

## TRYPANOSOME INFECTIONS IN THE MARMOSET (*SAGUINUS GEOFFROYI*) FROM THE PANAMA CANAL ZONE\*

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**Abstract.** From August 1973 through May 1974 a total of 148 marmosets (*Saguinus geoffroyi*) were examined for blood parasites. Parasites were detected in 93.2% of the monkeys. Direct examination of blood revealed 82.4% infected with trypanosomes; *Trypanosoma cruzi* was seen in 1.3% of the animals examined, *T. minasense* in 52.7% and *T. rangeli* in 25%. However, the use of several diagnostic tests (direct microscopic examination, hemoculture, xenodiagnosis, and animal inoculation) in 15 marmosets revealed *T. cruzi* in 40%, *T. rangeli* in 93%, and *T. minasense* in 87%. The high rate of infection among marmosets suggests that they are important natural hosts of *T. cruzi* and *T. rangeli* in the Panama Canal Zone.

Previous reports on the blood parasites of titi marmosets (*Saguinus geoffroyi*) collected in the Republic of Panama have indicated that a high percentage of these primates are infected with trypanosomes and microfilariae.<sup>1,2</sup> Sousa et al.,<sup>3</sup> employing hemoculture techniques, found *Trypanosoma cruzi* in 12.2% of 408 marmosets collected at various localities in Panama and Colon provinces. *Trypanosoma rangeli* was detected in 55.8% of the marmosets studied. Prior to the present investigation, only one marmoset from the Canal Zone had been examined.

The only known vector of *T. rangeli* in Panama is *Rhodnius pallescens*. The relationship of the marmoset with this triatomine in the forest habitat, and its significance in the epidemiology of human trypanosomiasis, have not been defined. Marmosets are frequently kept as house pets in rural areas of Panama, and they are known to move as groups to the peridomestic areas of suburban communities, particularly when attracted by backyard fruit trees.

The purpose of this paper is to report the prevalence of *T. cruzi* and *T. rangeli* in *S. geoffroyi* from the Panama Canal Zone. This is part of a study on the ecology and behavior of the marmoset, which may serve to delineate the epidemiological factors concerned in the transmission of trypanosomes among monkeys, and

ascertain the marmoset's significance as a reservoir host of human trypanosomiasis.

### MATERIALS AND METHODS

The marmosets examined came from two sources: 1) the Rodman area, a 1,015 hectare reserve administered by Gorgas Memorial Laboratory for biomedical field studies. This area is located approximately 6 km west of Balboa, Canal Zone. All marmosets from Rodman were live animals which had been trapped for radiolocation telemetry and behavioral studies; 2) a collection of 131 marmosets obtained at the rate of five animals biweekly from areas peripheral to Rodman. The exact collecting locality was that area of the Canal Zone west of the Panama Canal and south of a line extending due west from Paraiso, Canal Zone, to the boundary with the Republic of Panama. The collecting area is adjacent to three military posts and several small communities.

Blood samples were obtained from a vein, ear lobe, or foot pad. Giemsa-stained, thick and thin blood smears plus blood samples in microhematocrit capillary tubes, were examined microscopically for blood parasites. To determine the characteristics of the trypanosomes found in the marmoset, 15 live animals were taken to the laboratory where they underwent a parasitological examination involving direct observations, hemoculture, xenodiagnosis, and mouse inoculation. The techniques and criteria used for the identification of the trypanosomes have been reported previously.<sup>3</sup>

### RESULTS AND DISCUSSION

From August 1973 through May 1974 a total of 148 *S. geoffroyi* were examined for trypano-

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