

**A new Neotropical species of *Trentepohlia* (*Mongoma*)
(Diptera: Tipulidae) from Cuba**

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ABSTRACT

A new Neotropical species of *Trentepohlia* (*Mongoma*) is described from Cuba. This is the first species of the subgenus from the West Indies, whereas the other four *Trentepohlia* spp. are from the subgenus *Paramongoma*. Notes on the phenology of this new species are provided. Also, we discuss the transfer of *Trentepohlia suberrans* Alexander, 1979 to *Mongoma* and provide a key for the identification of the three species of this subgenus present in the Neotropics.

Key words: *Trentepohlia*, *Mongoma*, Tipulidae, Limoniinae, Neotropic, Cuba, crane fly

INTRODUCTION

The crane fly (Diptera: Tipulidae) genus *Trentepohlia* Bigot, 1854 accounts for 313 described species worldwide, of which 47 are cited in the Neotropical region (Oosterbroek, 2009). Of the seven subgenera known, four are found in the Neotropics: *Mongoma* Westwood 1881, *Neomongoma* Alexander 1919, *Paramongoma* Brunetti, 1911 and *Promongoma* Alexander 1938, with *Paramongoma* the most diverse of them. Four species of the genus occur in the West Indies, all in the subgenus *Paramongoma*: *Trentepohlia* (*Paramongoma*) *dominicana* Alexander, 1947 from Puerto Rico and Dominica; *Trentepohlia* (*P.*) *manca* (Williston, 1896) from St. Vincent; *Trentepohlia* (*P.*) *niveitarsis* (Alexander, 1913) from Jamaica and Puerto Rico and *Trentepohlia* (*P.*) *pallida* (Williston, 1896) from St. Vincent.

The knowledge of the species in the West Indies is poor or nil, both biology and ecology. Gelhaus (2009) summarizes the genus for Central America. Gelhaus et al. (1993) and Livingston and Gelhaus (1994) provide a list of species sampled in the monitoring of a tropical rainforest in Puerto

Rico, referring to *T. (P.) niveitarsis* as part of the species in the area. Alexander (1933, 1964) offers an image of the wing venation of *T. (P.) niveitarsis* and *T. (P.) dominicana* (1970) but without providing data on the biology and ecology of these species.

Mongoma Westwood, 1881 is the most species-rich subgenus of *Trentepohlia* worldwide, with about 141 described species. It is very well represented in the Oriental Region, of which 71 species are listed. Species have also been reported from other regions, as Afrotropic (22 species), Australasian / Oceanian (47 species), East Palaearctic (3 species), and Neotropical (2 species until this work, see below) (Oosterbroek, 2012). This subgenus can be separated based on the combination of some characters of the wing venation, as follows: three branches of Rs ending in the wing margin, two Medial veins ending in the wing margin, cell dm present and CuA₂ intersecting A₁, closing cell cup. Petersen (2006) provides a useful overview of *Trentepohlia* and the main features that separate the subgenera.

In 1944, Alexander described *Trentepohlia* (*Mongoma*) *errans* (figure 4b) as the first representative of the subgenus in the Neotropics (Alexander, 1944). Later he described *Trentepohlia* (*Mongoma*) *suberrans* (Alexander, 1979) from Bolivia (Figure 4c) as the second species of New World *Mongoma*, with all the traits that characterize the species within this subgenus. Soon after Alexander listed the species as *T. (Paramongoma) suberrans* (Alexander, 1980), which is undoubtedly a mistake when mentioning *suberrans* together with other species geographically close and belonging to *Paramongoma*. This error caused that *T. (M.) errans* was considered until now as the only species of *Mongoma* in the Neotropics (e.g. Oosterbroek, 2012).

During a 2.5 month period in 1999, *Trentepohlia* specimens were taken in the forest area that is located opposite the central building of the Faculty of Biology, Chemistry and Geography of the Instituto superior Pedagógico Enrique José Varona, student center “Ciudad Escolar Libertad”, Marianao, Ciudad Habana province. Among the cavities formed by the roots at the base of trees, in areas adjacent to the building, *Trentepohlia* adults were observed and captured, a new record of the genus for Cuba. It was not until late 2009 that this material could be revisited and found that the specimens belonged to the subgenus *Mongoma* Westwood, 1881, becoming the first record of this subgenus in the Caribbean and the third known in the Neotropical region. The paper describes this new species to Cuba from the sampled material.

Paramongoma and *Mongoma* species, both now present in the Caribbean, share similar characteristics in the wing venation but can be easily separated as follows:

- 1 One Medial vein (M_3) attaining wing margin; CuA_2 ends at the wing margin, not intersecting A_1 (cell cup open) (figure 3a). *Trentepohlia (Paramongoma)*
- Two Medial veins (M_{1+2} and M_3) attaining wing margin; CuA_2 intersecting A_1 (cell cup closed) (figure 3b) *Trentepohlia (Mongoma)*

MATERIALS AND METHODS

This paper follows the higher-level classification used by Alexander & Alexander (1970) and later by Gelhaus (2009), with Tipulidae considered a single family subdivided in three subfamilies: Tipulinae, Cylindrotominae and Limoniinae, with *Trentepohlia* within the Limoniinae. The specimens were sampled by hand net and preserved in alcohol 70%. For observation we used a stereomicroscope MOTIC SMZ-168 and the photographs were made with Sony Cyber-shot camera.

Trentepohlia (Mongoma) inexpectata n. sp.

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Diagnosis.— Female can be easily identified by its characteristic wing venation with two Medial veins attaining the wing margin and CuA_2 intersecting A_1 (cell cup closed). These characteristics of the wing, together with the white tarsi distinguish this species from other *Trentepohlia* of the Caribbean and in particular from other Tipulidae of Cuba. Male is unknown.

Female.— length about 9.5mm – 12.0mm; wing 6.9mm – 8.0mm

Head.— (fig. 1b) brownish. Eyes occupying most of head, and anterior vertex very narrowed. Rostrum pale yellowish, about 0.5mm. Palpi brown very pale, 3rd segment shortest and ampler than the others, approximately half of 1st segment. Antennae: (fig. 1b) brownish yellow, 16 antennal segments (14 flagellomeres). Flagellomeres altogether with scapus and pedicel 3.1mm. Pedicel rounded and half of the scapus. Scapus and pedicel 0.35mm combined. Flagellomeres slender,

elongated and first flagellomere about 0.2mm.

Thorax: general coloration brownish to pale, with the rear of scutum clearer in its center. Coxae, anteppronotum, pronotum and mediotergite light brown. Anteppronotum with a set of fine and long setae. Halteres completely pale, brownish in the borders of knob. Legs with 1st coxae light brown and the 2nd and 3rd pale. Femora light brown, abruptly whitened in the apical part. Central part of tibiae light brown and whitened in both tips. Segments of tarsi whitened, except the 1st light brown segment. Anterior femur with one or two setae (spine) (fig. 1d), located more or less ventrally and near the coxa. Posterior femur (fig. 1e) with a row of short spines on its ventral side. Wings subhyaline (fig. 1a), very slightly yellowed, length 6.9 – 8.0mm. Stigma poorly marked, slightly brownish yellow. Venation: Sc₂ present, beyond the fork of R_s; Sc₁ ending almost at same level of fork of R₂; R₁₊₂ almost or equal in length to R₂; R₂ born after the dm cell and longer in length than R₃₊₄; M₁₊₂, M₃ and CuA₁ slightly pale. CuA₂ intersecting A₁ near wing tip, closing cell cup.

Abdomen.—In female, general coloration of sternites brownish yellowed to pale. Tergites brownish pale, slightly darkened at the end of abdomen. Cerci of ovipositor curved (fig. 1c), with a slight protuberance in dorsal crest, more brownish, near the anterior part.

Type material.— Holotype: 1 female, Ciudad Escolar Libertad, Marianao, Ciudad Habana, Cuba. 23°05'17" N, 82°25'57" W. Alt. 50m.a.s.l. October 15, 1999. J. Mederos leg.

Paratypes: 7 females, same location as holotype, October 15, 1999. J. Mederos leg.; 4 females, same location as holotype, December 1, 1999. J. Mederos leg.

All the specimens are preserved in alcohol 70%.

Holotype and 3 paratype deposited in the Academy of Natural Sciences, Philadelphia, USA.

3 paratypes deposited in the Instituto de Ecología y Sistemática, La Habana, Cuba.

5 paratypes deposited in author's (J. Mederos) collection, Barcelona, Spain.

Biology.—unknown.

Distribution.—Cuba (La Habana Province).

Etymology.—The name of this new species

comes from the Latin word “inexpectata” which means “unexpected” because it was a great surprise to find a species of this subgenus in Cuba.

Comparisons to similar species.— *Trentepohlia errans* and *T. suberrans* has some significant differences compared to *T. inexpectata* n. sp., particularly in the traits of the wing venation (figure 4) and in the colour of legs, completely dark yellow (in *errans*) or completely light brown (in *suberrans*) without white colour of tarsi segments as in *T. inexpectata* n. sp. After reviewing the male *Trentepohlia errans* type specimen from Ecuador and Alexander's descriptions of these two previous species, we also reviewed a female specimen from Costa Rica and determined by Alexander as *Trentepohlia (Mongoma) errans*. If this determination is correct, the Costa Rica female specimen has very marked differences compared with that of *T. inexpectata* n. sp., particularly regarding the shape of the ovipositor (figure 5). The three species of *Mongoma* can be separated using the following key:

1. R₃ longer in length than R₂₊₃ and R₂ together. Legs with femora light brown, abruptly whitened in the apical part. Central part of tibiae light brown and whitened in both tips and segments of tarsi whitened, except the 1st light brown segment *Trentepohlia (M.) inexpectata* sp. n.
- R₃ shorter in length than R₂₊₃ and R₂ together. Color uniform throughout the legs, except coxae and trochanters that can be lighter. . . . 2
2. Legs with coxae and trochanters light yellow, remainder of legs light brown. Wings very pale brown with veins clearly visible. Cell cup closed by a short apical fusion when CuA₂ intersecting A₁ just before wing margin. *Trentepohlia (M.) suberrans*
- Legs obscure yellow throughout its length. Wings pale yellow with veins pale yellow too, very difficult to distinguish veins from the wing background. Cell cup almost closed, with CuA₂ intersecting A₁ just at wing margin *Trentepohlia (M.) errans*

DISCUSSION

This new species brings the number of Tipulidae cited from Cuba to 69 species in 26 genera (Alayo y García, 1983; Oosterbroek, 2012) and represents the fifth species of *Trentepohlia* from the West Indies. Of the four *Paramongoma* species (fig. 2) described to date from West Indies, *T. (P.) pallida* is the most widely distributed (Brazil and St. Vincent.), while *T. (P.) manca* is endemic to St. Vincent. The other two species are also restricted to the Caribbean, *T. (P.) dominicana* (Puerto Rico and Dominica) and *T. (P.) niveitarsis* (Jamaica and Puerto Rico). This is the first species of the subgenus *Mongoma* for the Caribbean. The male sex remains unknown.

Tipuloidea fauna of Cuba is among the most poorly known of the Caribbean, due in part to low sampling effort. From Cuba, the largest of the Caribbean islands, there are cited only 69 species of Tipulidae (26 genera), of which 50.7% are endemic. For much smaller territories have been listed a greater number of species, such as Dominica, with 82 species, Jamaica 70 and Puerto Rico 64. This means there are great possibilities for future studies to increase the number of new species for the Cuban archipelago, which is estimated at about 1.5-2 times the current number, between 100-140 species in total.

As has been mentioned above, there were some observations on the behaviour of *Trentepohlia (M.) inexpectata* n. sp. at the time of sampling. All specimens were observed using as shelter cavities between tree roots, having other holes in the adjacent area between the rocks and in buildings that could be occupied. The specimens were sampled in the spaces created between the roots of the tree commonly known as Flamboyán (*Delonix regia*). During this period of sampling (day) only females were observed and captured, usually in groups of five or more and only rarely isolated specimens. Two behaviours were observed in these specimens, one of them apparently made over time; it was the vibration of the body, which increased at a rate faster when one of us (JM) approached the individuals. The observed groups conducting these vibrations included all members in a cavity at one time and almost always found perched on

what looked like cobwebs supposedly among the roots. The solitary specimens were also constantly vibrating. The other behaviour was observed at least thrice. It consisted of a vibration while maintaining the second pair of legs in the air, while the body was supported by the first and third pair. Edwards (1928) and Alexander (1920) describe the behavior of the Old World tropical species, *T. (M.) pennipes* (Osten Sacken) which rests in chains in spider webs and similarly vibrates, literally moving up and down like Phalangida harvestmen arthropods.

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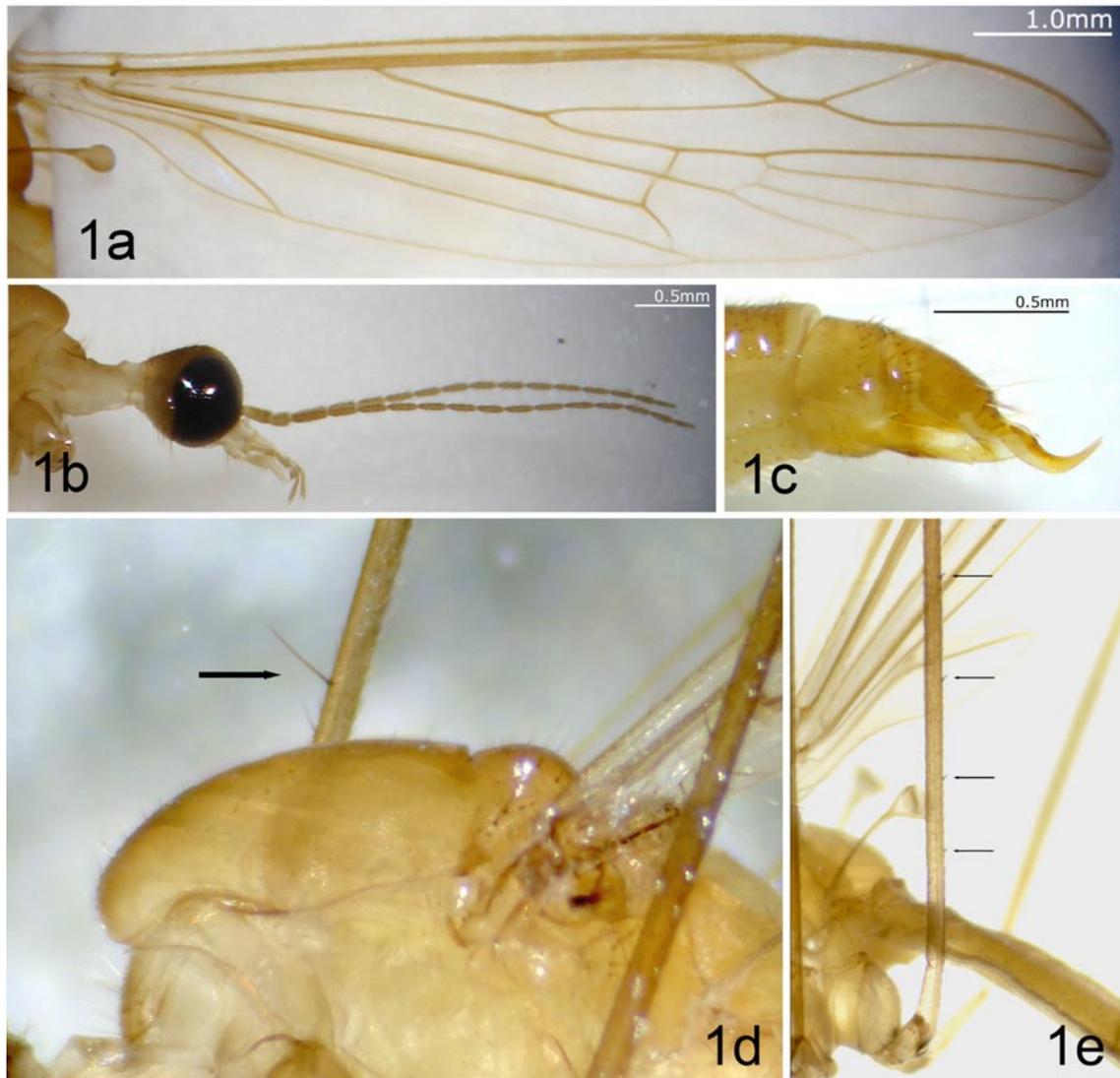
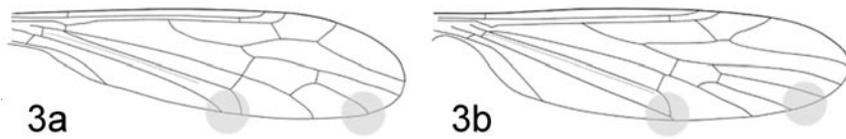


Figure 1. *Trentepohlia (Mongoma) inexpectata* n. sp.: a- wing; b- head and antenna; c- ovipositor; d- spine in femur of the foreleg and e- row of spines in hind leg femur.



Figure 2. Distribution of *Trentepohlia* species in the Caribbean area: 1- *Trentepohlia* (*Paramongoma*) *dominicana*; 2- *Trentepohlia* (*P.*) *manca*; 3- *Trentepohlia* (*P.*) *niveitarsis*; 4- *Trentepohlia* (*P.*) *pallida* and 5- *Trentepohlia* (*Mongoma*) *inexpectata* n. sp.



Figures 3. Wings of a- *Trentepohlia* (*Paramongoma*) and b- *Trentepohlia* (*Mongoma*). (figures, modified, from Petersen, 2006).

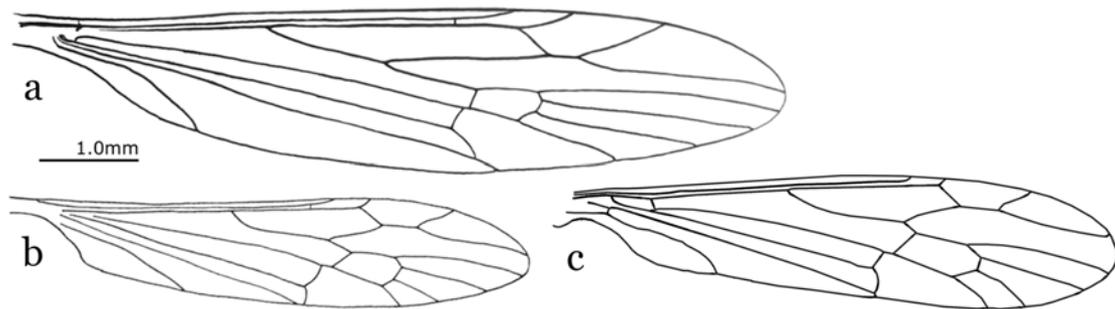


Figure 4. Wing venation of a- *Trentepohlia (Mongoma) inexpectata* n. sp. (female); b- *Trentepohlia (M.) errans* (from type specimen) and c- *Trentepohlia (M.) suberrans* (modified from Alexander, 1979).

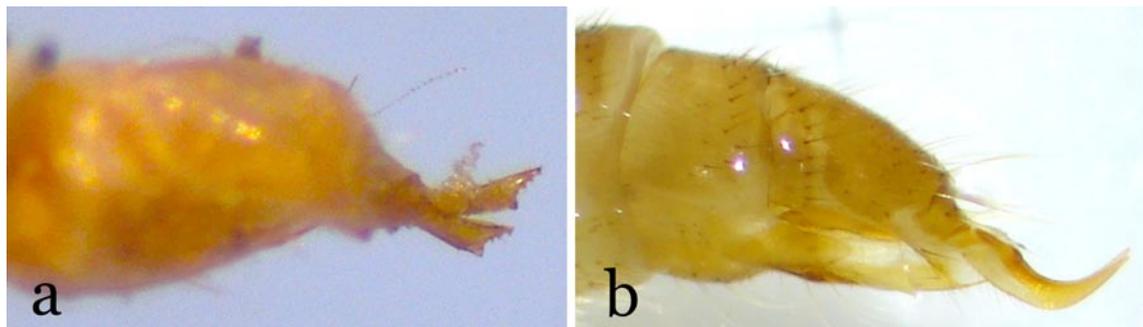


Figure 5. Ovipositors of a- *Trentepohlia (Mongoma) errans* from Costa Rica and b- *Trentepohlia (M.) inexpectata* n. sp.