



New records of *Haemagogus* (*Haemagogus*) from Northern and Northeastern Brazil (Diptera: Culicidae, Aedini)

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Haemagogus (*Haemagogus*) is restricted mostly to the Neotropical Region, including Central America, South America and islands (Arnell, 1973). Of the 24 recognized species of this subgenus, 15 occur in South America, including the Antilles. However, the centre of distribution of the genus *Haemagogus* is Central America, where 19 of the 28 species (including four species of the subgenus *Conopostegus* Zavortink [1972]) occur (Arnell, 1973).

Haemagogus (*Hag.*) includes species with great significance as vectors of Yellow Fever (YF) virus and other arbovirus, both experimentally (Waddell, 1949) and in the field (Vasconcelos, 2003).

During entomological surveys from 1982 to 2004, the Arbovirus Laboratory of Evandro Chagas Institute obtained specimens of *Haemagogus* from several localities not reported in the literature. New records are listed in Table 1 and study localities shown on Figure 1. Abbreviations for genera and subgenera follow Reinert (2001).

Haemagogus tropicalis Cerqueira & Antunes, 1938 was described from specimens collected in Currálinho (1°47'50" S 49°55'07" W), in the southern part of Marajó Island, Pará state, Brazil, and its known distribution in Currálinho is: Camucú River; Cupijó River; Cupijó-Mirim River, Boa Esperança; Maracujá-Mirim River, Ponta Grande; Massaranduba River (Cerqueira & Antunes, 1938). The species was reported also from Igarapé-Açu (1°42'04"N 47°48'17"W) and several other localities in the state of Pará, all in the eastern part of the Amazonas river mouth (Xavier & Mattos 1975). Kumm & Novis (1938) showed a map of the area, emphasizing Currálinho as the only site on the island having seasonally-floodable areas (locally called "várzeas"), and recorded the collection of one specimen (Table 4 of Kumm & Novis [1938]) among thousands of *Culex quinquefasciatus* (as *Cx. fatigans*) and smaller numbers of at least 18 other species. Kumm & Cerqueira (1951) showed a distribution restricted to Marajó Island. In an earlier report on visceral leishmaniasis, Chagas et al (1937) indicated the existence of this species in Abaetetuba, also in the eastern shore of the Amazon River mouth.

Our collections confirm the presence of *Hg. tropicalis* in some of these areas (e.g., Abaetetuba) and provide new records from Combu Island near the mouth of the Amazonas River, near Pará River (Fig. 1, localities 3–5). We collected the species in floodable places, in greater quantities in tree canopies, where specimens of both sexes were obtained. However, a complete study of the conditions of all the above localities is needed. Cerqueira & Antunes (1938) reported three species of trees where the immature stages of *Hg. tropicalis* were found in tree holes: *Euterpe oleracea* ("açazeiro"), *Carapa guyanensis* ("andiroba") and *Tecoma* sp. ("ipê").

Because of the species' presence in populated areas and the ability of related species to transmit arboviruses, *Hg. tropicalis* may have some epidemiological significance. The species has not been collected in other regions of Amazonia. Recently, 6,000 adult mosquitoes, not including *Hg. tropicalis*, were collected in two nearby localities in Amapá state (Currálinho and Lagoa dos Índios), which are located at the other side of the mouth of Amazonas river (Souto, 2003). This would suggest that *Hg. tropicalis* is restricted to areas near the Pará River (South of Marajó Island and to its East); additional collections on the west side of Marajó Island, and west of the mouth of Amazonas river are needed to confirm this. The apparently restricted distribution of *Hg. tropicalis* contrasts with those of other species in the genus (see below). Hutchings et al. (2005) reported the existence of paratypes of *Hg. tropicalis* in the collection of INPA, at Manaus, but