

Eco-entomological observations from the Amazon. V. Feeding habits of Neotropical "bee killers" and "resin bugs" (Apiomerinae: Reduviidae: Hemiptera)

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(Received for publication October 27, 1982)

Resumen: *Manicoreis rufipes* ha sido reportado alimentándose de abejas del género *Trigona* en el bosque costero cerca de Belém, Pará, Brasil. Otro chinche no identificado del género *Apiomerus* también fue observado alimentándose de termitas en el bosque de tierra firme de Manaus, Amazonas. Ambos Apiomerinae utilizan material adhesivo de fuentes diferentes en las tibias de sus patas delanteras para atrapar su presa.

Among the Reduviidae, several species have been reported hunting for bees. *Pristhesancus papuensis* (Harpactorinae), the Australian "bee killer", sits on flowers and seizes honey-bees and other insects (Tillyard, 1926). *Ectinoderus longimanus* and *Amulius malayus* (Ectinoderinae), the so-called "resin bugs" from Sumatra and Malaysia, were observed to apply tree resin to their hairy front legs and to trap *Trigona* bees (Miller, 1971; Usinger, 1958; China, 1932; Roepke, 1932). The anterior tibia with the one-segmented clawless tarsus is dipped into resin accumulated on tree trunks such as *Agathis alba*, *Altingia excelsa* and *Pinus merkusii*. Apparently, the resin collected does not harden very rapidly and thus retains its efficiency for a "suitable period"; the front legs are held forward and the Reduviids apparently wait until bees become entangled on them (Miller, 1971). Usinger (1958) states that *Trigona* bees are attracted by the tree resin, which they collect for their nest. The Reduviids were observed waiting for bees at the edge of the resin source. From the Neotropics, *Beharus lunatus* (Apiomerinae) of Surinam is reported to catch *Trigona* bees and other insects with resin-covered front legs as well (Uyttenboogaart, 1902).

A different behaviour for catching bees was observed for *Manicoris rufipes* (Apiomerinae) in a coastal terra firme (dry-land) forest near Belém in July, 1977 (Guamá Ecological Re-

search Area, Station A; cf. Lovejoy, 1975). The Reduviids were found mostly on small tree trunks around a large buttressed tree which had a nest of *Trigona recursa* at its foot (Wille and Michener, 1973). On return flights, workers of *Trigona* often landed on the surrounding trees before entering the nest. The Reduviids, mostly nymphs, were waiting for them at heights of up to 3 m above the ground, mainly with their heads directed downward, their front legs extended, and their bodies perpendicular to the tree. As soon as a bee landed nearby, they moved toward it and tried to touch it with one or both tibia of the front legs. These legs were covered with a yellowish coating, on which the bee got stuck and could easily be sucked. Freshly moulted Reduviids didn't show this coating and had to seize their prey with the front and middle legs. The material bees transported to their nest (Schwarz, 1948) gradually accumulated on the hairy tibia (Figs. 1,2) of both Reduviid front legs until bees finally became entangled.

No resin or other adhesive material was ever observed to be collected by the Reduviids themselves. It can also be excluded that the sticky material is produced by excretion organs on the tibia (Fig. 2 b). Microscopic examinations revealed that the adhesive material consisted mainly of pollen, nectar, resin, and occasionally wax. The material came off the tibia on being washed with alcohol (50%), which

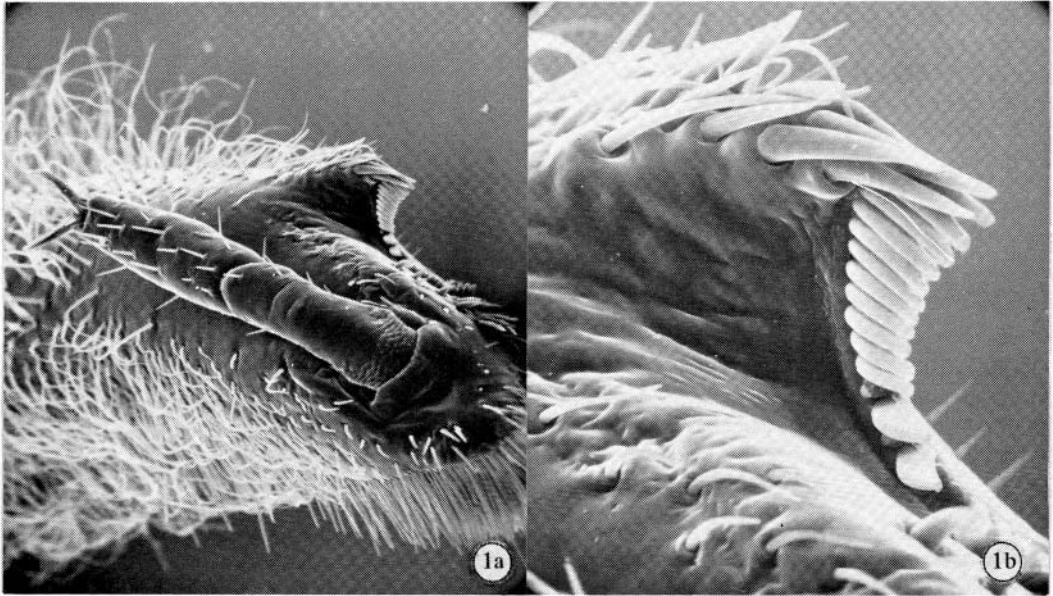


Fig. 1 -a: Ventral view of the hairy tibia (left front leg), its cleaning device and the two-segmented, reduced tarsus of the nymph (stage IV) of *Manicoris rufipes* (X 150; specimen cleaned); -b: Comb-like cleaning device (X 560); walls of cavity coated with sticky material.

turned yellow. While capturing bees with the front legs (these legs are never used for walking) some sticky material also adhered to the rostrum, the antennae and the middle legs. To get rid of it, *Manicoris rufipes* was observed to use a comb-like cleaning device on the anterior tibia (Figs. 1,2). This device, as well as the back-segmented hairless tarsus, normally remained uncoated (Fig. 1 a).

Adult Reduviids were located at some distance from the *Trigona* nest, waiting for prey. They could not enter the nest itself because of their large size (length 30-35 mm) and the sticky barrier rimming the flight hole (Schwarz, 1948). Reduviids were also reported to feed on termites, as for example *Apiomerus hirtipes* from British Guiana (Haviland, 1931). *Micrauchenus lineolus* (Apiomerinae) from Panama was observed to prey on *Nasutitermes coniger* (W. D. Duckworth, pers. comm.). *Salyavata variegata* captures *Nasutitermes* workers in Panama by enticing them out of nest openings with the spent carcasses of freshly killed termites (McMahan, 1982; 1983). Apparently, the tibiae of these species were not covered with sticky material or resin.

In a dry-land forest near Manaus (INPA-Ducke Forest Reserve), nymphs of an unident-

ified resin bug (*Apiomerus* sp.) were repeatedly seen feeding on *Termes* sp. (nr. *fatalis*). They foraged for broken termite galleries on tree trunks, where they put their black resin-covered tibia on passing termites. Adults could not be found and apparently used other food sources.

Voucher specimens of *Manicoris rufipes* and *Trigona recursa* were deposited in the Museu E. Goeldi, Belém (Brazil) and voucher specimens of *Termes* sp. (nr. *fatalis*) in the Instituto Nacional de Pesquisas da Amazônia, Manaus (Brazil).

I am grateful to Susan Brader (Smithsonian Institution, Washington D.C.) for her assistance during the Scanning Electron Microscopy studies and for taking the photomicrographs. Norman Penny (INPA, Manaus) kindly reviewed the manuscript. I heartily thank Pedro Wygodzinsky (American Museum of Natural History, New York) for identifying the Reduviidae; Charles D. Michener and David Roubik (University of Kansas, Lawrence) for determination of the *Trigona* bees and the late R. L. Araujo (formerly Museu de Zoologia da Universidade, São Paulo) for identification of the termites. I especially thank Bill Overall (Muséu Emilio Goeldi, Belém) for valuable suggestions and for enabling the field excursions.

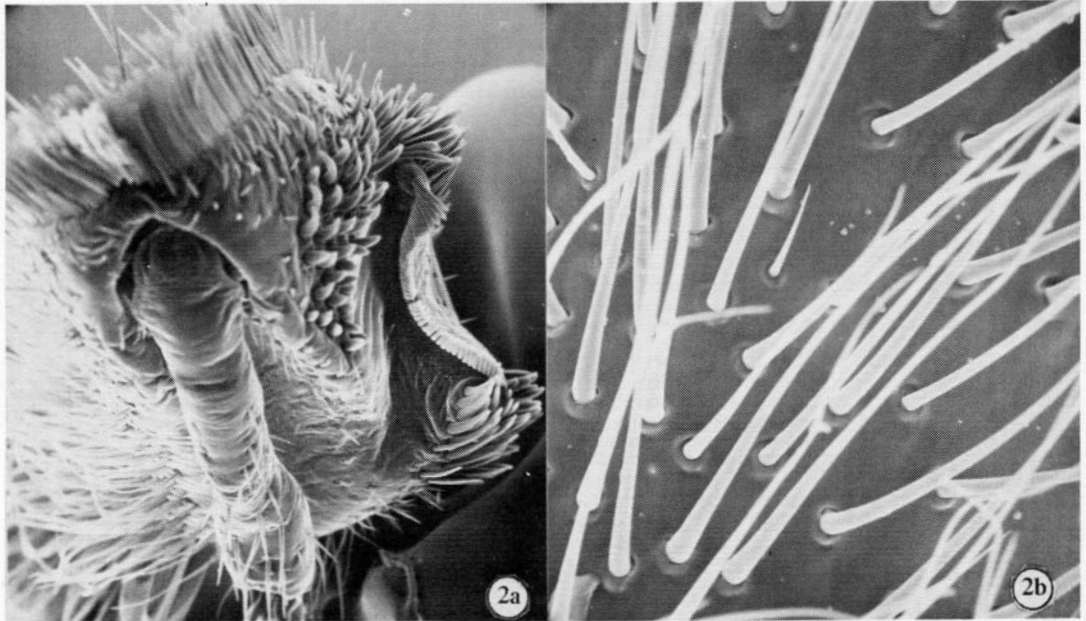


Fig. 2 - a: Lateral front view of the tibia (left front leg) of a freshly emerged adult *Manicoris rufipes* showing the cleaning device and the shallow sulcus of the apex, where the back-folded and reduced tarsus is placed (X 120); -b: No indications for possible excretion organs are found on the dorsal surface of the hairy tibia (X 300).

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