

Presence of *Bartonella* spp. in domestic cats from a state park in Rio de Janeiro, Brazil

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Dear editor

Bacteria of genus *Bartonella* are worldwide distributed and responsible for several diseases in human and animal hosts¹. They are facultative intracellular microorganisms and remain for long periods in bloodstream, allowing continuous transmission by arthropods during blood-feeding². Cat-scratch disease is caused by *Bartonella henselae*. Cats are considered the main reservoir of this bacterium, which is usually transmitted to cats by arthropods, such as *Ctenocephalides felis* flea³.

The pathogen is well adapted to its reservoir, and feline hosts are often asymptomatic^{2,4}. However, cats can develop febrile illness and endocarditis⁵.

Transmission of *B. henselae* between cats occurs through contamination of skin wounds with flea feces³, and cats transmit the organism to humans via scratching, biting or saliva⁶. In immunocompetent humans *B. henselae* infection is usually self-limited, characterized by regional lymphadenopathy with or without other clinical abnormalities, such as fever or fatigue. Occasionally, long-term intraerythrocytic bacteremia can be observed, as well as infection by other species of the genus, including *Bartonella clarridgeiae* and *Bartonella quintana*².

We now aimed to demonstrate the presence of *Bartonella* sp. in domestic cats inhabiting the Serra da Tiririca State Park (PESET), a preserved area located within the municipalities of Niterói and Maricá, State of Rio de Janeiro, Brazil, which is part of the Atlantic rainforest biome; harboring a large diversity of endemic fauna and flora constituting an important ecotourism area for human visitors. Unfortunately, the park has been damaged due to inadequate housing construction, increase in human and animal populations living improperly inside or on the edge of the park acts of vandalism, fire, hunting and inadequate garbage disposal⁷.

This study was approved by the Ethics Commission on Animal Use (CEUA) from Universidade Federal Fluminense (process N° 677). We collected blood samples from 89 domestic cats living in households and free-roaming cats at PESET. DNA extraction from blood samples was performed with the Illustra™ blood genomic Prep Mini Spin Kit (GE Healthcare). Samples were processed by conventional polymerase chain reaction (PCR) targeting a fragment of the citrate synthase gene of *Bartonella* spp. with the primers BhCS781p (GGGGACCAGCTCATGGTGG) and BhCS1137n (AATGCAAAAAGAACAGTAA ACA)⁸. Positive results were obtained in 24.72% (22/89) of the PCR assays. In Brazil, the prevalence of *Bartonella* among cats has been found to range from 1.6%-97%⁹⁻¹², however, only in the present study the occurrence of this bacterium was demonstrated in one preservation and ecotourism area.

We found this case to be noteworthy because we observed a high frequency of *Bartonella*-infected cats in the study area. We emphasize the possibility that cats living illegally in PESET are an important source of infection both for other cats and for humans, since the park has a visitor area where humans can interact with these cats. Immunosuppressed people should avoid contact with any unknown cat since they can acquire bartonellosis and the pathologic response varies according to the host immune status. Further studies are needed, including sequencing of

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positive samples, in order to identify the species involved in study area.

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