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SHORT COMMUNICATION

Description of *Gondwanoscurus curleri* sp. nov. from the West Usambara Mts, Tanzania (Diptera: Psychodidae)

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Abstract. *Gondwanoscurus curleri* sp. nov. is described based on four males collected in November 1990 and April 1991 in the West Usambara Mountains, Tanzania. It is the first species of *Gondwanoscurus* Ježek, 2001 to be described from the African mainland, and the second from the Afrotropical Region. The new species is characterized by a strongly asymmetric first flagellomere with a large mesal projection; and by several genitalic characters including simple gonostyli with acuminate apices and the surstylus without discernable basal projection. A key to world species of *Gondwanoscurus* is presented based on data from the literature.

Key words. Diptera, Psychodidae, moth flies, taxonomy, Africa, identification key, new species, description

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Introduction

Gondwanoscurus Ježek, 2001 currently includes 10 described species from the Oriental and Afrotropical Regions. Initially the genus included two species (Ježek 2001); when it was subsequently revised by Curler (2009) it comprised seven species of which four were originally described in *Telmatoscopus* Eaton, 1904. Since this revision, two species have been described: *Gondwanoscurus socotrensis* Ježek & Tkoč, 2012 from Socotra island, Yemen (biogeographically part of Africa's horn) was the first to be recorded from the Afrotropical Region (Ježek & Tkoč 2012). The other was *G. jezeki* Curler, 2015 from the Western Ghats in Southern India. *Telmatoscopus arcuatus* Vaillant, 1965 was also transferred to *Gondwanoscurus* by Curler & Priyadarsanan (2015).

In the present paper, the known range of *Gondwanoscurus* is expanded with the description of a new species from the West Usambara mountains, Tanzania. It is the 21st species of Psychodidae to be described from the Eastern Arc Mountains (Duckhouse 1987, Wagner & Andersen 2007, Kvifte 2014a, 2015b) and the 184th species of Psychodinae to be described from the Afrotropical Region (Kvifte 2012; Ježek & Tkoč 2012; Kvifte 2014a, 2015a,b; Ježek & Oboňa 2016; Kvifte & Andersen 2017).

Material and methods

Specimens were collected during an expedition in 1990 conducted by staff of the Zoological Museum in Bergen (now Department of Natural History, University Museum of Bergen). The localities are described by Andersen & Johanson (1992). The Psychodidae from the expedition have previously been partially treated, by Wagner & Andersen (2007), Kvifte (2014a, 2015b) and Kvifte & Andersen (2017).

Specimens were macerated in KOH and mounted on permanent slides in Canada balsam. Illustrations were completed with the aid of a drawing tube on a Nikon Optiphot-2 compound microscope. Measurements were made using an ocular micrometer, and are given in µm to an accuracy of 10 microns; except for wing length and width that are given in mm with an accuracy of 25 microns. When more than one specimen was available, measurements are given as means.

Morphological terminology follows Kvifte & Wagner (2017).

All specimens are deposited in the Entomological Collections at the University Museum of Bergen, Norway (ZMUB).

Taxonomy

Gondwanoscurus Ježek, 2001

Type species. *Telmatoscopus mcclurei* Quate, 1962, by original designation of Ježek (2001).

Diagnostic characters (modified from Ježek & Tkoč 2012). Eyes contiguous; postocular setae arranged in single row; flagellomeres asymmetrically nodiform; second flagellomere with neck twice as long as its diameter; flagellomeres generally with ring of many multibranched ascoids; subcostal and cubital areas of wing wide; radial fork distad of medial fork; gonostylus simple or bifurcate. Further characters can be found in Curler (2009).

Key to males of world species

(modified from Curler 2009)

1. Tenacula with apices bifurcate. 2
– Tenacula with apices spatulate. 3
2. Gonostylus bifurcate distally. ..... ***G. ejundicus*** (Quate, 1962)
– Gonostylus sinuous, not bifurcate. ..... ***G. cruciferus*** Curler, 2009
3. Gonostylus not bifurcate. 4
– Gonostylus bifurcate. 6
4. Gonostylus without setose dorsomesal lobe. 5
– Gonostylus with setose lobe arising dorsomesally. ..... ***G. ornithostylus*** Curler, 2009
5. First flagellomere with strong mesal protuberance. Basiphallus more than twice length of distiphallic complex. Surstylus without conspicuous medial protuberance. ..... ***G. curleri* sp. nov.**
– First flagellomere without mesal protuberance. Basiphallus less than 1.5 times length of distiphallic complex. Surstylus with medial protuberance pointed, about twice as long as width of surstylus apex. ..... ***G. malaysiensis*** Ježek, 2001
6. Gonostylus bifurcate at base. ..... ***G. mcclurei*** (Quate, 1962)
– Gonostylus bifurcate at middle or further. 7
7. Gonostylus bifurcate at apical 1/3, mesal ramus less than five times as long as wide. 8
– Gonostylus bifurcate at middle, mesal ramus more than 10 times as long as wide. 10
8. Rami of gonostylus subequal in length. Apex of surstylus doubly curved, S-shaped. ..... ***G. jezeki*** Curler, 2015
– Medial ramus much shorter than lateral ramus. Surstylus with simple curvature. 9
9. Anal area of wing expanded. Gonocoxite nearly as long as gonostylus. ..... ***G. socotrensis*** Ježek & Tkoč, 2012
– Anal area of wing not expanded. Gonocoxite half as long as gonostylus. ..... ***G. arcuatus*** (Vaillant, 1965)
10 Flagellomere 3 with three lateral spines. Medial ramus of gonostylus sinous. ..... ***G. eximius*** (Quate, 1962)
– Flagellomere 3 with four lateral spines. Medial ramus of gonostylus arcuate. ... ***G. praecipuus*** (Quate, 1962)

Gondwanoscurus curleri sp.nov.

Type material. Holotype: ♂ (ZMUB): **TANZANIA:** Tanga Region, West Usambara Mountains, Mazumbai forest reserve, "locality H". 1–2. IV.1991, Malaise trap, ZMB's Tanzania expedition leg. Paratypes: 3 ♂♂ (ZMUB): **TANZANIA:** Tanga Region, West Usambara Mountains, Mazumbai forest reserve, "locality G & F", 2–6.XI.1990, Malaise trap, ZMB's Tanzania expedition leg.

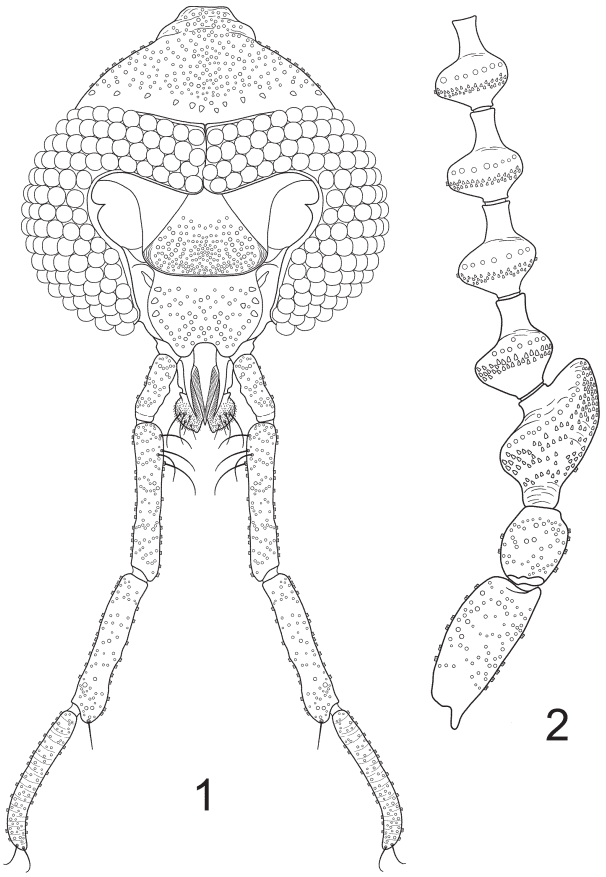
Diagnostic characters. *Gondwanoscurus curleri* can be separated from all other described species of the genus on the presence of a protuberance on the first flagellomere, gonostylus with only a single lobe, and surstyli with 8–9 spatulate tenacula with apices not split.

Description. Adult male (n = 4, except when stated otherwise).

Head (n = 3, Fig. 1) wider than long, vertex one third of head length, with lateral projections at level of cervix; eyes contiguous by bridge of four facet rows, with single row of 6–7 postocular bristles; frontal scar patch oval with median posterior concavity; clypeus delimited by posterior suture, with deep anterior notch; labellum bulbous, setose.

Palp (n = 1) of four segments, terminal segment less sclerotized, appearing corrugated; length of palp segments 90 : 210 : 195 : 190.

Antennae incomplete in all examined specimens; scape cylindrical, 2.2 times as long as broad; pedicel cylindrical, 1.2 times as long as broad, with weak, rounded medial protuberance; first flagellomere with elongate triangular-



Figs 1–2. *Gondwanoscurus curleri* sp.nov., adult male. 1 – head in dorsal view (antennae removed). 2 – scape, pedicel and five first flagellomeres, lateral view.

conical protuberance; ascoids not observed, but ascoid insertion points present in rings on each flagellomere; first flagellomere (n = 3) with 28–34 ascoids, following flagellomeres with 14–18 ascoid insertion points as well as two additional sensilla apical to ascoid row (Fig. 2); shape of ascoids not visible on available material; length of scape, pedicel and first 6 flagellomeres 150 : 80 : 130 : 100 : 100 : 100 : 100 : 100 (n = 3, 3, 3, 3, 1, 1, 1, 1).

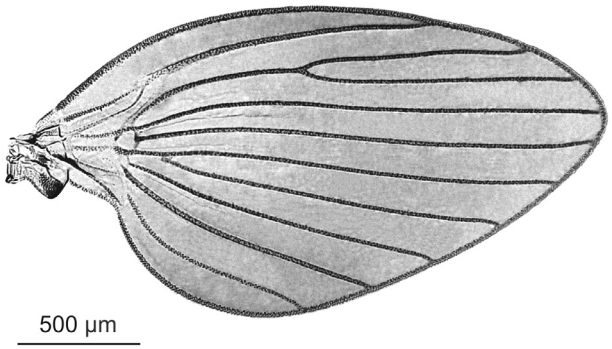


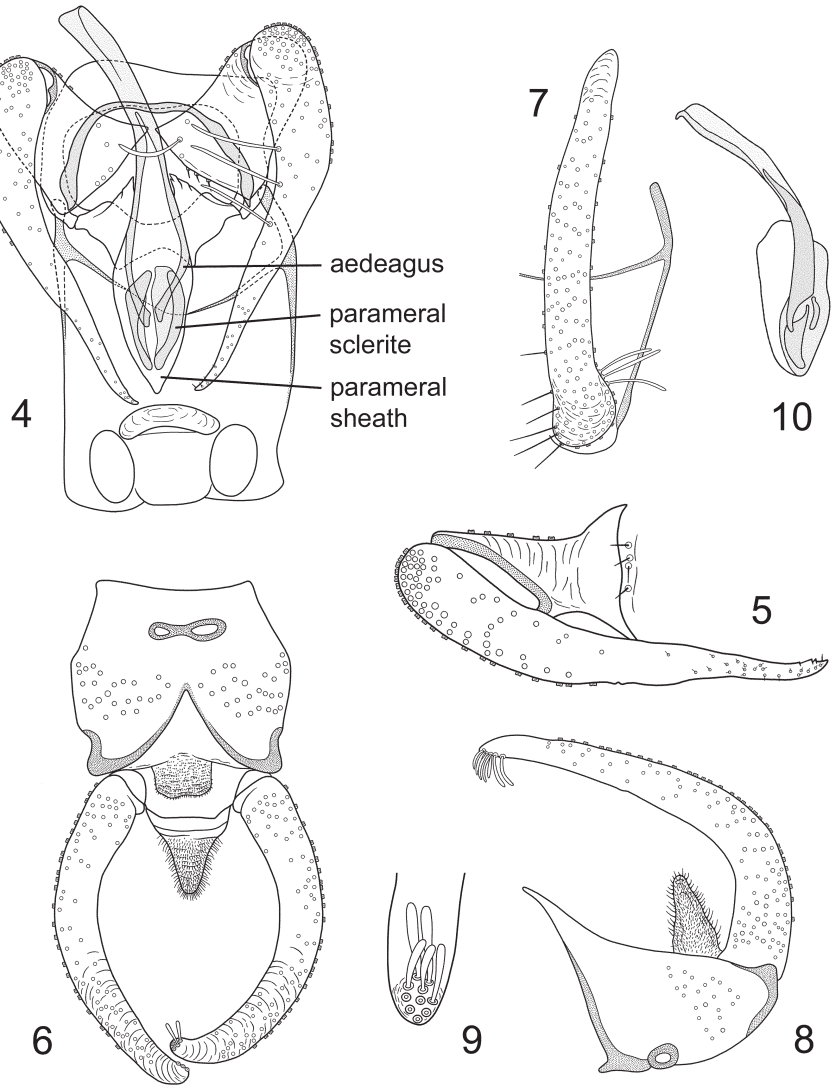
Fig. 3. *Gondwanoscurus curleri* sp.nov., adult male, wing.

Thorax with setae alveoli in broad fields on dorsum, scutellum, anepisternum and laterotergite; otherwise bare; posterior spiracle bare; legs with narrow stripes of setae alveoli on coxae; fore coxa 1.5 times length of mid and hind coxa; mid coxa with setose dorsoapical projection; legs without special features.

Wing (Fig. 3) broadly ovoid with expanded anal area; 2.5 mm long, 1.3 mm wide; membrane unicolorous without setae; crossvein r-m present, m-cu absent; radial fork in distal half of wing, medial fork very close to end of basal cells; Sc approaching R1, both Sc and basal part of R1 very narrow; connections between Sc and R1 not observable, but possible; jugum triangular.

Abdomen with 8 pregenital segments, tergites and sternites both with two transverse rows of setae.

Terminalia (Figs 4–10) with hypandrium narrow, band-like; gonostyli simple, acuminate, curved, about twice length of gonocoxites; gonocoxites tube-shaped, broader at base than apically; parabasal processes meeting under hypandrium; gonocoxal condyles widely separated, with large membranous parameres fused to form partial sheath;



Figs 4–10. *Gondwanoscurus curleri* sp.nov., adult male. 4 – gonopods, aedeagal-parameral complex, epandrium and hypoproct, dorsal view. 5 – gonopod, lateral view. 6 – epandrium, surstyli and proctiger, ventral view. 7 – surstylus, ventral view. 8 – epandrium, epiproct and surstylus, lateral view. 9 – apex of surstylus, dorsal view. 10 – aedeagal-parameral complex, lateral view.

parameral sclerites apparently not differentiated from subaedeagal plate; basiphallus elongate, approximately twice length of distiphallus.

Epandrium slightly longer than wide; with two apertures; surstyli elongate, longer than epandrium, carrying distal cluster of 8–9 tenacula with apices complete; two tenacula present subapically to distal cluster; basal process present mesally, shorter than 1/5th basal width; hypoproct triangular with blunt apex; epiproct oval.

Etymology. The species epithet is dedicated to the senior author's good friend and colleague Greg Curler, in recognition of his many contributions to the taxonomy, systematics and morphology of Psychodidae.

Bionomics. The four specimens of the type series were collected in April and November in primary rainforest at an altitude of approximately 1440 meters above sea level.

Distribution. Known from two localities in the Mazumbai forest reserve in Tanzania.

Discussion

The taxonomy and composition of genera in Paramormiini (*sensu* Duckhouse 1987, Ježek & van Harten 2005) is confusing and poorly resolved. Characterisation of the group, based on a combination of antennae with nodiform flagellomeres and wings with Rs not pectinate, is not supported by unambiguous synapomorphies. Especially within the basal offshoots, many species are still unassigned to a phylogenetically robust genus concept and most described genera are poorly known and of uncertain affinities. Also, the monophyly of the tribe itself has been challenged by evidence from both molecular (Espíndola et al. 2012) and morphological characters (Kvifte 2014b), and Kvifte (2018) therefore proposed to treat its members as part of a larger tribe Pericomaini *sensu lato*. *Gondwanoscurus* is of uncertain placement in the Pericomaini *sensu* Kvifte (2018) branch of Psychodinae and the closest relative of *Gondwanoscurus* has been suggested to be the principally Oriental genus *Neotelmatoscopus* Tonnoir, 1933 based on morphology (Ježek 2001, Ježek & Tkoč 2012). However, this relationship is not supported in the molecular phylogenies of Curler & Moulton (2012).

Within *Gondwanoscurus*, the new species appears most similar to *G. socotrensis* from Socotra island, based on the wing with expanded anal area and the general shapes of the gonostyli, parameres and surstyli. *Gondwanoscurus jezeki* from the Western Ghats, India, shares most of these characters apart from the expanded anal area of the wing, which is likely a secondary reduction due to this character's wide distribution within the genus (see Curler 2009). Both *G. socotrensis* and *G. jezeki* have their gonostyli bifurcate apically, however; further study is necessary to determine whether the absence of this character in *G. curleri* reflects the plesiomorphic condition or whether it is a secondary reduction.

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