NEW AND LITTLE-KNOWN SPECIES OF THE GENUS
URODOLICHUS LAMB, 1922 (DIPTERA: DOLICHOPODIDAE)

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Urodolichus villosiceps sp. n. is described from New Guinea Island (Papua Province of Indonesia and Papua New Guinea). Three new combinations are proposed: Nematoproctus iulilamellatus Wei, 2006 = Urodolichus iulilamellatus (Wei, 2006), comb. n., Nematoproctus javanus de Meijere, 1916 = Urodolichus javanus (de Meijere, 1916), comb. n., Nematoproctus kubani Olejníček, 2002 = Urodolichus kubani (Olejníček, 2002), comb. n.; latter species is recorded from Cambodia for the first time. Urodolichus keiseri (Hollis, 1964) is firstly recorded from India, Malaysia, Philippines and Vietnam. Key to the Australasian and Oriental species of Urodolichus is provided.

KEY WORDS: Diptera, Dolichopodidae, Urodolichus, taxonomy, new species, new combinations, India, Cambodia, Vietnam, Malaysia, Indonesia, Papua New Guinea.

С острова Новая Гвинея (индонезийская провинция Папуа и Папуа Новая Гвинея) описан Urodolichus villosiceps sp. n. Предложены новые комбинации: Nematoproctus iulilamellatus Wei, 2006 = Urodolichus iulilamellatus (Wei, 2006), comb. n., Nematoproctus javanus de Meijere, 1916 = Urodolichus javanus (de Meijere, 1916), comb. n., Nematoproctus kubani Olejníček, 2002 = Urodolichus kubani (Olejníček, 2002), comb. n.; последний вид впервые найден в Камбодже. Urodolichus keiseri (Hollis, 1964) впервые приводится для Индии, Малайзии, Филиппин и Вьетнама. Дана определительная таблица видов рода Urodolichus Ориентальной области и Новой Гвинеи.

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INTRODUCTION

The genus Urodolichus includes five Afrotropical species (Seychelles and Madagascar), one Oriental species (Sri Lanka) and one Australasian species (the island of New Guinea). Adults are medium-sized dolichopodids with the following combination of characters: antenna short, positioned at upper 1/4 of head, arista-like stylus dorsal; thorax with mesonotum with biseriate acrostichal setae, lacking flattened posterior area; legs with hind femur lacking true anterior preapical seta; hind coxa with exterior seta at basal 1/4, hind tarsomere 1 much shorter than tarsomere 2; wing vein M1 beyond crossvein dm–m, usually with distinct sinuation near basal 1/3; and male segment 7 rather long (Grichanov & Brooks, in press).

Key to the Afrotropical species was provided by Grichanov (1998) and key to the three Seychelles species was given by Meuffels & Grootaert (2009).

MATERIAL AND METHODS

The holotype of the new species and other material examined are housed at the Zoological Museum of Moscow State University, Moscow, Russia (MZUM); Australian Museum of Sydney, Australia (AMS); Anshun Centre for Disease Prevention and Control, Guizhou, China (CDPC); Collection of the California Academy of Sciences, San Francisco, USA (CAS). The syntypes of Urodolichus caudatus Lamb, 1922, U. gracilis Lamb, 1922, and U. porphyropoides Lamb, 1922 have been studied from digital images provided by the Natural History Museum, London, United Kingdom (BMNH). The holotype of Nematoproctus kubani Olejníček, 2002, has been also studied from digital images provided by the Moravian Museum Brno, Czech Republic (MMB). The holotype of the new species has been studied and photographed with a ZEISS Discovery V–12 stereo microscope and an AxioCam MRc5 camera. Morphological terminology and abbreviations follow Cumming & Wood (2009). Body length is measured from the base of the antenna to the tip of genital capsule. Wing length is measured from the base to the wing apex. Male genitalia were macerated in 10% KOH. The figures showing the hypopygium in lateral view (Figs. 4-6) are oriented as it appears on the intact specimen, with the morphologically ventral surface of the genitalia facing up, dorsal surface down.
TAXONOMY

Family Dolichopodidae

Genus Urodolichus Lamb, 1922

Urodolichus Lamb, 1922: 394.

Type species: Urodolichus porphyropoides Lamb, 1922, by original designation.

NOTES. The three species newly combined below with Urodolichus were originally described in the genus Nematoproctus, presumably on the basis of the long cerci. The genera Urodolichus and Nematoproctus have been assigned to the Rhaphiinae (Pollet et al., 2004; Yang et al., 2006; Naglis & Grootaert, 2011), but they are not necessarily sister groups, and the subfamily still deserves a more detailed study, mostly on a phylogenetic background. Grichanov & Brooks (in press) consider Urodolichus as a genus incertae sedis within the family Dolichopodidae. Urodolichus and Nematoproctus can be separated by the characters given in the key below and by the following features related to the male postabdomen. The male segment 7 in Nematoproctus is retracted, bare and hidden under preceding segments, while exposed, setose and forming a short peduncle for the hypopygium in Urodolichus. The hypopygium of Nematoproctus has a compacted and unbranched surstylus, while the surstylus is long and thin, usually 2–3 branched in Urodolichus. Moreover, the epandrium in Urodolichus has one strong seta between distal and basiventral epandrial lobes, features not seen in Nematoproctus (see figures in Stackelberg & Negrobov, 1976). Both males and females of Urodolichus have concave head occiput and rather long vein R almost reaching wing midlength, whereas males and females of Nematoproctus have flat occiput and short vein R not reaching one third of wing length.

With the new combinations proposed below, Nematoproctus has a Laurasian distribution, recorded up to date from the Nearctic and Palaeartic Regions, while Urodolichus occurs in Gondwanan landmasses, known at present from the eastern Afrotopics, southern Orient and Australasian Region (New Guinea).

COMPOSITION. With a new species described and the new combinations proposed in this paper, the genus includes 11 species being rather similar in their habitus. However, the Seychelles species (digital type material is examined, BMNH) are very distinct in strong development of basal cercal lobe, forming probably a different species group.

Key to the Australasian and Oriental species of Urodolichus (males)

1. Legs entirely black; cercus 1.3 times longer than epandrium; body length 4.4 mm [Indonesia: West Papua, Papua New Guinea] .... U. villosiceps Grichanov sp. n.
2. At least fore tibia yellow; cercus either short or long ........................................ 2
   2. Cercus about as long as epandrium; body length 3 mm [Papua New Guinea] ...... .......................................................... U. artifacies (Grootaert et Meuffels, 1990)
   – Cercus twice longer than epandrium .......................................................... 3
3. Epandrium with asymmetrical broad toothed lobe at base of hypandrium; body length 5 mm [China: Guizhou] .............. U. tulilamellatus (Wei, 2006), comb. n.
– Epandrium without toothed lobe at base of hypandrium ........................................... 4

4. Only fore tibia yellow; body length 4 mm [Indonesia: Java]… U. javanus (de Meijere, 1916), comb. n.
– All tibiae yellow ................................................................................................... 5

5. Epandrium half as long as peduncle; hind tibia with 2 anterodorsals; body length 4-5 mm [India, Malaysia, Philippines, Sri Lanka, Vietnam] .......................

Urodolichus villosiceps Grichanov, Capellari et Bickel, sp. n.

Figs 1–9

Paratypes: Papua New Guinea: Western Province, Star Mountains, Camp 1, 5°13’S, 141°13’E, 800–1200 m, II-III 2013, yellow pans, 4 ♂, 1 ♀; leg. C. Muller [AMS]; Western Province, Tabubil, 5°15’S, 141°13’E, 650 m, 3.X 1995, 1 ♂; leg. M. Moulds [AMS].

DESCRIPTION. Male (Fig. 1). Head (Fig. 2): frons small, as high as wide, metallic blue green; face of the same colour; upper margin of frons slightly concave, with somewhat prominent ocellar tubercle; strong vertical seta bending forward just at the upper angle of head near the eye margin, arising from a small tubercle; weak postvertical seta positioned on back slope slightly lower than upper head margin; occiput concave; eyes entirely covered with unusually long white hairs, about 50 μm long; face as a small triangle below antennae and narrow band widened slightly at clypeus; upper postocular setae short, black, uniserial; ventral postcranium covered with rather tong black and brown setae curved forward; Palpus black, oval, small, with 6–8 long black setae, 2 times as long as palpus; proboscis black with short hairs; antenna short, black, with simple segments; scape bare; pedicel with dorsal and ventral setae, nearly as long as 3 segments combined; pedicel also with short lateral lobes covering base of postpedicel in middle of both sides; postpedicel rounded, asymmetric, slightly higher than long, with distinct apicoventral obtuse apex; aristalike stylus simple, with sparse short hairs; length (mm) of scape to pedicel to postpedicel to stylus (1st and 2nd segments), 0.11/0.08/0.09/0.04/1.02;

Thorax: greenish-black; proepisternum with numerous black setae and hairs; mesonotum with two rows of acrostichals and 6 pairs of dorsocentral setae (1st pair short); scutellum with one pair of strong setae and one pair of fine lateral setae, half as long as major setae.

Legs: entirely deep black; fore coxa with numerous black setae and hairs anteriorly, 2/3 as long as coxa; mid coxa with 1 seta and shorter hairs; hind coxa with single external seta at base; all femora with double ventral row of setae along
entire length, 1.5 times longer than femur diameter; fore femur also with posterior and posterodorsal rows of long setae; anterior subapical setae indistinct; fore tibia with 2-3 short apical setae only; fore basitarsus with simple setulae; 2nd to 5th tarsomeres shortened; 5th tarsomere slightly flattened, with several elongate hairs, one pair of claws, simple empodium and small pulvilli; mid tibia with 2 anterodorsal, 2 posterodorsal, 2-3 ventral and 3-4 apical setae; mid tarsus simple; hind tibia with 2 anterodorsal, 4-5 posterodorsal, 4-5 ventral, 3-4 apical setae and posteroventral row of elongate setulae, nearly as long as tibia diameter; hind tarsus simple. Fore podomere length (from femur to tarsomere 5, mm): 1.15/1.13/0.58/0.15/0.14/0.12/0.14, mid leg: 1.41/1.39/0.68/0.29/0.20/0.14/0.14, hind leg: 1.55/1.80/0.38/0.48/0.27/0.13/0.15.

Figs. 1–4. *Urodolichus villosiceps* sp. n., male. 1 – habitus; 2 – head; 3 – wing; 4 – abdominal segments 5–8 and hypopygium, right lateral view; 5 – hypopygium, right lateral view.
Wing (Fig. 3): oval, smoky, brownish anteriorly in basal half; 1st radial cell entirely brown; veins black; ratio of part of costa between R<sub>2+3</sub> and R<sub>4+5</sub> to this between R<sub>4+5</sub> and M<sub>1+2</sub> (in mm), 0.53/0.27; R<sub>2+3</sub> nearly straight; R<sub>4+5</sub> somewhat convex anteriorly; M<sub>1+2</sub> weakly sinuate at basal 2/5 of apical part, parallel to R<sub>4+5</sub> in apical 1/4 of wing; dm-cu straight; ratio of cross-vein dm-cu to distal section of Cu<sub>A1</sub> (in mm), 0.44/0.63; anal vein weak, not reaching to wing margin; anal lobe developed; alula small; anal angle acute; lower calypter black, with black setae; halter black-brown.

![Wing Diagram](image)

Abdomen (Fig. 4): black, with bluish tinge, with black setae and hairs, rather long along lateral sides and at base ventrally; six full segments of abdomen developed; sternum simple; postabdomen black; 7th segment elongate, nearly as long as epandrium, with strong setae. 8th segment with strong setae, bandlike, embracing epandrium left-basolaterally. Hypopygium (Fig. 5): hypandrium basoventral, thick, subtriangular, fused with hypandrium at base, rounded at apex, cleft in distal part; phallus week and thin, parameral sheat strongly sclerotised, bifurcated distally; epandrium irregularly rounded, with 2 ventral and 2 distal lobes; fingerlike basoventral lobe bearing 1 long and 1 short setae at apex; broad semicircular just anteriorly of basoventral lobe bearing 1 very long bristle; epandrium distally having very long, thin, glabrous, slightly curved projection, and short thin straight process bearing apical seta; lobes of surstylus rather long and thin, separated from base, slightly curved, bearing minute setae at apex, as figured; cercus dark brown, bandlike, pointed at apex, 1.3 times longer...
than epandrium, densely covered with long setae dorsally, with row of ventral setae in distal part, as figured; cerci fused at base, forming unpaired projected bulbous organ bearing 2 spinelike processes distally.

Female (Fig. 7): similar to male except as the head cuticle also shining metallic blue; face wider, about width of antenna base; eyes covered with only short hairs; face uniform; antenna similar; all femora with only short ventral vestiture; fore femur with some short posterior to posterodorsal setae along basal third; some short anteroventral subapical setae present; mid femur with short subapical anteroventral setae along distal quarter; hind femur with short anteroventral setae along distal fifth; leg podomere ratios similar; halter brown; oviscapt (Figs 8, 9) divided into 2 acanthophorites, each bearing 4-5 strong flattened setae.

MEASUREMENTS (in mm). Body length without antennae: ♂ 4.4, ♀ 3.4; antenna length: ♂ 1.3, ♀ 1.0; wing length ♂ 3.7, ♀ 2.8; wing width ♂ 1.6, ♀ 1.4.

DISTRIBUTION. Indonesia (Papua), Papua New Guinea.

ETYMOLOGY. From the Latin “villosus” and “caput”, meaning “with hairy head”.

DIAGNOSIS. Urodolichus villosiceps sp. n. is unique in the genus, with males bearing unusually long setae and hairs on body, especially on eyes and other parts of head. Antenna black, legs black; tarsi simple; all femora with double row of stout
ventral setae; fore tibia without setae; wing vein M$_{1+2}$ weakly curved; apical part of CuA$_1$ 1.5 times longer than dm-cu; epandrium half as long as 7th segment; the cercus 1.3 times longer than epandrium.

**Urodolichus iulilamellatus (Wei, 2006), comb. n.**


**MATERIAL.** **China:** Ganpu, Anshun, Guizhou, 1250 m, 3.III 1993, 1 ♂ (paratype), coll. Wei Lianmeng [CDPC].

**NOTES.** Examination of a male paratype of _Nematoproctus iulilamellatus_ revealed clear _Urodolichus_ features of the male postabdomen, as shown above. The species has a diagnostic asymmetrical projection of epandrium (left side), sclerotized and forked (see Wei, 2006: Fig. 41). Here we transferred this species to the genus _Urodolichus_ and the new combination is proposed: _Nematoproctus iulilamellatus_ Wei, 2006 = _Urodolichus iulilamellatus_ (Wei, 2006), **comb. n.**

**DISTRIBUTION.** China (Guizhou).

**Urodolichus javanus (de Meijere, 1916), comb. n.**

_Nematoproctus javanus_ de Meijere, 1916: 44, Fig. 9. Type locality: Indonesia: Java: Semarang.

**NOTES.** De Meijere’s (1916) description and figure of abdomen show the species position in the _Urodolichus_ (black body, brownish wings, setose femora, long and thin cercus, which widened at base, covered with long cilia, etc.). Therefore new combination is proposed: _Nematoproctus javanus_ de Meijere, 1916 = _Urodolichus javanus_ (de Meijere, 1916), **comb. n.**

**DISTRIBUTION.** Indonesia (Java).

**Urodolichus kubani** (Olejníček, 2002), comb. n.


**MATERIAL EXAMINED.** **Cambodia:** Koh Kong Prov., vil. Tatai env., 16-18.IV 2010, 1 ♂, O. Kosterin [MZUM].

**NOTES.** The digital holotype examined and the original description and figures (Olejníček, 2002) clearly show that the species undoubtedly belongs to _Urodolichus_. Therefore new combination is proposed: _Nematoproctus kubani_ Olejníček, 2002 = _Urodolichus kubani_ (Olejníček, 2002), **comb. n.** The four pairs of dorsocentral setae seem to be diagnostic for this species.

**DISTRIBUTION.** Cambodia (new record), Laos.
Urodolichus keiseri (Hollis, 1964)


NOTES. Here this species is firstly recorded from India, Malaysia, Philippines and Vietnam. One of us (IYG) saw also the representatives of the species from Sri Lanka in the collection of Museum of Zoology, University of Lund, Sweden.

DISTRIBUTION. India (Goa), Sri Lanka, Vietnam, Malaysia (Sabah), and Philippines.

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REFERENCES


