

ATTRACTIVENESS OF SENTINEL ANIMALS TO VECTORS
OF LEISHMANIASIS IN PANAMA

HOWARD A. CHRISTENSEN AND ARISTIDES HERRER

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Gorgas Memorial Laboratory, Apartado 6991, Panama 5, Republic of Panama

Abstract. Phlebotomine sandfly collections were made in one eastern and three central Panamanian localities from July 1967 to April 1971 in conjunction with concurrent studies on the use of sentinel animals as a determinant of cutaneous leishmaniasis endemic foci. A total of 21,171 individuals representing 34 species was collected from light traps (4,621), man (1,882), horses (12,409), sentinel dogs (424), and rodents (1,835). Three anthropophilic species incriminated as vectors of *Leishmania braziliensis* in Panama, *Lutzomyia panamensis*, *L. sanguinaria*, and *L. trapidoi*, dominated most collections in the central Panamanian localities. *L. olmeca*, a mildly anthropophilic vector of *Leishmania mexicana*, dominated collections from sentinel rodents in eastern Panama. Results indicate that sentinel hamsters may be useful for detecting foci of *Leishmania mexicana* but not *L. braziliensis*, since vector species of the latter show little interest in rodents in Panama. Sentinel dogs were found to be fairly attractive to *Lutzomyia sanguinaria* but showed no significant attraction to other vector species. A total of 1,435 sandflies comprising 17 species were dissected. Although 40 trypanosomatid flagellates were found among 7 species, only a single isolate from *L. panamensis* proved to be *Leishmania*.

The use of sentinel animals for the detection and isolation of arthropod-transmitted disease agents is most germane to virology, but the value of this technique in epidemiological studies of cutaneous leishmaniasis was first recognized in 1946.¹ We are currently using this technique as an integral part of such studies at Gorgas Memorial Laboratory.² Sentinel animals must be susceptible to endemic strains of the disease as well as attractive to vector species. Dogs and two species of rodents, used in our sentinel work,³ are susceptible to Panamanian cutaneous leishmaniasis. Host-preference studies of New World phlebotomines have shown that some species feed rather indiscriminately on a wide variety of vertebrate hosts, while a few species have stenophagous habits.⁴⁻⁹ Host relationships of most species are still unknown. The present study concerns the attractiveness of sentinel dogs and rodents, as well as man and horses, to the phlebotomine species involved in the transmission of cutaneous leishmaniasis in Panama. Sandfly species incriminated as vectors of the disease in Panama have been discussed previously.^{10,11} The present work,

conducted from July 1967 to April 1971, also involved dissections of wild-caught sandflies collected from sentinel animal baited traps and other sources for isolation of *Leishmania*. A description of the four study areas surveyed, Sasardi in eastern Panama and Achote, Gaspar Sabanas and Quebrada Bonita in central Panama, was presented previously.⁸

MATERIALS AND METHODS

Light trap collections were made with CDC miniature light traps 1 to 20 m above the ground during various periods of the evening. Results are limited to those traps set 1 to 6 m above the ground from 1800 to 0600 hours to standardize data gathered from the four study areas (Table 1). Of all the methods used for collecting sandflies, light traps attracted the greatest number of species and provided a rough guideline of the species composition of phlebotomine populations in the study areas. Castor-oil traps¹¹ baited with dogs (Fig. 1) or rodents were also operated from 1800 to 0600 hours to collect sandflies attracted to sentinel animals.

Rodents used in the sentinel animal study³ were restricted to hamsters *Mesocricetus auratus* and cotton rats *Signodon hispidus*. A variety of rodents were used as bait animals in the present study including hamsters, cotton rats, climbing

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