals as reservoirs, host-strain type associations, and pathology related to infection. Her long-term career goal is to improve human and animal health through a One Health approach to infectious disease investigation, combining expertise in pathology with the fields of disease ecology and epidemiology, with a special interest in neglected tropical diseases and diseases transmitted from wildlife to humans or domestic animals.

Carolyn Hodo is a PhD candidate at Texas A&M University. She grew up in Charleston, SC, received a

Bachelors in animal science from Berry College in northwest Georgia, then attended veterinary school at the University of Georgia. At UGA, she participated in the externship program at the Southeastern Cooperative Wildlife Disease Study (SCWDS), where she fell in love with wildlife disease research and field work. Following vet school, she moved to Texas to complete a residency in anatomic pathology at Texas A&M University, and achieved ACVP board exam certification in 2014. During the residency, she began research work in Sarah Hamer's lab, and received an NIH T32 fellowship to complete a PhD focused on mammalian reservoirs of *Trypanosoma cruzi*, agent of Chagas disease, in Texas.

Charlayna Cammarata is a 4th year PhD candidate in the Texas A&M University Wildlife & Fisheries Sciences Department conducting morphological and molecular research on turtle blood fluke infections. Spirorchiid blood flukes (Trematoda: Digenea: Spirorchiidae) are considered the most dangerous parasites to turtles worldwide, yet we still know very little about many aspects of their basic biology. Surveying turtle species for spirorchiid infection would be hugely beneficial in developing greater knowledge; however, the logistics of conducting parasitological research on turtles can often be very difficult, since turtles are considered the most endangered reptile group worldwide.

The development of an assay capable of directly detecting spirorchiid community structure and intensity from live animals would greatly enhance the monitoring possibilities for all turtle and tortoise species worldwide, including marine turtles, as no such tool exists currently. The goal of the dissertation is to better understand the composition of these parasites in freshwater turtle communities across Texas and develop tools to survey imperiled turtle species, specifically marine turtles, for spirorchiid infections without the need for euthanasia. Her work will also be the first in-depth freshwater spirorchiid survey in Texas.

Charlayna has a Bachelor's of Science in Marine Biology with a Minor in Mathematics for Environmental Science from Alaska Pacific University, but is originally from Missouri. She has been obsessed with reptiles and amphibians and with the ocean her entire life, so when it came time to select a research project for her undergraduate senior thesis, she took the opportunity to work with both the National Marine Fisheries Service and National Wildlife Health Center located in Honolulu, Hawaii, during her NOAA Ernest F. Hollings Undergraduate Scholarship Internship. While there, she discovered a passion for wildlife disease ecology,





and parasite infections in particular, which has transpired into her graduate schooling at Texas A&M, and hopefully into a full-time career post-graduation. In her free time she's usually working on new posts for her parasite-themed blog *Will Work For Parasites*

([www.willworkforparasites.wordpress.com](http://www.willworkforparasites.wordpress.com)), spending time with her rescued dog and lizards, binge-watching shows on Netflix (currently obsessed with *Lost*), or prepping for her next powerlifting meet.

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## Australasian Section News

### Roadshow on emerging wildlife diseases

Veterinary pathologist Cheryl Sangster has been presenting a series of two-day workshops around Australia on emerging diseases of wildlife. Cheryl was drawing on her wealth of wildlife health and pathology experience which includes stints with the Canadian Wildlife Health Cooperative and Taronga Zoo.

Along with special guests, Cheryl shares insights into what classifies a disease as emerging, and uses examples from around the world to illustrate mechanisms for disease emergence. Snake fungal disease, chytrid fungus disease in frogs, and Saiga antelope die-offs are covered during the first day of the workshops. Day two explores recently identified emerging wildlife diseases in Australia and outlines key items for a wildlife pathology tool kit. The presentations were made to veterinary pathologists and veterinarians in Sydney (New South Wales), Launceston (Tasmania), and Gatton (Queensland) during March, and in Darwin (Northern Territory) and Perth (Western Australia) in April.

The workshops are presented by the Australian Animal Pathology Standards Program (AAPSP) and are proudly supported by Wildlife Health Australia. The AAPSP is a joint initiative of the Australian Society for Veterinary Pathology, the Sub Committee on Animal Health Laboratory Standards, and Animal Health Australia. It aims to improve the diagnostic capability for Australia's national animal health system. To find out more about AAPSP, visit the [AHA website](https://www.animalhealthaustralia.com.au/what-we-do/laboratory-services/australian-animal-pathology-standards-program/). [https://www.animalhealthaustralia.com.au/what-we-do/laboratory-services/australian-animal-pathology-standards-program/]

### New and Improved Wildbase Hospital, New Zealand

Massey University and its partners were excited to open their new Wildbase Hospital 27th January 2017. This new facility has 10x the floor space of the previous hospital and will increase the capacity of the organisation to provide high quality medical and surgical care of native New Zealand fauna.

Throughout 2016 Wildbase Hospital once again cared for some of the most endangered species on the planet. The nationally critical species cared for this year included: kakapo, takahe, shore plover, rowi, and Campbell Island teal; and endangered species included: bittern, kea, and Otago skinks.

The mission of Wildbase is to promote and implement collaborative research in wildlife health, with a particular focus on the interactions of wildlife health with the conservation of New Zealand fauna, human health, and domestic animal health.

In 2016, this was furthered under the following projects:

Wildlife health research – various undergraduate, graduate and post-graduate studies.

Marine mammal pathology – investigations include Hector's dolphin and other cetacean strandings, 5/8 NZ Sea Lions examined with mycobacteriosis, sub-Antarctic sea lion pup mortalities on Enderby Island, and various forensic examinations on pinnipeds associated with anthropogenic injury.

Oiled wildlife response capability – in partnership with the Maritime New Zealand and as a commercial enterprise. Although there were no major oil spills in the area in 2016, the service provided advice, regional oiled wildlife response representation at meetings, conducted oiled wildlife training courses and undertook a leadership role in the Global Oiled Wildlife Response System

National wildlife diagnostic pathology – in partnership with the Department of Conservation - 464 diagnostic investigations undertaken on native terrestrial and aerial wildlife.



### Wildlife Health Australia Report

Every three months information submitted to the national [electronic Wildlife Health Information System \(eWHIS\)](#)[1] is collated and submitted by WHA to a quarterly publication called Animal Health Surveillance Quarterly (AHSQ), which is produced by [Animal Health Australia](#)[2] as part of Australia's national animal health information system. Previous quarterly updates from WHA can be found in the [AHSQ Library](#)[3], or on [WHA website](#)[4]. Selected article from WHA's recent AHSQ report:

#### **Salmonella isolated in mass mortalities of house sparrows and spotted turtle-doves**

In October 2016, more than 30 birds were found dead within the grounds of a pet shelter in an inner Melbourne suburb. Daily mortalities of house sparrows (*Passer domesticus*) and at least two dead spotted turtle-doves (*Streptopelia chinensis*) presented dead or moribund over a period of more than 1 month. Dead birds were submitted to the Victorian veterinary diagnostic laboratory, AgriBio, Bundoora, for investigation. Gross pathology of examined birds included enlarged livers with multifocal pallor and enlarged spleens. Avian influenza, avian paramyxovirus and *Chlamydia* spp. were excluded by PCR testing. Histopathological lesions included histiocytic and lymphoplasmacytic hepatitis and splenitis with numerous intracytoplasmic and extracellular gram negative coccobacilli. A *Salmonella* isolate recovered from the liver and faeces of submitted birds (both *P. domesticus* and *S. chinensis*) was referred to the Microbiological Diagnostic Unit Public Health Laboratory (Melbourne University) for identification, where it was identified as *Salmonella enterica* subsp. *enterica* serotype Typhimurium DT160 (*S. Typhimurium* DT160). The Department of Health and Human Services was notified. This is the first diagnosis of *S. Typhimurium* DT160 in wild birds in Victoria (and in mainland Australia). *S. Typhimurium* DT160 is considered enzootic in Tasmania and has been diagnosed in 13 investigations involving house sparrows.[5] Infected wild birds (e.g. sparrows) have the potential to be sources of infection for humans, domestic animals and native animal and bird species.[6] *S. Typhimurium* has significant zoonotic potential, with a small number of human cases diagnosed in Australia to date.

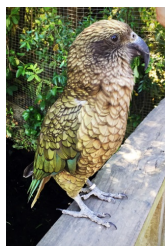


Figure 1: Kea at Willowbank Nature Park in Christchurch, courtesy Andrew Peters

#### **WDA Australasian Section Annual Conference Highlights 2016**

Our 2016 conference held jointly with the Wildlife Society of the New Zealand Veterinary Association in Christchurch, NZ, was a fantastic meeting despite dramatic last minute changes required after a major earthquake at our proposed venue in Kaikoura.

The program included insights into indigenous involvement in wildlife health and had a marine and avian focus. Many other diverse topics were covered. As usual, the student presentations were of a high calibre and adjudicating for the annual Anne Martin Student Award was challenging. Dr Aditi Sriram, who presented on lead toxicity in kaka, was a very deserving recipient.

The WDAA dinner was held at Willowbank wildlife park, and here two further awards were presented. Dr Tiggy Grillo, the national program coordinator for Wildlife Health Australia, was awarded our most prestigious prize, the Barry Munday Recognition Award. Tiggy was recognised for her outstanding integrity, communication and stakeholder engagement in her role at WHA. The Dave Spratt Award was presented to Dr Tim Portas. This recently created award recognises longstanding

members who have made an outstanding contribution to the Australasian Section. Tim's efforts to internationalise the Section over the past 15 years were highlighted as an exceptionally important contribution to the future of WDAA and he was a very deserving recipient of this award.

#### **Wildlife health takes a lead role in Papua New Guinea**

The PNG Institute of Medical Research is Papua New Guinea's leading non-governmental medical research facility. Last October, Sinafa Robby, a WDA Australasian section member, assumed leadership of the relatively new Zoonotic and Neglected Diseases Unit in PNG IMR. In his role, Sinafa seeks funding for the unit and coordinates scientific officers in targeted projects including surveillance for henipaviruses in bats, *Leptospira* in native rodents and zoonotic pathogens of pigs, poultry and PNG's emerging beef industry.



**PAPUA NEW GUINEA  
INSTITUTE OF  
MEDICAL RESEARCH**

Researchers in PNG face major logistical and funding hurdles. Collaborative research with international organisations provides the main mechanism for research into zoonotic diseases

in the country. Sinafa would be interested in collaborating on strategic projects relevant to zoonotic disease in PNG and can be contacted at [sinafa.robby@pngimr.org.pg](mailto:sinafa.robby@pngimr.org.pg).

#### Upcoming WDA Australasian Section Annual Conference 2017

The next Wildlife Disease Association Australasian Section Conference is being held at Falls Creek in the Victorian High Country, Australia from the 24-29 September 2017. This year's conference is in the beautiful Victorian Alps, with the conference facility at Howmans Gap Alpine Centre in the Alpine National Park, near Falls Creek. The overarching theme for our conference this year is the "**Intersect of Ecology and Wildlife Health**". Themes for the meeting include Wildlife Disease in Mountain Landscapes, the Intersect of Ecology and Wildlife Health and Managing Wildlife Health in Endangered Species. We are also planning some ripper field trips!

For abstract submission and registrations, please go to: <https://wdaa2017.exordo.com/login>  
For more details about this conference, go to <http://www.wildlifedisease.org/wda/Sections/Australasian/Meetings> or our conference Facebook page <https://www.facebook.com/wdaa.fallscreek2017/?ref=bookmarks>



[1] <https://www.wildlifehealthaustralia.com.au/ProgramsProjects/eWHISWildlifeHealthInformationSystem>

[2] <http://www.animalhealthaustralia.com.au>

[3] <http://www.animalhealthaustralia.com.au/our-publications/animal-health-surveillance-quarterly>

[4] <https://www.wildlifehealthaustralia.com.au/DiseaseIncidents/HistoricIncidents.aspx>

[5] National Wildlife Health Information System (eWHIS) as at 12 October 2016.

[6] WHA 2013, *Salmonella Typhimurium DT160 in house sparrows in Australia*, Fact Sheet, December 2013, Wildlife Health Australia.  
<https://www.wildlifehealthaustralia.com.au/FactSheets.aspx>

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#### FOUR 2017 Small Grant Proposals Funded

The WDA 'Small Grants' call for proposals brought an excellent response. There were nine submissions from 4 continents (North America, South America, Europe and Africa). The proposals to be funded in 2017 are described below.

**Mike Ziccardi** for the U.C. Davis, Wildlife Health Center will receive \$4000 to convert the WDA Newsletter (1951-1959) and Wildlife Disease (1959-1977) to digital format, and to edit and organize the material to allow for organized, structured curation of the WDA website. It will be posted to the WDA Website in the Members Area as a 'value added' benefit of WDA membership. Both of these publications now exist only on microfiche and the project will capture dozens of legacy papers that are widely referenced even today, but cannot be found in any library. A summer student will be hired to do this work.

**Jesse Brunner** of the University of Wisconsin will receive \$850 to populate the Global Ranavirus Reporting System with more than 50 years of published records of ranavirus occurrence/detection. A student will be hired to perform the work with continual oversight by the investigator.

The WDA Africa Middle East Section (AME) will receive \$2400 to support a special symposium on the "Role of Wildlife Health Professionals and the Increasing Trend of Emerging and Re-Emerging Disease at Wildlife-Livestock-Human Interface" at the Tanzania Wildlife Research Institute Scientific Conference in December 2017. **Lawrence Mugisha** wrote the proposal. The product for WDA members will be digital copy of the proceedings for posting on the WDA website (and/or a link to conference website).

**Ursula Siebert** of the Hannover University of Veterinary Medicine will receive \$2958 for the development, production and deployment of educational materials regarding marine mammal welfare, disease and zoonotic potential on the German seacoasts. The funding will be administered through the Institute for Terrestrial and Aquatic Wildlife Research (ITAW), Hannover. Materials will include posters, boards, leaflets, digital presentations, webinars, and interactive workshops and handout materials.

WDA small grants are meant to provide support for projects that benefit the wider world and the wildlife health professions by furthering WDA's mission to acquire, disseminate and apply



knowledge of wildlife health/disease. They are not meant to support a single individual's research or publications.



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## Student Corner

### What's on?

Summer is here. To get a bit of a cooling down, two of our wildlife disease stories will take you to the snowy landscapes of the Arctic. Also read about the amazing student initiative setting up the Africa & Middle East Student Chapter.



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### Dogsledding for wildlife

Most creative Student Chapter Event 2016/17:

The Student Chapter of the University of Saskatchewan organizes an annual dogsledding tour. This year's trip also included a snowshoe hike for wildlife watching and experiential learning.

Awesome idea, Saskatchewan Student Chapter!

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### Young wildlife professionals in focus

Where does the journey lead you? National Park vet, field biologist, academic? The options are plentiful. However, getting the job of your dreams often appears like a long and rocky road. In this section we introduce extraordinary postgrad vets and biologists who followed that rocky road all the way through:

#### Matilde and the Muskoxen – One Health at its best

By Catharina Vendl

Temperatures far below zero, multiple layers of thick winter clothes and the endless snowy deserts of Canada's far north: This is the world of Italian-born Matilde Tomaselli's PhD project at the University of Calgary.

The lives of the 1,477 inhabitants of the community of Ikaluktutiak in Nunavut have changed dramatically during the past few decades. And so has their diet: The Inuit used to live exclusively on harvested meat such as polar bear, muskox and caribou. These days, grocery shops have found their way into Ikaluktutiak. Western foods have become increasingly popular. However, the shops are expensive and bad weather conditions can sometimes delay supplies for weeks. Therefore harvested meat is still important to ensure food security in the far north.

Eating lots of game, sometimes even raw, comes with the risk of catching a long list of zoonotic pathogens. How do you prevent that? This is where Matilde's project comes into the story. The Inuit lived with the land and its animal inhabitants for thousands of years and thereby gathered a vast amount of knowledge. Experience taught



them well, for example, that it may not be wise to eat meat from a muskox that had bloody scabs on its nose. You may end up sick as well.

As the younger generations mostly prefer the western lifestyle, there is a general concern that, with elders passing away, traditional knowledge will soon fade out. By interviewing the elders of the community and recording their knowledge about wildlife diseases, Matilde not only aims to use this as a tool to establish a health surveillance program for muskoxen in order to secure a stable conservation status, but also to ensure the well-being of the people who eat the muskoxen's meat.

Occasionally, Matilde's project turned her into a One Health detective: The local hunters are committed to collecting a certain number of tissue and blood samples from their prey and submit these to Calgary University for analysis of pathogens. If any positive results were detected, Matilde started a field investigation. This way she found evidence linking traditional knowledge and modern science: Muskoxen with bloody scabs on their nose are likely to be infected with parapoxvirus that can cause nasty skin lesions in people (Tomaselli et al, 2016).

After living in the community for more than a year Matilde didn't only gain the people's trust but also their friendship. She learned to genuinely enjoy the simple lifestyle of the Arctic. And as the most surprising revelation for someone born in sun-drenched Italy, Matilde has learned that even minus 60° C is not as unbearable as it might seem.

#### References:

Tomaselli et al. (2016),  
<http://dx.doi.org/10.7589/2015-12-327>

Credit of pictures: Matilde Tomaselli



### New Africa Middle East Student Chapter: Welcome to the WDA family!

#### Simba's pride – the WDA AME Student Chapter

by Friederike Pohlin and Eduard Roos

Africa Middle East, widely regarded as the cradle of humankind, is home to many of the world's most fascinating and endangered wild animals, as well as to their zoonotic pathogens.

*Note: The Africa and Middle East (AME) Section of WDA has approved the plans for an all Section Student Chapter (as exist in Europe and Australasia) and the proposal will be reviewed by Council in July 2017 and is expected to be approved.*

The idea of starting a WDA SC in Africa began with a few students, with different professional backgrounds, who met at a wildlife congress in Southern Africa. After a few great conversations, we decided to create a Student Chapter for the WDA AME Section. All of us believe that collaboration and interdisciplinary research, on national and international level, is the key to address current and complex conservation challenges at the human-wildlife interface.

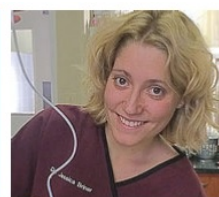
With help from our advisor Prof. Michele Miller, we aim at providing a platform in which to engage, inspire and educate students from different backgrounds interested in wildlife disease. By creating these platforms, we would encourage our members to transfer their knowledge to other students and furthermore urge them to connect with mentors in their field.



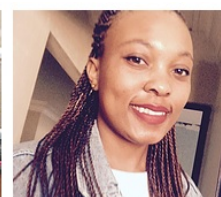
PRESIDENT  
Eduard Roos



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#### The WDA-AME SC board

Like our European fellows, we are introducing a Country Representative System to meet the needs of all students within Africa and the Middle East.

Currently, we are in the recruitment phase where we focus on the distribution of information on the WDA AME and the new Student Chapter. However, we have already started to schedule monthly online paper discussions together with the "Zoo and Wildlife Medicine Study Group" and are busy planning a student Symposium.

As we want to grow the interest and participation of Wildlife Disease students within the WDA and the WDA AME, we are hoping to implement student activities, such as a mentor mixer and a student workshop, at official WDA AME Section meetings and offer student sponsorship and discounts.

Although this still needs formal WDA Council approval: We are excited to announce the pending formation of a Wildlife Disease Association - Africa and Middle East Student Chapter in the WDA newsletter and invite students to join us!

Please visit us on [twitter](#) (#WDAAMESC), [facebook](#) (Wildlife Disease Association - Africa Middle East Student Chapter), and <https://wdaamesc.wixsite.com/wda-ame-students>.

Feel free to contact us on our social platforms or by emailing us: [wdaamesc@gmail.com](mailto:wdaamesc@gmail.com)

Yours, WDA-AME SC board.

If you have any suggestions for a young wildlife professional in focus or if you have any other ideas for the Student Corner, please send an email to Catharina Vendl, Student Representative on Council, ([catharinavendl@gmail.com](mailto:catharinavendl@gmail.com)).



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## Quarterly Wildlife Mortality Report, July 2017

*Written and compiled by members of the U.S. Geological Survey National Wildlife Health Center - Wildlife Epidemiology & Emerging Diseases Branch.*

### Large Trematode-caused Red-eared Slider Mortality in Louisiana

An extensive mortality event involving red-eared sliders (*Trachemys scripta elegans*) occurred in multiple locations across Acadia Parish in southern Louisiana. Mortality was first reported in February 2017 with the number of dead sliders likely in the hundreds. Morbid sliders were observed swimming in circles and exiting the water onto levees. They were lethargic and unable to flee when approached and had signs of respiratory disease including clogged nares and open mouth, shallow breathing. Healthy fish, crawfish, birds, frogs, and salamanders have been observed in the ponds with affected sliders.

The USGS National Wildlife Health Center (NWHC) examined several dead sliders submitted by the Louisiana Department of Wildlife and Fisheries (LDWF) and found severe pathology associated with a trematode in the genus *Spirochis*. Internal lesions were found in brain, lung, spleen, and vascular system tissue associated with granulomas surrounding large numbers of trematode eggs. *Spirochis* trematodes of turtles have a complex life cycle with turtles as the definitive host and snails as an intermediate host. Turtles examined at the Southeast Cooperative Wildlife Disease Study (SCWDS) and the Louisiana State University (LSU) Animal Disease Diagnostic Laboratory found similar evidence of trematode infection. *Spirochis* trematodes are common parasites of North American turtles; it is currently unknown why they have caused such an extensive mortality event in this instance.

### Salmonellosis in Florida Cardinals

Citizens throughout Florida's Panhandle region (Jefferson, Santa Rosa, Duval, and Holmes Counties) have recently reported northern cardinal (*Cardinalis cardinalis*) mortalities. Clinical signs have included lethargy, limited flight, and sitting on the ground for a few hours before death. While more than 50 cardinals have been reported dead since February 1, 2017, other common passerine songbirds have been largely unaffected. Mortality events have been primarily reported by citizens with backyard birdfeeders. The USGS National Wildlife Health Center (NWHC) recently identified salmonellosis as the cause of death for two cardinals found dead at a Duval County backyard feeder and submitted to NWHC by the Florida Fish and Wildlife Conservation Commission. Salmonella transmission at birdfeeders typically occurs through direct bird-to-bird contact, contact with contaminated environments, or contaminated food. High densities of birds at feeders can increase the risk of salmonella outbreaks. Actions to reduce risk of infectious disease transmission at feeders include placing additional feeders to reduce crowding, routinely cleaning birdfeeders with a 10% bleach solution, and removing waste seed that accumulates under feeders.

### Canine Distemper in Wisconsin

Beginning mid-March, 2017, the Wisconsin Department of Natural Resources (WI DNR) received reports of unusual mortality involving raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), and striped skunk (*Mephitis mephitis*) occurring in two counties in southeastern Wisconsin. Following submission of two raccoons, a gray fox, and a striped skunk to the USGS National Wildlife Health Center (NWHC) canine distemper virus was determined to be the cause of death (with rabies ruled out). The Wisconsin Veterinary Diagnostic Laboratory and the Wisconsin State Laboratory of Hygiene collaborated on this diagnosis. The WI DNR continued to receive reports of unusual small mammal mortality through early June including cases in central and northern Wisconsin counties. Similar suspected distemper outbreaks in the spring of 2017 involving raccoons have been reported and investigated by the Minnesota Department of Natural Resources (six counties) and Virginia Department of Game and Inland Fisheries (two counties).

Distemper is a highly contagious, systemic, viral disease that infects a wide variety of mammalian species with domestic dogs considered to be the natural reservoir species. The disease is common and can cause significant outbreaks in susceptible wildlife species. Vaccination is essential for the prevention of disease and outbreaks in domestic dogs.

Because the clinical signs of distemper can mimic rabies, contact with sick animals should be avoided. People and their domestic pets/livestock should avoid contact with sick or dead wildlife and contact the appropriate wildlife officials in their area for further guidance.

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/>

