

Two new species of *Campsicnemus* Haliday, 1851 from India with notes on some Oriental Dolichopodidae (Diptera)

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Abstract

Two new long-legged fly species *Campsicnemus capellarii* sp. n. and *C. uttarakhandicus* sp. n. from Uttarakhand, India, are described and illustrated. The following recombinations (comb. nov.) are proposed: *Chaetogonopteron glaucum* (Becker, 1924), *Chaetogonopteron intermittens* (Becker, 1924), *Chaetogonopteron obscuratum* (Becker, 1924). New data on the distribution of dolichopodid species in the Assam, Goa, Gujarat, Meghalaya, Orissa, Uttarakhand and West Bengal states of India are presented. *Argyrochlamys impudicus* Lamb, 1922, and *Phoomyia srilankensis* Naglis and Brooks, 2013, are recorded from India for the first time.

Keywords: *Campsicnemus*, new species, new combination, new record, Uttarakhand, India.

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Introduction

The Dolichopodidae fauna of India is poorly known. The major contribution to the fauna was made by Becker (1922). Subsequently, only a few additional species were described and reported from this country. A recently compiled checklist of long legged flies of India (Chakraborty *et al.*, 2015) includes 148 species, but at least 10 species are missing in the list, such as *Chaetogonopteron apicinigrum* Yang and Grootaert, 1999, *C. tarsatum* (Schiner, 1868), *Chrysosoma crinicornis* (Wiedemann, 1824), *C. snelli* Curran, 1927, *Condyllostylus longicornis* (Fabricius, 1775), *Diaphorus nigricans* Meigen, 1824, *Dolichopus plumipes* (Scopoli, 1763), *Medetera austroapicalis* Bickel, 1987, *Sympycnus simplicipes* Becker, 1908, and *Tachytrechus tessellatus* (Macquart, 1842) (see Grichanov, 2014). Also, the authors (Chakraborty *et al.*, 2015) have included in their list several doubtful names, junior synonyms treated as valid, and some species assigned to wrong genera.

The genus *Campsicnemus* Haliday in Walker, 1851 (subfamily Sympycninae) numbers about 310 species with an extremely high diversity of endemic species in the Hawaiian Islands and French Polynesia (Evenhuis, 2009, 2015). The Palearctic region

contains 39 known species (Selivanova *et al.*, 2012). The Oriental and Afrotropical faunas include only 6 and 7 species, respectfully (Grichanov, 2012a, 2014). Previous to this paper, no species of the genus had been reported from India. Five Taiwanese *Campsicnemus* species were described by Becker (1924), and they are all removed from the genus in this paper. Additionally, *Campsicnemus rufinus* Frey, 1925, described from Philippines, is here considered *incertae sedis* within Dolichopodidae.

Below I describe new species *Campsicnemus capellarii* sp. n. and *C. uttarakhandicus* sp. n. from the Uttarakhand state of India. This paper presents also new records for other species of Dolichopodidae from the Assam, Goa, Gujarat, Meghalaya, Orissa, Uttarakhand and West Bengal states of India.

Material and Methods

Morphological terminology mainly follows Cumming and Wood (2009). Body length is measured from the base of the antenna to the posterior tip of epandrium. Wing length is measured from the base to the wing apex. The relative lengths of the tarsomeres should be regarded as

representative ratios and not measurements. Male genitalia were not dissected and figured as they have low taxonomic value in the genus *Campsicnemus* (Evenhuis, 2009, 2015). The holotypes of new species are housed at the Zoological Museum of Moscow State University, Moscow, Russia (ZMUM) and other material examined are at the Zoological Institute of the Russian Academy of Sciences, St. Petersburg (ZIN). Information on collecting circumstances and permits is not available from the ZMUM collection. General distribution of species is given after Grichanov (2014).

DESCRIPTION OF NEW SPECIES

Campsicnemus capellarii Grichanov, sp. n. (Figs. 1–6)

[urn:lsid:zoobank.org:act:E695B2BA-A279-47FA-8FC4-F974EEC1C4A9](https://doi.org/10.21203/rs.3.rs-1000000/v1)

Description: *Male: Head* (Fig. 1): Frons metallic black, with violet tint; face velvety-brown, narrow, the narrowest in middle, where face as wide as distance between ocellar bristles; clypeus convex; antenna black; postpedicel subtriangular, with rounded apex, slightly longer than high (16/13), with long hairs; arista-like stylus basodorsal, simple, with distinct hairs apically; length ratio of scape to pedicel to postpedicel to stylus, 10/8/16/81; proboscis black; palpus black, with black hairs; lower postocular setae pale brown.

Thorax: Metallic black; mesonotum with bluish shine; pleuron brownish pollinose; 4 pairs of strong dorsocentral bristles; acrostichals uniseriate, well developed; proepisternum with 1 strong black seta and 1-2 dark hairs; scutellum with 2 strong black setae and two pairs of short hairs in middle and laterally.

Legs: Mostly dark; fore coxa orange, black at base; mid and hind coxae black; femora yellow-orange, blackish at distal apex; fore and hind tibiae orange, blackish at base, black at distal apex; mid tibia black; tarsi black, but basitarsi orange at base, coxae with dark hairs and black setae; hind coxa with one outer seta; fore leg simple; fore tibia with 1 strong dorsal bristle at middle; fore tarsomeres 3-5 with somewhat elongate hairs; mid femur (Fig. 2)

with single posterior preapical bristle, with anteroventral row of strong setae, longer than diameter of femur, with several similar posteroventral setae in middle, with ventral row of about 10 short erect hairs preapically, ventrally flattened and glabrous in distal fifth; mid tibia (Fig. 3) slightly curved, slightly thickened at base and at distal apex, constricted at extreme base, with sparse row of short anterodorsal setae, with full row of erect posteroventral setae, nearly as long as diameter of tibia, mainly simple, but flattened on basal thickening, and with 2 apical setae; 3rd-5th segments of mid tarsus (Fig. 4) with long black hairs dorsally; 1 longest hair on apex of 3rd tarsomere, about 2 times as long as 4th segment; hind femur (Fig. 5) with single anterior preapical bristle, with posteroventral row of long setae in distal half, decreasing in length distally, with 3 short erect anteroventral setae at apex; hind tibia with 3 anterodorsals, 3 posterodorsals and 2 short ventrals; tarsus simple; podomeres (from femur to fifth tarsomere) length ratio (in mm): fore leg: 0.99/0.81/0.41/0.29/0.19/0.09/0.16, mid leg: 1.39/1.64/0.55/0.46/0.33/0.19/0.26, hind leg: 0.78/0.79/0.21/0.22/0.18/0.09/0.11.

Wing (Fig. 6): Greyish, mostly hyaline, but with large brown spot in distal half anteriorly, somewhat diffused at apex of R₄₊₅; basal portion of costa almost straight, bearing equal in length setae on 3rd section; R₄₊₅ and M₁₊₂ parallel in apical part; ratio of costal section between R₂₊₃ and R₄₊₅ to that between R₄₊₅ and M₁₊₂, 22/18; basal section of M₁₊₂ shorter than distal section (8/10); ratio of cross-vein dm-cu to distal part of CuA₁, 16/24; lower calypter yellow, with black cilia; haltere orange.

Abdomen: Greenish-black, grey pollinose, with black setae and hairs; hypopygium partly concealed, black; cercus large, black, with short light hairs.

Measurements (mm): Body length 2.5, wing length/width 2.9/1.0, antenna length 0.8.

Female: unknown.

Material examined: *Holotype.* ♂, India: Uttarakhand, 30.41°N, 78.29°E, 2500m, 9-10.ix.2011, N. Vikhrev [ZMUM]. *Paratype.* 1♂, India: Uttarakhand, Chamba, 30.363°N, 78.384°E, 1800 m, 9-10.ix.2011, N. Vikhrev [ZIN].

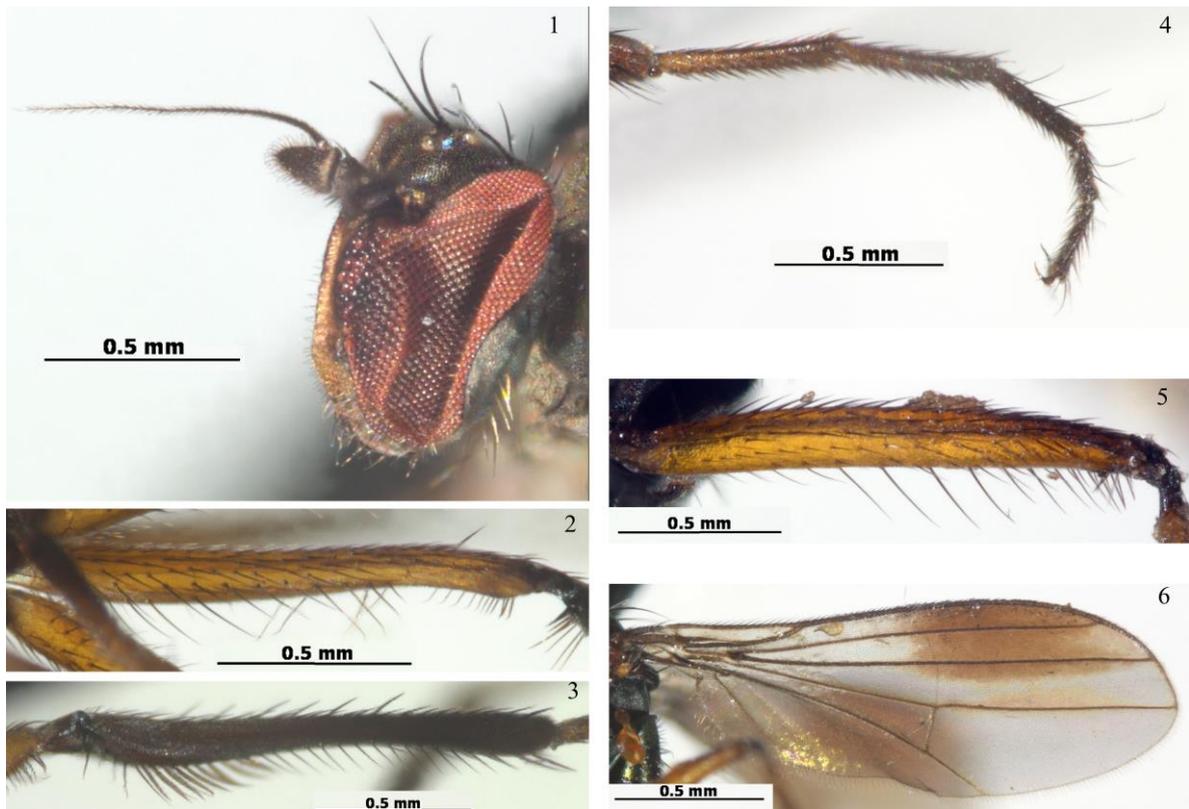


Fig. 1-6. *Campsicnemus capellarii* Grichanov, **sp. n.** (male): 1. Head; 2. Mid femur; 3. Mid tibia; 4. Mid tarsus; 5. Hind femur; 6. Wing.

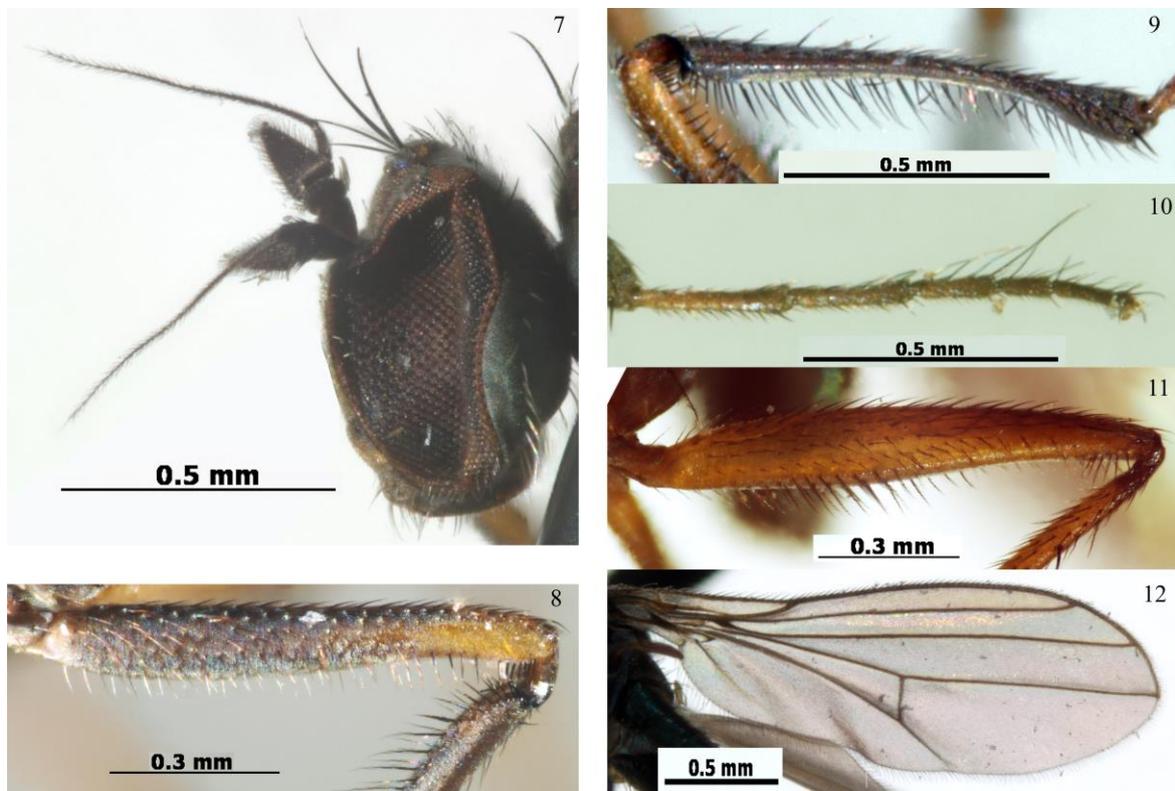


Fig. 7-12. *Campsicnemus uttarakhandicus* Grichanov, **sp. n.** (male): 7. Head; 8. Mid femur; 9. Mid tibia; 10. Mid tarsus; 11. Hind femur; 12. Wing.

Etymology: The species is named after the Brazilian dipterist Dr. R.S. Capellari.

Diagnosis: The new species is close to *C. yunnanensis* Yang and Saigusa, 2001, described from the Yunnan Province of China, and to *C. uttarakhandicus* Grichanov, sp. n., differing from both species in having brown spot on wing, armature of mid leg etc. All three species are related to the *C. armatus* group of species known from the Afrotropical and Palaearctic Regions (Grichanov, 2009, 2012a), being characterized by the modified mid tibia and unmodified mid basitarsus. The Oriental species are closest to the Palaearctic *C. zlobini* Grichanov, 2012, from the Russian Far East, which lacks long cilia on mid tarsus in male (Grichanov, 2012b).

***Campsicnemus uttarakhandicus* Grichanov,
sp. n.
(Figs. 7–12)**

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Description: *Male: Head* (Fig. 7): Frons metallic black, with violet tint; face black, grey pollinose on upper half and brownish pollinose on lower half, narrow, the narrowest in middle, where face half as wide as distance between ocellar bristles; clypeus convex; antenna black; postpedicel subtriangular, with rounded apex, slightly longer than high (14/10), with long hairs; arista-like stylus basodorsal, simple, with distinct hairs apically; length ratio of scape to pedicel to postpedicel to stylus, 8/5/14/62; proboscis black; palpus black, with black hairs; lower postocular setae dirty white.

Thorax: Metallic black; mesonotum with bluish shine; pleuron brownish pollinose; 4 pairs of strong and 1 anterior pair of weak dorsocentral bristles; acrostichals uniseriate, well developed; proepisternum with 1 strong black seta and 1-2 dark hairs; scutellum with 2 strong black setae and two pairs of short hairs in middle and laterally.

Legs: Mostly dark; fore coxa orange on distal half, blackish on basal half; mid and hind coxae black; fore femur mostly black, orange in distal third; mid femur black, orange at distal apex; hind femur orange-brown, blackish dorsally on distal half; fore and hind tibiae orange, black at both apices; mid tibia

black; tarsi black, but basitarsi orange on basal half, coxae with dark hairs and black setae; hind coxa with one outer seta; fore leg simple; fore tibia with 1 strong dorsal bristle at middle; mid femur (Fig. 8) with single posterior preapical bristle, with anteroventral row of setae along entire length except distal apex, nearly half as long as height of femur, with preapical comb of 7 erect ventral setae; mid tibia (Fig. 9) ventrally flattened, anteriorly glabrous, slightly curved, distinctly thickened at base and at distal apex, constricted at extreme base, with sparse row of short dorsal setae, with full double row of simple erect ventral setae, mostly 1.5-2 times as long as diameter of tibia, and with 1 apical seta; apex of 2nd tarsomere and 3rd-5th segments of mid tarsus (Fig. 10) with long black hairs dorsally; 1 longest hair on apex of 3rd tarsomere, about as long as 4-5th segments combined; hind femur (Fig. 11) with single anterior preapical bristle, with anteroventral, ventral and posteroventral rows of setae except base and distal third, about half as long as height of femur, with preapical comb of 6 erect anteroventral setae; hind tibia with 3 anterodorsals, 3 posterodorsals and 2 ventrals; tarsus simple; podomeres (from femur to fifth tarsomere) length ratio (in mm): fore leg: 0.83/0.61/0.39/0.17/0.12/0.10/0.17, mid leg: 1.07/1.00/0.32/0.24/0.15/0.11/0.16, hind leg: 1.15/1.28/0.33/0.35/0.22/0.12/0.15.

Wing (Fig. 12): Greyish, hyaline; basal portion of costa almost straight, bearing equal in length setae on 3rd section; R₄₊₅ and M₁₊₂ parallel in apical part; ratio of costal section between R₂₊₃ and R₄₊₅ to that between R₄₊₅ and M₁₊₂, 32/26; basal section of M₁₊₂ shorter than distal section (9/13); ratio of cross-vein dm-cu to distal part of CuA₁, 20/33; lower calypter orange, with black cilia; haltere orange.

Abdomen: Greenish-black, grey pollinose, with black setae and hairs; hypopygium partly concealed, black; cercus large, black, with short light hairs.

Measurements (mm): Body length 2.1, wing length/width 2.5/0.8, antenna length 0.75.

Female: Unknown.

Material examined: *Holotype.* ♂, India: Uttarakhand, Rishikesh, 30.1333°N, 78.317°E, forest stream, 15-17.iv.2012, K. Tomkovich [ZMUM]. *Paratype.* 1♂, India: Uttarakhand,

Two new species of *Campsicnemus* Haliday, 1851 from India with notes on some Oriental Dolichopodidae

Rishikesh env., Chilla, 29.976°N, 78.209°E, river, about 300m a.s.l., 14-16.iv.2012, K. Tomkovich [ZIN].

Etymology: The species is named after the Uttarakhand state of India.

Diagnosis: The new species is close to *Campsicnemus yunnanensis*, differing from the latter in much darker legs, longer fore tarsus (1.5 times vs. 1.2 times longer than fore tibia), the armature of the mid leg and hind femur etc. *C. yunnanensis* was described with anteroventral setae only on apical portion of mid femur, with 3 apical bristles on mid tibia, with only 2 rows of ventral setae on hind femur, without preapical combs of ventral setae on mid and hind femora (Yang and Saigusa, 2001).

New combinations

***Chaetogonopteron glaucum* (Becker, 1924), comb. nov.**

=*Campsicnemus glaucus* Becker, 1924

=*Sympycnus glaucus* (Becker, 1924) (Negrobov *et al.*, 2007)

Remarks: The species types were examined by Negrobov *et al.* (2007), who recombined it with *Sympycnus* based on the face and hypopygium morphology. However, Becker (1924) described the hind tarsus of his new species with remarkable ornamentations, such as very short subtriangular basitarsus and the next segment short, bearing at apex 2 long bristle-like finely haired processes (“An den Hinterbeinen sind nur die ersten beiden Tarsenglieder verziert; sie sind beide sehr kurz, das erste Glied ist etwas dreieckig, das zweite ist an der Spitze mit 2 borstenartigen Verlängerungen versehen, die ihrerseits wieder an ihrer Spitze fein behaart sind”). These characters clearly refer the species to the current concept of the genus *Chaetogonopteron*, a sister genus to *Sympycnus*. The species was described with remarkable setation on mid tibia and basitarsus, and keys to *C. nanlingense* Zhang, Yang and Grootaert, 2003 (Yang *et al.*, 2011), which is known from the Guangdong Province of China.

Distribution: China, Taiwan.

***Chaetogonopteron intermittens* (Becker, 1924), comb. nov.**

=*Campsicnemus intermittens* Becker, 1924

Remarks: Becker (1924) described the hind tarsus of his new species with very short basitarsus and next segment, the latter bearing erect cilia (“der Metatarsus ist sehr kurz, das zweite Tarsenglied ist ebenfalls sehr kurz und hat abstehende Wimpern”). These characters clearly refer the species to the current concept of the genus *Chaetogonopteron*. The species has also a diagnostic black spot on apical fourth of the wing and keys to *C. menglungense* Yang and Grootaert, 1999 (Yang *et al.*, 2011), which was recently recorded from Taiwan (Wang *et al.*, 2015).

Distribution: China, Taiwan.

***Chaetogonopteron obscuratum* (Becker, 1924), comb. nov.**

=*Campsicnemus obscuratus* Becker, 1924

Remarks: Describing his new species, Becker (1924) noted similarity of *C. obscuratus* with his *C. glaucus*. Becker (1924) described the hind tarsus of the new species with very short subtriangular basitarsus and short next segment, the latter bearing short process (“An den Hinterbeinen sind die beiden ersten Tarsenglieder ebenfalls wie bei der vorigen Art sehr kurz; das erste Glied ist etwas dreieckig und das 2. Glied läuft nicht in 2, sondern nur einen kurzen Zipfel aus”). These characters clearly refer the species to the current concept of the genus *Chaetogonopteron*. The species has also a diagnostic setation on the fore tarsus and mid tibia and keys to *C. menglonganum* Yang and Grootaert, 1999 (Yang *et al.*, 2011), which is known from Yunnan Province of China.

Distribution: China, Taiwan.

Unplaced species

***Campsicnemus halidayi* Dyte, 1975**

=*Campsicnemus maculatus* Becker, 1924 (*nec* Becker, 1918)

Remarks: The species description (Becker, 1924) is unusual for the *Campsicnemus* generic concept in having simple legs of light yellow colour including coxae, but with black-

brown spot on apex of hind femur. Such character as contiguous eyes on lower part of face (“das Untergesicht ist bei fast zusammenstossenden Augen kaum sichtbar”) excludes the species from the genus. So, I consider the species *incertae sedis* within Dolichopodidae.

Distribution: China, Taiwan.

***Campsicnemus lucidus* Becker, 1924**

Remarks: Describing his new species, Becker (1924) noted similarity of *C. lucidus* with his *C. maculatus* (now *C. halidayi*). The shape of male face is not clearly described (“von der Breite des 3. Fühlergliedes”), and apiculiform male cercus is very unusual for the *Campsicnemus* generic concept (“Anhänge klein, etwas spitz vortretend, am Hypopyg einige Borsten”). Therefore, I consider the species *incertae sedis* within Dolichopodidae.

Distribution: China, Taiwan.

***Campsicnemus rufinus* Frey, 1925**

Remarks: The species description (Frey, 1925) is unusual for the *Campsicnemus* generic concept in having simple legs of light yellow colour (including coxae), and large lanceolate postpedicel of antenna, 3 times longer than wide at base, with subapical excavation embracing base of arista (“3. Fühlerglied verhältnismässig gross, lanzettförmig, fast dreimal länger als an der Basis breit, oben vor der Spitze eingeschnitten; in diesem Einschnitte ist die fast nackte Arista inseriert”). Such character as obliterating face (“Untergesicht sehr schmal, Augen unter den Fühlern schmal getrennt”) excludes the species from the genus. So, I consider the species *incertae sedis* within Dolichopodidae.

Distribution: Philippines.

New records

***Argyrochlamys impudicus* Lamb, 1922**

Material examined: 4♂, 1♀, India: Gujarat, Narajan, Sarovar, 23.673°N, 68.532°E, 7-9.x.2012, K. Tomkovich [ZMUM]; 2♀, India: Gujarat, Mandvi env., 22.821°N, 69.364°E,

sandy seashore, 10-13.X.2012, K. Tomkovich [ZMUM].

Distribution: *Afrotropical:* Mauritius, Oman, Seychelles; *Oriental:* Chagos Archipelago, Sri Lanka. New species for India.

***Chrysosoma snelli* Curran, 1927**

Material examined: 1♂, 1♀, India: Goa, Palolem, 15.018°N, 74.018°E, 3-9.ii.2009, K. Tomkovich [ZMUM]; 3♂, India: Goa, Poinguinim, 14.967-6°N, 74.085-6°E, 14-16.ii.2009, pasture, K. Tomkovich [ZMUM].

Distribution: *Afrotropical:* Aldabra, Kenya, Madagascar, Mauritius, Reunion, Rodriguez, Seychelles, Tanzania; *Oriental:* Chagos Archipelago, India (Goa), Maldives.

***Dolichopus exsul* Aldrich, 1922**

Material examined: 1♂, India: West Bengal, Kalimpong (Lower Tanek), 27.06°N, 88.44°E, 625m a.s.l., 1-11.xii.2013, K. Tomkovich [ZMUM]; 2♂, India: Uttarakhand, Haridwar, 29.9954°N, 78.1814°E, 322m, Rajaji Nat. Park, forestry stream, 7-9.v.2012, K. Tomkovich [ZMUM]; 1♂, India: Uttarakhand, Uttarkashi, 30.7266°N, 78.4405°E, 1120m a.s.l., river, yard, 19-25.iv.2012, K. Tomkovich [ZMUM]; 1♂, India: Uttarakhand, Timishera, 30.3112°N, 78.3418°E, 1040m a.s.l., river, yard, 3-5.v.2012, K. Tomkovich [ZMUM].

Distribution: China (Guizhou, Taiwan), India, Nepal; USA (Hawaiian Is.).

***Phoomyia srilankensis* Naglis and Brooks, 2013**

Material examined: 1♂, India: Orissa, Gop, 19.982°N, 86.016°E, 8-9.i.2014, K. Tomkovich [ZMUM].

Distribution: Sri Lanka. New species for India.

***Thinophilus indigenus* Becker, 1902**

Material examined: 5♂, 2♀, India: Goa, Konkolim, 15.1919°N, 73.9979°E, 26.ii.2009, K. Tomkovich [ZMUM]; 1♂, India: Meghalaya, Sohra (Cherrapunjee), plateau, 25.27°N, 91.82°E, 1320m a.s.l., 14-26.ii.2013,

K. Tomkovich [ZMUM]; 2♂, 1♀, India: Orissa, Gop, 19.982°N, 86.016°E, 8-9.i.2014, K. Tomkovich [ZMUM]; 1♂, India: Orissa, Puri, 19.819°N, 85.870°E, 11-14.i.2014, K. Tomkovich [ZMUM]; 2♂, India: Assam, Chapar, riv. Champpamati, 26.323°N, 90.461°E, 40m a.s.l., 1-3.i.2014, K. Tomkovich [ZMUM];

Distribution: *Afrotropical:* Congo-Kinshasa, Cape Verde Is., Ethiopia, Madagascar, Gambia, Angola, Nigeria, Yemen, Benin, Ghana, Tanzania, Namibia, South Africa, Swaziland; *Oriental:* India, Nepal, China, Malaysia, Philippines; *Palaearctic:* Algeria, Egypt, Iran, Israel, Mongolia, Turkey.

Discussion

A total of 158 dolichopodids have been recorded from India by previous studies (Chakraborty *et al.*, 2015; Grichanov, 2014). The present paper adds two new for science species (*Campsicnemus capellarii* and *C. uttarakhandicus*) and two species new for the country (*Argyrochlamys impudicus* and *Phoomyia srilankensis*). As a result, the fauna of Indian long-legged flies has reached to 162 species, discovered mainly during the 20th century. This number is estimated to be roughly 15% of the total dolichopodid fauna of the country. For comparison, the fauna of neighbouring China contains about 1200 known species of Dolichopodidae (Yang *et al.*, 2011; and recent papers). Therefore, a discussion on the zoogeography of Indian dolichopodid fauna is premature at this time. With the new taxonomic and nomenclatural data in the present paper, there are now three known Oriental species of *Campsicnemus* (*C. capellarii* and *C. uttarakhandicus* from India and *C. yunnanensis* from China).

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