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New data and species of *Thecomyia*  
Perty, 1933 (Diptera: Sciomyzidae)  
from Mitaraka (French Guiana),  
with notes on the genus

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View of lowland rainforest and inselbergs from the inselberg Sommet en Cloche (Mitaraka mountains, French Guiana) (photo: Marc Pollet). In médaillon, male of *Thecomyia chrysacra* Marinoni & Steyskal, 2003.

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# New data and species of *Thecomyia* Perty, 1833 (Diptera: Sciomyzidae) from Mitaraka (French Guiana), with notes on the genus

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## ABSTRACT

A new species of *Thecomyia* Perty, 1833, *T. dideriki* Mortelmans n. sp., is described from French Guiana, with diagnostic characters being the absence of anteromedial setae on the midfemur; an ill-defined, tripartite, greyish mesonotal stripe; absence of upper fronto-orbital bristles; completely yellow mid- and hind femora; typical distiphallus bearing two long, curved acrophalli; absence of male anterior gonostyli; and large, triangular posterior gonostyli. All specimens were collected during the Mitaraka (French Guiana) 2015 survey that investigated an array of habitat types; the new species was encountered only in swamp forests. This discovery raises the number of species in this exclusively Neotropical genus to 13. An update of the relevant couplets in the key to *Thecomyia* in Marinoni *et al.* (2003) is presented to include the new species. New records of other species of *Thecomyia* from Costa Rica, French Guiana, and Brazil are given, with first records of *Thecomyia lateralis* (Walker, 1858) from Costa Rica, and first records of *T. dideriki* Mortelmans n. sp. and *T. longicornis* Perty, 1833 from French Guiana.

## KEY WORDS

Acalyptratae,  
Sciomyzoidea,  
French Guiana,  
Costa Rica,  
geographical distribution,  
neotropical,  
snail-killing flies,  
survey,  
new species.

## RÉSUMÉ

*Nouvelles données et une nouvelle espèce de Thecomyia Perty, 1833 (Diptera: Sciomyzidae) du Mitaraka (Guyane), et notes sur le genre.*

Une nouvelle espèce de *Thecomyia* Perty, 1833, *T. dideriki* Mortelmans n. sp., est décrite de Guyane. Les caractères diagnostiques sont l'absence de setae antéromédiales sur le fémur 2; la bande mésonotale mal définie, tripartite et grisâtre; l'absence de soies fronto-orbitales supérieures; les fémurs 2 et 3 complètement jaunes; le distiphallus typique, portant deux acrophalles longs et courbés; chez les mâles, l'absence de gonostyles antérieurs; et des gonostyles postérieurs volumineux et triangulaires. Tous les spécimens ont été collectés pendant l'expédition Mitaraka 2015 (Guyane) qui a étudié un éventail de types d'habitats; la nouvelle espèce a été rencontrée seulement dans les forêts marécageuses. Cette découverte augmente le nombre d'espèces dans ce genre strictement néotropical à 13. Les couplets concernés dans la clé des *Thecomyia* de Marinoni *et al.* (2003) sont mis à jour pour inclure la nouvelle espèce. Des signalisations nouvelles d'autres espèces de *Thecomyia* sont données pour le Costa Rica, la Guyane, et le Brésil. Sont mentionnées pour la première fois *Thecomyia lateralis* (Walker, 1858) du Costa Rica, *T. dideriki* Mortelmans n. sp. et *T. longicornis* Perty, 1833 de Guyane.

## MOTS CLÉS

Acalyptratae,  
Sciomyzoidea,  
Guyane,  
Costa Rica,  
distribution,  
néotropical,  
enquête,  
espèce nouvelle.

## INTRODUCTION

*Thecomyia* Perty, 1833 is a genus of snail-killing flies restricted to Central and South America (Knutson & Vala 2011). Adults are recognised by the combination of a narrow, conical face; a completely retractable proboscis; strongly reduced palpi; and strongly reduced body setae (Marinoni & Mathis 2000; Marinoni *et al.* 2003). Although the genus is recognised easily, the currently known species of *Thecomyia* are morphologically very similar, and diagnostic characters are found mainly in the male postabdomen; females sometimes can be determined by a combination of external characters, association with males, and geographical range.

Until 2003, only four species of *Thecomyia* were known: *T. limbata* (Wiedemann, 1819), *T. longicornis* Perty, 1833, *T. lateralis* (Walker, 1858), and *T. trilineata* Hendel, 1932. In 1968, G. C. Steyskal (U.S. Department of Agriculture, National Museum of Natural History, Washington, DC, USA [USDA]) started taxonomic research on *Thecomyia* to support life cycle studies being conducted by J. Abercrombie and C. O. Berg of Cornell University (Ithaca, New York, USA). Steyskal examined type specimens, figured male postabdomens of most species and prepared a preliminary key. Steyskal retired in 1979 and passed the unpublished manuscript on to L. V. Knutson (USDA), who drafted a generic description of *Thecomyia* and redescribed *T. limbata*. Knutson & Carvalho (1989) referred to this unpublished manuscript as “Steyskal & Knutson in preparation,” noting that it included descriptions of 11 undescribed species of *Thecomyia*. Work on this unpublished manuscript was resumed by L. Marinoni (Department of Zoology, Universidade Federal do Paraná, Brazil), and finally published as Marinoni *et al.* (2003). They described nine new species and synonymised *T. trilineata* with *T. lateralis*, thus setting the number of species in the genus at 12.

In *Thecomyia* only the biology of *Thecomyia limbata* is known, thanks to efforts by Abercrombie & Berg (1975),

who reared the species through its complete life cycle. Larvae of this species are predaceous on non-operculate freshwater snails, whereas adults might be active nectar feeders on flowers, as is suggested by the long haustellum and proboscis (Knutson & Vala 2011). The latter authors also suggested that the general brown-and-yellow body color of *Thecomyia*, which is similar to that of many predatory wasps, could be a case of Batesian mimicry used to avoid predation when visiting flowers.

During separate surveys in French Guiana and Costa Rica in 2015, researchers collected specimens of *Thecomyia*, including one undescribed species. In the present paper, we provide a description of *Thecomyia dideriki* Mortelmans n. sp., update the relevant couplets of the key in Marinoni *et al.* (2003) to include the new species of *Thecomyia*, and report on and discuss the results of the two above-mentioned surveys.

## MATERIAL AND METHODS

Two separate entomological surveys conducted in 2015 collected specimens of *Thecomyia* (Fig. 1). The first survey was the “Our Planet Reviewed” or “La Planète revisitée” Guyane 2014–2015 expedition, also known as the Mitaraka 2015 survey, that was conducted in the Parc amazonien de Guyane, French Guiana (Pollet *et al.* 2014; Pascal *et al.* 2015; Touroult *et al.* 2018). This program, cooperatively conducted by the Muséum national d’Histoire naturelle (MNHN) and Pro-Natura International (both in France), aimed at rehabilitating taxonomic research that focuses on the largely neglected components of global biodiversity, specifically invertebrates in aquatic, marine, and terrestrial habitats. During this expedition, researchers investigated the mostly biologically unknown and nearly uninhabited Mitaraka Mountains in the southwesternmost corner of French Guiana, directly bordering Suriname and Brazil. The area consists primarily of tropical lowland rain forest with scattered inselbergs (Fig. 2). Between 22.II and 27.III.2015, two teams of about



FIG. 1. — Sites in Costa Rica and French Guiana sampled for Diptera during entomological surveys in 2015: **a**, Mitaraka (French Guiana); **b**, Estación Biológica Monteverde (Santa Elena); **c**, rainforest of Chalet Nicholas near Parque Tenório Reserva (Nuevo Arenal); **d**, OTS-Estación Biológica La Selva (near Puerto Viejo de Sarapiquí); **e**, Dantica Reserva Forestal Privada – Los Santos Reserva Forestal and the Savegre Reserva Natural (San Gerardo de Dota); **f**, Parque Nacional Tapantí (near Orosí).



FIG. 2. — View of lowland rainforest and inselbergs from the inselberg Sommet en Cloche (Mitaraka mountains, French Guiana) (photo: Marc Pollet).



Fig. 3. — Blue pan traps in swamp site LS-SW2 in OTS – Estación Biológica La Selva (Costa Rica) (photo: Marc Pollet).

30 researchers explored the area. A third, smaller team returned to the site from 12 to 20.VIII.2015. One of us (MP) acted as coordinator of the collected Diptera and was also the only Diptera worker actively involved in this expedition.

Invertebrates were sampled near the base camp, on the drop zone (an area near the base camp that had been clear cut to allow helicopters to land) and, in particular, along four trails of about 3.5 km each that started from the base camp and led in four different directions. Sampling for invertebrates was most intense during the first survey (22.II-11.III.2015), during which more than 21 different collecting methods were applied and with a total of 401 traps operational within a 1-km<sup>2</sup> perimeter (Touroult *et al.* 2018). This array consisted primarily of blue, yellow and white pan traps (n = 280), Charax butterfly traps (n = 50), SLAMs (n = 32), flight intercept traps (FIT, n = 13) and butterfly banana traps (n = 12). A total of 223 invertebrate samples (often pooled yields of different traps of the same type) were examined, including 93 sweep net samples and 27 and 62 samples collected by SLAM and colored pan traps (24 blue, 22 yellow, and 16 white traps), respectively. All collected material was stored in 70% ethanol during the expedition, with the sciomyzid fraction being pinned

directly from ethanol about 12 months later in the laboratory. Specimens collected during the Mitaraka 2015 survey were deposited in MNHN, and in JM's personal collection, according to an agreement between JM and MNHN.

The second survey was conducted in Costa Rica between 29.III and 18.IV.2015, mainly by MP, with assistance from Anja De Braekeleer, his wife. Five main locations in five different provinces in the north and the centre of Costa Rica were investigated: Estación Biológica Monteverde (Puntarenas Province); a rain-forest adjacent to Parque Tenorio Reserva near Chalet Nicholas, Nuevo Arenal (Guanacaste Province); Organization for Tropical Studies (OTS), Estación Biológica La Selva, near Puerto Viejo de Sarapiquí (Heredia Province); the Dantica Reserva Forestal Privada – Los Santos Reserva Forestal and the Savegre Reserva Natural at San Gerardo de Dota (San José Province); and the Parque Nacional Tapantí near Orosí (Cartago Province) (Fig. 1). At each of these locations, 4-6 sampling sites in rain-forest habitat and on river-banks were selected for sampling, mainly by pan traps (Fig. 3). In 1-2 sampling sites per location, one Malaise trap was installed together with one unit of 10 blue, 10 white and 10 yellow pan traps. In the remaining sampling sites, one unit of 10 yellow

pan traps was operational. In all sampling sites, flies were also actively collected by use of sweep nets. Trapping was conducted for 3–4 days at each location except at Nuevo Arenal, where three sites were trapped for a period of 16 days. Yields of pan traps of the same unit during a single sampling period were pooled into a single sample. A total of 199 samples were ultimately gathered, consisting of 136 sweep net samples and eight, 12, and 34 pooled samples of blue, white and yellow pan traps, respectively. All specimens were stored in 70% ethanol. Samples were later sorted in the home laboratory of MP, who transferred all specimens of Sciomyzidae to JM for examination. Specimens were ultimately deposited in the INBio entomological collections of the Universidad de Costa Rica, San José, and in JM's personal collection.

All specimens of Sciomyzidae collected in both surveys were examined by JM. Morphological analyses and diagnosis of the specimens were performed with a Novex AR-Zoom Stereomicroscope, with 40× magnification. Photographs of the specimens were taken by use of a Leica M205 stereomicroscope, with up to 160× magnification, at the LifeWatch observatory, VLIZ. In the descriptions that follow, the size of the eye is measured from the ocellar tubercle to the lower eye margin. Fore-, mid- and hind legs are indicated as I, II and III. Abdominal tergites and sternites are indicated as 'T' and 'ST', respectively; 1–8 in the description of the abdominal segments refers sequentially from basal (1) to caudal (8) segments.

#### ABBREVIATIONS

##### *Institutions*

INBio	INBio entomological collections of the Universidad de Costa Rica, San José;
MNHN	Muséum national d'Histoire naturelle, Paris;
RBINS	Royal Belgian Institute of Natural Sciences, Brussels;
VLIZ	Flanders Marine Institute, Oostende.

##### *Private collection*

Coll. JM Jonas Mortelmans' private collection, Ghent.

#### RESULTS

Family SCIOMYZIDAE Macquart, 1846

Genus *Thecomyia* Perty, 1833

*Thecomyia diederiki* Mortelmans n. sp.  
(Figs 4B, D, F; 5)

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**TYPE MATERIAL.** — **Holotype.** 1♂, French Guiana: Mitaraka, site MIT-C-RBF2, 02°14'03.4"N, 54°26'53.0"W, 299 m, on vegetation along muddy trail and in swamp, 3.III.2015, sweep net, MP leg., sample code: MITARAKA/058 (sorted by MP, 2015) (top label); "La Planète Revisitée – MNHN / PNI Guyane 2015 – APA-973-1" (mid label); "*Thecomyia diederiki* n. sp. Mortelmans. HT" (bottom label, green). MNHN (pinned specimen, abdomen removed, dissected, stored in microvial containing glycerine on same pin as specimen), with accession number MNHN-ED-ED10596.

**Paratypes.** French Guiana: 1♂, Mitaraka, site MIT-C-RBF1, 02°14'10.8"N, 54°26'49.5"W, 258 m, tropical wet forest (= swamp

forest, "bas fond"), 24–27.II.2015, yellow pan traps, MP leg., sample code: MITARAKA/122 (sorted by MP, 2015) (top label); "La Planète Revisitée – MNHN / PNI Guyane 2015 – APA-973-1" (mid label); "*Thecomyia diederiki* n. sp. Mortelmans. PT" (bottom label, green); MNHN (pinned specimen, abdomen removed, dissected, stored in microvial containing glycerine on same pin as specimen), with accession number MNHN-ED-ED10597; 1♂, Mitaraka, site MIT-C-RBF2, 02°14'03.4"N, 54°26'53.0"W, 299 m, on vegetation along muddy trail and in swamp, 6.III.2015, SW, MP leg., sample code: MITARAKA/072 (sorted by MP, 2015) (top label); "La Planète Revisitée – MNHN / PNI Guyane 2015 – APA-973-1" (mid label); "*Thecomyia diederiki* n. sp. Mortelmans. PT" (bottom label, green). Coll. JM, intact, dry, pinned specimen.

**TYPE LOCALITY.** — Mitaraka mountain range in southwesternmost French Guiana.

**DISTRIBUTION.** — The species is known only from the type locality.

**ETYMOLOGY.** — The species is named in honour of Diederik Volckaert, a good friend of the first author and an excellent collector of Sciomyzidae.

**DIAGNOSIS.** — Diagnostic external characters of *T. diederiki* Mortelmans n. sp. include the absence of anteromedial setae on midfemur (Fig. 4D); an ill-defined, tripartite and greyish mesonotal stripe (Fig. 4D); absence of upper fronto-orbital setae (Fig. 4F); a typical distiphallus; and completely yellow femora II–III (Fig. 4B, D). *Thecomyia diederiki* Mortelmans n. sp. appears similar to *T. lateralis*, *T. mathisi* Marinoni, 2003, and especially *T. bonattoi* Marinoni & Steyskal, 2003 in respect to the distiphallus, bearing 2–3 long, curved acrophalli and in the absence of the male anterior gonostyli. *Thecomyia diederiki* Mortelmans n. sp. can be differentiated easily from these species by the large, triangular posterior gonostyli. Furthermore, the two large acrophalli (three in *T. bonattoi*) on the distiphallus are unique, being similar to each other in size and shape, in contrast to the unequal prolongations on the acrophalli in the other three species (Fig. 5).

#### DESCRIPTION

##### *Male*

**Measurements.** Body length 5.5 mm, wing length 4.5 mm.

**Head.** Ground color brownish, with only fronto-orbital spot velvety black, and a triangular black spot in the middle of face. Fronto-orbital spot large, triangular with rounded corners, width approximately 1/3 width of frons. Oral margin in lateral view slightly protuberant. Rostrum 0.6× as high as eye. Head mainly shiny, with a heavily dusted stripe on frons adjacent to the eye, extended ventrally to just below the eye. White microtomentose infra-ocular marking extended approximately 1/2 distance to the oral margin. Ocellar triangle slightly protuberant. Upper fronto-orbital seta absent. Only four setae on head: one pair of inner and one pair of outer vertical setae. Palpus absent, reduced to a few black hairs. Proboscis elongated, dark yellow. Antenna yellow, basal flagellomere slightly darker. Arista subbasal, yellow, bearing very long, white hairs.

**Thorax and abdomen.** Body brown with two obvious golden yellow stripes: one longitudinal stripe lateral to scutum, one dorsoventral stripe from anepisternum to katapisternum. Scutellum almost completely yellow, with anterior corners slightly darker to brown. Medial mesonotal stripe very

obscure, slightly lighter than surrounding area, greyish. Thoracic chaetotaxy: 2 notopleurals, 1 supra-alar, 1 postalar and 1 pair of scutellar setae. Pleura bare. Halter completely yellow. Katatergite yellow. Abdomen concolorous with thorax, both sternites and tergites dull brownish with only lateral margin of tergites golden yellow, tergites densely and evenly setulose.

**Wing.** Slightly and evenly infuscated brownish, slightly yellow at base. Wing venation typical for *Thecomyia*: veins  $R_{4+5}$  and  $M_1$  parallel to apex, crossvein dm-m straight;  $CuA + CuP$  complete to margin;  $CuA$  truncate; anal lobe not expanded.

**Legs.** Coxae and trochanters brown, coxa I with strong golden pubescence, coxae and trochanters II-III only slightly pubescent. Femora and tibiae completely yellow, with femur I slightly darker at apex. Femur I with only small setulae, evenly distributed, without setae. Femora II-III with small setulae along entire length and with 5-7 large setae on anteroventral and posteroventral surface near apex, arranged in two parallel rows. Tarsi completely yellow.

**Genital apparatus.** ST6 asymmetrical. Left 7th spiracle below synsternite 7 + 8, situated on the membrane next to T7. Anterior surstylus absent. Posterior surstylus large and elongate, with posterior end in lateral view bifid and pointed (Fig. 5D). Anterior part of posterior surstylus in lateral view small and slightly protruding beyond edge of epandrium, resembling an anterior surstylus. Cercus surpassing edge of epandrium, triangular. Hypandrium in lateral view with dorsal margin straight and ventral margin curved (Fig. 5C). Membranous ridge very large, obvious and visible (Fig. 5A). Distiphallus with two distinct and conspicuous processes, similar to each other in shape and size, projecting ventrally. Ejaculatory apodeme broad at apex, similar in size to basiphallus. Membranous stripes of hypandrium very wide. Phallopodeme broad, rigid. Epiphallus shorter than phallopodeme, with deep notch, covering base of distiphallus. Basiphallus large, apical tip curved dorsally and with small, subapical protuberance (Fig. 5A).

### *Thecomyia chrysacra*

Marinoni & Steyskal, 2003

*Thecomyia chrysacra* Marinoni & Steyskal in Marinoni *et al.*, 2003: 23.

**MATERIAL EXAMINED.** — **Costa Rica.** 1 ♂, Heredia, OTS – Estación Biológica La Selva, near Puerto Viejo de Sarapiquí, site LS-SW1 along Camino Circular Cercano (CCC), 10°25'28.8"N, 84°00'34.5"W, 35 m, swamp forest, 5-8.IV.2015, yellow pan traps, MP & Anja De Braekeleer leg., sample code: CR/2015/171/MP. INBio (pinned specimen, abdomen removed, dissected, stored in microvial containing glycerine on same pin as specimen) (Fig. 4A, C, E). 1 ♀, OTS-Estación Biológica La Selva, near Puerto Viejo de Sarapiquí, site LS-SW2 along Sendero Suampo (SUA), 10°25'11.7"N, 84°00'31.3"W, 48 m, swamp forest, 5-8.IV.2015, yellow pan traps, MP & Anja De Braekeleer leg., sample code: CR/2015/173/MP. Coll. JM, intact, dry, pinned specimen.

### *Thecomyia lateralis* (Walker, 1858)

*Tetanocera lateralis* Walker, 1858: 221 (type locality: "Valley of Amazon").

*Thecomyia trilineata* Hendel, 1932: 98 (type locality: Pozo del Tigre, Bolivia). — Marinoni *et al.* 2003: 16 (synonymy with *T. lateralis*).

*Thecomyia lateralis* – Steyskal 1966: 447 (type examination, generic combination). — Knutson *et al.* 1976: 13 (Neotropical catalogue).

**MATERIAL EXAMINED.** — **Costa Rica.** 3 ♂, Heredia, OTS - Estación Biológica La Selva, near Puerto Viejo de Sarapiquí, site LS-SW1 along Camino Circular Cercano (CCC), 10°25'28.8"N, 84°00'34.5"W, 35 m, swamp forest, 5-8.IV.2015, yellow pan traps, MP & Anja De Braekeleer leg., sample code: CR/2015/171/MP (abdomen removed, dissected, stored in microvial containing glycerine on same pin as specimen), INBio, pinned specimens. 1 ♂ (same data), deposited as an intact, dry, pinned specimen, coll. JM. 1 ♀, OTS-Estación Biológica La Selva, near Puerto Viejo de Sarapiquí, site LS-SW2 along Sendero Suampo (SUA), 10°25'11.7"N, 84°00'31.3"W, 48 m, swamp forest, 5-8.IV.2015, yellow pan traps, MP & Anja De Braekeleer leg., sample code: CR/2015/173/MP; INBio, pinned specimens.

#### REMARK

This is the first record of *T. lateralis* from Costa Rica.

### *Thecomyia limbata* (Wiedemann, 1819)

*Tetanocera limbata* Wiedemann, 1819: 54 (type locality: "Brasil"); 1830: 584 (citation).

*Thecomyia limbata* – Frey 1918: 24 (generic combination). — Hendel 1932: 98 (suggested synonym with *Thecomyia longicornis*). — Abercrombie & Berg 1975: 355-368 (biology and description of immature stages). — Knutson *et al.* 1976: 13 (Neotropical catalogue). — Marinoni *et al.* 2003: 191 (generic revision).

**MATERIAL EXAMINED.** — **Brazil.** 1 ♂, 1 ♀, Araçatuba São Paulo, Rio Jacaregatinga, 1-31.X.1961, Lane & Rabello leg., RBINS.

#### REMARK

New distribution record of *T. limbata* from Brazil is provided above, based on material located in the RBINS collection. The two specimens were labelled "*Thecomyia* sp.;" examination proved the specimens to belong to *T. limbata*.

### *Thecomyia longicornis* Perty, 1833

*Thecomyia longicornis* Perty, 1833: 189 (designated as type species; type locality: "Amazon", Brazil). — Rondani 1868: 79-80, (redescription). — Hendel 1932: 98 (suggested synonym with *Thecomyia limbata*). — Curran 1934: 458 (distribution). — Abercrombie & Berg 1975 (revalidation of name). — Knutson *et al.* 1976: 13 (Neotropical catalog). — Knutson & Carvalho 1989 (seasonal distribution). — Marinoni & Mathis 2000: 209 (cladistic analysis). — Marinoni *et al.* 2003: 14 (generic revision).

**MATERIAL EXAMINED.** — **French Guiana.** 1 ♂, Mitaraka, site MIT-DZ-RBF2, 02°13'59.3"N, 54°27'00.3"W, 283 m, tropical wet forest (bas fond), 28.II-5.III.2015, yellow pan traps, MP leg., sample code: MITARAKA/176 (abdomen removed, dissected, stored in microvial containing glycerine on same pin as specimen), MNHN, pinned specimen with accession number MNHN-ED-ED10598. 1 ♂, Mitaraka,



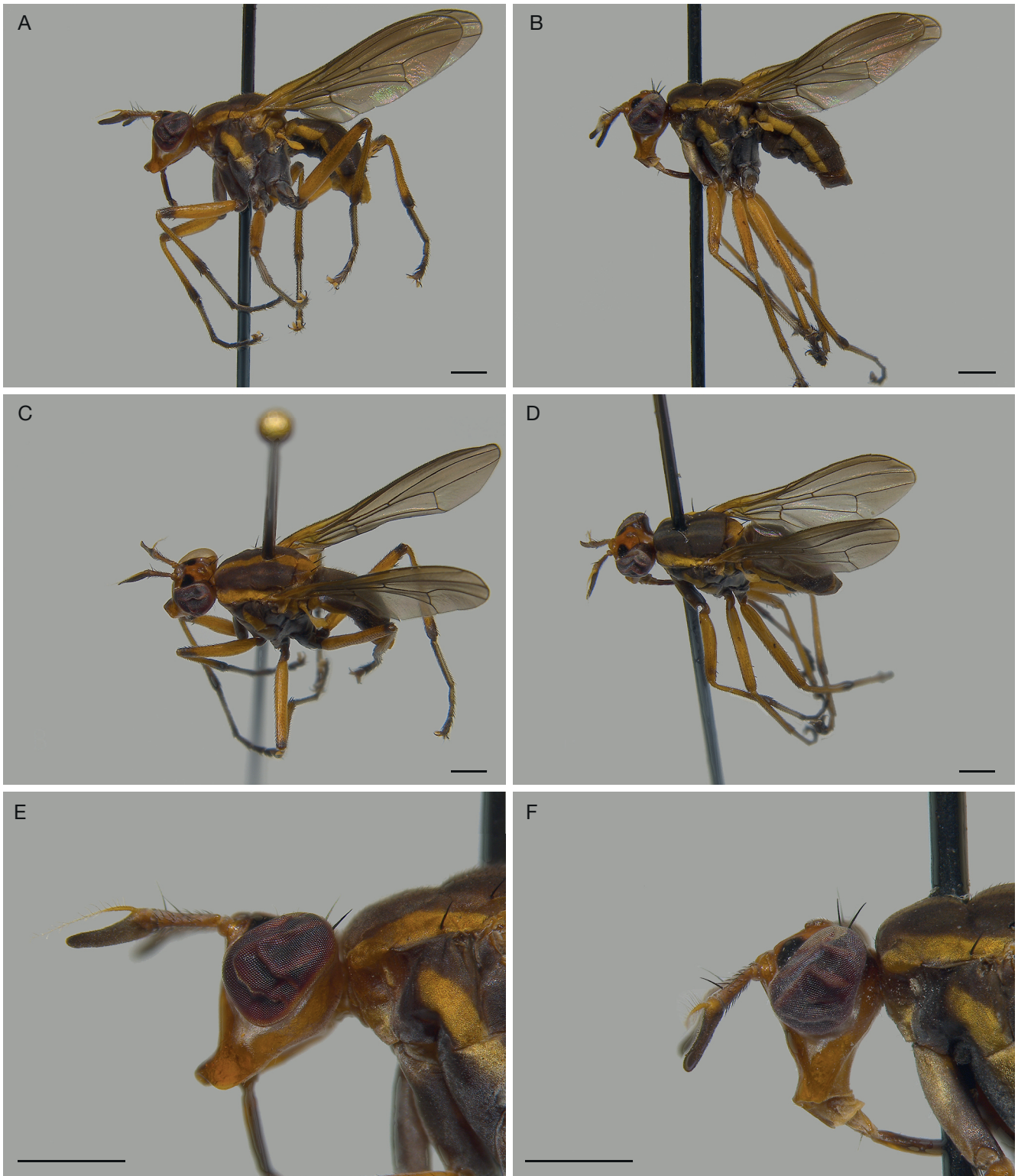


FIG. 4. — **A, C, E**, ♂ *Thecomyia chrysacra* Marinoni & Steyskal, 2003: **A**, habitus, lateral view; **C**, habitus, dorsolateral view; **E**, head, lateral view; **B, D, F**, ♂ holotype of *Thecomyia dideriki* Mortelmans n. sp.: **B**, habitus, lateral view; **D**, habitus, dorsolateral view; **F**, head, lateral view. Scale bars: 1 mm.

site MIT-D-RBF, 02°13'58.8"N, 54°27'07.5"W, 317 m, on vegetation along muddy trail and in swamp, 6.III.2015, sweep net, MP leg., sample code: MITARAKA/075, deposited as an intact, dry, pinned specimen, coll. JM. 1 ♀, Mitaraka, site MIT-DZ-RBF2, 02°13'59.3"N, 54°27'00.3"W, 283 m, tropical wet forest (bas fond), 28.II-5.III.2015,

yellow pan traps, MP leg., sample code: MITARAKA/176, MNHN, pinned specimen with accession number MNHN-ED-ED10599.

REMARK

This is the first record of *T. longicornis* from French Guiana.

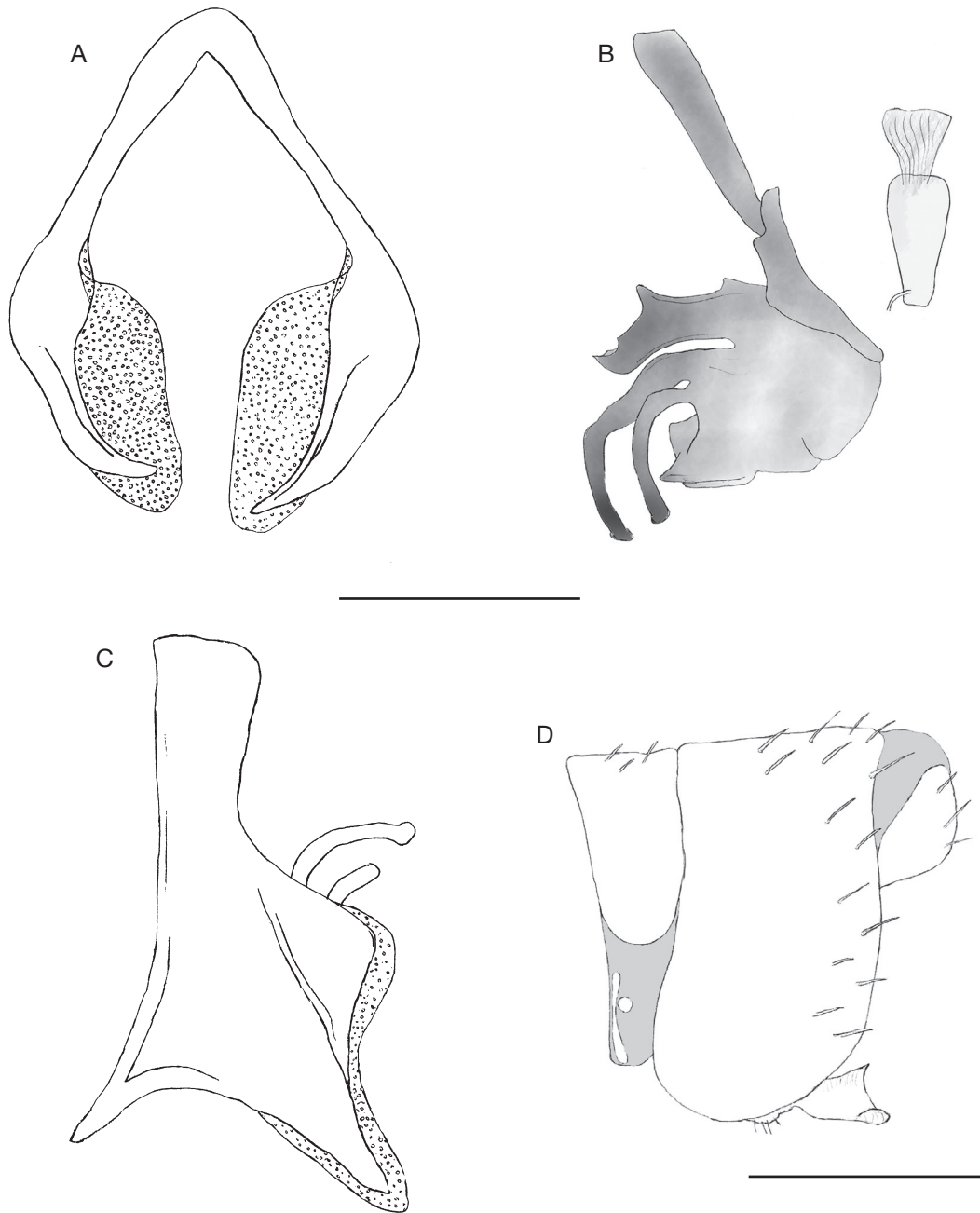


FIG. 5. — Paratype ♂ *Thecomyia diederiki* Mortelmans n. sp.: **A**, hypandrium, dorsal view; **B**, phallopodeme, distiphallus, and acrophalli, lateral view; **C**, hypopygium, lateral view; **D**, hypandrium, lateral view. Scale bars: A-C, 0.2 mm; D, 0.4 mm.

KEY TO *THECOMYIA* PERTY, 1833

The new *Thecomyia* species is described on the basis of males only. Male *Thecomyia* can be identified by use of the key to species by Marinoni *et al.* (2003). To include *T. diederiki* Mortelmans n. sp., couplet 10 should be adjusted as follows:

- 10. Distiphallus with acrophallus strongly coiled (Marinoni *et al.* 2003: fig. 7), acrophallus with one or two processes ..... 10'
- Distiphallus with acrophallus not strongly coiled, projecting ventrally, acrophallus with three processes .... 11
- 10'. Posterior surstylus rounded; acrophallus with one strongly coiled process ..... *T. lateralis* (Walker, 1858)
- Posterior surstylus bifid with apex acute, acrophallus with two strongly coiled, similar processes ..... *T. diederiki* Mortelmans n. sp.

## DISCUSSION

Habitat affinity in *Thecomyia* is unknown. In both French Guiana and Costa Rica, *Thecomyia* species were encountered exclusively in swamp forests. In French Guiana, specimens were collected in both sweep net and yellow pan traps at three different swamp forest (“bas fonds”) sites between 258 and 306 m a.s.l. In Costa Rica, specimens were collected only in yellow pan traps in two swamp forest sites at OTS-Estación Biológica La Selva. None of the other sites in Costa Rica between 34 m and 3.390 m a.s.l., often near rivers, nor any of the other collecting methods (e.g. blue or white pan traps) yielded *Thecomyia* specimens. These observations suggest that the use of yellow pan traps placed in swamp forests might be a suitable method for detecting the presence of *Thecomyia*.

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Specimens of *Thecomyia longicornis* and *T. dideriki* Mortelmans n. sp. were collected during the “Our Planet Reviewed” Guyane-2015 expedition in the Mitaraka range, in the core area of the Parc amazonien de Guyane, organised by the MNHN and Pro-Natura International. The expedition was funded by the European Regional Development Fund (ERDF), the Conseil régional de Guyane, the Conseil général de Guyane, the Direction de l’Environnement, de l’Aménagement et du Logement and by the ministère de l’Éducation nationale, de l’Enseignement supérieur et de la Recherche. It was executed in collaboration with the Parc amazonien de Guyane and the Société entomologique Antilles-Guyane (<http://insectafgseag.myspecies.info/fr>). We are greatly indebted to Mrs Anja De Braekeleer, who provided MP with assistance during field work in Costa Rica. Many thanks are also due to Pol Limbourg, Jérôme Constant, and Wouter Dekoninck (all RBINS) for kindly showing JM around in the entomological collection. We thank Dr Luciane Marinoni for kindly providing the photograph of the male distiphallus of *T. lateralis*. We also thank the LifeWatch observatory as part of the Flemish contribution to the LifeWatch ESFRI by Flanders Marine Institute for the use of their binocular microscope. We are very grateful to Dr Lloyd Knutson, Gaeta, Italy; Dr Jay Abercrombie, Mogadore, Ohio, USA and especially William L. Murphy, Fishers, Indiana, USA for their detailed revisions of the manuscript. Finally, we thank Christine Devillers, Spa, Belgium for her translation of the English abstract into French.

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