On the Vectors of Cutaneous Leishmaniasis in the Central Amazon of Brazil. I. Preliminary Findings (*)

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It is of prime importance in the study of the epidemiology of vector borne diseases to identify the vector species. This problem often becomes complicated by the fact that the vector species is a part of more intricate "species-complexes" composed of several different species and subspecies. The problem of "species complexes" has been the cause of considerable confusion in such groups as the *Anopheles gambiae* "complex" (malaria) and the *Simulium damnosum* "complex" (filariasis) in Africa, and the *Simulium amazonicum* "complex" (filariasis) situation in Brazil. The "species complex" concept has not been widely used for many groups of New World sandflies, but we are becoming so involved with such subtle morphological differences in sandflies that we are forced to consider if we too are not faced with the "species complex" problem in our leishmaniasis research.

The search for the vectors of cutaneous leishmaniasis in Latin America has undergone much progress in the last decade, particularly in South America. Wijers & Linger (1966) found that *Lutzomyia anduzei* (Rozeboom) (1) was a possible vector of *Leishmania braziliensis* in Surinam, and Lainson & Shaw (1968) showed that *Lu. flaviscutellata* is the vector of *Leishmania mexicana amazonensis* in silvatic rodents and marsupials in the lower Amazon. In southern Brazil, Forattini *et al.* (1972) incriminated *Lu. intermedia* and *Lu. pessoai* as the vectors of *Le. braziliensis*. Lainson *et al.* (1973) incriminated *Lu. wellcomei* as the vector of *Le. braziliensis braziliensis* in the Serra dos Carajás, Pará State, also in the Amazon basin. Lainson *et al.* (1976) also showed that *Lu. anduzei* (Floch & Abonnenc) was the major vector of leishmaniasis in the Jarí River area of the State of Pará.

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(1) — For the difference between **Lu. anduzei** (Rozeboom) and **Lu. anduzei** (Floch & Abonnenc) see Lainson **et al.** (1976).

In our work in the Manaus area, we became aware of the Lainson *et al.* (1976) work one quarter of the way through a year-long project seeking the vector of cutaneous leishmaniasis in this area. Our first impression was that Wijers & Linger (1966) had not noted the slight but definite difference between *Lu. anduzei* (Rozeboom) and *Lu. anduzei* (Floch & Abonnenc). This difference went un-observed by authors for many years, including ourselves. it went unnoticed by us due to the relative low numbers of *Lu. anduzei* (Rozeboom) in relationship to *Lu. anduzei* (Floch & Abonnenc) in the Manaus region. At first we assumed that those "Rozeboom *anduzei*" were only interspecifically different, yet, thanks to the help of David Young[2] and confirmation from Dr. Lainson and his co-workers in Belém (who informed us that they were separating the two species systematically), we now know that these are two valid species.

Preliminary results, after one full continuous year of dissections of sandflies in the Manaus region, have showed that actually both of these *Lu. anduzei* are vectors of *Leishmania* sp. in this area. These were not the only sandfly species which were found with flagellate parasites; however, these are the only species of sandflies (to this date) from which we have been able to positively confirm *Leishmania* parasites.

Our criteria for confirmation that both *Lu. anduzei* (Rozeboom) and *Lu. anduzei* (Floch & Abonnenc) are vectors of leishmaniasis and probably *Leishmania braziliensis* were:

a) — Presence of flagellates in sandfly gut.

b) — Position of flagellates in sandfly gut (hindgut triangle in particular).

c) — Appearance of leishmanial wound in a hamster which had been innoculated with a saline suspension of the sandfly gut content.

d) — Recovery of amastigotes from these hamsters' lesions.

e) — Anthropophilism of both species of sandflies.

This is the first time that both *Lu. anduzei* (Floch & Abonnenc) and *Lu. anduzei* (Rozeboom) have been recorded as vectors of *Le. braziliensis* in the same geographical area, and we feel it is of importance to report this information now.

A final and complete report of the results of this work will be published at a future date.

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