



## Editor's Viewpoint

# Wildlife Comparative Pathology in Brazil: Where we Started, What we have Accomplished and Where we are Heading

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Brazil holds one of the world's greatest biodiversity legacies. Alongside a few other countries (Australia, Bolivia, China, Colombia, Ecuador, United States of America, India, Indonesia, Madagascar, Mexico, Peru and Democratic Republic of the Congo), we are considered *Megadiverse*, due to the exuberance and complexity of our ecosystems. Such lushness is not only an understandable reason of pride, but also brings responsibilities and commitment. In order to maintain it, we need the proper elements and means, as well as active and solid technical and scientific skills. This is the context in which the work of wildlife comparative pathology veterinarians is inserted into.

The history of wildlife comparative pathology begins at the same time as the history of veterinary medicine itself, as the use of animals such as elephants, in wars and battles, for many centuries. However, knowledge and technical-scientific ordinance systematization of this veterinary science branch occurred only since the mid-60's and -70's of the last century, with the creation of the first "Registries of Comparative Pathology of Lower and Higher Vertebrates" in several research centers, especially at the National Museum of Natural History/Smithsonian Institute, in Washington, D.C. Subsequently, throughout the 70's and 80's of the 20<sup>th</sup> century, a few modern North American and European zoos created the first exclusive Comparative Pathology departments. At this moment, those considered the "fathers" of modern wildlife pathology emerged: Richard James Montali, Linda Lowenstine, Linda Munson, George Migaki, John C. Harshbarger, John D. Strandberg and Kurt Benirschke, among others. These pathologists set the basis and systematized the yet diffused knowledge related to pathological processes involving non-domesticated fauna. The publication of the "The Comparative Pathology of Zoo Animals"<sup>1</sup> compendium, by Montali e Migaki, in 1980, was essential to this process.

In essence, the story is not very different in Brazil. Likewise, throughout the 60's, 70's and 80's of the 20<sup>th</sup> century, many veterinarians were working in the wildlife comparative pathology field, reporting and describing cases and processes involving native and exotic animals of the Brazilian fauna. In this sense, renowned researchers are considered the pioneers of this field in our country, including among others Adair Mafuz Saliba, João Baptista da Cruz, Alcides Pissinatti and Façal Simon. The original work of these professionals was crucial for the progress that followed.

By the end of the 80's and mid 90's, with the country's growing environmental conscience, and consequent need of professional training in this strategic area of expertise, a new generation of professionals felt encouraged to follow the field of wildlife comparative pathology. That was when the Brazilian Association of Wildlife Veterinarians (Associação Brasileira de Veterinários de Animais Selvagens – ABRAVAS) was founded, during the World Congress of Veterinary Medicine, in Rio de Janeiro, 1991, and directed by Dr. Alcides Pissinatti in its early years. That was also when the first Graduate programs on Comparative Pathology investigation and wildlife research laboratories were created.

The combination of these two elements - wildlife graduate programs and pathology laboratories - trained dozens, possibly more than a hundred, of able and qualified masters and PhDs to act in this challenging field of veterinary pathology, making its unprecedented growth possible in Brazil. When mentioning institutions and researchers by name, one always runs the risk of committing an injustice and forgetting someone, but I believe it is necessary to mention that, among all the institutions and laboratories that contributed to this outstanding increment, the Universidade Estadual Paulista Júlio de Mesquita Filho and its many diverse campi stand out, specially Jaboticabal campus, with Drs. Gervásio

Bechara, Karin Werther and Rosangela Zacarias Machado; Universidade Estadual Fluminense, with very relevant work in Comparative Clinical Pathology headed by Dr. Nádia Almosny; Universidade Federal de Minas Gerais with investigations on infectious processes led by Drs. Renato de Lima Santos; Universidade Federal do Rio Grande do Sul, particularly research conducted by Dr. David Driemeir. Finally, I would like to humbly mention the role played by the Laboratório de Patologia Comparada de Animais Selvagens – LAPCOM, at the Universidade de São Paulo, as well as its Experimental and Comparative Pathology Graduate Program. Established in January 1995, by Dra. Eliana Matushima and the author, LAPCOM has graduated over 65 researchers (among masters and PhDs) - the vast majority active in the comparative studies of wildlife diseases - and published over 130 complete studies in national and international periodicals on a variety of Neotropical wildlife pathology subjects.

The consolidation of wildlife comparative pathology in Brazil occurred between the 90's of the 20<sup>th</sup> century and the first decade of the 21<sup>st</sup> century. It is safe to declare there are qualified veterinary pathologists in all the macro regions of our immense country, able to deal with the morbid processes that afflict the non-domesticated native and exotic fauna. For many years, comparative pathology laboratories in Brazil have been a reference for students and researchers in Latin America. More recently, these centers started receiving North American and European students and professionals interested in learning “in loco” about Neotropical diseases of the fauna under the supervision of Brazilian researchers. Bibliography generated here is referred in different parts of the world. The international acknowledgement of “Tratado de Animais Selvagens: Medicina Veterinária”<sup>2</sup>, as well as the exponential growth of Brazilian researchers publishing articles on wildlife diseases in relevant periodicals, are excellent examples of that.

Nevertheless, supported by this current solid foundation, we need to advance toward a new and original action concept in the field of wildlife comparative pathology. Reports and descriptions of diseases affecting individuals or animal groups, both in the wild or in captivity, are vital to build up our own caseload, and must be incorporated into studies regarding population and environmental settings. It is time to consolidate data and investigate the diseases that afflict wildlife based on the fact that human, environmental and animal health are all connected and interdependent. Thus, the need for qualified multi and transdisciplinary researchers and professionals.

In the years to come, more and more technicians and researchers will be required; not only with a solid training in the basis of comparative veterinary pathology, but also aware and open to the fact that all of us, all life forms, live in the same world and are all connected to only one health. Let the new era begin!

#### Literature Cited:

1. MONTALI RJ., MIGAKI G. Eds. **The Comparative Pathology of Zoo Animals.** Wasington DC: Smithsonian Institute Press, 1980. 684p.
2. CUBAS ZS., SILVA JCR., CATÃO-DIAS JL. Eds. **Tratado de Animais Selvagens: Medicina Veterinária.** São Paulo: Roca, 2007. 1354p.