



Third WDA Latin America Section Newsletter

EDITORIAL Volume I, number III – February, 2016

Edited by: Ana Carolina Ewbank, Pedro Enrique Navas-Suárez, Angélica María Sánchez Sarmiento, Gilbert Alvarado and Carlos Sacristán Yagüe.

BIENNIAL CONFERENCE, BOGOTÁ, 2015.

Results of the Second WDA Latin America Section conference

From September 24th through 28th, approximately 150 students, professionals and researchers from 10 different countries (Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Ecuador, México, Peru, Spain and United States) gathered in Bogotá, Colombia, to attend the second edition of the **WDA Latin America**.

On September 24th, a guided tour of the Chingaza

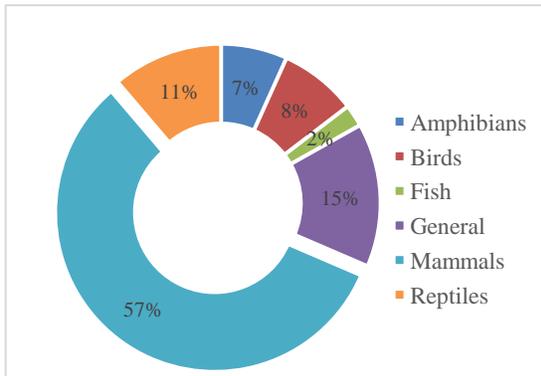
National Park gave the attendees a glimpse of the ecosystem and cultural richness of this region (Andean Paramo). During the visit we were able to take a close look on some emblematic species, such as the frailejones (*Espeletia* sp., Family: Astraceae) and the white-tailed deer (*Odocoileus virginianus*).



Photo: II Biennial Conference, Bogotá 2015

On this edition, 89 abstracts (38 oral, 51 posters) were presented to students and researchers from 10 different nationalities. We also had the privilege of hosting 8 experts in various topics of wildlife diseases as keynote speakers. The main topics discussed at the conference included: parasitology, epidemiology, microbiology, virology, comparative pathology and wildlife conservation

medicine among others, in wild animal species from the following taxa:



The two best oral presentations and the best poster were awarded with the 2016 Annuity of the Association, as well as various products from our sponsors. The two best oral presentations were from Oscar Rico Chávez (National Autonomous University of Mexico) and Rafael Ojeda-Flores (National Autonomous University of Mexico). The award of best poster was granted to Diego Pérez-Venegas (Andrés Bello University, Chile). Was also awarded the best work presented by a student member of our section, Marcelo Carvalho (University of São Paulo, Brazil).

Between September 23-29th, workshops were held at the La Salle University, Bogotá, Colombia, where various topics of interest were discussed in the field of wildlife diseases. International experts, such as doctors Marcela Uhart, Luz Dary Acevedo, Nicole Gottdenker and José Luiz Catão-Dias, gave lectures on our workshop to 30 students and professionals from different fields of study.

Thank you very much for attending the second WDA Latin America Conference! We hope to see you on our third conference in 2017, in Puerto Vallarta, Mexico to be held along with the WDA International Annual Conference.



Author: Local Committe WDA-LA

ASSESSING EXPOSURE OF GUIGNAS (*Leopardus guigna*, CARNIVORA: FELIDAE) TO PATHOGENS AND MHC GENES SELECTION IN HUMAN-PERTURBED LANDSCAPES IN CHILE

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Infectious emerging diseases represent a serious threat to global biodiversity and human health. Environmental changes caused by agricultural and other related human activities has been proposed as one of the main drivers of disease emergence by enabling contact between

domestic and wild species, and eventual pathogen transmission. During the last two decades, feline immunodeficiency virus (FIV) and feline leukemia virus (FeLV), two of the most common pathogens affecting the immune system of domestic cats, have also been reported in free-ranging wild species from the Felidae family. A recent study reported for the first time in a wild felid in Chile, FIV and FeLV infections in the threatened guigna (*Leopardus guigna*) living in anthropogenically impacted landscapes and in close contact with positive domestic cats (Mora et al. 2015). Preliminary phylogenetic analyses of FIV and FeLV sequences from guignas and domestic cats detected closely related strains sharing a common origin, suggesting recent interspecies transmission. No clinic signs of disease were detected in guignas during

The guigna is currently listed as “Vulnerable” by the IUCN. Habitat loss and hunting were so far considered the main threats to this species survival, however, according to this recent study, disease transmission from domestic cats should also be considered (Mora et al. 2015).



Author: Constanza Napolitano

The evolutionary and adaptive potential of endangered populations in the face of an emerging disease is frequently investigated by genetic diversity studies of the major histocompatibility complex (MHC) - the functional genes of the immune response. The MHC is a group of polymorphic loci responsible for vertebrate adaptive immune response. Within MHC genes, the functionally important antigen binding sites (ABS) recognize and interact directly with foreign antigens. Variation in MHC is driven by pathogen selective pressure over ABS, activated when specific alleles that confer enhanced protection to a pathogen are favored.

Given the increasing deforestation and human encroachment into wild areas of the Chilean temperate rainforest, the natural habitat of the guigna, subsequent contact and exposure of wild animals to domestic pathogens might be an increasing risk. We are currently using a comprehensive approach combining ecological, evolutionary and infectious disease pathology tools to further understand pathogen transmission at the wildlife-domestic interface, focusing specifically on disease transmission between guignas and domestic cats.

Our results will likely be applicable to other species inhabiting landscapes under anthropogenic impact and promote further and much-needed research efforts in

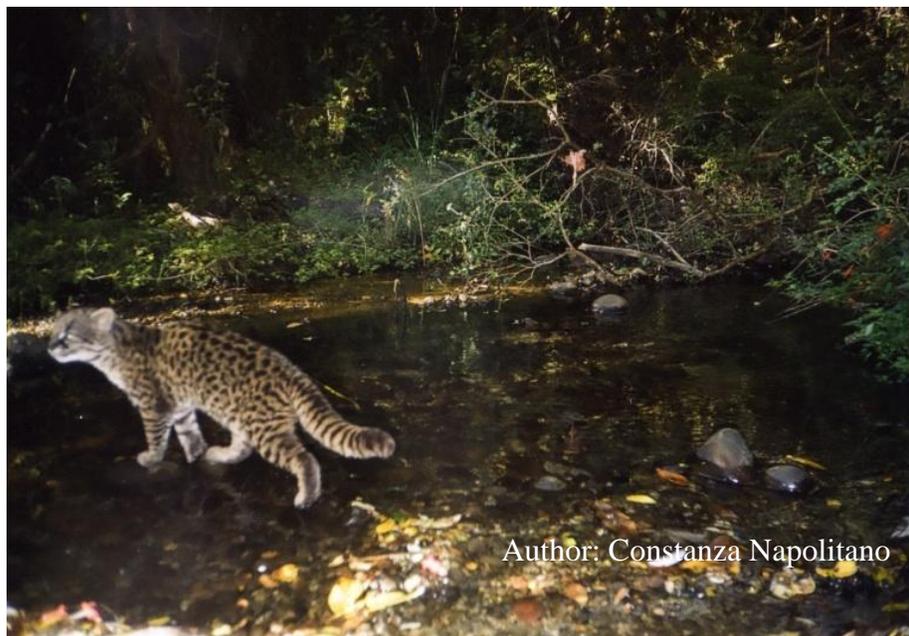
Chile. In the current global scenario of ever-increasing environmental impact by agricultural and other related human activities and urban expansion, this study will contribute to the understanding of pathogen transmission at the wildlife-domestic interface.

Funding:

Morris Animal Foundation (USA), National Geographic Society (USA), Mohamed bin Zayed Species Conservation Fund (Arab Emirates), Wild Felid Association (USA), FONDECYT Iniciación 11150934 (CONICYT, Chile).

References:

Mora M, Napolitano C, Ortega R, Poulin E, Pizarro-Lucero J. 2015. Feline immunodeficiency virus and feline leukemia virus infection in free-ranging guignas (*Leopardus guigna*) and sympatric domestic cats in human perturbed landscapes on Chiloé Island, Chile. *Journal of Wildlife Diseases* 51: 199–208.



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TODAY, COSTA RICA MEMBERS

Alejandra Calderón, DMV

Currently working at the Mycology Laboratory, College of Veterinary Medicine, National University (UNA), in Costa Rica. Her main project is related to the investigation of mycotic agents and mycosis of free ranging and captive wildlife. Is currently applying for a Masters student position in the Conservation Medicine Program at the UNA, Costa Rica.

Mario Baldi Salas, DMV

Wildlife veterinarian of the Tropical Diseases Investigation Program of the National University (UNA), Costa Rica. His main research interests include epidemiology of wildlife diseases and wildlife reservoirs of emerging infectious diseases. Currently working on his PhD project at the Conservation Medicine Department, Wildlife and Ecology Institute, Viena Veterinary University, Austria.

Danilo Leandro Loría, DVM

Government official. Encharged of the Wildlife Health and Welfare Control and Regulation. National Animal Health Service, Ministry of Agriculture and Livestock, Costa Rica.

Gilbert Alvarado, BSc, DVM

Works at the Biology School, University of Costa Rica (UCR). His main interest is in Wildlife Pathobiology, especially on amphibian diseases and population declines in Costa Rica. Currently enrolled in a PhD program of Comparative and Experimental Pathology at the Laboratory of Wildlife Comparative Pathology (LAPCOM), School of Veterinary Medicine and Animal Sciences, University of São Paulo (USP).

PROVIDING CARE FOR THE WILDLIFE OF ESPÍRITO SANTO STATE AFTER THE MARIANA DAM ACCIDENT IN BRAZIL

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Figure 1: Neotropic cormorant (*Phalacrocorax brasilianus*) under rehabilitation (Photo: Tabata Langa)

On November 5th 2016, Brazil suffered one of the greatest environmental accidents of its history. The Fundão dam accumulated tailings from iron ore mining by the Samarco Company in the municipality of Mariana, Minas Gerais state, and its breaching released approximately 32 million cubic meters of tailings, water and wreckage from the dam into the adjacent streams. These

tailings followed downstream, flowing into and consequently overflowing the Santarém water dam. This process created a great wave of mud and debris that quickly moved through the rough terrain of this region. Initially, the mud wave reached the small Santarém creek, then followed to the Gualaxo do Norte River, flowing into the Carmo River and following down the Doce River. Sixteen days after the accident, the mud reached the Linhares municipality, in the adjacent state of Espírito Santo, at the estuary of the Doce River into the Atlantic Ocean.

As soon as specialists foresaw the arrival of the mud to Espírito Santo, still in November, the team of wildlife professionals from the Institute of Research and Rehabilitation of Marine Animals (IPRAM-ES) was mobilized to survey the wildlife on the affected municipalities (Baixo Guandu, Colatina, Marilândia and Linhares). Terrestrial, aquatic and aerial surveys were conducted to search for amphibians, reptiles, birds and mammals inhabiting the area that would be affected to evaluate their distribution and behaviour, and elaborate the rescue and wildlife protection plans which were put in place before the mud arrived in late November.

In order to clinically evaluate and care properly for the animals, a main wildlife response facility was established at Linhares and additional wildlife stabilization field bases were established at Colatina and Regência. Aside from the basic resources such as electricity and water, the main wildlife response facility



Figure 2: Map of the streams and rivers affected in the incident (orange and blue lines), showing the dams at Minas Gerais state (yellow) and the towns that were impacted in Espírito Santo state (pink) (Credit: Ralph E. T. Vanstreels).

was also equipped with veterinary equipments and supplies, veterinary drugs, animal cages and transport boxes, inflatable swimming pools, equipment for trapping and physical restraint, materials for building enclosures, refrigerators, freezers, among others.

As a veterinarian I was in charge of these facilities, being directly involved in the handling, husbandry, clinical care and rehabilitation of the animals rescued by the field teams, as well as taking part in personnel training.

A great variety of aquatic and terrestrial species was admitted for rehabilitation, such as: anurans, lizards, snakes, terrapins, herons, terns, teals, rails, cormorants, wood storks, vultures, porcupines, coatis and marmosets. After receiving rehabilitation care, animals were released back to the wild (in a mud-free area) or referred to other triage and rehabilitation centers. Upon admission, most animals were dehydrated and underweight; some presented fractures

and a variety of injuries. In parallel with the live animal care, all carcasses found in the monitored areas were retrieved and promptly submitted for necropsy (except the carcasses in an advanced stage of putrefaction, when only the photo-documentation was possible). Upon necropsy, a large fraction of the animals presented severe cachexia, empty stomach, marked atrophy of pectoral muscle and low or no fat stores. To help evaluate the extent of the Fundão dam breach impact on the local fauna, aside from field surveillance and photo-documentation, several biological samples were collected from live and deceased animals.

Finally, it is impossible to deny the gravity of this incident and its impact over the local fauna in the short and long term; however, caring for the local wildlife was, and still is, an important attempt to mitigate the negative effects of this incident. Although rescuing and rehabilitating a single individual is not

enough to conserve a whole species or population, we have an ethical responsibility to try to minimize the negative anthropic effects over each and every affected animal. We should always remember that populations are constituted of individuals. Furthermore, we were able to develop and enhance rehabilitation protocols to the very sensitive species (e.g. terns), that in other circumstances are not frequently received in rehabilitation centers. We hope that through our work we have contributed to the well-being of the rescued animals and to the improvement of some rehabilitation protocols.

* The Samarco Company supported and financed all the aforementioned activities.



Figure 3: Common Tern (*Sterna hirundo*) rescued in Regência municipality, Espírito Santo (Photo: Luis Felipe Mayorga)