

Ectoparasitic Acari Found on Golden Lion Tamarins (*Leontopithecus rosalia rosalia*) from Brazil

Authors: Wilson, Nixon, Dietz, James M., and Whitaker, John O.

Source: Journal of Wildlife Diseases, 25(3) : 433-435

Published By: Wildlife Disease Association

URL: <https://doi.org/10.7589/0090-3558-25.3.433>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Ectoparasitic Acari Found on Golden Lion Tamarins (*Leontopithecus rosalia rosalia*) from Brazil

Nixon Wilson,¹ James M. Dietz,^{2,4} and John O. Whitaker, Jr.,³ ¹ Department of Biology, University of Northern Iowa, Cedar Falls, Iowa 50614, USA; ² National Zoological Park, Smithsonian Institution, Washington, D.C. 20008, USA; ³ Department of Life Sciences, Indiana State University, Terre Haute, Indiana 47809, USA. ⁴ Present address: Department of Zoology, The University of Maryland, College Park, Maryland 20742, USA

ABSTRACT: Anesthetized golden lion tamarins (*Leontopithecus rosalia rosalia*), a highly endangered species, were examined for ectoparasites by brushing the fur and swabbing the ears. Ectoparasites recovered from the fur included four species of immature ticks (*Amblyomma* spp.), three species of chiggers (*Euschoengastia* sp., *Microtrombicula brennani* and *Speleocola tamarina*), and one species of follicular mite (*Rhyncoptes anastoti*). Ectoparasites do not seem to be of particular significance to the health of the golden lion tamarin; this may in part result from grooming.

Key words: Golden lion tamarins, *Leontopithecus rosalia rosalia*, ticks, chiggers, follicular mites, endangered species, survey.

The lion tamarins (*Leontopithecus rosalia*) are one of the world's most endangered mammals, with only a few hundred individuals remaining in the wild (Coimbra-Filho and Mittermeier, 1977). During studies on the behavioral ecology and status of this species by J. M. Dietz (see Kleiman et al., 1986), animals were examined for ectoparasites and a number of immature ticks and a few mites were found. This note presents information on ectoparasites found in the fur of golden lion tamarins (*L. rosalia rosalia*) from Poço das Antas Biological Reserve, 12 km NE of Silva Jardim, Rio de Janeiro State, Brazil (22°30' to 22°33'S, 42°15' to 42°19'W). The animals were examined from April 1984 to August 1985.

Ninety tamarins were anesthetized with Vetalar (ketamine hydrochloride, Parke-Davis, 201 Tabor Road, Morris Plains, New Jersey 07950, USA). Cotton swabs were used to swab their ears, and their fur was brushed from nose to tail and back over a pan. A 5× hand lens was used to locate additional ectoparasites in the fur. Alcohol was used to rinse the brushings from the pan and to initially preserve all arthropods.

Mites were cleared and stained in Nesbitt's solution and mounted in Hoyer's medium (see Krantz, 1978); the cover slips were ringed with euparal (Carolina Biological Supply Co., Burlington, North Carolina 27215, USA). Ticks were permanently stored in 70% ethanol.

The golden lion tamarins were relatively free of ectoparasites. Their white skin, golden fur and lack of underfur allowed easy examination and ectoparasites were easily seen. Seeds of several plant species were found in the fur, and a number of flying nonparasitic insects occurred in several of the preserved samples. The latter apparently flew directly into the collecting pans when the hosts were being examined at night under the gas lamps; none were seen in the fur during processing.

Ticks were the most common ectoparasites (Table 1). All were immature *Amblyomma* spp. and all were larvae except for three nymphs. Three species (A, B and D) were represented on the basis of nymphal morphology and most of the larvae could be associated with species A. Four larvae listed as species C could not be placed with any of the nymphs and 11 larvae listed as species D may belong with the nymph of species B. The genus *Amblyomma* is widespread in South America occurring on a variety of hosts. However, it has been collected infrequently from primates and this is the first report from tamarins. About 25 species of the genus *Amblyomma* have been reported from Brazil (Robinson, 1926; Jones et al., 1972). Very few species have had the immature stages described and associated with the adults. Consequently, we could not further identify these specimens.

Only 27 parasitic mites of four species

TABLE 1. Ectoparasites found on 90 golden lion tamarins from Poço das Antas Biological Reserve, Rio de Janeiro State, Brazil.

Ectoparasite	Prevalence		Intensity		
	%	n	Mean	n	Range
Acari					
Ixodidae					
<i>Amblyomma</i> sp. A	21	19	6.9	131	1-43
<i>Amblyomma</i> sp. B	1	1	1.0	1	1
<i>Amblyomma</i> sp. C	3	3	1.3	4	1-2
<i>Amblyomma</i> sp. D	3	3	4.0	12	1-10
Trombiculidae					
<i>Euschoengastia</i> sp.	1	1	1.0	1	1
<i>Microtrombicula brennani</i>	1	1	14.0	14	14
<i>Speleocola tamarina</i>	2	2	2.5	5	1-4
Rhyncoptidae					
<i>Rhyncoptes anastosi</i>	3	3	2.3	7	1-3

were found (Table 1). Twenty of these were chiggers representing three different species, all of which were undescribed at the time of collection. *Microtrombicula brennani* and *Speleocola tamarina* have since been described as new by Goff et al. (1986, 1987). In the original descriptions the type data for these two species was partly in error and lacked geographical coordinates. It should read as presented above in the present study. The remaining mites, *Rhyncoptes anastosi*, were of a species that lives at the bases of hair follicles. It was originally described from *Leontocebus* (= *Leontopithecus*) *rosalia* preserved in alcohol in the Institut Royal des Sciences Naturelles de Belgique (Brussels, Belgium; Fain, 1962). The origin of the host was unknown. Later Fain (1965) reported the same species from two other monkeys from South America, *Oedipomidas* (= *Saguinus*) *oedipus* and *Tamarinus* (= *Saguinus*) sp., which died in Antwerp (zoo?). Ours are the first records of this mite collected from hosts in their natural habitat.

Ectoparasites do not seem to have an important role in the health of golden lion tamarins and they appear to be free of larger ectoparasites such as adult ticks, ga-

masid mites and fleas. Grooming is considered a major cause of ectoparasite mortality among mammals and mutual grooming is well known among primates (Marshall, 1981). It may play a significant role in the lack of larger ectoparasites on tamarins. The only ectoparasites found in any numbers were several species of immature ticks of the genus *Amblyomma*. Immature members of this genus frequently occur on different hosts than the adults. Recent extensive tick surveys in Panama (Fairchild et al., 1966) and Venezuela (Jones et al., 1972) disclosed very few ticks on primates (excluding man) and almost always they were immature species of *Amblyomma*. Fairchild et al. (1966) never found ticks on wild primates in Panama; all records were from captive animals.

Chiggers likewise have been infrequently collected from primates and usually have been species with broad host ranges. The species listed here were described as new and consequently very little is known about their host relationships. The follicle mite was the only ectoparasite that previously had been reported from tamarins. There are only a few records from three different hosts in the family Callithricidae. The

species is probably restricted to members of this New World family of primates in their natural habitat.

We thank A. Fain, Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium and M. L. Goff, Department of Entomology, University of Hawaii at Manoa, Honolulu, Hawaii, for identifying the rhyncoptid mites and chiggers, respectively. Voucher specimens are deposited in the Division of Insects, National Museum of Natural History (Smithsonian Institution, Washington, D.C. 20560, USA; chiggers) and Florida State Collection of Arthropods (Gainesville, Florida 32602, USA; mites and ticks).

LITERATURE CITED

- COIMBRA-FILHO, A. F., AND R. A. MITTERMEIER. 1977. Conservation of the Brazilian lion tamarins (*Leontopithecus rosalia*). In *Primate conservation*, Prince Rainier III and G. H. Bourne (eds.). Academic Press, New York, New York, pp. 59-94.
- FAIN, A. 1962. Diagnoses d'acariens nouveaux. *Revue de Zoologie et de Botanique de Africaines* 66: 154-162.
- . 1965. A review of the family Rhyncoptidae Lawrence parasitic on porcupines and monkeys. *Advances in Acarology* 2: 135-159.
- FAIRCHILD, G. B., G. M. KOHLS, AND V. J. TIPTON. 1966. The ticks of Panama (Acarina: Ixodoidea). In *Ectoparasites of Panama*, R. L. Wenzel and V. J. Tipton (eds.). Field Museum of Natural History, Chicago, Illinois, pp. 167-219.
- GOFF, M. L., J. O. WHITAKER, JR., AND J. M. DIETZ. 1986. A new species of *Microtrombicula* (Acari: Trombiculidae) from the golden lion tamarin in Brazil. *International Journal of Acarology* 12: 171-173.
- , ———, AND ———. 1987. The genus *Speleocola* (Acari: Trombiculidae), with description of a new species from Brazil and a key to the species. *Journal of Medical Entomology* 24: 198-200.
- JONES, E. K., C. M. CLIFFORD, J. E. KEIRANS, AND G. M. KOHLS. 1972. The ticks of Venezuela (Acarina: Ixodoidea) with a key to the species of *Amblyomma* in the Western Hemisphere. *Brigham Young University Science Bulletin, Biological Series* 17(4): 1-40.
- KLEIMAN, D. G., B. B. BECK, J. M. DIETZ, L. A. DIETZ, J. D. BALLOU, AND A. F. COIMBRA-FILHO. 1986. Conservation program for the golden lion tamarin: Captive research and management, ecological studies, educational strategies, and reintroduction. In *Primates: The road to self-sustaining populations*, K. Benirschke (ed.). Springer-Verlag, New York, New York, pp. 959-979.
- KRANTZ, G. W. 1978. A manual of acarology. Oregon State University Book Stores, Corvallis, Oregon, 509 pp.
- MARSHALL, A. G. 1981. The ecology of ectoparasitic insects. Academic Press, New York, New York, 459 pp.
- ROBINSON, L. E. 1926. Ticks. A monograph of the Ixodoidea. Part IV. The genus *Amblyomma*. Cambridge University Press, New York, New York, 302 pp.

Received for publication 8 April 1988.