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Aphasmaphleps, a new genus of long-legged flies from Senegal, with a key to the genera of Afrotropical Diaphorinae (Diptera: Dolichopodidae)

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ABSTRACT

The genus *Aphasmaphleps* Grichanov, gen. n. is described from Senegal to accommodate a new species, *A. bandia* sp. n. The new genus has been placed in the subfamily Diaphorinae and is considered close to the genus *Phasmaphleps* Bickel, 2005. A key to Afrotropical diaphorine genera of long-legged flies is compiled, and characters of the new genus are discussed.

KEY WORDS: Diptera, Dolichopodidae, Diaphorinae, *Aphasmaphleps*, long-legged flies, Senegal, new genus, new species, identification key.

INTRODUCTION

The subfamily Diaphorinae has a mainly stable wing venation throughout the subfamily, with completely developed major veins. However, two genera, *Asyndetus* Loew, 1869, and *Cryptophleps* Lichtwardt, 1898, are characterized by vein M being distinctly weakened or broken, and in the latter genus usually also having crossvein *dm–cu* absent. Monotypic *Phasmaphleps* Bickel, 2005, which is widespread across the western Pacific islands, has vein M beyond the *dm–cu* crossvein reduced to a faint trace. A new diaphorine genus from Senegal, *Aphasmaphleps,* having *Phasmaphleps*-like venation is described here. The *World Catalog of Dolichopodidae* (Yang *et al.* 2006) lists 18 genera in the subfamily Diaphorinae, and many of them are found in the Afrotropics. A key to regional genera of Diaphorinae is also presented.

MATERIAL AND METHODS

Aphasmaphleps bandia sp. n. was studied and illustrated with a Zeiss Discovery V–12 stereomicroscope and an AxioCam MRc5 camera. The holotype *Falbouria acorensis* (Parent, 1933) was photographed by Vladimir Blagoderov in the Sackler Biological Imaging Lab at the Natural History Museum, London (NHML) using a Zeiss Stemi V11 stereomicroscope with a Canon EOS 450D camera attached, the resulting images then being combined to increase depth of field using Helicon Focus v. 4.77 software. Morphological terminology follows Grichanov (2007) and Cumming and Wood (2009). The relative lengths of the podomeres should be regarded as representative ratios and not measurements. Body length is measured from the base of the antenna to the tip of abdominal segment 7. Wing length is measured from the base to the wing apex. Male genitalia were macerated in 10% KOH. Figures showing the male genitalia in lateral view are oriented as they appear on the intact specimen, with the morphologically ventral surface of the genitalia facing up, dorsal surface down, anterior end facing right and posterior end facing left.

The holotype of the new species is housed at the Museum of Natural History, Paris (MNHN).

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TAXONOMY

Genus **Aphasmaphleps** gen. n.

Figs 1−7

Etymology: The genus name refers to similarity of its wing to that of *Phasmaphleps* Bickel. Feminine gender.

Type species: *Aphasmaphleps bandia* sp. n.

Diagnosis:

Head: Occiput concave; pairs of strong postvertical, strong vertical and strong ocellar setae present; male eyes joined across lower face with anteroventral facets enlarged; postpedicel subtriangular, with dorsoapical arista-like stylus.

Thorax: Mesonotum with little pruinosity; setae black; acrostichals biseriate; 5 dorsocentrals present, with posteriormost pair slightly offset laterally; lower part of proepisternum with pale seta just above coxa, subtended dorsally by shorter seta; upper part of proepisternum with 1 weak white seta; lateral scutellar setae absent.

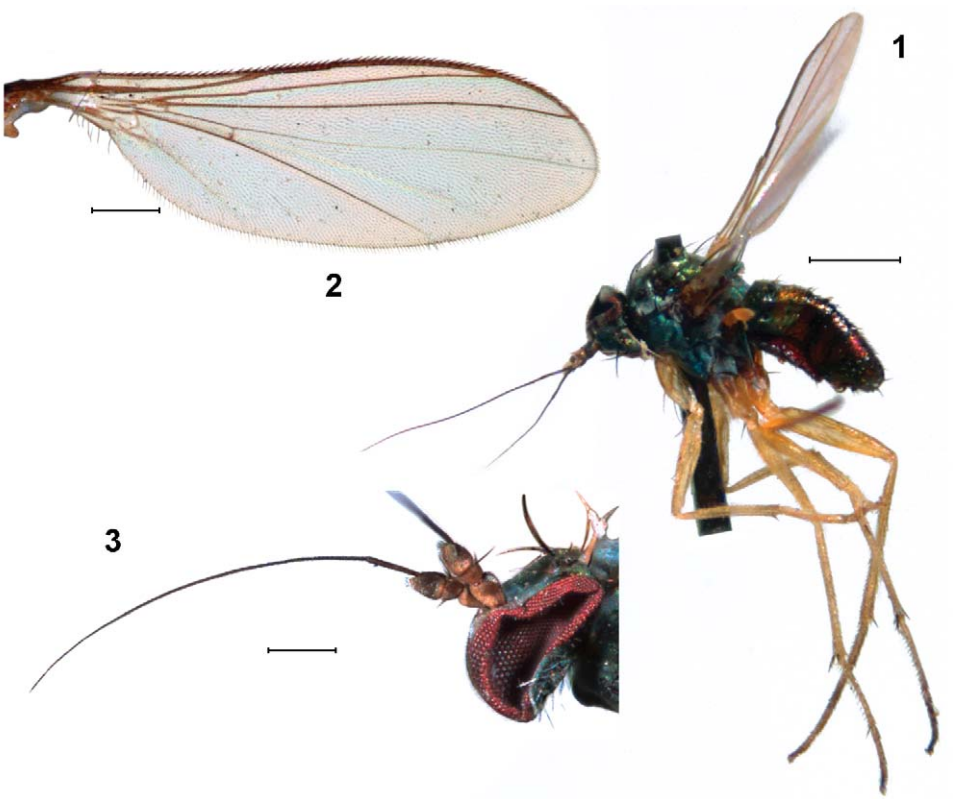
Legs: Femora without true preapical anterior bristles.

Wing: Costal vein extending beyond tip of R_{4+5}, but not reaching vein M; R_{4+5} ending not far from wing apex; vein M ending at wing apex; distal parts of R_{4+5} and M_{1+2} slightly diverging and slightly convex anteriorly, parallel at apex; *dm–cu* much shorter than distal part of CuA_1.

Abdomen: With short black vestiture; male postabdomen (Fig. 7): tergum and sternum 7 greatly reduced; segment 8 with 2 strong diverging setae which project posteriad; hypopygial foramen left lateral; epandrium circular with phallus following curvature of epandrium; epandrial lobe with 2 apical setae; surstylus digitiform; postgonite present; cercus short, rounded.

Remarks. Bickel (2005) has defined *Phasmaphleps* by a complex of characters, most of which are met in either *Asyndetus* or *Cryptophleps*. The following characters of his new genus have not been observed in the latter two genera: postpedicel with apical arista-like stylus; vein R_{4+5} ending near wing apex; vein M beyond crossvein *dm–cu* becoming a trace, and continuing as a faint fold to just behind wing apex; vein R_{4+5} and trace vein M bowed with respect to each other; male cercus elongate with strong distal setae. *Aphasmaphleps* has dorsoapical arista-like stylus and rounded male cercus (the characters being not rare in *Asyndetus* and *Cryptophleps*), strongly differing from these genera in wing venation. The latter in the new genus is most similar to the venation of *Phasmaphleps*, differing in costal vein reaching half distance between R_{4+5} and M_{1+2} (at R_{4+5} in *Phasmaphleps*); R_{4+5} ending before wing apex; vein M ending at wing apex; distal parts of R_{4+5} and M_{1+2} slightly diverging and slightly convex anteriorly, parallel at apex. In addition, *Aphasmaphleps* differs from *Phasmaphleps* in the presence of one proepisternal seta and biseriate acrostichals (absent in *Phasmaphleps*), elongate *vs* short antennomeres, modified *vs* simple male fore and mid tarsi, two projecting setae on male segment 8 (absent in *Phasmaphleps*), and median (*Diaphorus*-like) position of antennae (at the upper third of head in *Phasmaphleps*, *Asyndetus* and *Cryptophleps*). It is worth noting that the genus *Falbouria* Dyte, 1980 (nom. n. for *Balfouria* Parent, 1933) was described from Azores by a male with antennae positioned at middle of head right above

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Figs 1−3. *A. bandia* sp. n.: (1) habitus, (2) wing, (3) head. Scale bars: 0.5 mm (Fig. 1), 0.2 mm (Figs 2, 3).

joined eyes (Figs 8, 9). Nevertheless, *Falbouria* has normal wing venation, quite bristly legs including strong anterior preapicals on mid and hind femora, short antenna and simple tarsi (Parent 1933). The very long antenna (4/5 the body length) of *A. bandia* sp. n. is a quite unusual apomorphy in the Diaphorinae (a male secondary sexual character?). The complex of characters supports the generic status of the *Aphasmaphleps*.

Aphasmaphleps bandia sp. n.

Figs 1−7

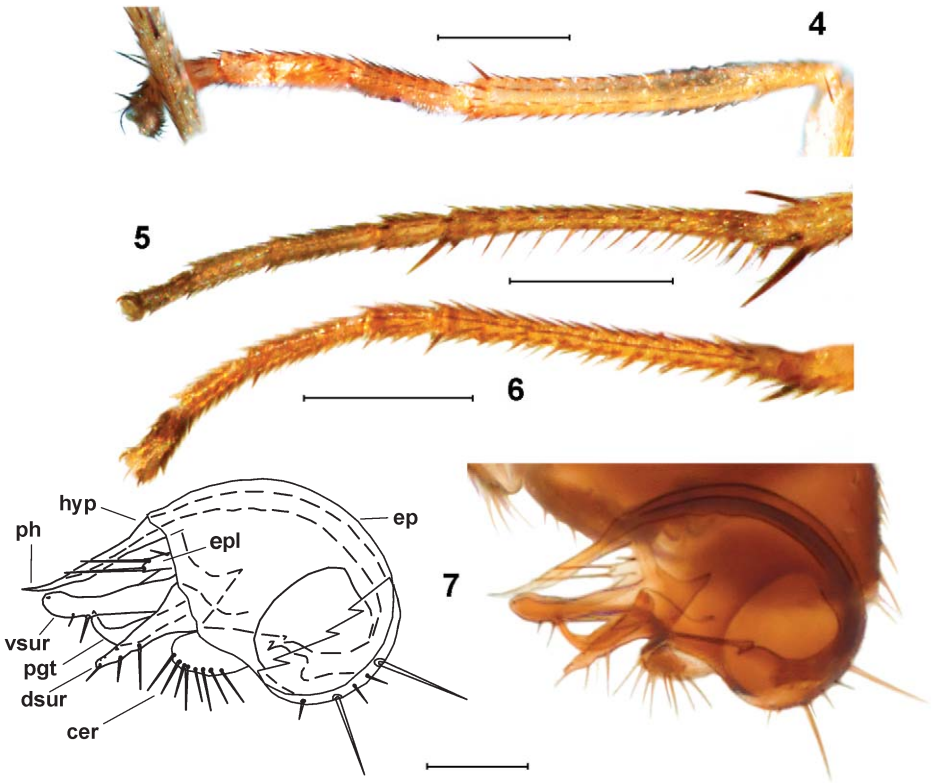
Etymology: The species is named after the type locality.

Description:

Male.

Head: Frons broad, dark bluish green with weak grey pruinosity; 2 pairs of strong post-verticals, one pair of strong vertical and one pair of strong ocellar setae present; face present as narrow silvery white triangle beneath antennae; eyes (shrunken) joined across lower face with anteroventral facets enlarged; antenna mainly brown, positioned at middle of head; scape mostly pale brownish except dorsal surface, slightly swollen; pedicel with circlet of short setae, with one longish dorsal seta; postpedicel pale at base, subtriangular, flattened laterally, with long dorsoapical arista-like stylus; length ratios of

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Figs 4–7. Details of *A. bandia* sp. n.: (4–6) Tarsi: (4) fore tarsus, (5) mid tarsus laterally, (6) mid tarsus dorsolaterally; (7) Hypopygium, left lateral aspect. Abbreviations: cer – cercus, ep – epandrium, epl – epandrial lobe, hyp – hypandrium, ph – phallus, pgt – postgonite, dsur, vsur – surstylus (dorsal and ventral lobes). Scale bars: 0.2 mm (Figs 4–6), 0.3 mm (Fig. 7).

scape to pedicel to postpedicel to stylus (1st and 2nd stylomeres), 7:4:7:10:75; postcranium shining black; postocular setae white except few upper setae, slightly flattened, uniserial; palpus and proboscis small; palpus black with short black apical seta.

Thorax: Mesonotum and pleura entirely dark metallic bluish green with little pruinosity; setae black; acrostichals in two irregular rows; 5 pairs of dorsocentrals present of approximately equal length except 4th pair shortened, with posteriormost pair slightly offset laterally; upper part of proepisternum with 1 weak white seta; lower part of proepisternum with pale seta just above coxa, subtended dorsally by shorter seta; one pair of scutellar setae strong, lateral scutellars absent.

Legs: All coxae and remainder of legs yellow, with only mid and hind coxae brown at base and distalmost tarsomeres of mid and hind legs brown; coxae with pale yellow setae; fore coxa with 3 yellow distolateral setae; mid coxa with pale anterior setae; hind coxa with single brown lateral seta at basal quarter; femora devoid of strong setae; claws and pulvilli on mid and hind tarsi short; fore tibia with only 2 short dorsoapical setae; fore tarsomeres slightly thickened, with pale ventral pad of short dense hairs; 5th tarsomere with slightly enlarged pulvilli and with claws reduced to simple setae; mid femur with

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3 fine ventral erect cilia at base, half as long as femur diameter; mid tibia with strong anterodorsal seta at basal 1/4, and 3 or 4 apical setae; mid basitarsus with anterior and ventral rows of stiff hairs, which longer than segment diameter; 2nd segment shortened; hind femur with fine posteroventral subapical seta, with somewhat elongated dorsal setulae; hind tibia with 2 short dorsal and 3 or 4 short apical setae. Length ratios of fore femur to tibia to tarsus (segments from first to fifth), 45:42:15:6:6:5:5; same ratios for mid leg, 45:55:30:5:10:7:15; same ratios for hind leg, 50:63:19:19:12:7:6.

Wing: Costal vein reaching half distance between R_{4+5} and M_{1+2}; R_{4+5} ending not far from wing apex; vein M ending at wing apex; distal parts of R_{4+5} and M_{1+2} slightly diverging and slightly convex anteriorly, parallel at apex; M between crossvein *dm–cu* and wing apex very weak, foldlike; *dm–cu* faint; anal vein fold-like; ratio of *dm–cu* to distal part of CuA_1, 1:16; lower calypter yellow with pale setae (mostly broken in unique specimen); halter yellow.

Abdomen: Dull metallic with black vestiture; terga 1 and 2 dull green with copper reflection; remainder terga violet-black; postabdomen (Fig. 7); sterna 5 and 6 weak; sternum 5 concave; sternum 6 reduced; tergum and sternum 7 greatly reduced; male sternum 8 ovate, with 2 strong diverging bristles which project posteriad, and covering left lateral hypopygial foramen; epandrium black with brown surstylus and cercus, circular with thin phallus following curvature of epandrium; hypandrium forming hood over phallus; epandrial lobe small, with 2 strong apical setae and 1 short seta at base; surstylus digitiform, with broader ventral arm and narrow dorsal arm, each with 3 or 4 dorsal setae decreasing in length distad; postgonite swollen at base, with 2 long narrow hooks; cercus short rounded, with strong setae.

Measurements (mm): Body length without antennae 1.6, antenna 1.3, wing length 1.6, wing width 0.5.

Female. Unknown.

Holotype: ♂ SENEGAL: Bandia, 16.vi.1980, B. Sigwalt leg., Piège de Malaise (MNHN).

Key to Afrotropical genera of Diaphorinae

1 Costa not extending beyond tip of R_{4+5}; distal vein M gently sinuate or broken or weakened, with distal section often displaced 2
– Costa extending beyond tip of R_{4+5}, usually ending at apex of vein M; vein M unbroken, rarely weakened 5

2 Vein R_{4+5} ending along distal anterior wing margin, well before wing apex; distal parts of R_{4+5} and M_{1+2} strongly diverging 3
– Vein R_{4+5} ending almost at wing apex; distal parts of R_{4+5} and M_{1+2} subparallel, slightly diverging or bowed with respect to each other 4

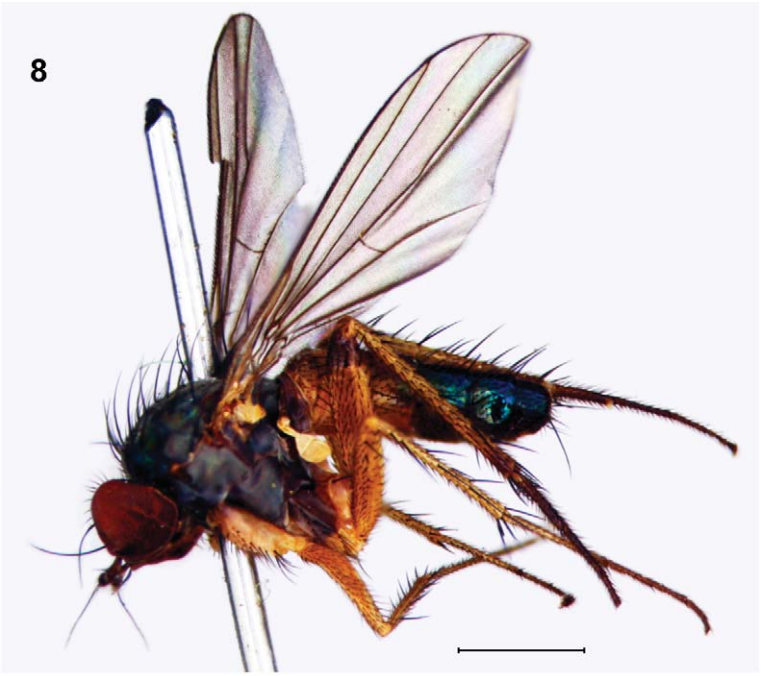
3 Upper part of proepisternum with 2–4 fine setae; acrostichals usually present; male sternite 8 often with strong projecting setae ..... **Asyndetus** Loew, 1869
– Upper part of proepisternum usually bare; acrostichals absent or microscopic; male sternite 8 without strong setae..... **Cryptophleps** Lichtwardt, 1898

4 Acrostichals biseriate; male antenna very long (4/5 the body length); male fore and mid tarsi modified; male sternite 8 with 2 strong projecting setae ....**Aphasmaphleps** gen. n.

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– Acrostichals absent; male antenna about as long as head height; male fore and mid tarsi simple; male sternite 8 without strong setae; western Pacific..... .....[**Phasmaphleps** Bickel, 2005]

5 Occiput concave; antennal postpedicel usually pressed laterally, bladelike to subtriangular, with distinct apex and dorsal to dorsoapical arista-like stylus 6





Figs 8, 9. Habitus of *Falbouria acorensis* (Parent, 1933) and its head, holotype. Scale bars: 1 mm (Fig. 8), 0.5 mm (Fig. 9).

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– Occiput convex or flat; antennal postpedicel usually globular, reniform, conoid or budlike, with indistinct apex, or with slender apical projection, and with subapical or apical, rarely dorsal, arista-like stylus inserted sometimes in apical incision ...8

6 Hind coxa with external vertical row of 3 or 4 setae decreasing in length ventrally; scape with dorsal setae (bare in some Holarctic species) .... **Argyra** Macquart, 1834

– Hind coxa with one external seta at basal quarter; scape bare 7

7 Wing vein M_{1+2} with rather distinct sinuation at 2/5 of distal part; arista-like stylus dorsal; antennae positioned at upper quarter of head; male segment 7 rather long .....**Urodolichus** Lamb, 1922

– Wing vein M_{1+2} nearly straight; arista-like stylus dorsoapical; antennae positioned at middle of head; male segment 7 short; Azores .... [**Falbouria** Dyte, 1980; Figs 8, 9]

8 Posterior four femora with anterior subapical seta in both sexes; male frons and face broad 9

– Posterior four femora without distinct anterior subapical seta, at most with stiff hairs; male eyes usually convergent or contiguous above or below antennae 10

9 Antennal pedicel with finger-like projection overlapping postpedicel; male sternite 8 with strong projecting setae .....**Dactylonotus** Parent, 1934

– Antennal pedicel without finger-like projection; male sternite 8 without strong setae..... **Nurteria** Dyte & Smith, 1980

10 Acrostichal setae absent; female clypeus with four projecting setae; male segment 7 rather long; postgonite prominent, often with a group of pedunculate setae..... .....**Acropsilus** Mik, 1878

– Acrostichals present, biseriate; female clypeus without setae; male segment 7 short; postgonite reduced 11

11 Antennae positioned at middle of head; upper part of proepisternum with 2–4 fine setae; wing usually broadest at basal quarter, with nearly straight R_{4+5} and M veins ..... **Diaphorus** Meigen, 1824

– Antennae positioned at upper quarter to third of head; upper part of proepisternum usually bare; wing usually broadest at middle, with convex anteriorly R_{4+5} and M veins 12

12 Face nearly parallel-sided, subequal in width to frons; male postpedicel budlike, with abruptly drawn-out apex; male sternite 8 with strong projecting setae; hypopygial surstylus and epandrial lobe long and thin; male cercus with long distoventral projection .....**Trigonocera** Becker, 1902

– Male eyes convergent or contiguous below antennae; female face distinctly narrowed downwards; male postpedicel globular, reniform, conoid (*Chrysotus*) or with slender apical projection (*Achradocera*); male sternite 8 with simple hairs, rarely with short thick setae; surstylus and epandrial lobe broad; male cercus without distoventral projection 13

13 Male postpedicel with slender apical projection bearing apical arista-like stylus, and lower postocular surface of male with many flattened pale setae..... ..... **Achradocera** Becker, 1922

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– Male postpedicel globular, reniform or conoid with subapical arista-like stylus; lower postocular surface with fine unmodified setae ..... **Chrysotus** Meigen, 1824

Remarks:
(1) Bickel (2005) and Yang *et al*. (2006) have provided diagnostic characters for the subfamily Diaphorinae.
(2) Bickel (1998) considered *Acropsilus* incertae sedis, rejecting its placement in Peloropeodinae and Grichanov (1998) associated the genus with the Diaphorinae. Yang *et al*. (2006) followed Negrobov (1991), placing it in the Peloropeodinae.
(3) *Nurteria* with three known species is an unrevised genus originally described in the Diaphorinae. Numerous undescribed species of the genus from southern Africa share some features with the Sympycninae.

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