

## A new Afrotropical species of Microdontinae, provisionally placed in *Paramixogaster* (Diptera: Syrphidae)

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**Abstract.** A new hoverfly species (Diptera: Syrphidae), *Paramixogaster trifasciatus* sp. nov., is described. A full description with images is given, as is a discussion of its placement within known Microdontinae genera.

**Key words.** Diptera, Syrphidae, flower flies, hoverflies, new species, Central African Republic, Afrotropical Region

### Introduction

The subfamily Microdontinae (Diptera: Syrphidae) is a cosmopolitan group with approximately 460 described species, the majority of which occur in the tropics. From the Afrotropical Region, 69 species are known, divided among eight genera (REEMER & STÄHLS 2013a, REEMER & BOT 2015). Here we describe a new species of Microdontinae of uncertain affinities, which is provisionally placed in the genus *Paramixogaster* Brunetti, 1923. We provide descriptions and illustrations of male and female and a discussion of generic placement with diagnostic characters.

### Material and methods

Terminology follows REEMER & STÄHLS (2013b), who derived their terminology mainly from McALPINE (1981), supplemented with a few terms with special relevance to Microdontinae from SPEIGHT (1987), THOMPSON (1999), SINCLAIR (2000), HIPPA & STÄHLS (2005) and CHENG & THOMPSON (2008). Identification and location labels are indicated with quotation marks (“”), and each line on the label is separated by a double forward slash (/). Handwritten information on labels is indicated in italics.

In the material examined, the collections where the specimens are deposited are indicated between square brackets after each specimen. The EVENHUIS (2009) standard acronyms were

used for the following entomological collections: ASWG – Axel Ssymank, Wachtberg, Germany; CZUP – Czech University of Life Sciences, Prague, Czech Republic.

Illustrations of specimens were composed using a Canon EOS 7D camera with Infinity CF2 & CF4 macro-objectives, subsequent photo stacking done with Zerene Stacker version 1.04. All measurements are in millimetres and were taken using a graticule in a Zeiss SV11 microscope. The male genitalia were drawn using a drawing tube attached to a Wild M20 compound microscope.

Body length was measured from the anterior oral margin to the posterior margin of the abdomen in lateral view, and wing length was measured from the basicosta to the tip of the wing.

## Taxonomy

### *Paramixogaster trifasciatus* sp. nov.

(Figs 1–11)

**Type locality.** Central African Republic, 15 km east of Carnot, 620 m a.s.l., 04°58'N, 15°59'E.

**Type material.** HOLOTYPE: ♂, “CENTRAL AFRICAN REP // 15 km E Carnot // N04°58' E 15°59' // J. Halada leg. 5.6.2009”, “Pseudomicrodon // spec. ♂ // FO: 8047 // det. A. Ssymank 12.2012”, “?Paramixogaster // sp.n. // det. M. Reemer 2014 // Voucher code MR536”, “HOLOTYPE // *Paramixogaster* // *trifasciatus* // Ssymank & Reemer [red label]” [genitalia placed in vial below the specimen] [CZUP]. PARATYPE: ♀, “Central African Rep. // 60 km W Bouar // 05°45'N, 15°13'E // J. Halada, 23.III.2010” “PARATYPE // *Paramixogaster* // *trifasciatus* // Ssymank & Reemer” [yellow label] [ASWG].

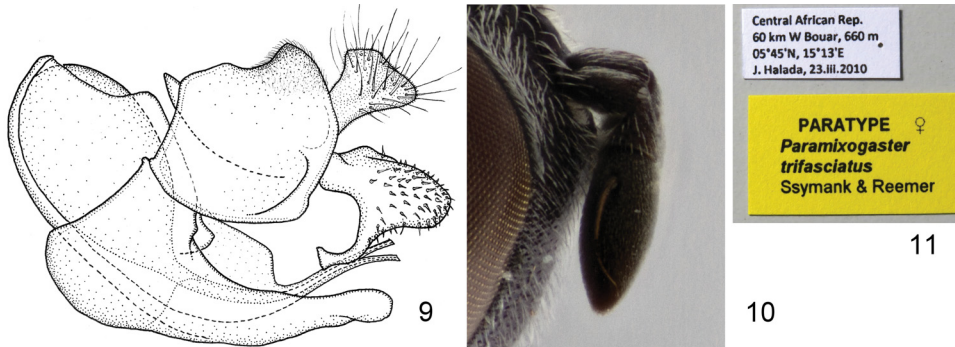
**Description. Male. Head** (Fig. 3). Eyes bare. Occiput ventrally narrow and dorsolaterally strongly widened resulting in 2 bulges, shiny black with long white pile. Frons and face shiny black with long white pile. Vertex with a transverse band of black pile from eye margin to eye margin; approximately equidistant, lateral distance between posterior ocellus and eye margin about the same as distance between the posterior ocelli. Lunula black. Oral margins and genae black. [Mouth parts and clypeus missing.] Antennae black, basoflagellomere longer than scape [exact length unknown as basoflagellomere is incomplete]; scape slightly longer than pedicel; arista brownish, inserted dorsolaterally close to base of basoflagellomere.

**Thorax** (Figs 1, 2). Mesonotum shining black, finely punctate, with long white pile along anterior, lateral and posterior margins and sparse black pile medially [however, most pile in central part are wiped off (partially lacking) in type specimen, so pilosity hard to assess]; transverse suture incomplete, not visible medially on mesoscutum. Postpronotum and postalar callus brownish; white pilose. Scutellum brownish black, broadly rounded, ca 2 times as wide as long, with long white hairs (approx. half the length of scutellum) on disc and hind margin; without calcars. Halteres big, whitish. Sides of thorax shining brownish-black. Anepisternum long white pilose, except for ventral 1/4. Katepisternum dorsally with long white pile [ventral part of katepisternum not visible in holotype due to mounting]. Anepimeron long white pilose, katepimeron bare. Katatergum with long dark microtrichia. Anatergum with short dark microtrichia. [Metasternum not visible in holotype due to mounting.]

**Wing**. (Fig. 1). Hyaline with dark pterostigma and 3 transverse dark bands, not reaching posterior wing margin: 1st basal band from apex of Sc including rm, bm-cu and posteriorly to the basal section of CuA1; 2nd median band beginning with a large rounded spot around



Figs 1–8. *Paramixogaster trifasciatus* sp. nov. 1–3 – male holotype: 1 – dorsal view; 2 – lateral view; 3 – frontal view. 4–7 – female paratype: 4 – dorsal view; 5 – lateral view; 6 – frontal view; 7 – ventral view with metacoxal bridge. 8 – male holotype labels.



Figs 9–11. *Paramixogaster trifasciatus* sp. nov. 9 – male holotype, genitalia; 10 – female paratype, antenna; 11 – female paratype, labels.

posterior appendix of  $R_{4+5}$  and extending to posterior end of dm-cu; 3rd apical band beginning at apex of  $R_{2+3}$ , ending at posterior end of  $M_1$ . Wing microtrichose, except for bare basal areas in cells c, sc, r,  $r_{4+5}$ , bm, br and dm. Stigmal crossvein present; length of posterior appendix of  $R_{4+5}$  approx.  $2/3$  of width of cell  $r_{4+5}$ . Alula reduced: more than twice as long as wide. Base of costa (wing base) with a black elongated ventral flattened bulge with an apical tuft of very long black pile.

**Legs.** Femora brownish-black with narrow yellowish apex; white pilose, except hind femur with ventrally bare shiny strip. Tibiae basally whitish-yellow, front tibia only narrowly at base, mid tibia about basal  $1/3$  and hind tibia basal half; white pilose. Front and mid tarsus yellowish brown. Hind basitarsomere dark brown; yellowish pilose [other hind tarsomeres missing in holotype].

**Abdomen** (Figs 1, 2). Whole abdomen shiny black, strongly constricted, narrowest at transition of tergite 2 and 3. Tergite 2 ca. 1.5 times as long as broad basally, apical width about  $1/5$  of basal width, dorsal medial keel from base to approx.  $3/4$  of its length, laterally at base and at apex with long white hairs. Tergite 3 in dorsal view shaped as equilateral triangle; short black pilose but apically with submedian patches of long white pile. Tergite 4 short black pilose with two large patches of yellowish white pile on apical half. Sternite 1 brownish, broadly oval, sterna 2–5 brownish black with short white pile, sterna 4 and 5 with longer apical white hair fringes.

**Male genitalia** (Fig. 9). Phallus bent dorsad; furcate close to apex; processes equally long; projecting only little beyond apex of hypandrium; base spherical. Hypandrium without basolateral bulges and without lateral strips. Epandrium with ventrolateral ridges (see REEMER & STÄHLS 2013b for terminology).

**Female** (Figs 4–7, 10–11). Similar to male except for normal sexual dimorphism and:

**Head** (Fig. 6). Frons with central small rounded non-pilose spot halfway between apical ocellus and base of antennae (in male holotype almost invisible). Oral margin and genae brownish-black, clypeus subquadrate and greyish pruinose. Antennae long black, basoflagellomere ca. 2 times as long as wide, length 0.48 mm, rounded at top and greyish dusted.

Arista brownish, inserted dorsolaterally at ca. 1/4 of length from basoflagellomere, not reaching tip of basoflagellomere. Scapus elongated, ca. 2 times as long as broad, length 0.24 mm. Pedicel slightly broader than long, length 0.17 mm. Proboscis with rounded, small and yellowish labellum.

*Thorax* (Figs 4, 5). Mesoscutum shiny black, finely punctate with long white pile along apical and posterior margin just before scutellum; broad band of black pile between wing bases almost extending to scutellum. Sides of thorax shiny brownish-black; katepisternum dorsally with long white pile, medially and ventrally bare shiny brown. Metasternum bare.

*Wing*. No differences from male holotype.

*Legs*. Front and mid femur with dense basoventral patches of short orange hairs reaching up to cicatrice, otherwise short whitish dispersed pile. Front and mid tarsus brownish black. Hind metatarsus about as long as remaining 4 apical tarsal joints together.

*Abdomen* (Figs 4, 5, 7). Whole abdomen shiny black, strongly constricted. Tergum 2 ca. 1.5 times as long as broad basally, apical width about 1/2 of basal width, dorsal medial keel from base almost to distal end, basal 2/3 with lateral transverse wrinkles, laterally at base and at apex with long white pile. Tergum 3 strongly broadened ca. 4 times broader apically than basally. Terga 3 and 4 basally and medially short black pilose, apically with submedian patches of long white pile. Terga 5 and 6 largely white pilose. Metacoxal bridge very narrowly connected (Fig. 7).

**Length.** Body: 9.19 mm (holotype), 9.12 mm (paratype); wing 6.12 mm (holotype), 6.00 mm (paratype).

**Differential diagnosis.** Among the known Afrotropical Microdontinae with constricted abdomen, *Paramixogaster trifasciatus* sp. nov. is the only taxon with three dark fasciae on the wing. Within *Paramixogaster* this is the only known species with a pilose postpronotum.

**Etymology.** The specific epithet is a composed Latin adjective *trifasciatus* (-a, -um), having three stripes, given in reference to the three dark bands on the wing.

**Biology.** Altitude of locality of PT according to Google Earth is ca. 670 m a.s.l., open tree savanna.

**Distribution.** Only known from Central African Republic.

## Discussion

In the key to the genera of the Microdontinae of the world by REEMER & STÄHLS (2013a), the species described in the present paper keys to the New World genus *Rhopalosyrphus* Giglio-Tos, 1891. However, *Paramixogaster trifasciatus* spec. nov. differs from that genus in the bare katepimeron (pilose in most species of *Rhopalosyrphus*), and the equally long dorsal and ventral process of the phallus (dorsal process long and whip-like in *Rhopalosyrphus*). A structure of the male phallus similar to that of *Rhopalosyrphus* is also found in two other Neotropical genera that include species with a petiolate abdomen (*Ceriomicrodon* Hull, 1937 and *Pseudomicrodon* Hull, 1937), so *Paramixogaster trifasciatus* cannot be included in these genera.

In the Old World, species with a petiolate abdomen are found in the following genera of Microdontinae: *Ceratrichomyia* Séguy, 1951, *Indascia* Keiser, 1958, *Paramixogaster* Brunetti,



1923 and *Spheginobaccha* de Meijere, 1908. *Paramixogaster trifasciatus* sp. nov. differs from *Ceratrichomyia*, *Indascia* and *Spheginobaccha* in the incomplete transverse suture of the mesonotum (complete in the three mentioned genera). *Ceratrichomyia* also differs in the long pilose basoflagellomere in the male, and *Spheginobaccha* in many other characters, such as wing venation and structure of the male genitalia.

From all other known species of *Paramixogaster*, *P. trifasciatus* spec. nov. differs in the pilose postpronotum (bare in all other species). In the male genitalia, *P. trifasciatus* is singular in the wide dorsomedian lamella of the phallus. Possibly, these characters indicate a phylogenetic position outside of *Paramixogaster*. However, morphological variation within *Paramixogaster* is large and the monophyly of the genus, as currently defined by REEMER & STÄHLS (2013a,b), is in need of revalidation based on molecular data. As long as such data are not available for the large majority of the species included in this genus, we prefer a provisional placement of *P. trifasciatus* in *Paramixogaster* rather than erecting a new monotypic genus for it.

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