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Source: African Invertebrates, 51(1) : 207-218

Published By: KwaZulu-Natal Museum

URL: <https://doi.org/10.5733/afin.051.0106>

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The genus *Tachydromia* Meigen (Diptera: Hybotidae) from the Afrotropics

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ABSTRACT

Two new species of the genus *Tachydromia* Meigen are described: *T. freidbergi* sp. n. (Ethiopia) and *T. stuckenbergi* sp. n. (Uganda). Re-descriptions of *T. lilaniensis* Smith, 1969 and *T. petrabilis* Smith, 1969, known from South Africa and Lesotho, are given. A key to Afrotropical *Tachydromia* is provided. Hypothesized phylogenetic relationships and the biogeography of Afrotropical species of *Tachydromia* are briefly discussed.

KEY WORDS: Diptera, Empidoidea, Hybotidae, *Tachydromia*, new species, Afrotropical.

INTRODUCTION

The genus *Tachydromia* Meigen includes quite small (1.0 to 3.5 mm), ant-like flies usually with banded or maculated wings. It is represented in all biogeographic regions and currently comprises 118 species. However, only two species in this group are known from the Afrotropical region and these are described by Smith (1969) in his extensive monograph on Empididae from South Africa and Lesotho. In this paper we describe two new species from Ethiopia and Uganda. Additionally, we re-examine the type material of Smith's species of *Tachydromia* and give updated re-descriptions. This paper is the latest of several revisions covering the genus worldwide (Shamshev & Grootaert 2008; Grootaert & Shamshev 2009, in press; Shamshev & Grootaert 2009).

We dedicate one of the species (*Tachydromia stuckenbergi* sp. n.) described in this paper to the memory of Brian R. Stuckenberg. He did not work with empidoids but his collecting efforts greatly improved our knowledge of the Afrotropical representatives of these flies. Original descriptions of more than half of all the species of Hybotidae and Empididae known from this region are based on material collected by Stuckenberg. One genus (*Stuckenbergomyia* Smith, 1971) and one species (*Acarterus stuckenbergi* Sinclair, 1996) of Hybotidae, and two species of Empididae (*Afroempis stuckenbergi* Smith, 1969 and *Edenophorus stuckenbergi* Sinclair, 2002), have already been named after him.

MATERIAL AND METHODS

This study is based on material housed or deposited in the Natal Museum, Pietermaritzburg, South Africa (NMSA), the Royal Museum of Central Africa, Tervuren, Belgium (RMCA), the Royal Belgian Institute of Natural Sciences, Brussels (ISNB), Tel Aviv University, Israel (TAUI), the Canadian National Collection of Insects, Ottawa, Ontario, Canada (CNCI) and the Muséum National d'Histoire naturelle, Paris, France (MNHN). Pinned and alcohol-preserved specimens were examined, part of which was collected in Malaise traps. Terms used for adult structures primarily follow those of McAlpine

(1981), although the terminology for the antenna and for the male terminalia follows Stuckenberg (1999) and Sinclair & Cumming (2006), respectively. To facilitate observations, the terminalia were macerated in cold 10% KOH and hot 85% lactic acid and immersed in glycerine. Drawings of morphological features were made with a *camera lucida* attached to a compound microscope. In descriptions, the right and left side of the male terminalia are based on the unrotated position viewed posteriorly, such that in the illustrations the right surstylus appears on the reader's left side and vice versa. All male terminalia are figured in their unrotated position.

TAXONOMY

Genus *Tachydromia* Meigen, 1803

The species of the genus *Tachydromia* (= *Sicus* Latreille, 1796; *Sicodus* Rafinesque, 1815; *Coryneta* Meigen, 1800; *Danistes* Gistel, 1848; *Phoneutisca* Loew, 1863; *Tachista* Loew, 1864) can be diagnosed by the following combination of characters: eyes bare, dichoptic in both sexes, palpus usually narrow; thorax slender, largely shining, precoxal bridge present, postpronotal lobe large, thoracic setation usually greatly reduced; legs slender but fore femur often thickened, mid femur and tibia usually modified in male; wing with distinct anal lobe, usually brown banded, clouded or spotted, cell cup absent.

Key to the Afrotropical species of the genus *Tachydromia*

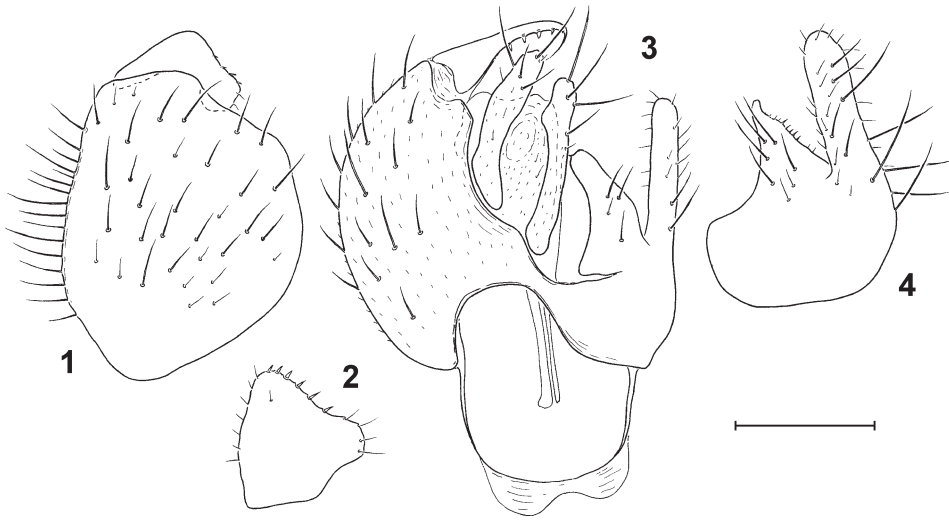
- 1 Eyes with upper hind corner extending beyond ocellar tubercle, vertex narrower than frons. Thorax largely densely tomentose. Wing almost uniformly brownish infusate, narrowly pale basally (Uganda) **stuckenbergi** sp. n.
- Eyes with upper hind corner near ocellar tubercle, vertex broader than frons. Thorax almost entirely shining. Wing with two bands connected along costa (on cell r_1) or separated throughout 2
- 2 Wing with two bands connected along costa (on cell r_1). Male: right surstylus viewed dorsally with deep lateral notch (South Africa, Lesotho) **petrabilis** Smith
- Wing with two bands separated throughout. Male: right surstylus viewed dorsally with more or less straight margins 3
- 3 Fore and mid femora entirely yellow, hind femur yellowish on basal third. Male: mid femur with rows of unmodified anteroventral and posteroventral short setae (South Africa, Lesotho) **lilaniensis** Smith
- All femora entirely blackish brown. Male: mid femur with cluster of several short black ventral setae basally (Ethiopia) **freidbergi** sp. n.

***Tachydromia freidbergi* sp. n.**

Figs 1–4, 12

Etymology: The new species is dedicated to Dr Amnon Freidberg of Tel Aviv University (Israel), who collected it and many other interesting empidoidea.

Diagnosis: Recognised by a combination of the following characters: occiput largely shining; prothoracic sclerites shining; legs almost entirely blackish brown; wing with entirely separated bands; male mid femur with cluster of several short black ventral setae basally.



Figs 1–4. *Tachydromia freidbergi* sp. n., ♂ holotype, Ethiopia: (1) right epandrial lamella, lateral; (2) right surstylus, dorsal; (3) terminalia, dorsal; (4) left epandrial lamella, lateral. Scale bar = 0.1 mm.

Description:

Male:

Length: Body 1.7 mm, wing 1.6 mm.

Head: Black in ground colour. Eyes with posterior margin slightly produced beyond ocellar tubercle; vertex broader than frons in front of ocellar tubercle. Occiput largely shining, finely pollinose just above neck, narrowly behind eyes and mouth-opening; vertex entirely shining; 2 inclinate, short, dark, wide-apart postvertical setae, some setulae round neck and near mouth-opening and row of minute postoculars. Ocellar tubercle shining, with 2 minute, dark, latero-clinate setulae. Frons shining, parallel-sided, nearly 3× broader than anterior ocellus. Antenna brownish. Postpedicel nearly globular with somewhat subapical, very long, brownish stylus, which is about 5× as long as pedicel and postpedicel combined. Palpus unmodified, slender, nearly as long as proboscis, brownish; clothed in dense, long, silvery, adpressed setae, bearing moderately long (shorter than palpus) black apical seta.

Thorax: Black in ground colour, almost entirely shining, scutellum and mediotergite (= metanotum) greyish pollinose. Postpronotal lobe large, lacking conspicuous setae. Mesonotum with 1 moderately long brownish notopleural, 1 postalar and 4 subequally long scutellar setae (apical pair cruciate); some minute setulae present behind postpronotal lobe; mesosternum and metasternum between posterior four coxae bare. Acrostichals lacking. Dorsocentrals in 1 row, hair-like, minute, prescutellar pair somewhat longer.

Legs: Long, slender; fore coxa entirely, hind coxa apically, trochanters, knees, tarsomere 1 (except narrow subapical part) and basal half of tarsomere 2 yellowish, fore femur yellowish brown, paler basally and darker dorsally, otherwise legs blackish brown. Coxae with short, pale, scattered hair-like setulae, fore coxa anteriorly and hind coxa laterally silvery pollinose. Fore femur slightly thickened, pale pubescent ventrally, with minute pale anteroventral and posteroventral setulae. Fore tibia slightly spindle-

shaped. Mid femur slender, with cluster of several short black ventral setae basally and rows of shorter anteroventral and posteroventral setae. Mid tibia with rather long subapical projection and deep subapical excavation, bearing black short ventral spinule-like setulae stronger prominent before excavation. Hind leg unmodified, lacking prominent setae.

Wing: Normally developed, rounded at apex, with typical venation for the genus, with two broad brown bands, which are separated by narrow hyaline mid-stripe along the whole length. One moderately long costal bristle present. Vein R_{2+3} slightly arched about middle toward costa. Veins R_{4+5} and M_{1+2} parallel toward wing apex. Cell r_1 very narrow, cells r_{2+3} and r_{4+5} of subequal width. Squama brownish coloured and fringed. Haltere with whitish knob and brownish stem.

Abdomen: Entirely blackish brown, shining, with scattered minute dark setulae; segments 1–7 unmodified. Terminalia (Figs 1–4) rather large, elongate oval, blackish brown; epandrium greyish pollinose, with numerous moderately long setulae. Right cercus digitiform, with several unmodified long setae on apical part. Left cercus digitiform, nearly as long as right cercus, with several unmodified long setae on apical part. Right epandrial lamella subglobular (viewed laterally), lacking ventral subapical process, with numerous unmodified setae of different lengths. Right surstylus differentiated from epandrium, bent inward, subtriangular, with several subapical spinules on inner side. Left surstylus undifferentiated from epandrium, digitiform, with several unmodified setae of different lengths; dorsal lobe of left epandrial lamella subtriangular, with several unmodified setae dorsally and some spinule-like setulae on upper margin. Hypandrium with 4 very short setae. Phallus short.

Female:

Similar to male but mid tibia slender, lacking subapical projection and excavation, with unmodified ventral setation; mid femur with pale ventral setulae; abdominal segments 1–6 brownish, segments 7 and 8 blackish brown; cercus brownish, long, slender, with scattered minute setulae.

Holotype: ♂ ETHIOPIA: *Oromia Region*: Kefa, Jimma, 55 km S [7°08'N:36°50'E], forest & river, 2000 m, 12.ii.2000, A. Freidberg & I. Yarom (TAUI).

Paratype: ♀ ETHIOPIA: *Oromia Region*: Bale, Adaba, 12 km E [6°59'N:39°30'E], river, 30.i.2000, A. Freidberg & I. Yarom (TAUI).

Distribution and seasonal occurrence: Currently this species is only known from two localities in Ethiopia. According to labels it was collected on Ethiopian Plateau (2000 m) in the middle of February and at the end of January.

Remarks: The new species is similar to *T. latifascipennis* Brunetti, 1917 described from India (East Himalayas) and re-described by Chvála (1970). However, in *T. latifascipennis* the occiput is almost entirely densely grey-dusted and the mid femora of the male has a tuft of long yellow ventral hairs near the base. Additionally, *T. freidbergi* sp. n. can be distinguished from other African species using the characters given in the key.

Tachydromia lilaniensis Smith, 1969

Fig. 12

Tachydromia lilaniensis: Smith 1969: 71, figs 77 (habitus), 79–81 (male terminalia). Type locality: South Africa, Natal, Lilani area nr Ahrens.

Diagnosis: Recognised by a combination of the following characters: occiput almost entirely shining; prothoracic sclerites (except postpronotal lobe) subshining; legs with fore and mid femora entirely yellow, hind femur largely brownish; wing with entirely separated bands; male mid femur with rows of unmodified anteroventral and posteroventral short setae.

Re-description:

Male:

Length: Body 2.0 mm, wing 1.9 mm.

Head: Eyes with posterior margin slightly produced beyond ocellar tubercle; vertex broader than frons in front of ocellar tubercle. Occiput including vertex almost entirely shining, very narrowly pollinose behind eyes; 2 moderately long postvertical setae. Ocellar tubercle shining, ocellars minute. Frons shining, slightly widened toward ocellar tubercle. Antenna with postpedicel and stylus brownish, scape and pedicel somewhat paler. Postpedicel subglobular; stylus subapical, very long, nearly 3× as long as pedicel and postpedicel combined. Palpus unmodified, slender, shorter than proboscis, blackish; clothed in silvery setae, with rather short (slightly shorter than palpus) black subapical seta.

Thorax: Black, almost entirely shining, prothoracic sclerites (except middle part of prosternum and postpronotal lobe) subshining, scutellum and mediotergite (= metanotum) densely tomentose. Postpronotal lobe large, elongate, lacking conspicuous setae. Mesonotum with 1 long notopleural, 1 similar postalar and 4 scutellars (lateral pair nearly as long as notopleural seta, apical pair longer, subparallel); acrostichals lacking; dorsocentrals uniserial, mostly minute, prescutellar pair nearly as long as lateral scutellars; mesosternum and metasternum bare between posterior four coxae.

Legs: With fore and hind coxae yellow, mid coxa brownish yellow basally; fore and mid femora entirely yellow, hind femur brownish on about apical 2/3; tibiae almost entirely brownish, yellowish on extreme base; tarsomeres 1 and 2 brownish apically, remaining tarsomeres entirely brownish. Coxae with yellowish unmodified setae. Fore femur thickened, pale pubescent ventrally, with yellowish anteroventral and posteroventral setulae becoming longer basally. Fore tibia slightly spindle-shaped. Mid femur slender, with rows of anteroventral and posteroventral spine-like setae (the latter darker and stronger). Mid tibia with short apical projection, bearing ventral spinule-like setulae. Hind leg unmodified, lacking prominent setae.

Wing: Normally developed, rounded at apex, with unmodified venation; two broad brownish bands separated throughout. One short costal bristle present. Vein R_{2+3} strongly arched about middle toward costa. Veins R_{4+5} and M_{1+2} parallel near wing apex. Vein CuM very thin toward wing margin. Crossveins r-m and bm-cu broadly separated. Squama dusky yellow with concolorous fringe. Haltere with pale knob and brownish yellow stem.

Abdomen: Brownish, shining, covered with scattered black setae longer on pregenital segment; segments 1–7 unmodified. Terminalia small, rather elongate oval, blackish brown. Cerci (Smith's fig. 80, unclear view) elongate-oval, narrower on apical part, with unmodified setae; left cercus somewhat longer. Right epandrial lamella (Smith's fig. 79, lateral view) elongate-oval, covered with numerous setae of different lengths. Right surstylus (Smith's fig. 81, viewed from inner side) differentiated from epandrium,

bent inward, rather subtriangular, with several subapical spinules on inner side. Left surstylus undifferentiated from epandrium, digitiform, with several unmodified setae of different lengths; dorsal lobe of left epandrial lamella subtriangular, with several unmodified setae. Phallus short.

Female: Cercus brownish, long, slender, covered with minute setulae.

Holotype (examined): ♂ SOUTH AFRICA: *KwaZulu-Natal*: Lilani area nr Ahrens [29°07'S:30°51'E] Natal [hand-written]; iv.1962, collectors B. & P. Stuckenberg; HOLOTYPE ♂ *Tachydromia lilaniensis* [species name hand-written] K.G.V. Smith; NMSA–Dip. 09310. *Note*: Currently the holotype is in good condition but the postabdomen was dissected, macerated and pinned on a slide as a Canada balsam preparation by K.G.V. Smith.

Paratype (examined): LESOTHO: ♀ upper Cave Sandstone level, 6,000 ft; Roma Mission [29°27'S:27°43'E] Maseru District Basutoland, B. & P. Stuckenberg, 4–13.i.1963; running over large lichenous boulders [hand-written]; PARATYPE ♀ *Tachydromia lilaniensis* [species name hand-written] K.G.V. Smith; NMSA–Dip. 09305. *Note*: In the paratype female that we examined, the mid and hind legs, and the left fore tibia and tarsus, were missing.

Additional material: SOUTH AFRICA: *Free State*: 2♀ Sterkfontein Dam, 1780–1820 m, 28°29.72'S: 23°57.85'E, yellow pan traps, 10.xii.2005, M. Mostovski, in alcohol (NMSA). *Note*: The specimens were collected near a temporary brook in a bush patch surrounded by grassland.

Distribution and seasonal occurrence: Eastern South Africa, Lesotho. According to labels, this species was collected in December, January and April.

Remarks: Smith (1969) described this species after several specimens taken from two localities in South Africa and Lesotho.

Tachydromia petrabilis Smith, 1969

Fig. 12

Tachydromia petrabilis: Smith 1969: 73, figs 82 (wing), 83 (right surstylus). Type locality: South Africa, Drakensberg Mts, Royal Natal National Park.

Diagnosis: Recognised by a combination of the following characters: occiput almost entirely shining; prothoracic sclerites (including postpronotal lobe) with inconspicuous pruinosity; legs with all femora entirely brownish; wing with bands connected on cell r_1 ; male mid femur with rows of unmodified anteroventral and posteroventral short setae.

Redescription:

Male:

Length: Body 1.5 mm, wing 1.5 mm.

Head: Eyes with posterior margin slightly produced beyond ocellar tubercle; vertex broader than frons in front of ocellar tubercle. Occiput, including vertex, entirely shining in holotype (very narrowly finely pollinose behind eyes in paratype female); 2 moderately long postvertical setae. Ocellar tubercle shining, ocellars minute. Frons shining, slightly widened toward ocellar tubercle. Antenna with postpedicel and stylus brownish, scape and pedicel somewhat paler. Postpedicel subglobular; stylus subapical, very long, nearly 3× as long as pedicel and postpedicel combined. Palpus unmodified, slender, shorter than proboscis, blackish; clothed in silvery setae, with rather short (slightly shorter than palpus) black subapical seta.

Thorax: Black, almost entirely shining, prothoracic sclerites (including postpronotal lobe) with inconspicuous pruinosity, scutellum and mediotergite (= metanotum) densely

tomentose. Postpronotal lobe large, elongate, lacking conspicuous setae. Mesonotum with 1 long notopleural, 1 similar postalar and 4 scutellars (lateral pair very short, apical pair somewhat longer than notopleural seta, subparallel); acrostichals lacking; dorsocentrals uniserial, mostly minute, in holotype prescutellar pair obscured by pin (in paratype prescutellars very short, nearly as long as lateral scutellars); mesosternum and metasternum bare between posterior four coxae.

Legs: Fore and hind coxae yellow, mid coxa brownish basally; femora and tibiae brownish (the former paler on extreme base, rather yellowish on hind femur); tarsomeres 1 and 2 brownish apically, remaining tarsomeres entirely brownish. Coxae with yellowish unmodified setae. Fore femur thickened, pale pubescent ventrally, with yellowish anteroventral and posteroventral setulae becoming longer basally. Fore tibia slightly spindle-shaped. Mid femur slender, with rows of anteroventral and posteroventral spine-like setae (the latter darker and stronger). Mid tibia with short apical projection, bearing ventral spinule-like setulae. Hind leg unmodified, lacking prominent setae.

Wing: Normally developed, rounded at apex, with unmodified venation; two broad brownish bands connected on cell r_1 . One short costal bristle present. Vein R_{2+3} strongly arched about middle toward costa. Veins R_{4+5} and M_{1+2} parallel near wing apex. Vein CuM distinct throughout. Crossveins r-m and bm-cu broadly separated. Squama dusky yellow with concolorous fringe. Halter with pale knob and brownish yellow stem.

Abdomen: Brownish, shining, covered with scattered black setae longer on pregenital segment; segments 1–7 unmodified. Terminalia small, rather elongate oval, blackish brown. We did not dissect the holotype male to examine the terminalia but Smith (1969: 73) indicates that they are very similar to *T. lilaniensis*. His fig. 82 is the right surstylus viewed from the inner side, which is subtriangular, with a deep notch on the lower (dorsal) margin, bearing several subapical spinules on inner side.

Female.

As in male, but mid tibia with hardly prominent subapical projection, cercus brownish, long, slender, covered with minute setulae.

Holotype (examined): ♂ SOUTH AFRICA: *KwaZulu-Natal*: on boulders / stream edge / 12.ix.63 / 1500 m [hand-written]; Royal Natal National Park [28°41.3'S:28°56.2'E], Drakensberg Mts. / B. & P. Stuckenberg; running over lichenous boulders with the chalcid *Holceupelmus* [hand-written]; The chalcid was *Holceupelmus* sp. [hand-written] R.D. Eady det. 1963; HOLOTYPE ♂ *Tachydromia petrabilis* [species name hand-written] K.G.V. Smith (NMSA). *Note:* The holotype is in good condition.

Paratype (examined): ♀ same data as in holotype (NMSA).

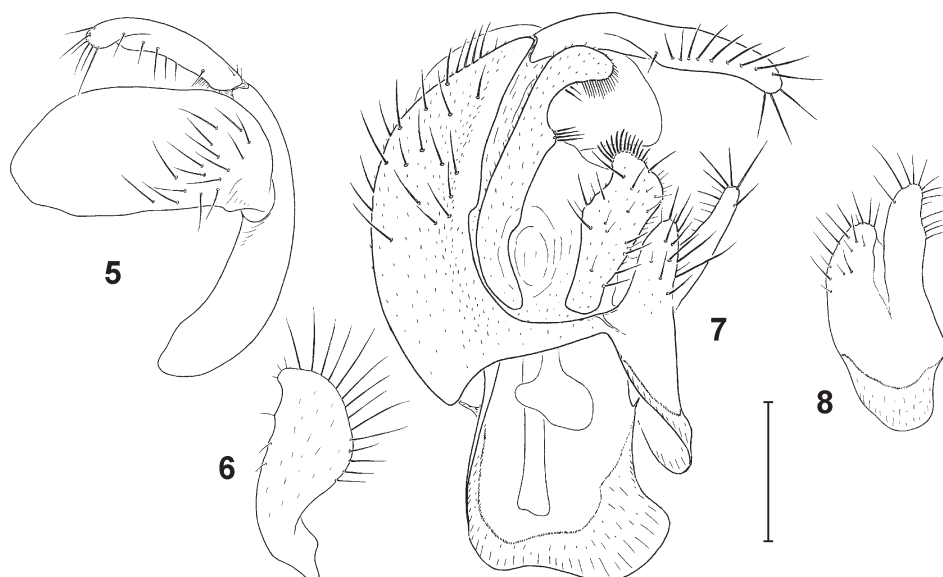
Distribution: South Africa, Lesotho. This species may have a wide distribution because, according to labels (Smith 1969), it was collected over a long period including September, January and April. The flies were taken on boulders near a stream edge.

Remarks: Smith (1969) described this species after several specimens taken from three localities in the mountains of South Africa and Lesotho.

***Tachydromia stuckenbergi* sp. n.**

Figs 5–8, 12

Etymology: The new species is dedicated to memory of Brian Stuckenberg (Pietermaritzburg, South Africa).



Figs 5–8. *Tachydromia stuckenbergi* sp. n., ♂ holotype, Uganda: (5) right epandrial lamella, lateral; (6) right surstylus, dorsal; (7) terminalia, dorsal; (8) left epandrial lamella, lateral. Scale bar = 0.1 mm.

Diagnosis: Recognised by a combination of the following characters: eyes with upper hind corner extending beyond ocellar tubercle, vertex narrower than frons; thorax largely densely tomentose; wing almost uniformly brownish infuscate, narrowly pale basally.

Description:

Male.

Length: Body about 3.3 mm, wing 2.4 mm.

Head: Black. Eyes extending beyond ocellar tubercle and almost touching on vertex. Frons narrow, slightly widened toward ocellar tubercle, pollinose. Ocellar tubercle pollinose, ocellars minute. Occiput entirely pollinose, bearing 2 short closely set black verticals, 2 longer black setae on upper part laterally, covered with numerous whitish slightly flattened setae on lower part. Antenna with scape and pedicel yellow, pedicel and stylus missing. Proboscis brownish yellow. Palpus truncate, yellow, bearing several dark setulae near base and very long black subapical seta (missing).

Thorax: Black, almost entirely tomentose, anepisternum (= mesopleuron), katepisternum (= sternopleuron) and meron (= hypopleuron) largely shining. Postpronotal lobe very large, lacking conspicuous setae. Mesonotum with 1 notopleural and 2 short closely set scutellars; acrostichals and dorsocentrals minute, the former arranged in 2 rows, lacking on prescutellar depression; the latter uniserial, 1 prescutellar pair somewhat longer.

Legs: Long, slender, with complicated colour pattern; coxae and trochanters yellow, fore and mid femora brownish on subapical part (broader dorsally), hind femur almost entirely brownish (narrowly yellow basally), fore tibia with yellow dorsal face otherwise yellow, mid tibia entirely brown, hind tibia brown on about apical 1/3, fore and mid

tarsomeres 1–3 yellow, tarsomeres 4 and 5 brownish, hind tarsus missing. Fore coxa with pale unmodified setae and tomentose anteriorly. Fore femur strongly thickened, with rows of minute anteroventral and somewhat longer posteroventral setae, pubescent ventrally. Fore tibia spindle-shaped, with row of black ventral spinules. Fore basitarsus with black ventral spinules. Mid femur slender, with rows of anteroventral and posteroventral mostly black (paler basally) spinule-like setulae. Mid tibia with hardly prominent ventral spinules but with row of several closely set spinules (1 longer) on subapical part anteriorly. Hind leg very long and slender, without prominent setae. Mid and hind basitarsi with unmodified setation.

Wing: Normally developed, almost uniformly brownish infusate, narrowly pale basally. Costal seta short. Vein R_1 meeting costa somewhat beyond wing midway. Proximal section of vein R_{4+5} considerably longer than Rs. Veins R_{4+5} and M_{1+2} parallel toward wing apex. Crossveins r–m and bm–cu slightly separated. Cells br and bm extending to wing midway, subequally narrow. Halter with yellowish knob and brownish stem.

Abdomen: Brown, finely greyish pollinose, with scattered short black setae; segments 1–7 unmodified. Terminalia (Figs 5–8) rather large, brown. Right cercus digitiform, with slight projection on about middle, bearing short unmodified setae apically and on projection. Left cercus shorter than right cercus, subrectangular, with several short strong setae apically. Right epandrial lamella conical, with numerous long unmodified setae, bearing very large elongate oval ventral projection. Right surstylus differentiated from epandrium, long, elongate oval, with several long setae, lacking spines. Left epandrial lamella small, with several short unmodified setae. Left surstylus undifferentiated from epandrium, with several unmodified subapical setae.

Female: Unknown.

Holotype: ♂ UGANDA: Distr. Masindi, Budongo Forest, n. Sonso / 1°45'N 31°35'W, 11–20.vii.1995, Th. Wagner / Fogging sur *Teclea nobilis* n 18, swamp forest (MNHN).

Distribution and seasonal occurrence: Uganda. The only specimen was taken from swamp forest by fogging of *Teclea nobilis* Delile, 1843 (Rutaceae), or small-fruited teclea, in the middle of July.

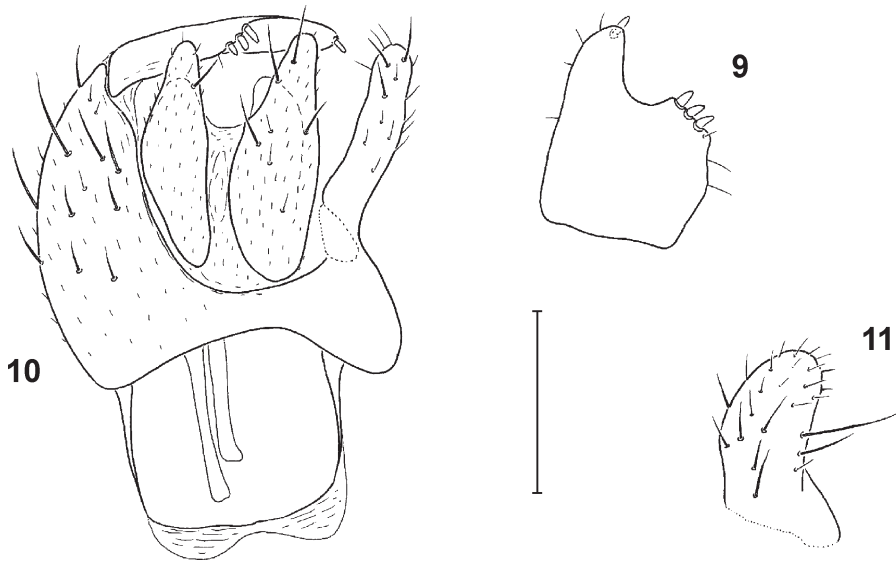
Remarks: The new species belongs to the *T. luang* group (*sensu* Shamshev & Grootaert 2008), which was formerly known only from the Oriental and Australasian regions. *T. stuckenbergi* sp. n. can be readily distinguished from other species of the genus described from the Afrotropical region (see the key).

Tachydromia sp.

Figs 9–11

In having wing bands joined along the costa (on cell r_1), brownish femora and tibiae and similar male terminalia (even the right surstylus with a notch), these specimens may belong to *T. petrabilis*. However, there are some differences in the length of the last dorsocentral and lateral scutal setae, and in the shape of the right surstylus. The true status of these specimens will be clear when additional material is available and the variability of these characters noted is understood.

Material examined: DEMOCRATIC REPUBLIC OF CONGO (DRC): ♂ Congo belge: P.N.A., Kanyabayongo (Kabasha), 1760 m, 11.xii.1934, G.F. de Witte: 905 (ISNB). UGANDA: ♂ Mt Elgon, 2135 m, 4–8.xii.1972, H. Falke (CNCD).



Figs 9–11. *Tachydromia* sp., ♂, DRC: (9) right surstylus, dorsal; (10) terminalia, dorsal (epandrial lobe of left epandrial lamella missing); (11) left epandrial lamella, lateral. Scale bar = 0.1 mm.

DISCUSSION

Currently, the Afrotropical fauna of *Tachydromia* includes four species. This is the smallest number known from any biogeographic region, taking into account the recent contributions on the Oriental and Australasian representatives of the genus (Shamshev & Grootaert 2008; Grootaert & Shamshev 2009, in press; Shamshev & Grootaert 2009), and several species awaiting descriptions from Nearctic and Neotropical regions (Shamshev & Grootaert, in prep.). It is also surprising because, during this study, we examined rather extensive material from various areas of Africa, including that taken with mass-trapping techniques over long periods. In these samples, *Tachydromiinae* (especially *Platypalpus* Macquart and *Elaphropeza* Macquart) were usually among the most abundant empidooids. It is interesting to note that no species of the genus *Tachypeza* (a sister group of *Tachydromia*) has been found yet in the Afrotropical Region.

Precise relationships of the Afrotropical species of *Tachydromia* will be discussed in a world fauna context of the genus. However, here we could note that *T. freidbergi* sp. n., *T. lilaniensis* and *T. petrabilis* are closely related on the basis of the very similar male terminalia, and show some affinity to the *T. arrogans* group (*sensu* Chvala 1970), which is represented by several species widely distributed in the Palearctic Region, including Europe, Mediterranean, the Near East and Middle Asia. *Tachydromia stuckenbergi* sp. n. is a member of the *T. luang* group, sharing a similar structure of the head and male terminalia (Shamshev & Grootaert 2008).

Little is known about biology of *Tachydromia* in Africa. Smith (1969) noted label data indicating that the new species were observed running over large lichenous boulders. This habit is not very typical for *Tachydromia*, but it is known in several Palearctic species. *T. stuckenbergi* sp. n. may belong to the canopy fauna. Additionally, all African species were collected in mountains on quite high altitudes (up to and over 2000 m).

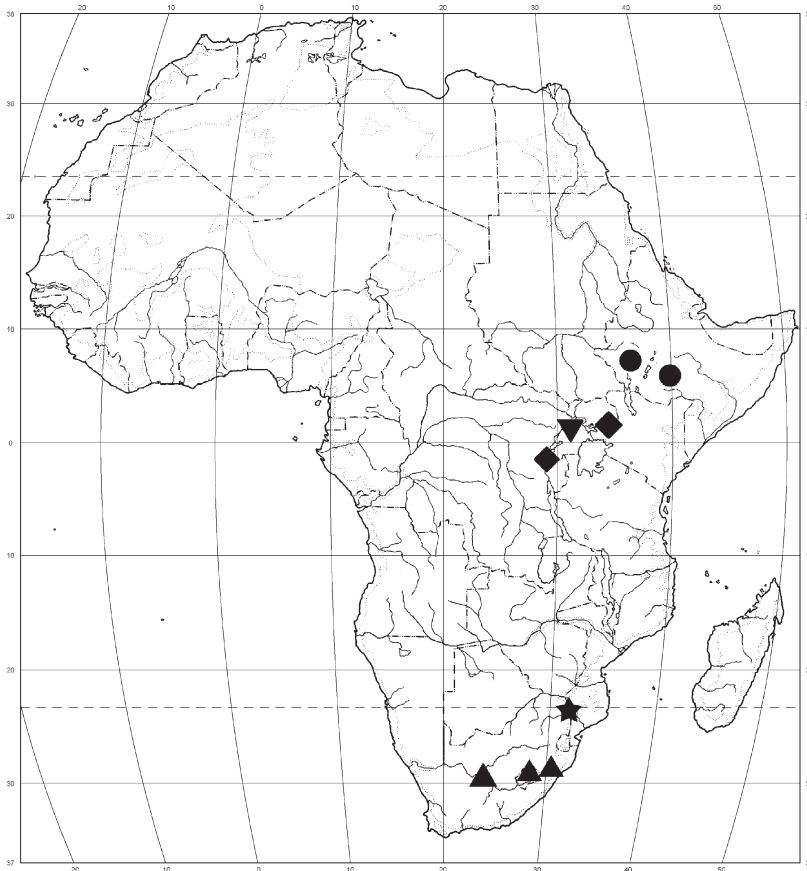


Fig. 12. Known distribution of *Tachydromia* species: ● – *T. freidbergi* sp. n., ▲ – *T. lilaniensis*, ★ – *T. petrabilis*, ▼ – *T. stuckenbergi* sp. n., ◆ – *Tachydromia* sp.

The few available records make it difficult to discuss biogeographic implications of the Afrotropical species of *Tachydromia*. That the species could have dispersed from the eastern Mediterranean southward through the Ethiopian Highlands and the Great Rift Valley to South Africa may be illustrated by *T. freidbergi* sp. n., *T. lilaniensis* and *T. petrabilis* (Fig. 8). There is evidence for such a route (Willassen & Cranston 1986; Kirk-Spriggs & Stuckenberg 2009), and there have been some examples suggested for empidooids (Chvála 1991; Sinclair 2003; Shamshev & Sinclair 2006). However, *T. stuckenbergi* sp. n. may represent another element of *Tachydromia* in the Afrotropical Region because its closest allies are known from the Oriental and Australasian Regions (most species) and from South America (one species).

ACKNOWLEDGMENTS

The authors are indebted to Mikhail Mostovski (NMSA), Viktor Kolyada (Moscow), Jeffrey Cumming, Bradley Sinclair and Scott Brooks (Agriculture and Agri-Food Canada, Ottawa), Marc de Meyer (RMCA), Amnon Freidberg (TAUI) and Christophe Daugeron

(MNHN) for the loan of specimens used in this study. B. Sinclair kindly provided an Afrotropical map. Daniel Bickel (Sidney, Australia) and Igor Grichanov (St Petersburg, Russia) kindly provided useful suggestions on earlier drafts of the paper.

REFERENCES

- CHVÁLA, M. 1970 [1969]. Revision of Palaearctic species of the genus *Tachydromia* Meig. (= *Tachista* Loew) (Diptera, Empididae). *Acta Entomologica Musei Nationalis Pragae* **38**: 415–524.
- 1991. A new species of the Holarctic genus *Schistostoma* Becker (Diptera: Microphoridae) from South Africa, and first record of the family from South America. *Annals of the Natal Museum* **32**: 19–26.
- GROOTAERT, P. & SHAMSHEV, I. 2009. First records of *Tachydromia* Meigen and *Tachypeza* Meigen (Diptera: Hybotidae) from Viet Nam, with descriptions of four new species. *Zootaxa* **2249**: 33–43.
- In press. The genus *Tachydromia* Meigen (Diptera: Hybotidae) from Australia. *Records of the Australian Museum*.
- KIRK-SPRIGGS, A.H. & STUCKENBERG, B.R. 2009. Afrotropical Diptera – rich savannas, poor rainforests. In: Pape, T., Bickel, D.J. & Meier, R., eds, *Diptera Diversity: Status, Challenges and Tools*. Leiden: Brill Academic Publishers, pp. 155–196.
- MCALPINE, J.F. 1981. Morphology and terminology—Adults [Chapter] 2. In: McAlpine, J.F. et al., eds, *Manual of Nearctic Diptera*. Vol. 1. Monograph 27. Ottawa: Agriculture Canada, Research Branch, pp. 9–63.
- SHAMSHEV, I. & GROOTAERT, P. 2008. New and little-known species of the genus *Tachydromia* Meigen (Diptera, Hybotidae) from Thailand. *Zootaxa* **1830**: 21–36.
- 2009. Two new species of the genus *Tachydromia* Meigen (Diptera: Hybotidae) from Malaysia. *Raffles Bulletin of Zoology* **57**: 251–254.
- SHAMSHEV, I.V. & SINCLAIR, B.J. 2006. The genus *Schistostoma* Becker from southern Africa, with an evaluation of its generic status (Diptera: Dolichopodidae s. l.: Microphorinae). *African Invertebrates* **47**: 335–346.
- SINCLAIR, B.J. 2003. Southern African Empidoidea (Diptera) – phylogenetic patterns and biogeographic implications. *Cimbebasia* **29**: 205–213.
- SINCLAIR, B.J. & CUMMING, J.M. 2006. The morphology, higher-level phylogeny and classification of the Empidoidea (Diptera). *Zootaxa* **1180**: 1–172.
- SMITH, K.G.V. 1969. The Empididae of southern Africa (Diptera). *Annals of the Natal Museum* **19**: 1–342.
- STUCKENBERG, B.R. 1999. Antennal evolution in the Brachycera (Diptera), with a reassessment of terminology relating to the flagellum. *Studia Dipterologica* **6**: 33–48.
- WILLASSEN, E. & CRANSTON, P.S. 1986. Afrotropical montane midges (Diptera, Chironomidae, *Diamesa*). *Zoological Journal of the Linnean Society* **87**: 91–123.