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Authors: Ribeiro, Carlos Torres, Verocai, Guilherme Gomes, and Tavares, Luiz Eduardo Roland

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Dioctophyme renale (Nematoda, Dioctophymatidae) Infection in the Crab-eating Fox (*Cerdocyon thous*) from Brazil

Carlos Torres Ribeiro,[1] Guilherme Gomes Verocai,[2,3] and Luiz Eduardo Roland Tavares[2] [1] Biotério de Experimentação Animal do IOC, FIOCRUZ, Rio de Janeiro, RJ, Brazil; [2] Curso de Pós-Graduação em Ciências Veterinárias, Departamento de Parasitologia Animal/IV/UFRRJ, Seropédica, RJ, Brazil; [3] Corresponding author (email: verocai@gmail.com)

ABSTRACT: The purpose of this study is to report the first case of parasitism by the giant kidney worm, *Dioctophyme renale* (Goeze, 1782), in the crab-eating fox, *Cerdocyon thous* (Linnaeus, 1766), in Brazil. A debilitated adult male fox was taken to the Screening Center for Wild Animals in Rio de Janero (CETAS/RJ) and eventually died of an unknown cause. During necropsy, a brownish-red nematode, 28.9 cm long, was found in the peritoneal cavity. The worm was identified as a male *D. renale*. This study reports the first case of dioctophymatosis in the crab-eating fox, enlarging the range of wild definitive host species infected by the giant kidney worm in the Neotropical region.

Key words: Brazil, *Cerdocyon thous*, crab-eating fox, dioctophymatosis, *Dioctophyme renale*, helminth, nematoda, Neotropical region.

The giant kidney worm, *Dioctophyme renale* (Goeze, 1782) is one of largest parasitic nematodes. Its complex life cycle requires an aquatic oligochete or annelid as an intermediate host. Fishes and frogs are paratenic hosts that serve to infect the definitive hosts (Mace and Anderson, 1975; Anderson, 2000). Wild carnivores such as mustelids, canids, and some domesticated animals are known definitive hosts, with sporadic reports in atypical hosts which include humans (Woodhead, 1950; Anderson, 2000; Measures, 2001).

In the Neotropical region, various wild carnivore species were reported as hosts, including the maned-wolf (*Chrysocyon brachyurus*), the bush dog (*Speothos venaticus*), the coati (*Nasua nasua*), and species of grison (*Galictis cuja* and *G. vittata*; Giovannoni and Molfi, 1960; Barros et al., 1990). There have also been many reports of parasitism in domestic dogs in several Brazilian states (Costa and Lima, 1988; Kano et al., 2003; Pereira et al., 2006). An unusual host, the noncarnivorous two-toed sloth *Choloepus didactylus*, was also reported as infected by Rocha et al. (1965). In this study, we report the first case of parasitism by the giant kidney worm, *D. renale*, in the crab-eating fox, *Cerdocyon thous* (Linnaeus, 1766), in Brazil.

An adult male crab-eating fox was taken to the Screening Center for Wild Animals in Rio de Janero (CETAS/RJ), which is maintained by the Institute for Environment and Renewable Natural Resources (IBAMA) and located in the Municipality of Seropédica, State of Rio de Janeiro, Southeastern Brazil. The animal was considerably debilitated and eventually died from an unknown cause. During the necropsy, a brownish-red nematode was found in the peritoneal cavity. There were no additional findings related to parasitism. The parasite was placed in saline solution and sent to the Department of Animal Parasitology of the Veterinary Institute of the Universidade Federal Rural do Rio de Janeiro, where it was fixed in alcohol-formalin-acetic acid solution. Identification was carried out using the key of Anderson and Bain (1982). The nematode was a male *D. renale* measuring 28.9 cm long with a maximum width of 3.8 mm. The specimen was deposited in the Helminthological Collection of Oswaldo Cruz Institute labeled as CHIOC no. 35568.

Helminthic parasites of the crab-eating fox have been reported (Vicente et al., 1997; Ruas et al., 2003; Santos et al., 2003, 2004; Vieira et al., 2008), but none of these studies reported dioctophymatosis in this host. Because crab-eating fox consume amphibians and fishes (e.g., cichlids),

which may be possible paratenic hosts in Brazil, this mammal may be exposed to natural infections (Gatti et al., 2006; Pedó et al., 2006). However, there are no reports of Neotropical freshwater fishes harboring *D. renale* larvae (Moravec, 1998). Most reports of *D. renale* are from North America, Europe, and Asia (Mace, 1976a; Measures, 2001).

Renal parasitism by *D. renale* can cause total destruction of the renal parenchyma, atrophy and fibrosis of renal tubules, dilation of the renal pelvis, and urethral obstruction, and its occurrence in the abdominal cavity can lead to adhesions and peritonitis (Mace and Anderson, 1975; Mace 1976b; Measures and Anderson, 1985). This study enlarges the range of wild definitive host species infected by the giant kidney worm, *D. renale*, in the Neotropical region by reporting the first case of dioctophymatosis in the crab-eating fox.

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