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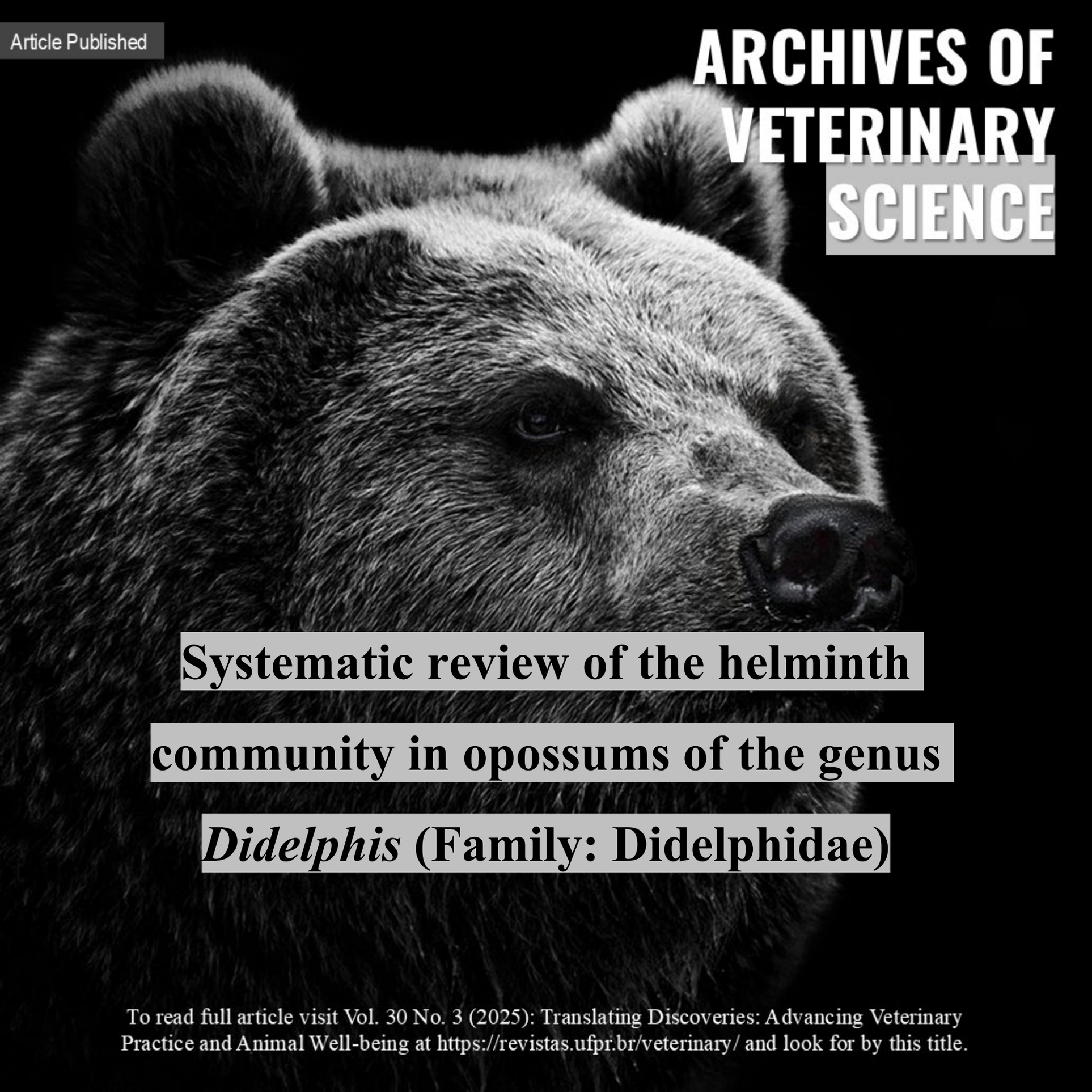

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Systematic review of the helminth community in opossums of the genus *Didelphis* (Family: Didelphidae)

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Abstract: Opossums are essential for public health because of their versatility and adaptability to environments. Their dietary diversity exposes these animals to many gastrointestinal parasites, including zoonotic ones. However, technical-scientific literature is limited, with few studies addressing the diversity of parasitic helminths found in opossums, especially when considering polyparasitism. Given the limited number of reports, it is crucial to update the existing findings, particularly regarding the location and species of *Didelphis*, to encourage further research. This paper is a systematic review of qualitative and quantitative literature focusing on the description of helminths reported in opossums of the genus *Didelphis* in the time frame from 1948 to September 2024. The active search was conducted by searching for articles in all languages across the SciELO, PubMed, and VHL platforms, using a combination of English descriptors registered in the VHL, specifically "Helminths" and *"Didelphis"*, with the Boolean operator "AND". After applying the inclusion and exclusion criteria over nearly 77 years, 111 articles were identified by combining the three databases within the stipulated period. After applying the inclusion and exclusion criteria, 68 works were included in the present study. Based on the review, four species of opossums of the genus *Didelphis* have the most published data. In this group, parasite diversity is excellent, with classes and species adequately identified. However, few studies have been conducted in Brazil, and these have primarily focused on specimens from the North region. Due to the region's significant presence of species and unique environment, further study is warranted, given the richness of families and species reported.
Keywords: Opossums, Helminths, Diversity, Identification.

1. Introduction

Opossums are marsupials belonging to the Didelphidae family, comprising 95 of the more than 125 existing species. Widely distributed in the Americas and representing the oldest marsupials, dating back to the Upper Cretaceous period, they probably originated in South America. The genus *Didelphis* is common from southeastern Canada to southeastern Argentina (Boullosa et al., 2021). The genus *Didelphis* comprises six species known as "New World Marsupials." In addition to *Didelphis virginiana*, which occurs in North America, five other species are common in South America. They are divided into two groups: the Marsupialis or black-eared opossums (*Didelphis marsupialis* and *Didelphis aurita*) and the Albiventris or white-eared opossums (*Didelphis albiventris*, *Didelphis pernigra,* and *Didelphis imperfecta*) (Gardner 2008; Faria and De Melo 2017).

The diet of opossums is usually quite diverse and reflects their omnivorous behavior. These marsupials feed on various items, such as fruits, insects, small vertebrates, and even food scraps left by humans. In urban areas, they are often seen searching for food in the garbage, while in wild environments, their diet includes amphibians, birds, and eggs. It is worth mentioning that they also contribute to the ecological control of insects and small mammal populations (Freitas et al., 2022). Because opossums' diets are quite diverse (opportunistic feeding behavior), they are exposed to many gastrointestinal parasites, including those of zoonotic concern, such as the genera *Ancylostoma*, *Toxocara*, *Trichuris*, *Ascaris*, *Capillaria*, *Cruzia*, *Strongyloides*, *Turgida*, *Didelphostrongylus*, *Giardia,* and *Cryptosporidium* (Bezerra-Santos et al., 2020).

Despite the versatile habits and characteristics of these marsupials, the technical-scientific literature on them is limited, and few studies address the diversity of parasitic helminths found in opossums, especially when considering the polyparasitism observed in these animals, since the interactions between infectious agents are possibly linked to host susceptibility (Costa-Neto, Cardoso and Boullosa, 2019). Given the limited number of reports, it is essential to update the existing findings, particularly concerning the location and species of *Didelphis*, to encourage further research.

2. Development

2.1. Type of Study

This is a qualitative systematic review that focuses on describing helminths reported in opossums of the genus *Didelphis* from 1948 to September 2024. For the study design, the recommendations of the PRISMA 2020 guidelines were adopted and adapted, as described by Page et al. (2021), to ensure greater transparency in the methodology employed and the results obtained.

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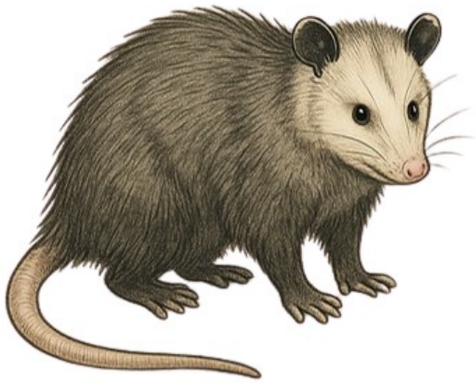
Systematic review (PubMed/ VHL/ SciELO

- Type of Study
- Descriptors and Databases
- Inclusion and Exclusion Criteria
- Search Strategy
- Summary of Results



Didelphis sp.

Excluding duplicates, 68 studies formed the present study

The 4 most reported species with parasitological findings

- *Didelphis virginiana*
- *Didelphis albiventris*
- *Didelphis aurita*
- *Didelphis marsupialis*

Based on the historical context of helminth records in opossums of the genus *Didelphis*, it is possible to observe the wide variety of helminths in the species. However, there is also a notable lack of more detailed and technical investigations in areas where this host can be found.