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Checklist of Helminth parasites of Amphibians from South America

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Abstract

Parasitological studies on helminths of amphibians in South America have increased in the past few years. Here, we present a list with summarized data published on helminths of South American amphibians from 1925 to 2012, including a list of helminth parasites, host species, and geographic records. We found 194 reports of helminths parasitizing 185 amphibian species from eleven countries: Argentina, Brazil, Chile, Colombia, Ecuador, French Guyana, Guyana, Paraguay, Peru, Uruguay and Venezuela. Helminth biodiversity includes 278 parasite species of the groups Acanthocephala, Nematoda, Cestoda, Monogenea and Trematoda. A list of helminth parasite species per host, and references are also presented. This contribution aims to document the biodiversity of helminth parasites in South American amphibians, as well as identify gaps in our knowledge, which in turn may guide subsequent studies.

Key words: Acanthocephala, Nematoda, Cestoda, Monogenea, Trematoda Amphibia, Helminth, Parasite, South America

Introduction

A recent count lists 7044 amphibian species known in a global scale (Frost 2011). South America is one of the world's hotspots of amphibian biodiversity and harbours around 2,599 species (Frost, 2013). Brazil, the largest South American country, harbours the richest amphibian fauna in the world, with 946 species (Segalla *et al.* 2012), followed by Colombia (783 spp.), Peru (571), Ecuador (555), Venezuela (363) Bolivia (316), Argentina (174), Guyana (162), Surinam (123), French Guyana (119), Paraguay (114), Chile (62) and Uruguay (49) (Frost 2013). Despite the great diversity among these vertebrates, a global decline has been documented in the group and this has attracted attention to several aspects of amphibian ecology, specially the study of its parasites (Daszak *et al.* 2003). Records of amphibian parasites in South America have a long history. In the early decades of the 19th century, European naturalists conducted the first studies on the helminth parasites of Neotropical amphibians (Travassos *et al.* 1969; Vicente *et al.* 1991). Rudolphi (1819) recorded some helminth species parasitic in some South American amphibians, such as *Rana cornuta* Linnaeus, 1758 (which is actually *Ceratophrys cornuta*), *Rana pipa* Linnaeus, 1758 (*Pipa pipa*), and an undetermined Brazilian species of "Ranidae", and *Hyla* sp. A hundred years later (in 1917), the Brazilian researcher Lauro Travassos, a pioneer in the area, started the first parasitological studies with wild vertebrates and contributed significantly to the knowledge of helminth parasites of amphibians. From that date onward several other studies were published, including those of Travassos *et al.* (1926), Travassos *et al.* (1969) and Vicente *et al.* (1991). These were the first to summarize, respectively, the acanthocephalan, trematodes and nematodes parasites of amphibians and are the main references to the identification of the helminth parasites in these South America hosts. Later, Lunaschi and Drago (2007) presented a summarized list of digenean parasites

checklist presents a rich helminthfauna, especially if we take into account that only a small proportion of hosts have been studied. Moreover, helminth species richness is probably underestimated due to the lack of taxonomic accuracy, several taxa that are identified to family or genus may actually be more than one species. All that highlight that the data we present here is still a very small proportion of helminth parasite biodiversity, which is mostly to be unveiled.

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