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Presence of *Amblyomma cajennense* in Wild Giant Armadillos (*Priodontes maximus*) of the Pantanal Matogrossense, Brazil

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Abstract

The giant armadillo (*Priodontes maximus*) is the largest extant representative of the order Cingulata. Information on the parasites and diseases affecting this species is scarce. Four female and one male ticks were collected from two wild-caught, adult giant armadillos from the northern Pantanal, Mato Grosso, Brazil. All of them were identified as *Amblyomma cajennense*. This is the first report of *A. cajennense* in giant armadillos. Considering the low host specificity of this ixodid tick that may act as vector of pathogens, and the sustained encroachment of domestic animals into wildlife habitat, the risk of disease transmission from cattle to this threatened armadillo should be evaluated.

Keywords: Ticks, Ixodidae, Xenarthra, Cingulata

The giant armadillo (*Priodontes maximus*) is the largest extant representative of the order Cingulata. It is currently listed as Vulnerable by the IUCN Red List of Threatened Species (Superina *et al.*, 2009). It occurs east of the Andes from Venezuela, Colombia, and the Guyanas to Paraguay, Argentina, and Brazil (Wetzel, 1982). The giant armadillo may occupy different habitats, from low and highland forests to lands covered with thorny shrubs and *cerrado*, although open areas are its favorite habitat (Anacleto, 1997). Information on the parasites and diseases affecting this species is scarce (Superina, 2000).

Systematic collection of parasites in wild animals can provide important information for the management of captive and free-ranging populations. The *Ixodidae* family is composed of 14 genera and approximately 670 species of hard ticks (Anderson, 2002). They have a dorsal shield that covers the entire idiosome in males, but only the anterior area in females and immature stages (larvae and nymphs). In addition, nymphs and adults have respiratory stigmas posterior to coxa IV (Anderson, 2002). Ixodid ticks are highly physiologically dependent of their hosts and can be vectors of a variety of pathogens that can cause disease in humans, domestic animals, and wildlife (Anderson and Magnarelli, 2008). Infectious agents may be transmitted transtadially (larva to nymph or nymph to adult) or transovarially, i.e., from generation to generation, as well as passed on to their hosts while obtaining a blood meal.

In Brazil, the first records of ticks of free-ranging mammals were provided by Aragão (1936), Fonseca and Aragão (1952, 1953), and Aragão and Fonseca (1961). Later reports include Serra Freire *et al.* (1996); Castro and Serra Freire (1996); Amorim *et al.* (1998); Evans *et al.* (2000); Guerra *et al.* (2000); Martins *et al.* (2004); and Miziara *et al.* (2008). Here, we report for the first time the presence of Ixododidae in wild giant armadillos (*Priodontes maximus*).

This study was conducted at the Reserva Particular de Patrimônio Natural do Serviço Social do Comércio, Pantanal (RPPN SESC Pantanal; 16°39'S, 56°15'W), a Conservation Unit located in the northern portion of the Pantanal, state of Mato Grosso, Brazil. Two adult giant armadillos (*Priodontes maximus*), a male and a female, were captured by hand and chemically restrained with 10 mg/kg ketamine and 0.2 mg/kg midazolam. A clinical examination was performed and blood samples extracted. Ticks found attached to the armadillos were manually removed by twisting them around the longitudinal axis of their idiosome, preserved in 70% ethyl alcohol, and sent to the Ixodides Laboratory at the National Reference Center for Vectors of Rickettsias of the Oswaldo Cruz Foundation (FIOCRUZ) in Rio de Janeiro. The parasites were examined using a stereomicroscope and identified according to the dichotomic keys of Aragão and Fonseca (1961) and Barros-Battesti *et al.* (2006). Three female ticks were found on one armadillo, while the other was infested by a male and female tick. All of them were identified as *Amblyomma cajennense* (Fig. 1).

This is the first report of *A. cajennense* in *P. maximus*. Several ticks of this genus have been described in other armadillos. For instance, *A. auricularium* and *A. pseudoconcolor* have been observed on Dasypodidae (Guglielmone *et al.,* 2003). *A. brasiliense* was found in *Dasypus septemcinctus* and *D. novemcinctus* (Evans *et al.,* 2002), *A. auricularium* in *D. novemcinctus* (Amorim and Serra-Freire, 2000; Olegário *et al.*, 2006), *A. fuscum* in *D. septemcinctus* (Aragão, 1936; Brum *et al.,* 2003), and *A. parvum* in *D. kappleri* (Mullins *et al.,* 2004).

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Figure 1. *Amblyomma cajennense*; left: adult female; right: adult male.

As a species with low host specificity, *A. cajennense* may transmit pathogens between wildlife species or between wild and domestic animals (Figueiredo *et al.*, 1999). Considering the sustained encroachment of domestic animals into wildlife habitat, the risk of disease transmission from cattle to this threatened armadillo should be evaluated.

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