

Diversity of Long-Legged Flies (Diptera: Dolichopodidae) along the Banks of the Omurovska River (Bulgaria), with the Description of a New Species of the Genus *Teuchophorus* Loew

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Abstract: The present work provides information on the diversity of the family Dolichopodidae along the banks of the Omurovska River, a site included in the network Natura 2000. In total, 28 dolichopodid species were recorded. *Teuchophorus medovoensis* sp. n. is described and an amended version of the identification key to the Palearctic species of this genus is provided. Two species, *Sciapus wiedemanni* and *Syntormon triangulipes*, are recorded for the first time for the fauna of Bulgaria.

Key words: Dolichopodidae, Bulgaria, fauna, diversity, new species

Introduction

The history of the surveys of dolichopodids in Bulgaria was briefly described by KECHEV (2005) and summarised by KECHEV (2011) in the revised checklist of 150 species of 36 genera recorded in this country. Later, BESCHOVSKI (2012, 2013), KECHEV (2012a, b) and NEGROBOV, KECHEV (2012) added six further species to the Bulgarian fauna. The present paper gives information about the distribution of dolichopodid species along the banks of the Omurovska River, which is included in the network Natura 2000.

Materials and Methods

The Omurovska River (Fig. 1) rises in the Sarnena Sredna Gora Mountain, 1 km northeast of the Chakalova Poliana Peak, 820 m a.s.l. The total length of the river is 58 km. It flows southwards in the western and southwestern Chirpan Heights in a narrow valley, where several villages are situated.

Two main tributaries converge (the Suha River is the right tributary, and the Starata River is the left tributary) near the villages of Malak Dol and Golyam Dol, where the actual Omurovska River begins. At the Partizanin village, the river enters the Upper Thracian Plain. In the plain, the river becomes wider and shallower. It flows into the Maritsa River (120 m a.s.l.), 600 m to the south of the Krusevo village, Municipality of Parvomay.

The insects were collected by means of sweeping and put in vials containing 95% ethanol. The flies were gathered during one-hour trips. The samples were sorted in the laboratory by using stereomicroscope.

The faunistic list gives the following information: place and date of collecting, number of specimens (males, females), name of collector and general distribution. The distribution part of the list includes the adjacent countries and notes on the general distribution for each species after GRICHANOV

(2007) and GRICHANOV's online database DoliBank (available from <http://dolicho.narod.ru/Genera3.htm>). Some pictures were taken in the most attended localities and inserted in the map.

The material was stored in alcohol in the first author's personal collection at the Department of Technology at the University of Agribusiness and Rural Development.

Results

Faunistic List

DIAPHORINAE Schiner, 1864

Argyra leucocephala (Meigen, 1824)

Material examined: Plodovitovo village, 08.06.2011, 1 male; Gorno Belevo village, 06.09.2012, 1 male, 18.06.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Krasnodar, St. Petersburg, Moscow, Pskov, Ryazan, Voronezh, Yaroslavl, Urals), Turkey, Ukraine (Chernovtsy, Crimea, Kharkiv); Iran, Israel; Tunisia.

Asyndetus latifrons (Loew, 1857)

Material examined: Gorno Belevo village, 30.08.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Krasnodar, St. Petersburg, N Osetia-Alania, Samara, Voronezh, S Ural), N Kazakhstan, Syria, Turkey; Afrotropical: DR Congo, Gabon, Kenya; Oriental: Bangladesh, China, India, Pakistan, Philippines, Thailand.

DOLICHOPODINAE Latreille, 1809

Dolichopus griseipennis Stannius, 1831

Material examined: Medovo village, 21.06.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Krasnodar, Moscow), Turkey; Iran, Israel, N Kazakhstan; Algeria, Morocco, Tunisia.

Dolichopus discifer Stannius, 1831

=*Dolichopus patellatus* Meigen, 1824 (nec Fallén, 1823)

=*Dolichopus nigricornis* Becker, 1917; Parent, 1925, et auctt. (misident., nec Meigen, 1824)

Material examined: Medovo village, 21.06.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Karelia, Komi, St. Petersburg, Moscow, Murmansk, Novgorod, Vologda, Altai, Baikal, Khantia-Mansia, Khabarovsk, Sakhalin, Primorskii Territory), Ukraine (Kharkiv); N Kazakhstan; Nearctic: Alaska, British Columbia to Quebec and Nova Scotia, southward to Colorado and New York.

Remarks: The name *Dolichopus nigricornis* is still used by some European authors instead of *D. discifer*. Nevertheless, on comparing the original descriptions of *D. patellatus* Meigen, 1824 (considered now a synonym of *D. discifer*) and *D. nigricornis* Meigen, 1824, we can find that *D. patellatus* was described by MEIGEN (1824) with the fore tarsus long and thin, yellow, and the last segment scutiform, black whereas *D. nigricornis* (male) was described in the same work with the fore tarsus red-yellow and with brownish apex (*i.e.* simple on default). Therefore, in support of an opinion (COLLIN, 1940) on the correct use of *D. discifer* as a valid name, we cannot consider *D. discifer* to be a synonym of *D. nigricornis* Meigen. Thus, the name *D. nigricornis* Meigen belongs to an unrecognised species of either *Dolichopus* or *Hercostomus*. It is also worth noting that PARENT (1925) did not confirm the above-mentioned synonymy, because he studied non-type material of MEIGEN in Paris, while MEIGEN described his *D. nigricornis* from the MEGERLE collection that should be deposited in Vienna. Therefore, here we exclude *D. nigricornis* Meigen from the Bulgarian fauna, inserting there *D. discifer* instead.

Dolichopus signifer Haliday, 1838

Material examined: Gorno Belevo village, 21.08.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Kabardino-Balkaria, Krasnodar, Rostov, Voronezh), Ukraine (Crimea, Odessa); Afghanistan, Kazakhstan, Tajikistan, Turkmenistan, Turkey, Uzbekistan; Morocco.

Hercostomus gracilis (Stannius, 1831)

= *Hercostomus bicolor* Schiner, 1862, et alii auctt. (misident., nec Macquart, 1827)

Material examined: Gorno Belevo village, 16.08.2013, 7 males, 1 female; Bratya Daskalovi village, 25.08.2013, 5 males, 2 females, leg. Kechev.

Distribution: all Europe, Russia (Blagoveshchensk, Buryatia, Dagestan, Kabardino-Balkaria, Krasnodar, Krasnoyarsk, Omsk, Samara, Yakutia), Ukraine (Crimea, Poltava); Iran, N Kazakhstan, Mongolia.

Remarks: The species was formerly included in the Bulgarian checklists as *Hercostomus bicolor* Macquart, 1827.

Poecilobothrus chrysozygos (Wiedemann, 1817)

Material examined: Gorno Belevo village, 18.06.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Karachai-Cherkessia, Krasnodar, Lipetsk, Mordovia, Moscow, Voronezh, Ural, Khabarovsk),

Turkey, Ukraine (Kharkiv, Kherson, Odessa); Iran, Kazakhstan.

***Poecilobothrus regalis* (Meigen, 1824)**

Material examined: Plodovitovo village, 08.06.2011, 21 males, 14 females; Medovo village, 21.06.2012, 5 males; Gorno Belevovo village, 06.09.2012, 1 male, 30.05.2013, 2 males; Cherna Gora village, 28.06.2013, 34 males, 21 females, leg. Kechev.

Distribution: Europe, S Russia (Kabardino-Balkaria, Krasnodar, Lipetsk, Voronezh, Rostov, Stavropol), Turkey, Ukraine (Crimea, Kherson, Odessa); Iran, Uzbekistan.

***Sybistroma impar* (Rondani, 1843)**

Material examined: Gorno Belevovo village, 21.08.2012, 2 male, 3 females; 30.08.2012, 3 females; Bratya Daskalovi village, 25.08.2013, 7 males, 15 females, leg. Kechev.

Distribution: Bulgaria, Greece, Hungary, Israel, Italy, Romania, S Russia (Krasnodar), Turkey.

***Tachytrechus notatus* (Stannius, 1831)**

Material examined: Gorno Belevovo, 06.09.2012, 1 male, leg. Kechev.

Distribution: all Europe, S Russia (Kabardino-Balkaria, Krasnodar), Russia (Yakutia), Ukraine (Crimea); Iran, Israel, Syria, Turkey, Turkmenistan; Morocco.

PELOROPEODINAE Robinson, 1970

***Chrysotimus molliculus* (Fallén, 1823)**

Material examined: Medovo village, 31.07.2011, 2 males, 3 females; 21.06.2012, 1 male; Gorno Belevovo village, 18.06.2013, 3 males, 5 females, 16.08.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Karelia, Krasnodar, St. Petersburg, Moscow, Tula, Voronezh), Ukraine (Kharkiv, Kherson).

RHAPHIINAE Bigot, 1852

***Rhaphium auctum* Loew, 1857**

Material examined: Gorno Belevovo village, 16.08.2013, 3 males, leg. Kechev.

Distribution: all Europe, ?Russia, Ukraine (Ivano-Frankivsk); Afghanistan.

***Rhaphium caliginosum* Meigen, 1824**

Material examined: Gorno Belevovo village, 21.08.2012, 2 males, 1 female, 30.08.2012, 3 males, 1 female, 16.08.2013, 2 males, 06.09.2012, 2 males, 18.06.2013, 5 males, 3 females; Cherna Gora village, 28.06.2013, 2 males, 1 females; Bratya Daskalovi village, 25.08.2013, 1 male, 3 females, leg. Kechev.

Distribution: all Europe, S Russia (Adygea, Kabardino-Balkaria, Karachai-Cherkessia, Krasnodar, Rostov, Stavropol), N Russia (Kaliningrad, St. Petersburg, Pskov), ?E Russia,

Ukraine (Kherson, Odessa); Azerbaijan, Israel, Syria, Turkey; Algeria, Morocco.

***Rhaphium penicillatum* Loew, 1850**

Material examined: Cherna Gora village, 28.06.2012, 1 male; Gorno Belevovo village, 16.08.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Krasnodar, St. Petersburg, Voronezh).

SCIAPODINAE Becker, 1917

***Sciapus platypterus* (Fabricius, 1805)**

Material examined: Gorno Belevovo village, 16.08.2013, 2 females, leg. Kechev.

Distribution: all Europe, Russia (St. Petersburg, Moscow, Pskov, Ryazan, Tatarstan, Voronezh), Ukraine (Cherkasy, Kharkiv, Ternopil).

***Sciapus wiedemanni* (Fallén, 1823)**

Material examined: Gorno Belevovo village, 30.08.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (St. Petersburg, Voronezh), Ukraine (Kharkiv); Nearctic: Canada (Ontario), USA (Washington). **NEW TO BULGARIA.**

SYMPYCNINAE Aldrich, 1905

***Campsicnemus curvipes* (Fallén, 1823)**

Material examined: Cherna Gora village, 16.05.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Alania, Dagestan, Kabardino-Balkaria, Kaluga, Karelia, Karachai-Cherkessia, Stavropol, Krasnodar, Krasnoyarsk, St. Petersburg, Moscow, Pskov, Ryazan), Turkey, Ukraine (Crimea, Odessa); Algeria, Morocco.

***Campsicnemus simplicissimus* Strobl, 1906**

Material examined: Gorno Belevovo village, 30.04.2013, 3 males, 8 females, 18.06.2013, 2 males; Partizanin village, 07.05.2013, 1 female, 30.05.2013, 2 males, leg. Kechev.

Distribution: Europe, Russia (Karachai-Cherkessia, Krasnodar, Rostov); Israel, Tajikistan, Turkey.

***Lamprochromus strobli* Parent, 1925**

Material examined: Gorno Belevovo village, 21.08.2012, 3 males, 4 females; 30.08.2012, 3 males; 06.09.2012, 2 males, 16.08.2013, 1 male; Cherna Gora, 16.05.2013, 1 male; Bratya Daskalovi village, 25.08.2013, 2 males, leg. Kechev.

Distribution: all Europe, Russia (Pskov).

***Sympycnus pulicarius* (Fallén, 1823)**

= *Sympycnus annolipes* (Meigen, 1824)

= *Sympycnus desoutteri* Parent, 1925

Material examined: Bratya Daskalovi village, 25.08.2013, 2 males, leg. Kechev.

Distribution: all Europe, Russia (Alania, Kabardino-Balkaria, Karachai-Cherkessia, Stavropol, Karelia, St. Petersburg, Murmansk,

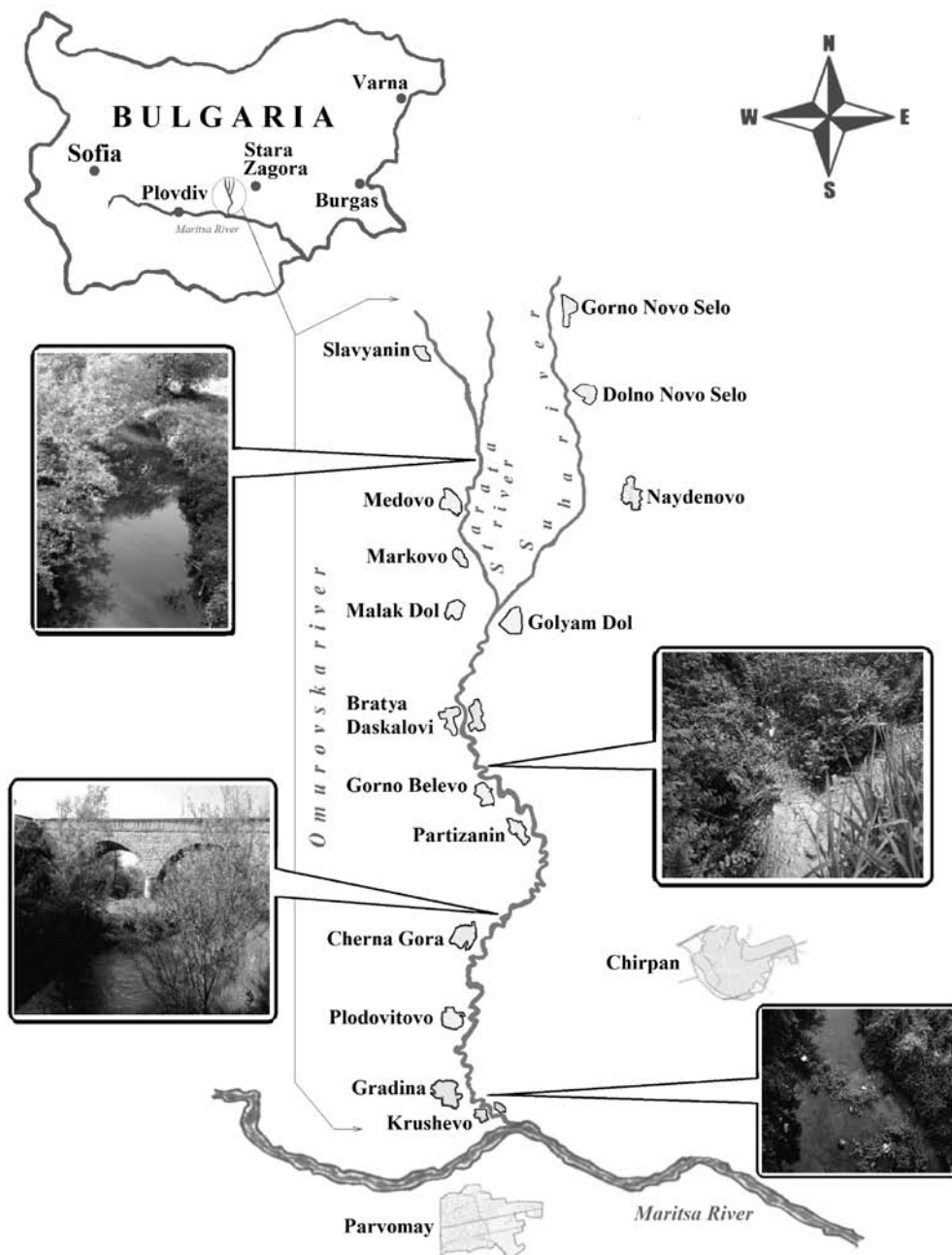


Fig.1. Map of the investigated river

Novgorod and Pskov), Turkey, Ukraine (Crimea, Kherson); Kazakhstan; Nearctic: California.

***Syntormon filiger* Verrall 1912**

Material examined: Partizanin village, 07.05.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Astrakhan, Rostov, ?Novosibirsk), Ukraine (Crimea); Kazakhstan (Astana, Kostanay), Mongolia.

***Syntormon pallipes* (Fabricius, 1794)**

Material examined: Gorno Belevo village, 30.04.2013, 1, male, 1 female; 18.06.2013, 2 males, leg. Kechev.

Distribution: all Europe, Russia (Adygea,

Alania, Kabardino-Balkaria, Karachai-Cherkessia, Krasnodar, St. Petersburg, Murmansk, Rostov and Voronezh), Ukraine (Crimea, Kherson and Odessa); Afghanistan, China, Iran, Iraq, Israel, Kyrgyzstan, Tajikistan, Turkey, Uzbekistan; Algeria, Egypt, Morocco, Tunisia; Oriental: China; Afrotropics: Madagascar, Tanzania, Yemen, St Helena.

***Syntormon denticulatus* (Zetterstedt, 1843)**

=*Syntormon pumilus* Parent, 1925, et auctt. (misident., nec Meigen, 1824)

Material examined: Gorno Belevo village, 11.08.2011, 5 males, 4 females; 06.09.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Alania, Kabardino-Balkaria, Karelia, St. Petersburg, Moscow, Murmansk, Stavropol'), Ukraine (Crimea); Afghanistan, Israel, Kyrgyzstan, Tajikistan, Turkey; North Africa.

Remarks: The species was formerly included in the Bulgarian checklists as *Syntormon pumilus* Meigen, 1824.

***Syntormon triangulipes* Becker, 1902**

Material examined: Cherna Gora village, 30.05.2013, 1 male, 1 female, leg. Kechev.

Distribution: Azerbaijan, Egypt, France, Russia (Krasnodar), Spain, Tajikistan. **NEW TO BULGARIA.**

***Teuchophorus medovoensis* sp. n. (Figs. 2-4b).**

Type material. Holotype: 1 male, BULGARIA, Medovo village, 21.IV.2012, leg. Kechev. Type material to be deposited in the Entomological Collection of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia, Bulgaria.

Diagnosis. *Teuchophorus medovoensis* sp. n. is close to *T. nigricosta* (von Roser, 1840) and *T. ussurianus* Negrobov, Grichanov et Shamshev, 1984. It differs from *T. ussurianus* in the number of bristles on hind tibia, and from *T. nigricosta* in the lack of branched process on hind tibia.

Description

Male. Length (mm): body 1.7. **Head.** Face with shining bluish green ground colour, distinctly narrowing towards clypeus, not reaching lower eye margin; frons shining dark blue. Occiput convex, with metallic green colour. Two pairs of postvertical bristles, equal in size to postoculars. Vertical bristles strong, inclined, inserted at level of posterior edge of ocellar tubercle. Antenna short, black, postpedicel at apex yellow, rounded, pubescent. Scape bare, pedicel with distal ring of setae. Arista dorsal, pubescent, about six times as long as postpedicel. Palpus small, dark pubescent, with one strong bristle. Proboscis small, brown.

Thorax. Mesonotum and scutellum dorsally shining dark green. Six pairs of dorsocentrals. Pleura pale brown. No propleural bristles. Scutellum with pair of bristles.

Wings transparent, with brown veins and distinct costal stigma distad of R₁. Halteres yellow. Wing length 1.9-2.0 mm.

Legs. All legs including coxae and tarsi yellow. Fore coxa pubescent. Fore femur and tibia simple, without strong bristles. Fore basitarsus with a row of four strong ventral bristles in basal half (Fig. 2a), bristles longer than tarsomere diameter. Length ratio

of fore leg: 0.52/0.50/0.27/0.22/0.06/0.04/0.05. Mid femur with three or four basoventral bristles at basal 1/4, at least as long as femur diameter; one anterior preapical bristle. Mid tibia with one anterodorsal and one posterodorsal bristle at basal 1/3, one anterodorsal bristle at apical third, with 2 strong and long ventral bristles at apical 1/3; two preapical bristles. Length ratio of mid leg: 0.58/0.56/0.34/0.19/0.11/0.07/0.07. Hind coxa with dark brown bristle. Hind femur (Fig. 4) brown on apical 1/3, dorsally with a row of fine bristles. Hind tibia thin on basal half, slightly swollen on apical half, at middle with anterodorsal comb of seven strong and blunt bristles; four equal-sized bristles, with visible distance between first and second pairs, one smaller and two longer bristles; with three to five long, thin and tapering bristles distad of comb (Fig. 4a); parallel with the comb an anteroventral row of 4-5 small, black and tapering bristles (Fig. 4b); long ventral spur at about apical 1/3, 2.5 times longer than tibia diameter. Length ratio of hind leg: 0.62/0.62/0.27/0.25/0.18/0.09/0.07.

Abdomen dorsally metallic dark green, laterally brownish, abdominal sternites 2 and 3 yellow; all 6 sternites with small black bristles. *Hypopygium* small, dark, cerci small, brown, with short pale hairs.

Etymology. The species name refers to Medovo village, where the holotype was found.

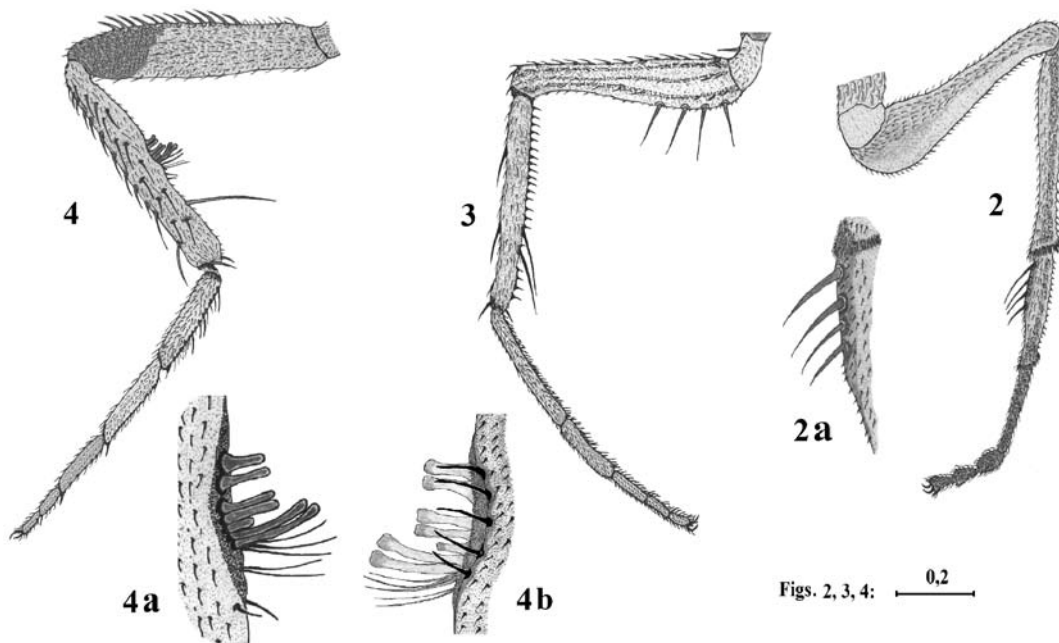
Female. Unknown.

Differential diagnosis. The new species can be distinguished from the closest species by use of the following key:

1. Postpedicel at apex yellow. Hind tibia with anterodorsal comb of strong 4 equal-sized bristles, 1 smaller and 2 longest bristles. Behind the comb 3-5 thin bristles; parallel with the comb 4-5 anteroventral bristles (Figs. 4a and 4b); *Teuchophorus medovoensis* Kechev, Negrobov et Grichanov, sp. n.
- Postpedicel black.....2
2. Hind tibia with comb of 3 equal-sized and 1 longish blunt bristles and 1 shorter acute bristle; Mid femur at base with 2 strong bristles *Teuchophorus ussurianus* Negrobov, Grichanov et Shamshev
- Hind tibia with comb of 5 equal-sized blunt bristles in addition to longer bifurcate blunt bristle and distinctly longer branched process; Mid femur at base with 4 strong bristles *T. nigricosta* (von Roser)

***Teuchophorus monacanthus* Loew, 1859**

Material examined: Gorno Belevo village,



Figs. 2 – 4. *Teuchophorus medovoensis* sp. n. **Fig. 2.** Fore leg. **Fig. 2a.** Bristles on fore basitarsus. **Fig. 3.** Middle leg. **Fig. 4.** Hind leg. **Fig. 4a.** Bristles on hind tibia – dorsal view. **Fig. 4b.** Bristles on hind tibia – ventral view (thick anterodorsal bristles are given pale for better view of smaller anteroventral bristles). Scale bar: 0.2 mm

11.08.2011, 2 males; 21.08.2012, 5 males, 4 females; 30.08.2012, 3 males, 2 females; Cherna Gora village, 29.07.2013, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Kabardino-Balkaria, Krasnodar, St. Petersburg, Lipetsk, Murmansk, Stavropol, Voronezh); Azerbaijan, Iraq, Israel, Turkey, “Middle Asia”.

***Teuchophorus spinigerellus* (Zetterstedt, 1843)**

Material examined: Gorno Beleva village, 30.08.2012, 3 males, 1 female, 16.08.2013, 1 male, 1 female; Bratya Daskalovi village, 25.08.2013, 1 female, leg. Kechev.

Distribution: all Europe, Russia (Adygea, Kabardino-Balkaria, Kaluga, Krasnodar, St. Petersburg, Pskov, Stavropol, Vologda); S Kazakhstan, Turkey; Egypt.

XANTHOCHLORINAE Loew, 1857

***Xanthochlorus tenellus* (Wiedemann, 1817)**

Material examined: Medovo village, 21.06.2012, 1 male, leg. Kechev.

Distribution: all Europe, Russia (Lipetsk, Moscow, Samara, Voronezh), N Russia: (Karelia, St. Petersburg, Murmansk, Pskov), S Russia (Adygea, Karachai-Cherkessia, Krasnodar), Ukraine (Cherkasy, Crimea, Kherson, Kiev, Lviv, Ternopil, Uzhhorod); Morocco.

Discussion

The majority of the Omurovska River banks borders

on agricultural lands, *i.e.* open biotopes with grass and small shrubs. Sparse deciduous trees provide canopy to fragmented spots of the river banks only. Dominant trees species are: *Robinia pseudoacacia* L., *Salix alba* L., *Fraxinus* sp., and *Quercus* sp.; there are fragmented spots of poplar plantations (*Populus* sp.), *Prunus cerasifera* Ehrh., and *Ailanthus altissima* (Miller) Swingle.

The genus *Teuchophorus* Loew accommodates small flies (1.5-3 mm), which prefer humid habitats along various water reservoirs. Due to discovery of many new species, this genus has received a great deal of attention. NEGROBOV *et al.* (1984) keyed 13 Palaearctic species. Then several new species were described from the Mediterranean Region: MEUFFELS, GROOTAERT (1990) described *T. cristulatus* from Sicily, GROOTAERT *et al.* (1995) found *T. samraouii* in Algeria. After the discovery of *T. chaetifemoratus* in Bulgaria, POLLET, KECHEV (2007) reviewed the genus, doubted the generic position of *T. tenuemarginatus* and keyed 16 species (with the exception of Chinese species). In 2009, NAGLIS discovered a new species *T. quadrisetosus* from north-eastern Turkey. GRICHANOV *et al.* (2012) made the most recent revision of the genus, described *T. israelensis*, revised the status of some species and keyed 21 species including East Palaearctic *T. nigrescens* and *T. sinensis* reported by YANG, SAIGUSA (2000) and *T. tianmushanus* described by YANG (2002).

T. medovoensis sp. n., which was collected in humid and cool habitat with slowly running or stagnant water, canopied by deciduous trees, shows the same habitat affinity like most other Palaearctic *Teuchophorus* species.

The present paper adds three species to the Bulgarian dolichopodid checklist, hereby increasing the total number to 168 species.

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