

New data on the genera *Allanthalia* Melander, *Chvalaea* Papp et Földvári and *Leptodromiella* Tuomikoski (Diptera: Hybotidae) from the Palaearctic

Новые сведения о родах *Allanthalia* Melander, *Chvalaea* Papp et Földvári и *Leptodromiella* Tuomikoski (Diptera: Hybotidae) Палеарктики

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КЛЮЧЕВЫЕ СЛОВА: Diptera, Hybotidae, новый синоним, распространение, Палеарктика.

ABSTRACT. New data on distribution in the Palaearctic Region for three species of flies of the family Hybotidae are provided. *Allanthalia pallida* (Zetterstedt, 1838) is recorded for the first time from Yakutia (Eastern Siberia) and *Leptodromiella crassiseta* (Tuomikoski, 1932) — from the Russian Far East (Amurskaya Province). The following new synonym is proposed: *Chvalaea rugosiventris* (Strobl, 1910) = *Chvalaea sopiana* Papp et Földvári, 2002, **syn.n.** *Chvalaea rugosiventris* is recorded for the first time from Eastern Siberia (Krasnoyarskiy Territory) and from the Russian Far East (Primorskiy Territory). The latter species is re-described and illustrated. All distributional data on these species are mapped.

РЕЗЮМЕ. Представлены новые сведения о видах трех редких в Палеарктике родов мух семейства Hybotidae. *Allanthalia pallida* (Zetterstedt, 1838) впервые указывается из Якутии (Восточная Сибирь), а *Leptodromiella crassiseta* (Туомикоски, 1932) — с Дальнего Востока России (Амурская область). Обоснован новый синоним: *Chvalaea rugosiventris* (Strobl, 1910) = *Chvalaea sopiana* Papp et Földvári, 2002, **syn.n.** *Chvalaea rugosiventris* указывается впервые из Восточной Сибири (Красноярский край) и с Дальнего Востока России (Приморский край), вид переописан, даны его фотографии. Все данные о распространении перечисленных видов нанесены на карту.

Introduction

The Hybotidae are quite well studied taxonomically in Europe, but zoogeographical data are misleading in many cases due to insufficient knowledge of these flies

from eastern parts of the Palaearctic Region [Shamshev, 2016].

Our paper reports new records of three rare hybotid genera — *Allanthalia* Melander, 1928, *Chvalaea* Papp et Földvári, 2001 and *Leptodromiella* Tuomikoski, 1936. *Allanthalia* is known from the Holarctic realm with 1 described species from the Palaearctic and 1 undescribed species from the Nearctic, *Leptodromiella* is restricted to the Palaearctic only with 1 described species from Europe and at least 1 undescribed species from Japan [Chvála, 1983; B.J. Sinclair, personal communication]. *Chvalaea* currently includes six species distributed in the Palaearctic (1) and Neotropics (5). In addition, an unclear species is present in Japan [B.J. Sinclair, personal communication] and undescribed species are known from the Oriental and Australasian Regions [Sinclair, Cumming, 2000 (as undescribed genus B); Ale-Rocha, 2006; Kahanpää, 2013; our unpublished materials from Malaysia (Pahang) and Tasmania]. *Allanthalia* is classified in the subfamily Oedaleinae, whereas *Chvalaea* and *Leptodromiella* are assigned to Ocydromiinae [Sinclair, Cumming, 2000, 2006].

This study is based on Hybotidae material housed in the Hungarian Natural History Museum, Budapest (HNHM), Swedish Museum of Natural History (SMNH), Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia (ZIN) and Zoological Museum of Moscow State University, Moscow, Russia (ZMMU). Dried pinned (HNHM, ZIN, ZMMU) and alcohol preserved (SMNH) specimens were examined. To facilitate observations, the terminalia were macerated in cold 10% KOH, then put for a short period in 85% lactic acid and immersed in glycerine. Terms used for adult structures primarily follow those summarised by Cumming et Wood [2009]. Habitus photos were produced using a Canon

EOS 7D with Canon 100 mm macrolens (Canon Inc.) connected to a motorized StackShot™ (Cognisys Inc.) automated focus rail (in SMNH). Photos of genitalia were produced or using Nikon d7100 + Mitutoyo M Plan Apo5X / 0.14 objective (in HNHM), or with manual focus stacking, using a Nikon DS-Fi1 camera attached to a Nikon Eclipse 80i microscope (Nikon Corp.) (in SMNH). Both habitus and genitalia photos were aligned and stacked in Zerene Stacker 1.04 (Zerene Systems LLC).

Taxonomic account

Class Insecta Linnaeus, 1758
Order Diptera Linnaeus, 1758
Suborder Brachycera Macquart, 1834
Superfamily Empidoidea Latreille, 1804
Family Hybotidae Meigen, 1820

Genus *Allanthalia* Melander, 1928

Type species: *Anthalia pallida* Zetterstedt, 1838 (by original designation).

Allanthalia pallida (Zetterstedt, 1838)

Fig. 14.

MATERIAL EXAMINED. **RUSSIA:** 1 ♀, **Yakutia**, Indigirka River, mouth of In'yali River [~65°15'N 143°09'E] (ZMMU). **SWEDEN:** Hs. Hudiksvalls kommun, Stensjön-Lomtjärn, Stensjön, marsh pine forest close to bog, 62.140333, 16.286100 (=Trap ID 43), 2005.vi.15–2005.vi.29 (=coll. event ID 1907), Leg. Swedish Malaise Trap Project (SMNH), *Allanthalia pallida*; Up. Älvkarleby kommun, Båtfors, pine forest with blueberry, 60.46065, 17.317817 (=trap ID 7), 2004.vi.27–2004.vii.01 (=coll. event ID 858), Leg. Swedish Malaise Trap Project (SMNH), *Allanthalia pallida* (SMNH).

DISTRIBUTION. PALAEARCTIC. Europe: Austria, Czech Republic, Finland, Germany, Norway, Russia (Karelia, Murmanskaya Province, Yakutia), Slovakia, Sweden, Switzerland. Type locality: Lycksele lappmark ("Lapponia Umensi, Lycksele") (Sweden).

REMARKS. *Allanthalia pallida* is recorded here for the first time from Yakutia (Eastern Siberia of Russia). Also, we provide here two additional records from Sweden where this species has been known after single locality [Chvála, 1983].

Genus *Chvalaeva* Papp et Földvári, 2002

Type species: *Leptopeza rugosiventris* Strobl, 1910 (by original designation).

Chvalaeva rugosiventris (Strobl, 1910)

Figs 1–11, 14.

Leptopeza rugosiventris Strobl, 1910: 73 (♀ — mistake, actually ♂). Type locality: Forest of Kematen, near Admont ("Im Kematenwalde bei Admont") (Austria).

Chvalaeva sopianaeva Papp et Földvári, 2002: 356 (♀), Figs 11 (habitus), 12 (wing), 13 (antenna), 15 (abdominal segment 8). Type locality: Pécs, Melegmányi-völgy (Hungary), **syn. nov.**

Chvalaeva rugosiventris: Papp et Földvári, 2002: 356 (♀ — mistake, actually ♂), Figs 14 (antenna), 16 (abdominal segment 8); Chvála, 2003: 173 (data on holotype).

Chvalaeva sopianaeva: Kahanpää, 2013: 592 (♀), Fig. 1 (habitus photo) [record from Finland]; Shamshev, 2016: 103 [records from Russia].

TYPE MATERIAL EXAMINED. *Chvalaeva sopianaeva* Papp et Földvári, 2002, Holotype ♀, label data as in Fig. 2 (HNHM).

ADDITIONAL MATERIAL EXAMINED. **HUNGARY:** 1 ♂, label data as in Fig. 1, *Chvalaeva rugosiventris* (Strobl) (HNHM).

RUSSIA: Krasnodarskiy Territory: 1 ♂, Lazarevskoe [43°54'49" N 39°19'53" E], broadleaf forest, 24.ix.1982, Gorodkov; 1 ♂, environs of Adler, 43.4789°N, 39.9067°E, 26.x.2009, D. Gavryushin. **Krasnoyarskiy Territory,** env. of Krasnoyarsk, Stolby Nature Reserve [55°53'N 92°46'E], 2nd Stolb, mixed forest, 600m, 18.viii.1972. **Primorskiy Territory:** 1 ♂, Sudzukhinskiy Nature Reserve [now Lozovskiy, 43°14'N 133°24'E], Ta-Chingouz, 5.ix.1948, Gussakovskiy; 1 ♂, same locality, 16.ix.1948, Gussakovskiy; 1 ♂, Yuzhnoe Primor'e, Kievka [42°54'20" N 133°42'06" E], 4.ix.1980, A. Shatalkin; 1 ♀, same locality, 7.ix.1980, A. Shatalkin; 1 ♂, GTS, E of Ussuriysk [43°41'37" N 132°09'09" E], 27.ix.1980, A. Shatalkin; 1 ♀, Primorskiy Territory, Kedrovaya Pad' Nature Reserve [43°06'18" N 131°30'45" E], 18.vii.1984, A. Shatalkin (ZMMU).

TAXONOMIC NOTES. Strobl [1910: 73] described *Leptopeza rugosiventris* after a single specimen and indicated mistakenly its sex as ♀ [Chvála, 2003]. Papp and Földvári [2002: 356] misinterpreted the sex (as ♀) of the only specimen of this species they recorded from Hungary. Actually, these authors re-described and illustrated the ♂ of *C. rugosiventris* for the first time (Fig. 3). In the same paper Papp and Földvári [2002: 356] described a second Palaearctic species, *Chvalaeva sopianaeva*. The sex of the holotype of *C. sopianaeva* was correctly recognised (♀) (Fig. 4). However, our material shows that features used by Papp and Földvári to distinguish *C. rugosiventris* and *C. sopianaeva* are sexually dimorphic characters and thus, *C. rugosiventris* and *C. sopianaeva* are ♂ and ♀ (respectively) of one species. Consequently, *Chvalaeva sopianaeva* Papp et Földvári, 2002 is proposed as a junior synonym of *Leptopeza rugosiventris* Strobl, 1910.

REMARKS. *Chvalaeva rugosiventris* is the only described species of the genus known from the Palaearctic Region. It has been known for a long time only from its type locality in Austria. Papp and Földvári [2002] recorded this species from Hungary. Recently, *C. rugosiventris* was reported after very few specimens from Finland [Kahanpää, 2013 (as *C. sopianaeva*)] and from Krasnodarskiy Territory and Karelia of Russia [Shamshev, 2016 (as *C. sopianaeva*)]. We provide here additional records of *C. rugosiventris* from Krasnodarskiy Territory of Russia and two new records of this species from Eastern Siberia (Krasnoyarskiy Territory) and the Russian Far East (Primorskiy Territory). Also, below we re-describe the ♂ of *C. rugosiventris*. The structure of segment 8 and ♂ terminalia of *C. rugosiventris* are very similar to Neotropical species and agreed in all details with generic diagnosis of the postabdomen given by Ale-Rocha [2006].

Label data suggest that *C. rugosiventris* is active over a long period from the middle of June (Finland, Hungary, Russian Far East) till the end of September (Black Sea coast of the Caucasus, Russian Far East), and occasionally even till the end of October (Black Sea coast of the Caucasus, Russia).

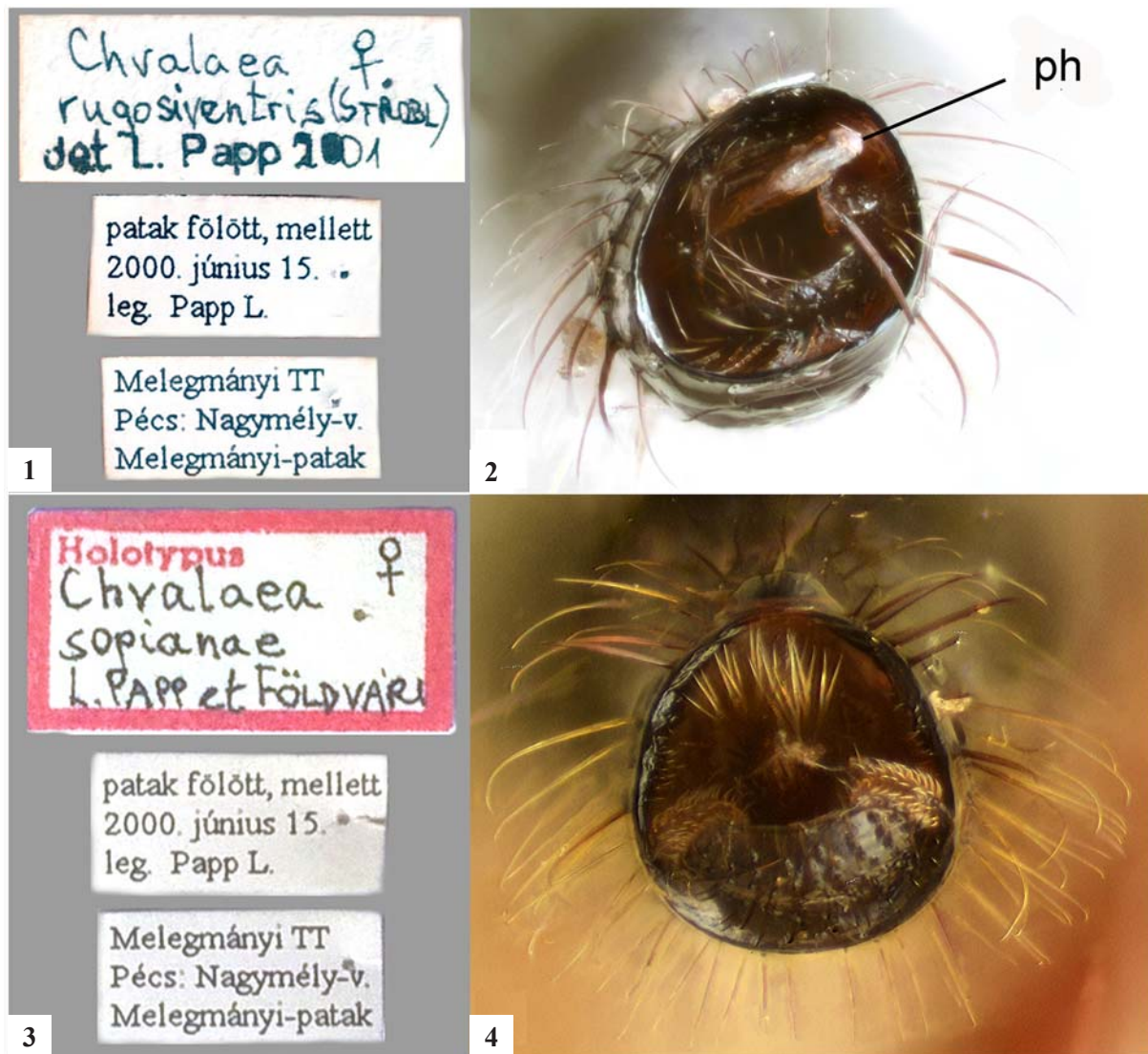
RE-DESCRIPTION. ♂ (Fig. 5). Head (Fig. 7) black. Occiput faintly greyish pollinose, with short pale hair-like setae. Ocellar tubercle with 2 minute proclinate pale setae. Frons very short, narrow, faintly greyish pollinose. Eyes meeting below antennae. Antenna inserted above middle of head; brown (basal segments sometimes slightly paler); pedicel with circlet of subequally short subapical setae; postpedicel long, narrow, about 5 times longer than wide, with bristle-like terminal bare arista. Palpus small, yellow.

Thorax entirely faintly tomentose; prothoracic sclerites brown but postpronotal lobe brownish yellow; scutum extensively brown only narrow lateral space and postalar tubercle brownish yellow; scutellum brown anteriorly and paler along margin (brownish yellow viewed posteriorly); metanotum large, convex, reddish brown anteriorly and brown posteriorly; pleura yellowish brown. Postpronotal lobe with several

minute setae. Mesonotum with 1 long black notopleural bristle, otherwise bearing minute setae, scutellum with 2 pairs of equally minute setae; acrostichals scattered, arranged in two broad rows, lacking on prescutellar depression; dorso-centrals uniserial, 2 prescutellar pairs somewhat longer.

Leg colouration: Fore coxa brown, mid coxa yellowish brown, hind coxa yellow. Femora yellow with some brownish tinge, hind femur more distinctly brownish yellow on about apical half dorsally; knees brown. Fore and mid tibiae yellow (fore tibia sometimes with brownish tinge), hind tibia extensively brown to yellowish brown, yellow near base. Fore and mid tarsi with tarsomeres 3–5 brownish, otherwise yellow; hind tarsus almost entirely brownish, only tarsomere 1 yellow near base. Hind femur somewhat thickened on about basal half; fore tibia somewhat thickened, convex on about basal half anteriorly; hind tibia thickened (except extreme base); Leg vestiture: Coxae and trochanters with numerous ordinary pale

setae of different lengths. Femora covered with thin mostly pale setae of different lengths, no strong black bristles or spines; fore and mid femora with short hair-like anteroventral and posteroventral setae, also, mid femur with 1 long subapical seta anteriorly; hind femur with anteroventral and posteroventral setae becoming longer and somewhat stronger toward apex (longest subapical setae about 1.5 times as long as width of femur). Fore tibia with some longer ventral and posteroventral setae toward apex; mid tibia with 1 long thin brownish antero-dorsal and 1 similar anteroventral seta on basal half; hind tibia clothed in short to moderately long, uniform thin setae. Fore tarsus covered with ordinary short setae; mid basitarsus with 1 long brownish posteroventral seta near base; hind tarsomeres 1–2 with numerous strong, rather long setae ventrally (Fig. 9), tarsomeres 3–5 with black ventral protuberances, tarsomere 4 with 2 black anterodorsal and posterodorsal subapical long spines; pulvilli lacking.



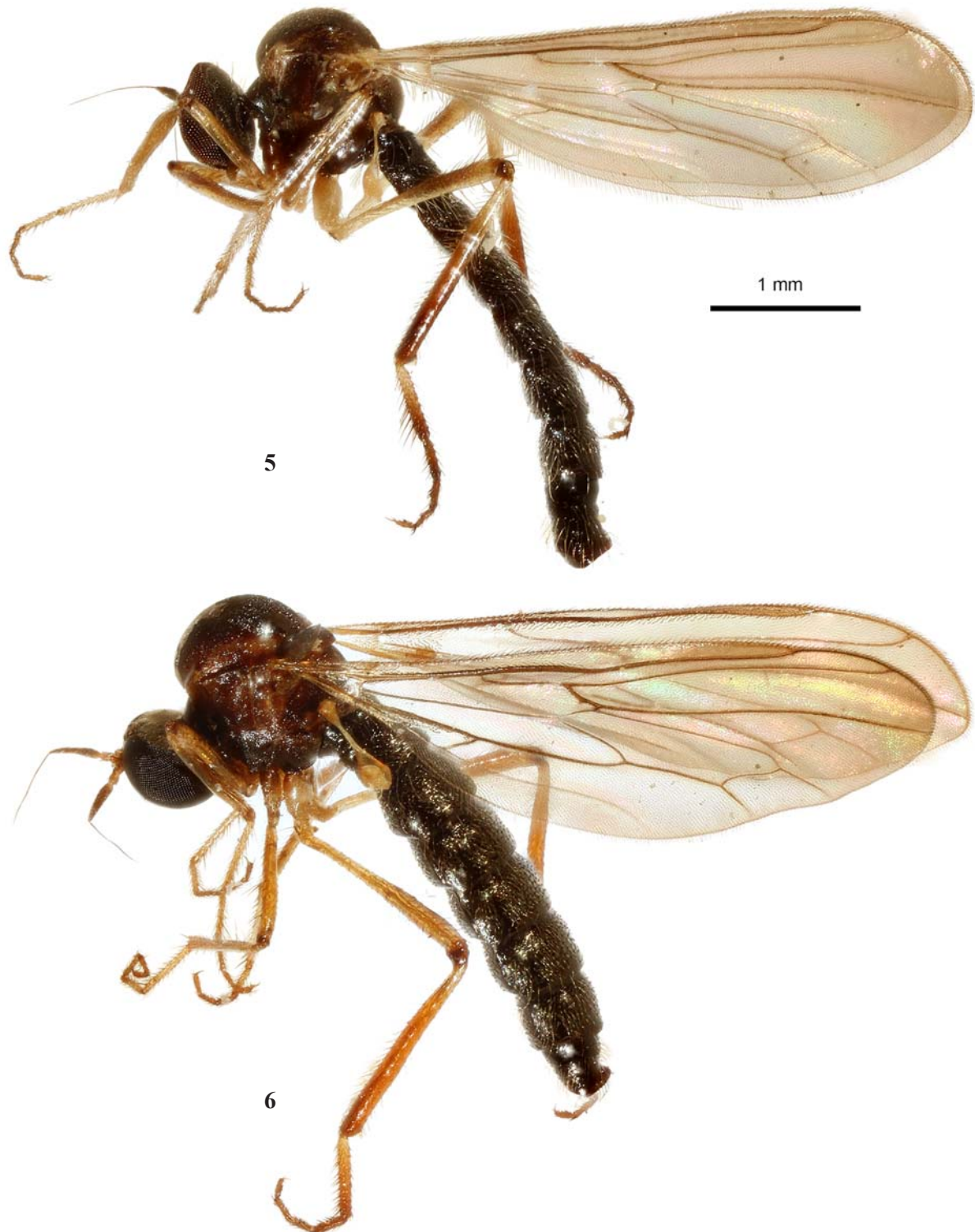
Figs 1–4. *Chvalaea* from the Collection of HNHM: 1, 2 — *C. rugosiventris*; 3, 4 — *C. sopiana*; 1, 3 — labels data; 2, 4 — abdominal segment 8 and terminalia, posterior view *in situ*. Abbreviations: ph — phallus.

Рис. 1–4. *Chvalaea* из Коллекции Венгерского музея естественной истории: 1, 2 — *C. rugosiventris*; 3, 4 — *C. sopiana*; 1, 3 — данные этикеток; 2, 4 — 8-й сегмент брюшка и терминалии, сзади *in situ*. Сокращения: ph — фаллус.

Wing shape and venation as in Fig. 5; slightly uniformly infuscate; pterostigma indistinct. Halter yellow.

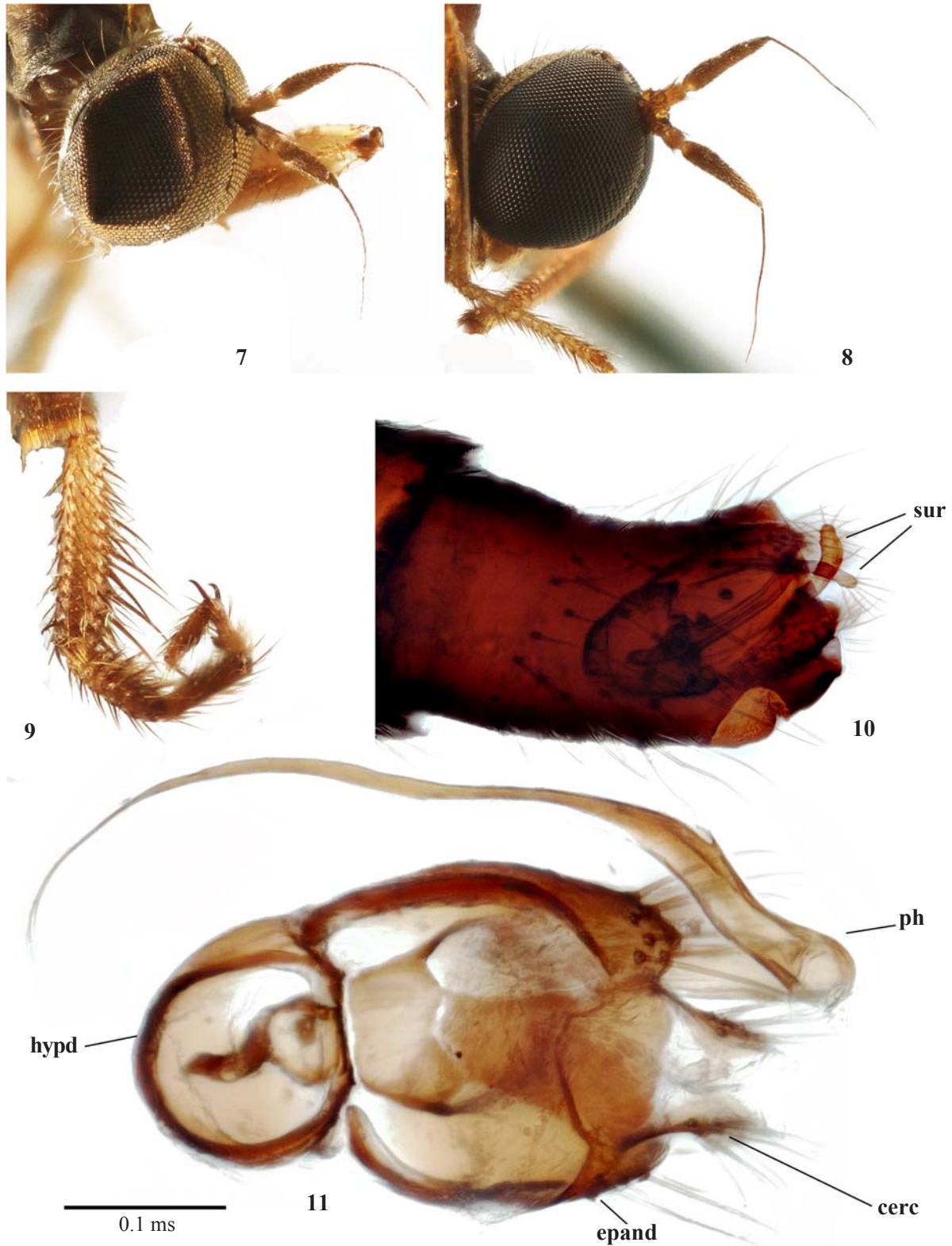
Abdomen: shiny, punctate (except segment 8), covered with numerous pale setae longer laterally (tergite 8 with

brownish posteromarginal setae); segment 8 narrower and somewhat longer than segment 7, with smooth surface, tube-like with fused tergite and sternite, slightly asymmetrical on apical part, with small circular membranous area on



Figs 5–6. *Chvalaea rugosiventris*: 5 — ♂ habitus, lateral view (Primorskiy Territory, Russia); 6 — ♀ habitus, lateral view (Primorskiy Territory, Russia).

Рис. 5–6. *Chvalaea rugosiventris*: 5 — габитус самца, сбоку (Приморский край, Россия); 6 — габитус самки, сбоку (Приморский край, Россия).



Figs 7–11. *Chvalaea rugosiventris*: 7 — head of ♂, dorso-lateral view; 8 — head of ♀, dorso-lateral view; 9 — hind tarsus, postero-lateral view; 10 — abdominal tergite 8, ♂, lateral view; 11 — ♂ terminalia, dorsal view. Abbreviations: cerc — cercus, epand — epandrium, hypd — hypandrium, ph — phallus, sur — surstylus.

Рис. 7–11. *Chvalaea rugosiventris*: 7 — голова самца, дорсо-латерально; 8 — голова самки, дорсо-латерально; 9 — задняя лапка, постеро-латерально; 10 — 8-й сегмент брюшка, самец, сбоку; 11 — терминалии самца, сверху. Сокращения: cerc — церк, epand — эпандрий, hypd — гипандрий, ph — фаллус, sur — сурстиль.

ventral surface (Fig. 10). Male's terminalia (Fig. 11) entirely retracted in abdominal segment 8; small, rotated approximately 90° to right, asymmetrical. Cerci broad ovate, of subequal shape and size, covered with numerous short ordinary setae. Epandrium deeply cleft dorsally; epandrial lamellae united dorsally by very narrow sclerotisation ending as indistinct, membranous area near left epandrial lamella, with numerous long setae. Surstyli articulated, elongate, cylindrical, ventro-dorsally directed, of subequal length, with ordinary setae, right surstylus somewhat broadened apically. Hypandrium rather short, asymmetrical, with 2 long dorsal subapical setae. Phallus elongate, biarticulated, bent inside of hypopygium; phallic shaft gradually arched, cylindrical; distiphallus expanded basally, with simple ribbon-like, long terminal appendage; basiphallus-distiphallus articulation projected outside of epandrium, visible on left side of cerci.

Female (Fig. 6). Similar to male, except the following characters: antenna longer, about 7 times longer than wide (Fig. 8); abdominal tergite 8 shorter, symmetrical, with dorsal subapical tubercle, bearing brush of several long black curved posteromarginal setae on each side; terminalia entirely retracted in segment 8.

MEASUREMENTS. Body 4.4–4.5 mm, wing 4.0–4.4 mm.

DISTRIBUTION. PALAEARCTIC: Austria, Finland, Hungary, Russia (Karelia, Krasnodarskiy, Krasnoyarskiy and Primorskiy Territories).

Genus *Leptodromiella* Tuomikoski, 1936

Type species: *Oropezella crassiseta* Tuomikoski, 1932 (by original designation).

Leptodromiella crassiseta (Tuomikoski, 1932)

Figs 12–14.

Oropezella crassiseta Tuomikoski, 1932: 49. Type locality: Padasjoki, Vesijakaa (Ta) (Finland).

MATERIAL EXAMINED. RUSSIA: 2 ♂♂, Amurskaya Province, Zeya [53°44'00" N 127°15'00" E], 1–5.vii.1978, A. Shatalkin; 2 ♀♀, same locality, 22–24.vi.1978 (ZMMU).

DISTRIBUTION. Palaearctic: Finland, Russia (Amurskaya and Moskovskaya Provinces, Karelia), Sweden.

REMARKS. *Leptodromiella crassiseta* has been known only from Finland, Sweden and central part of European Russia (single record from Moskovskaya Province) [Shamshev, 2016]. Also, as far as we are aware, these are the first photographs of this species.

Discussion

Holarctic area has already been reported for the genus *Allanthalia* [Melander, 1928]. However, records of *A. pallida* from North America [e.g., Melander, 1965] are misidentifications. The genus is represented in the Nearctic by a single undescribed species [B.J. Sinclair, personal communication]. All previous records of *A. pallida* in the Palaearctic have originated from Scandinavia and Central Europe [Chvála, 1983]. Our data show that, actually, *A. pallida* occurs very far to the east of Eurasia (Eastern Siberia). This pattern is quite common among Palaearctic empidooids, including some species of the subfamily Oedaleinae [Shamshev, 2016]. Generally, the Oedaleinae are restricted to the Northern Hemisphere occurring only in the Palaearctic, Nearctic and in mountains of the north part of the Oriental Region. The only exception is *Allanthalia* that has not been recorded yet from the Oriental Region.

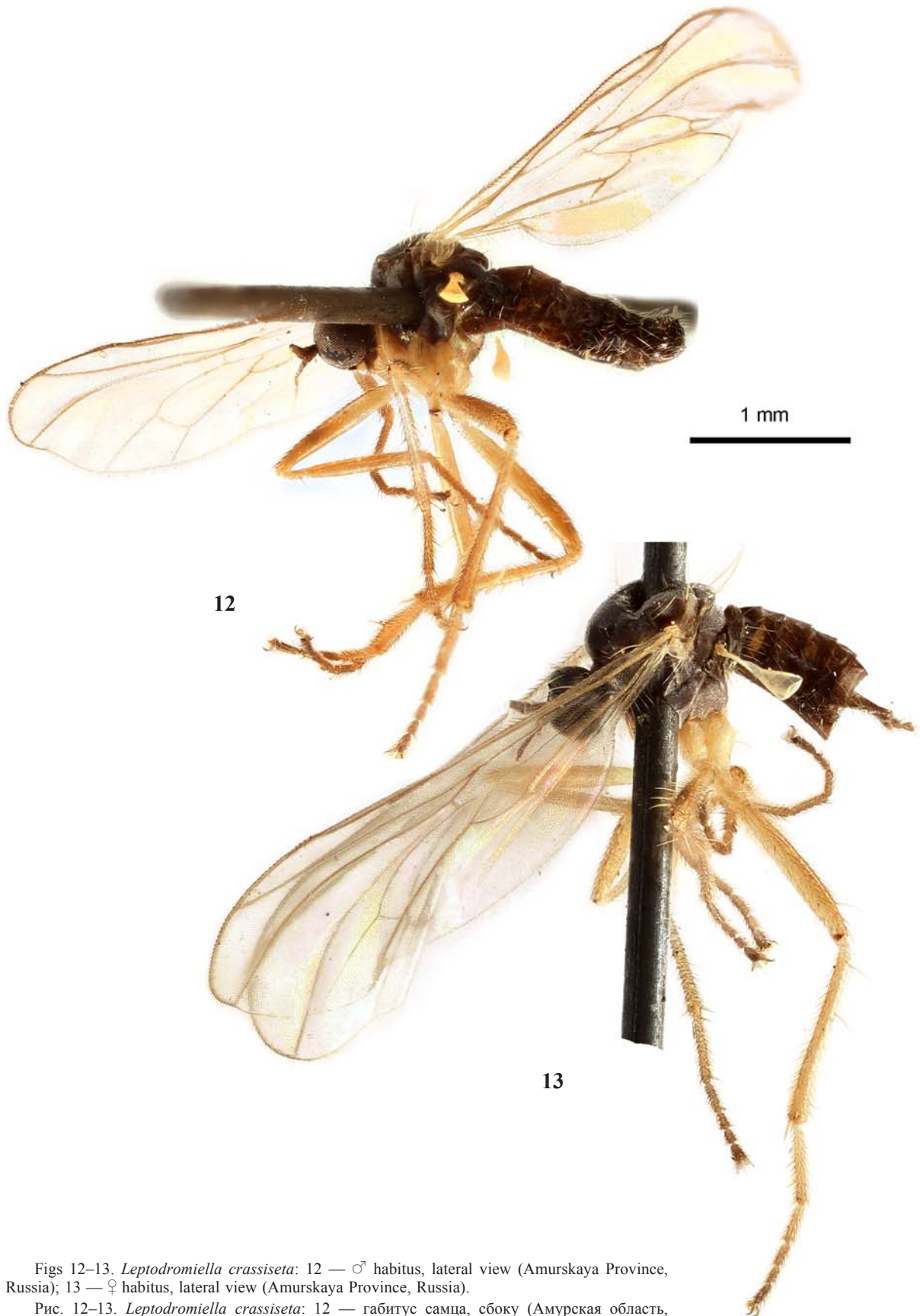
The genus *Leptodromiella* is endemic of the Palaearctic Region and this is quite unusual for the subfamily Ocydromiinae showing highest diversity, including considerable number of endemic genera, in the Southern Hemisphere (except problematic Oriental *Stylocydromia* Saigusa, 1986). Scattered data on distribution of *L. crassiseta*, including our single record from the Russian Far East, suggest that, actually, this species is very widely distributed but it may have disjunct populations.

The single Palaearctic species of the genus *Chvalaea* is very far outside of the centre of highest diversity of this group that is very probably the Neotropics [Ale-Rocha, 2006]. Especially in respect that *Chvalaea* has not yet been recorded from the Nearctic and Afrotropics. Surprisingly but closely related *Oropezella* Collin, 1926 shows a very similar pattern (even if the monophyly of this group is disputable). *Oropezella* is diverse in Neotropical and Australasian regions, but it is absent in other zoogeographical regions except the Palaearctic where the genus is represented by a single species, *O. sphenoptera* Loew, 1873. In contrast with *C. rugosiventris*, *O. sphenoptera* is a very common European species, but it has not yet been recorded in the eastern part of the Palaearctic beyond the Ural Mountains. *Chvalaea rugosiventris* suggests quite distinctly disjunctive pattern of distribution.

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Figs 12–13. *Leptodromiella crassiseta*: 12 — ♂ habitus, lateral view (Amurskaya Province, Russia); 13 — ♀ habitus, lateral view (Amurskaya Province, Russia).

Рис. 12–13. *Leptodromiella crassiseta*: 12 — габитус самца, сбоку (Амурская область, Россия); 13 — габитус самки, сбоку (Амурская область, Россия).

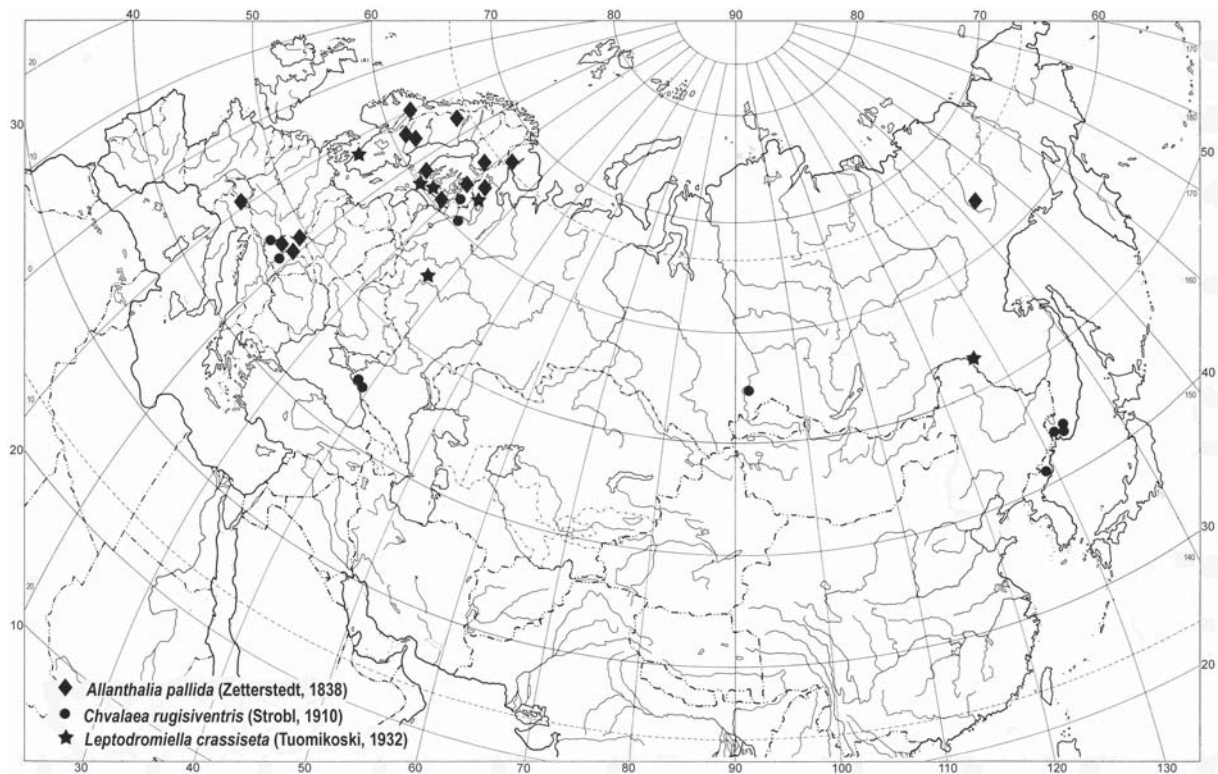


Fig. 14. Distributions of genera *Allanthalia*, *Chvalaea* and *Leptodromiella* in the Palearctic Region.

Рис. 14. Распространение родов *Allanthalia*, *Chvalaea* и *Leptodromiella* в Палеарктическом регионе.

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