

SHORT COMMUNICATIONS

КРАТКИЕ СООБЩЕНИЯ

A NEW SPECIES OF *ASYNDETUS* (DOLICHOPODIDAE, DIPTERA)
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Received: 22.04.2019. Revised: 10.05.2019. Accepted: 13.05.2019.

A new species, *Asyndetus bykovskiy* sp. n., from the Astrakhan State Nature Biosphere Reserve (Russia) is described. This species can be distinguished from *Asyndetus chaetifemoratus* by the structure of hypopygium, partly yellow femora and the position of the apical section of vein M₁ at the apex of the wing.

Key words: East Europe, fauna, long-legged flies, Protected Area, Palaearctic, systematics

Introduction

The fly genus *Asyndetus* Loew, 1869 belongs to the subfamily Diaphorinae. There are more than 100 species of the genus reported from all zoogeographical regions of the Earth (Meuffels & Grootaert, 1993; Bickel, 1996; Grootaert & Meuffels, 2002; Grichanov, 2017). Negrobov (1973) published the last review of Palaearctic *Asyndetus* species. A revision of the *Asyndetus* species of the Afrotropical region was carried out with observations on the species of the Palearctic fauna (Grichanov, 2013).

Some species, i.e. *Asyndetus izius* Negrobov, 1973, *A. minuta* Negrobov et Shamshev, 1986, *A. vivida* Negrobov et Shamshev, 1986, were transferred to the genus *Cryptophlebs* (Grichanov, 2015).

For the Palaearctic region, 25 species of *Asyndetus* are currently known.

Asyndetus latifrons (Loew, 1857) is known from Middle and Southern Europe to the Oriental region (Bangladesh, China, India, Pakistan, Philippines, Thailand). Records for this species from the Oriental region require confirmation. The figure of the hypopygium of *Asyndetus latifrons* in Yang et al. (2011) differs from European specimens and possibly represents a new species.

Species known only from Europe are *Asyndetus aurocupreus* Strobl, 1909 (Spain) and *Asyndetus negrobovi* Pârnu, 1989 (Romania). *Asyndetus separatus* (Becker, 1902) is known from southern Europe and North Africa while *A. varus* Loew, 1869 is recorded from southern Europe and Azer-

baijan. Endemic to Egypt is *Asyndetus dubius* Parent, 1925. Three species are known from Central Asia: *Asyndetus albipalpus* Loew, 1871, *A. longicornis* Negrobov, 1973, and *A. melanopselaphus* Stackelberg, 1952. *Asyndetus diaphoriformis* Negrobov et Shamshev, 1986 is the only species described from Primorye. A record of *A. melanopselaphus* for Hungary (Pârnu, 1989), described from Tajikistan, requires confirmation.

One of the centres of species diversity of this genus is in North Africa and the Middle East (Egypt, Sudan, Israel, Saudi Arabia, Turkey, Israel). Some of them are common in southern Europe, such as: *Asyndetus albifacies* Parent, 1929, *A. albifrons* Parent, 1929, *A. chaetifemoratus* Parent, 1925, *A. dubius*, *A. separatus*, and *A. transversalis* Becker, 1907.

A second group, of ten species, forms the Chinese diversity centre, which includes Mongolia: *Asyndetus anticus* Negrobov, 1973, *A. beijingensis* Zhang, Yang, 2003, *A. clavipes* Liu, Wang et Yang, 2016, *A. exunguis* Parent, 1927, *A. latisurstylus* Liu, Wang et Yang, 2016, *A. lii* Wang et Yang, 2005, *A. longicornis*, *A. perpulvillatus* Parent, 1926, *A. wusuensis* Wang et Yang, 2005, *A. xinjiangensis* Wang et Yang, 2005 (Zhang & Yang, 2003; Wang & Yang, 2005; Wang et al., 2007; Liu et al., 2016).

Thirty four species of the family Dolichopodidae and four species of the genus *Asyndetus* were recorded from the Astrakhan region, i.e. *A. albifrons*, *A. chaetifemoratus*, *A. longicornis*, and *Asyndetus latifrons* (Grichanov, 2011; Negrobov et al., 2018).

Material and Methods

Students of Voronezh State University (Russia) collected material during field practice in the Astrakhan State Nature Biosphere Reserve (Russia) in 2017 using yellow pan traps. Photos were taken with the camera Toupcam XCAM 1080 PHA.

This area is characterised by the presence of *Phragmites australis* (Cav.) Trin. ex Steud., *Trachomitum sarmatiense* Woodson, and *Typha angustifolia* L. (Fig. 1).

Description of the new species

Asyndetus bykovskiy sp. n. (Fig. 2).

Material. Holotype, ♂, Russia, Astrakhan region, Astrakhan State Nature Biosphere Reserve, Trekhizbinsky station, cordon Trekhizbinka, 30.06.2017–04.07.2017, 06.07.2017–09.07.2017, trap Moerike (Bykovsky), Paratypes, 15 ♂, 7 ♀, same locality data.

The holotype and 5 ♂, 2 ♀, paratypes are deposited in the collection of the Zoological Institute of RAS (Saint-Petersburg, Russia); 10 ♂, 5 ♀ paratypes are deposited at the Department of Ecology

and Systematics of Invertebrates in the Voronezh State University (Voronezh, Russia).

Head. Frons black, with grey pollinosity. Face white, its width at the suture wider than postpedicel width. Antennae black. Postpedicel small, with pointed tip, with short hairs. Arista dorsal, with short hairs. Postpedicel scarcely wider than long. Ratio of postpedicel length to its width and arista length: 2.2 : 2.3 : 9.3. Proboscis brown. Palpus white with black hairs. Lower postocular setae white.



Fig. 1. The biotope of the newly described species *Asyndetus bykovskiy* sp. n., Trekhizbinsky station, cordon Trekhizbinka, Astrakhan region, Russia, 46.060028°N, 48.513556°E.

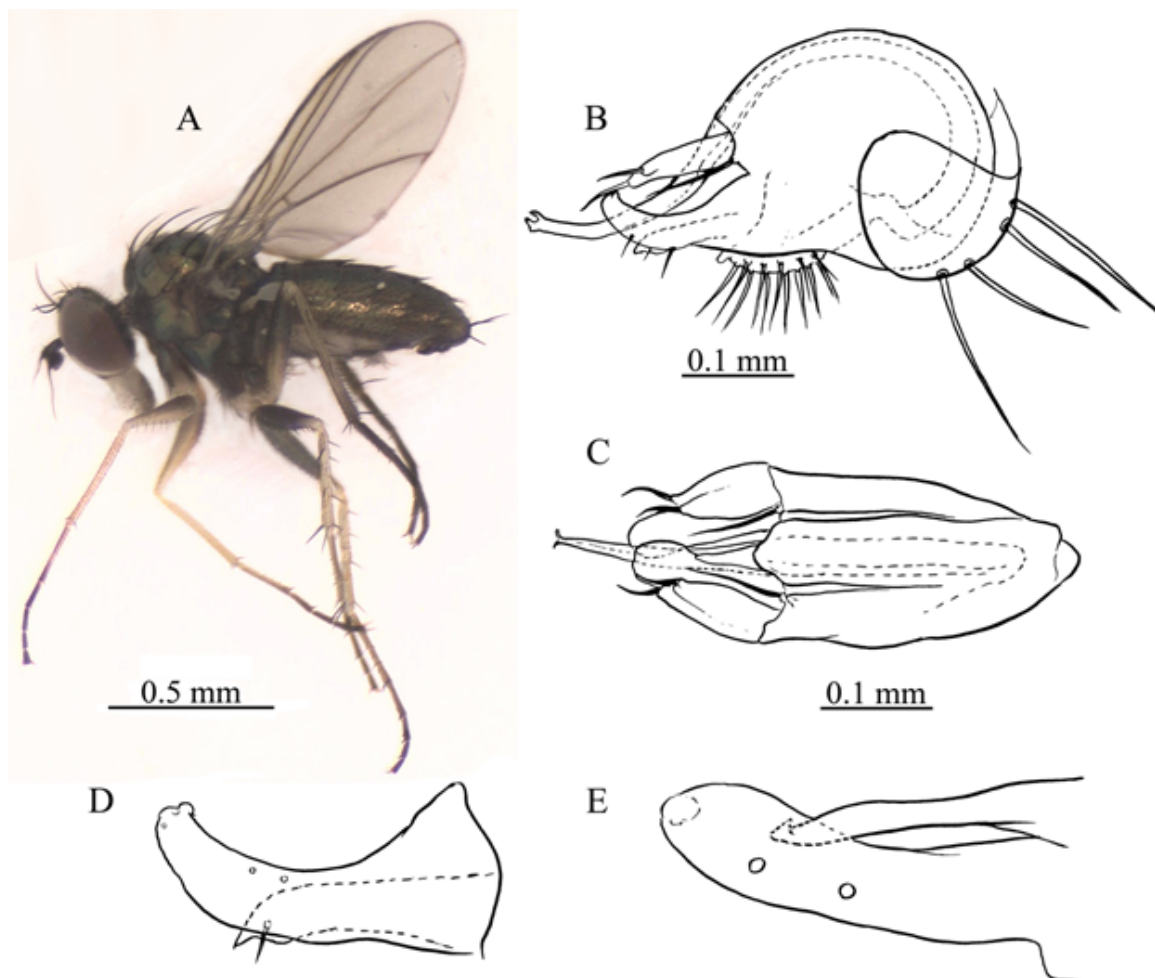


Fig. 2. *Asyndetus bykovskiy* sp. n. Designations: A – male, habitus, lateral view; B – hypopygium, lateral view; C – hypopygium, ventral view; D – surstylus, ventral view; E – surstylus, lateral view.

Thorax dark metallic green, mesonotum with violet hue, pleura with dense grey pruinosity, all thoracic setae black. Propleura with one black seta. Four pairs of strong long dorsocentral setae. Acrostichal setae very short, located in two rows. Scutellum with two long and two short marginal bristles.

Legs. Coxae metallic green, with black hairs, distal end of fore and mid coxae yellow. All trochanters yellow. Fore femur yellow, darkened on dorsal side and at base. Mid femur metallic green with narrow yellow tip. Hind femora yellow in the main half, in the apical half black, apex narrowly yellow. All tibiae and most tarsomeres yellow, the last tarsomere darkened. Fore femur is with long anteroventral hairs along entire length of femur, which in the apical part of the femur are longer than its width. Fore tibia without strong setae. Pulvilli on fore tarsus large, white, longer than length of 5th tarsomere of fore legs. 1st, 2nd and 3rd tarsomeres of fore legs at the apex with 1 sturdy ventral seta. Ratio of length of fore tibia and tarsomeres (from 1st to 5th): 3.1 : 1.9 : 0.8 : 0.6 : 0.4 : 0.5. Mid femur with long anteroventral hairs, its length less than the width of femur. Middle tibia with two anterodorsal and 3–4 posterodorsal setae. Ratio of length of mid tibia and tarsomeres (from 1st to 5th): 4.3 : 2.3 : 1.2 : 0.8 : 0.6 : 0.5. Hind femora with long anteroventral hairs along the entire length which longer than the width of the femur. Hind tibiae with two anterodorsal and four posterodorsal seta. Hind basitarsus with short ventral hairs. Ratio of length of hind tibia and tarsomeres (from 1st to 5th): 4.1 : 1.5 : 1.1 : 0.7 : 0.5 : 0.5. Fore and mid tarsi without claws, hind tarsus with one claw.

- Femora mostly green. Apical part M₁ is located at the tip of the wing *Asyndetus chaetifemoratus* Parent, 1925.
- Most of the fore femur and basal part of hind femur yellow. Apical part of M₁ located closer to the rear of the wing tip *Asyndetus bykovskyi* sp. n.

For the territory of Russia, only five species of *Asyndetus* are known: *A. latifrons*, *A. longicornis*, *A. chaetifemoratus*, and *A. albipalpus* from the European part, and *A. diaphoriformis* from Primorye.

Key to males of the genus *Asyndetus* of Russia

1. Posterior cross-vein (dm-cu) absent. Legs and palpus yellow *Asyndetus longicornis* Negrobov, 1973 (Fig. 3).
- Posterior cross-vein (dm-cu) present 2
2. Apical part of M₁ clearly broken. Hind femur without long hairs. Legs black. Palpus dark *Asyndetus diaphoriformis* Negrobov et Shamshev, 1986.
- Apical part of M₁ slightly bent, not broken 3
3. All femora with long ventral hairs *Asyndetus chaetifemoratus* Parent, 1925.
- Fore femur without long ventral hairs 4
4. Hind femur in apical third with a group of strong ventral black setae *Asyndetus albipalpus* Loew, 1871.
- Hind femur without ventral setae 5
5. Legs black. Palpus dark. Hind femur without long hairs *Asyndetus latifrons* (Loew, 1857).
- Tibiae, most of the fore femur and the basal part of the hind femur yellow. Palpus white. Hind femur with long anteroventral hairs, whose length is greater than the width of the femur *Asyndetus bykovskyi* sp. n.

Wing hyaline. Ratio of costal section between R₂₊₃ and R₄₊₅ to that between R₄₊₅ and M₁ – 3.7 : 6.5. M₁ not broken. Ratio of length apical and basal part of M₁ – 4.4 : 12.6. Posterior cross-vein (dm-cu) located basal to the site of fusion of the costal and subcostal veins. Ratio of posterior cross-vein to apical part of CuA₁, 1.5 : 24.8. Anal angle obtuse. Halter yellow. Calypter with white cilia.

Abdomen bright metallic green with violet hue, with black setae and hairs. Sternites of abdomen brown. 8th abdominal segment with four strong black setae and black hairs. Epandrium oval, its length approximately equal to width of epandrium. Dorsal lobe of surstylus long, its length shorter than length of epandrium, curved ventrally, at apex oval, with a slight ventral process at apex. Apicoventral lobe of epandrium narrow with two long setae at apex and in front of apex. Phallus curved, on top with hook-shaped dorsal process. Cercus oval with long bristles.

Female differs from male in the absence of long pulvilli on fore tarsus.

Length: Body: 1.2–1.4 mm; wing: 1.3–1.5 mm.

Etymology. The species is named in honour of Sergey Bykovsky, a student of Voronezh University, who collected this species.

Comparative notes

According to the key of the Palaearctic species (Negrobov, 1973), the new species runs to *Asyndetus chaetifemoratus*, and can be distinguished from the latter by a number of characters, including the morphology of the hypopygium.

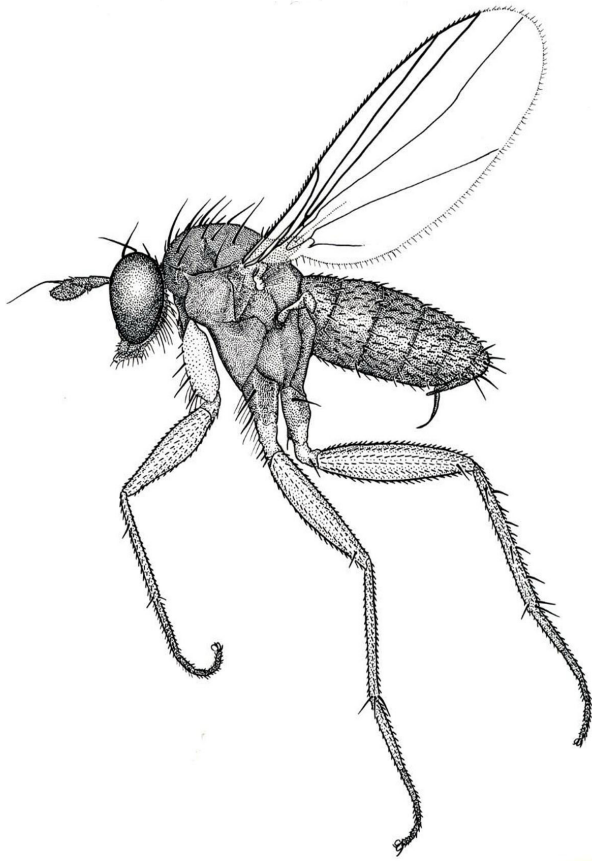


Fig. 3. *Asyndetus longicornis* Negrobov, 1973, habitus male.

Acknowledgments

The authors are deeply grateful to Dr. Martin Drake (England, The Society for the study of flies (Diptera)) for English-language editing. The authors are grateful to Kirill V. Litvinov (Deputy Director for Science in the Astrakhan State Nature Biosphere Reserve, Russia) for student assistance in field work.

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**НОВЫЙ ВИД *ASYNDETUS* (DOLICHOPRODIDAE, DIPTERA)
ИЗ АСТРАХАНСКОГО ГОСУДАРСТВЕННОГО
БИОСФЕРНОГО ЗАПОВЕДНИКА (РОССИЯ)**

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Описан новый вид *Asyndetus bykovskiy* sp. n. из Астраханского государственного биосферного заповедника (Россия). Этот вид отличается от *Asyndetus chaetifemoratus* по строению гипопигия, частично желтыми бедрами и положением жилки апикального отдела M_1 у вершины крыла.

Ключевые слова: Восточная Европа, мухи-зеленушки, ООПТ, Палеарктика, систематика, фауна