

## Scientific Note

# Right under our nose: First nominal record of Inbiomyiidae Buck, 2006 (Diptera) from Brazilian Amazon

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**Abstract.** We record for the first time a nominal species of Inbiomyiidae Buck, 2006 from the Brazilian Amazon through three male specimens of *Inbiomyia matamata* Buck, 2006 (Diptera: Inbiomyiidae). The specimens were collected in the municipalities of Borba and Manaus, Amazonas state. In addition, we provide high-resolution photographs of the external morphology and terminalia, and an updated map of geographic distribution of the species.

**Keywords:** Acalyptratae, *Inbiomyia*, Schizophora, new record.

Inbiomyiidae Buck, 2006 are an Acalyptratae monogeneric family of flies endemic from the Neotropical region, with records from Brazil, Bolivia, Colombia, Costa Rica, Ecuador, French Guyana, Guatemala, Peru and Venezuela. The family can be recognized by the following set of characters: protruding eyes, vibrissae present, ocellar and post vertical setae absent, arista dorsoapically inserted and very long (about 2 X longer than head height), palpus with 1 strong ventral seta, male and female terminalia without cercus (Buck 2006; Riccardi & Amorim 2019). The family comprises only the genus *Inbiomyia* Buck, 2006 with 12 valid species (Buck & Marshall 2006; Riccardi & Amorim 2019).

Recently, Riccardi & Amorim (2019) described *Inbiomyia azevedoi*, the solely representative species of the family in Brazil, with records from the Southeast region of the country, in Espírito Santo and Rio de Janeiro states, in the Atlantic Forest biome. The family was recently reported for the Brazilian Amazon by Amorim et al. (2022) as *Inbiomyia* sp., but no nominal species was assigned. Herein, we record the first nominal species of Inbiomyiidae for the Brazilian Amazon: *Inbiomyia matamata* Buck, 2006 (Diptera: Inbiomyiidae), previously recorded from Colombia and Venezuela. In addition, we provide high-resolution photographs of the external morphology and male terminalia and an updated map of geographic distribution of the species.

Studied specimens are housed at the Coleção de Invertebrados do Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Brazil. Terminology for morphology follows Cumming & Wood (2017). Specimens were identified using the key available in Buck & Marshall (2006). Terminalia were removed from the abdomen, treated with hot 85% lactic acid, and kept in a microvial with glycerin after being studied and photographed. Microvials containing terminalia was pinned together with their respective specimens.

The specimens were photographed with a Leica MC170 HD camera, attached to a Leica M165C stereomicroscope. Genitalia photographs were taken with a Leica DFC295 digital camera attached to a Leica M205C stereomicroscope. Photographs of different focal points of the same structure were stacked and combined using Helicon Focus. Distribution map was created with QGIS Las Palmas ver. 2.18.10 software (QGIS Development Team 2016) using data from specimen labels from Buck & Marshall (2006).

### *Inbiomyia matamata* Buck, 2006 (Figs. 1, 2)

*Inbiomyia matamata* Buck, 2006: 12, Figs. 4, 30-36. Type locality:

Río Mavaca, Amazonas, Venezuela.

**Diagnosis (males).** Antenna and frons dark brown. Legs brownish yellow, fore coxa dark brown at the base (Figs. 1A, B). Male fore tibia slightly clavate, thickening abruptly in distal half and with a ventral row of well-developed semi-erect dark bristles (Figs. 1A, B). Synsternite 5+6+7 somewhat T-shaped, with a slight concavity at middle of posterior edge (Fig. 1D). Anteroventral process of epandrium with long setae anteriorly on the medial surface, decreasing in length towards apex (Fig. 1F); surstylus brownish yellow, marginal fringe of setae arranged in a regular row, setae of this row broadly spaced anteriorly (Figs. 1E-F).

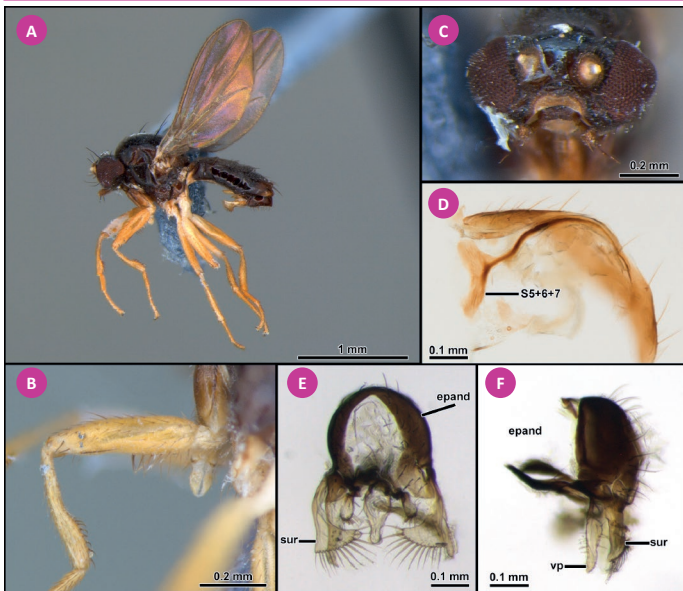
**Examined material: BRAZIL**, Amazonas, Manaus, Reserva Florestal Adolpho Ducke, Igarapé Barro Branco, Malaise, 22-25. viii.2019, M.M.M. Soares, L.M. Barros, S. Ranieri (one male, INPA) (photographed specimen); Manaus, ZF-2 [road], km-14, 2°5'21" S - 60°06'55" W, 19.ix-3.x.2017, Malaise grande, solo, lado nascente, J.A. Rafael (one male, INPA); Careiro Castanho [sic. Borba], BR-319, km-181, Sítio S. Paulo, 4°12'48" S - 60°49'04" W, 15-28.ii.2017, Malaise gde [grande], J.A. Rafael & F.F. Xavier F (one male, INPA).

**Remarks.** The shape of synsternite 5+6+7 of the examined specimen (Fig. 1D) slightly differs from the illustration of Buck & Marshall (2006) (Fig. 33) by the lateral margins nearly straight, but the male terminalia is virtually identical.

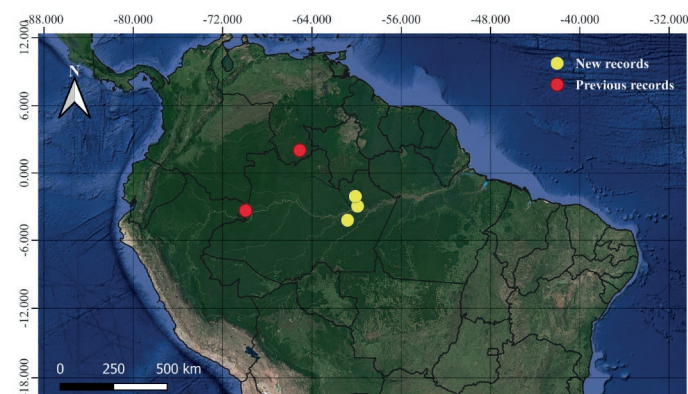
**Distribution.** Brazil (Amazonas, new record), Colombia and Venezuela (Fig. 2).

The first record of Inbiomyiidae for Brazil only occurred in 2019 by Riccardi & Amorim (2019). Our results corroborate the theory of Buck & Marshall (2006) that the current distribution of family includes virtually all the Neotropical region.

According to Buck & Marshall (2006) the family occurs in primary tropical forests. In this context, the Reserve Ducke collection site for the specimens recorded here fits perfectly into this statement. This is one of the most studied areas inside the Amazon biome (Baccaro et al. 2008), with decades of collects of insects and hundreds of entomologists studying the biodiversity of this area. Despite this, the Inbiomyiidae were never mentioned or recorded from the reserve. The family was only recently reported to the Amazon biome by Amorim et al. (2022), in ZF-2 reserve, about 40 km north from the Ducke Reserve, but only females were collected, and it was not possible to identify at the specific level.



**Figure 1.** *Inbiomyia matamata* Buck, 2006. **A.** Habitus, lateral view; **B.** Left fore leg, posterior view; **C.** Head, anterior view; **D.** Synsternite 5+6+7, ventral view; **E-F.** Terminalia in posterior and lateral views, respectively. Abbreviations: epand = epandrium; S5+6+7 = synsternite 5+6+7; sur = surstylus; vp = anteroventral process of epandrium.



**Figure 2.** Distribution map of *Inbiomyia matamata* Buck, 2006

The specimen from Ducke's reserve was collected in a Malaise trap installed above a narrow stream called Barro Branco, in a shady area, covered with green algae, moss and decaying matter as dead palm-tree leaves (Fig. 3). As discussed by Riccardi & Amorim (2019) for the species *I. azevedoi*, the genus probably feeds by grazing green algae, and this corresponds to the Ducke's specimen collection site. The other collected specimens are also in the primary forest in the Amazon biome, but not near streams.



**Figure 3.** Malaise trap at Ducke Reserve, Manaus, Amazonas, Brazil.

Despite the recently published studies, little is known about the biology of Inbiomyiidae, and our paper demonstrates how large the gap on the knowledge of the distribution of the species can be. The new record from the Ducke's reserve is 790 km south from the type-locality in Venezuela and about 1,130 km east from the Amacayacu National Park in Colombia.

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## Authors' Contributions

MMMS, LMB: Conceptualization, Writing – review & editing; JAR: Supervision, validation and Writing – review & editing.

## Conflicts of Interest Statement

Authors declare there are no conflicts of interest.

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