

TAXONOMIC DISCRIMINATION OF EVIDENCE PRODUCED BY PUMAS AND DOGS IN OUTDOOR DEPREDATIONS, FROM THE FORENSIC VETERINARY PERSPECTIVE

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Introduction: Puma (*Puma concolor*) has great adaptability, but the loss of habitat and prey has originated conflicts in their interactions, which the predation of livestock has originated misperception as pest and persecution. However, it has been shown that dogs (*Canis lupus familiaris*) can also attack cattle causing disturbing damage. The lack of strategies and absence of qualified personnel evaluating each case can mask the real impact of the predation patterns of puma and dog attacks, that are different in their nature and effects but could be misinterpreted causing excessive reactions. The interdisciplinary approach in a forensic context can optimize the information of the scene and the victim, and the veterinarian practitioner have the knowledge and skills for this. The goal of this work is to review the state of the art of the analysis of evidence produced by pumas and dogs in outdoor depredations in forensic contexts and to discuss future perspectives to improve this analysis with the inclusion of forensic veterinarians in these procedures.

Method: It is present a systematic review of observations and procedures that allow discriminating taxonomically the evidence produced by dogs and pumas in outdoor depredations. An electronic search was made of the PubMed/Medline, SciELO, LILACS and REDALYCS databases up to December 2016 using the terms and strategy (“puma” OR “cougar”) AND (“dog” OR “canine”) AND (“attack” OR “predation”) in Spanish and English. Abstracts were reviewed for relevance to the defined review question. Full texts of case reports, case series, technical notes, reviews and original studies available in English, Spanish and Portuguese were included. Newsgroup articles and letters to the editor were excluded. **Results:** According to inclusion/exclusion criteria, eight were selected: case reports (4), original studies (2) and reviews (2) that indicated taxonomic patterns of attack or procedures at the scene and the victim. Articles from USA (2), Argentina (1), Australia (1), Brazil (1) and

Italy (1) were identified; partnerships between Argentina/Chile/Spain (1) and Colombia/Mexico (1) were also detected. Although the way in which an animal attacks depends on the species, attacks of dogs and puma may be confusing to the untrained eye when protocols of observation, photography, collection of traces or necropsy are not applied at the scene. The analysis of the pattern of wounds (bite marks and claw marks) was particularly highlighted as important but less explored. **Discussion:** A trained veterinarian included in the forensic team can contribute to taxonomically identifying the predator through the analysis of footprints, claw marks, hair and feces at the scene, and by analyzing the circumstances of the incident. In cases of dog attacks, it should specifically be their role handling the animal suspect if captured, to evaluate gastric contents (through the use of emetics) or even to analyze the ethological patterns. If appropriate discrimination between puma and dog has not been carried out, this may result in a threat to the conservation of the first. **Conclusion:** It is proposed to create training opportunities for veterinarians to allow them to be included in the forensic investigation teams to assist in cases of animal predation and to prevent threats of the species and of regional ecology.

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WILD BIRD TRAFFICKING IN BRAZIL AND THE VETERINARY PHYSICIAN'S ACTIVITIES

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Introduction: The Brazilian fauna has a high biodiversity, introducing about 10% of 1,400,000 animals catalogued on the planet (BRASIL, 2002). This data makes Brazil as a target country in the trade of wild animals. According to Rede Nacional Contra o Tráfico de Animais Silvestres ([2012?]) surveys, it was concluded that: About 80% of the smuggled animals are birds, moving around R\$ 3 billion. Therefore, the large amount of money involved in the purchase of animals combined with the high level of poverty in certain regions of Brazil, is the reason that can promote even more the illegal trade. In addition, the capture of wild animals is linked to the use of members of the fauna as pets, source of income and as food (FREITAS *et al.*, 2015). An important point for the conservation of wild birds is the knowledge of the fauna that is kept illegally. It is necessary the analysis of the species, number of specimens, animal health conditions and the appropriate treatment to be performed to return them to the homeostasis. To all of these

assumptions the Veterinarian is essential profession. After the rescue of these birds and their appropriated treatment, their main destination is returning them to the nature (RIBEIRO; SILVA, 2007). This paper performs an analysis of birds traffic in Brazil and discuss the importance of the veterinarians in the control of this practice. **Materials and Methods:** The present assignment was made through a literature review, based in a scientific research analysis such as articles and monographs from February to March 2017. The review was systematic, in which it was perform retrospective observational studies. **Results and Discussion:** The most analyzed Brazilian birds were those with high external traffic, such as the Lear's Macaw (*Anodorhynchus leari*), sold for US\$ 60 thousand, and the Red-tailed Parrot (*Amazona brasiliensis*) for US\$ 6 thousand, both marketed for collections, and indoors, such as passerines, goldfinches (*Carduelis yarrellii*), Seven-coloured tanager (*Tangara fastuosa*), Saffron finch (*Sicalis flaveola*) sold for prices varying from R\$ 30 to R\$ 200. These birds are considered rare because they are being found less frequently in their natural habitats, which may show a reflection of the indiscriminate capture. Also, the birds of the Family Psittacidae, such as the Blue Fronted Parrot (*Amazona aestiva*) are of great interest of traffic because they mimic the human voice (GOMES; OLIVEIRA, 2012).

Chart 1 - Classification of the most traded wild birds in Brazil.

Order	Family	Species
Accipitiformes	Accipitridae	<i>Elanus leucurus</i>
Anseriformes	Anatidae	<i>Dendrocygna bicolor</i>
Apodiformes	Trochilidae	<i>Eupetomena macroura</i>
Caprimulgiformes	Caprimulgidae	<i>Chordeiles acutipennis</i>
Falconiformes	Falconidae	<i>Falco sparverius</i>
Passeriformes	Fringilidae	<i>Carduelis yarrelli</i>
	Thraupidae	<i>Tangara fastuosa</i>
		<i>Alipiositta xanthops</i>
Piciformes	Ramphastidae	<i>Amazona amazonica</i>
		<i>Amazona vinacea</i>
		<i>Ara ararauna</i>
		<i>Ara macao</i>
Psittacioformes	Psittacidae	<i>Aratinga auric</i>

Source: BRASIL, Ministério do Meio Ambiente.