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On taxonomy of the *Lispe caesia*-group (Diptera: Muscidae)

К систематике группы видов *Lispe caesia* (Diptera: Muscidae)

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КЛЮЧЕВЫЕ СЛОВА: *Lispe caesia*-group, Muscidae, Diptera.

ABSTRACT. Two species of the *Lispe caesia* group were considered. A new synonym is proposed: *L. caesia* Meigen, 1826 = *Lispe microchaeta* Seguy, 1940, **syn.n**. *L. odessae* Becker, 1904 is re-established as a valid species. Distributional data on the considered species was substantially revised.

РЕЗЮМЕ. Рассмотрены 2 вида из группы видов *Lispe caesia*. Предложен новый синоним: *L. caesia* Meigen, 1826 = *Lispe microchaeta* Seguy, 1940, **syn.n**. *L. odessae* Becker, 1904 принимается в статусе валидного вида. Существенно уточнены и дополнены сведения о распространении рассмотренных видов.

Introduction

The *Lispe caesia* species-group was proposed by Hennig [1960] for five Palaearctic species: *Lispe caesia* Meigen, 1826; *L. candicans* Kowarz, 1892; *L. halophora* Becker, 1903; *L. leucocephala* Loew, 1856 and *L. odessae* Becker, 1904. According to Hennig [1960] these species share the following characters: frontal triangle broad, with convex margins; femora with ventral rows of short spines; abdomen with a characteristic pattern. Hennig [1960: 411] regarded the *L. caesia* group as «one of the most clearly defined», but the situation seems to be more complicated. Even among the species considered by Hennig [1960] *L. leucocephal*a has neither ventral spines on femora nor abdominal pattern in both sexes. In the very recent review of the *L. caesia* group [Zhang et al., 2016] the authors included in the group several more species. Intuitively we agree with addition of these species into the group, but formal characterization of the group as well as a revision of the abundant World fauna of the *L. caesia* group are the tasks for future. The present paper is restricted to correction of taxonomic confusions concerning only two species: *L. caesia* and the related *L. odessae*.

Material and methods

The specimens examined in this study are deposited in the following institutions:

JB — John Bratton's personal collection, Menai Bridge, UK;
MBFU — Museum of Beijing Forestry University, Beijing, China;
MNHN — Muséum national d'Histoire naturelle, Paris, France;
NCU — Nicolaus Copernicus University, Torun, Poland;
TAUI — Tel-Aviv University, Israel;
ZIN — Zoological Institute, St. Petersburg, Russia;
ZMHU — Museum für Naturkunde, Humboldt–Universität zu Berlin, Germany;
ZMUM — Zoological Museum of Moscow University, Moscow, Russia.

Coordinates are given in the decimal degrees format.

The following generally accepted abbreviations for morphological structures are used: *f1*, *t1*, *f2*, *t2*, *f3*, *t3* = fore-, mid-, hind- femur or tibia respectively; *ac* — acrostichal setae; *dc* — dorsocentral setae; *a*, *p*, *d*, *v* = anterior, posterior, dorsal, ventral seta(e).

The abbreviation for the tarsi as *tar* followed by a pair of digits separated by a hyphen was proposed by Vikhrev [2011]: the first digit (1 to 3) gives the leg number and the second digit (1 to 5) the number of the tarsal segment. For example, *tar1-4* = 4-th segment of fore tarsus; *tar3-1* = hind basitarsus.

The illustrations are original unless otherwise indicated.

Lispe caesia Meigen, 1826
Figs 1–6.

Lispe caesia Meigen, 1826. Type locality: unknown.
Lispe microchaeta Séguy, 1940, **syn.n**. Type locality: Morocco, Rio de Oro.

Lispe caesia microchaeta Séguy: Hennig, 1960.

TYPE MATERIAL. Holotype *L. microchaeta*, ♂ (Figs 1–2): (Morocco), *Rio de Oro* prov., Villa Cisneros (= Dakhla, 23.69N 15.94W), Juin 1937, L. Berland (MNHN).

OTHER MATERIAL. [EGYPT], Port Said, 1♂, 1♀ (ZMHU).

ISRAEL, Ma'agan Michael (32.56°N 34.91°E), 27.06.1964, A. Valdenberg, 10♂♂, 16♀♀ (TAUI).

[ITALY], Ven, P.Sabbioni, 8.05.1904, Gridelli, 1♂, 1♀ (ZMHU).

[GERMANY, *Lower Saxony* state], Borkum (Isl., 53.6°N 6.7°E), 25.07.1901, W. Schnuse, 1♂, 1♀ (ZMHU).

MOROCCO: *El Jadida* prov., Oualidia lagune, 32.746°N 9.024°W, 30.04.2012, N. Vikhrev, 7♂♂, 7♀♀; *Essaouira* prov., Essaouira env., 31.484°N 9.765°W, 1–5.05.2012, N.Vikhrev, 41♂♂, 18♀♀; *Tan-Tan* prov., salt lagune, 28.204°N 11.779°W, 10.05.2012, N. Vikhrev, 8♂♂, 2♀♀ (all ZMUM).

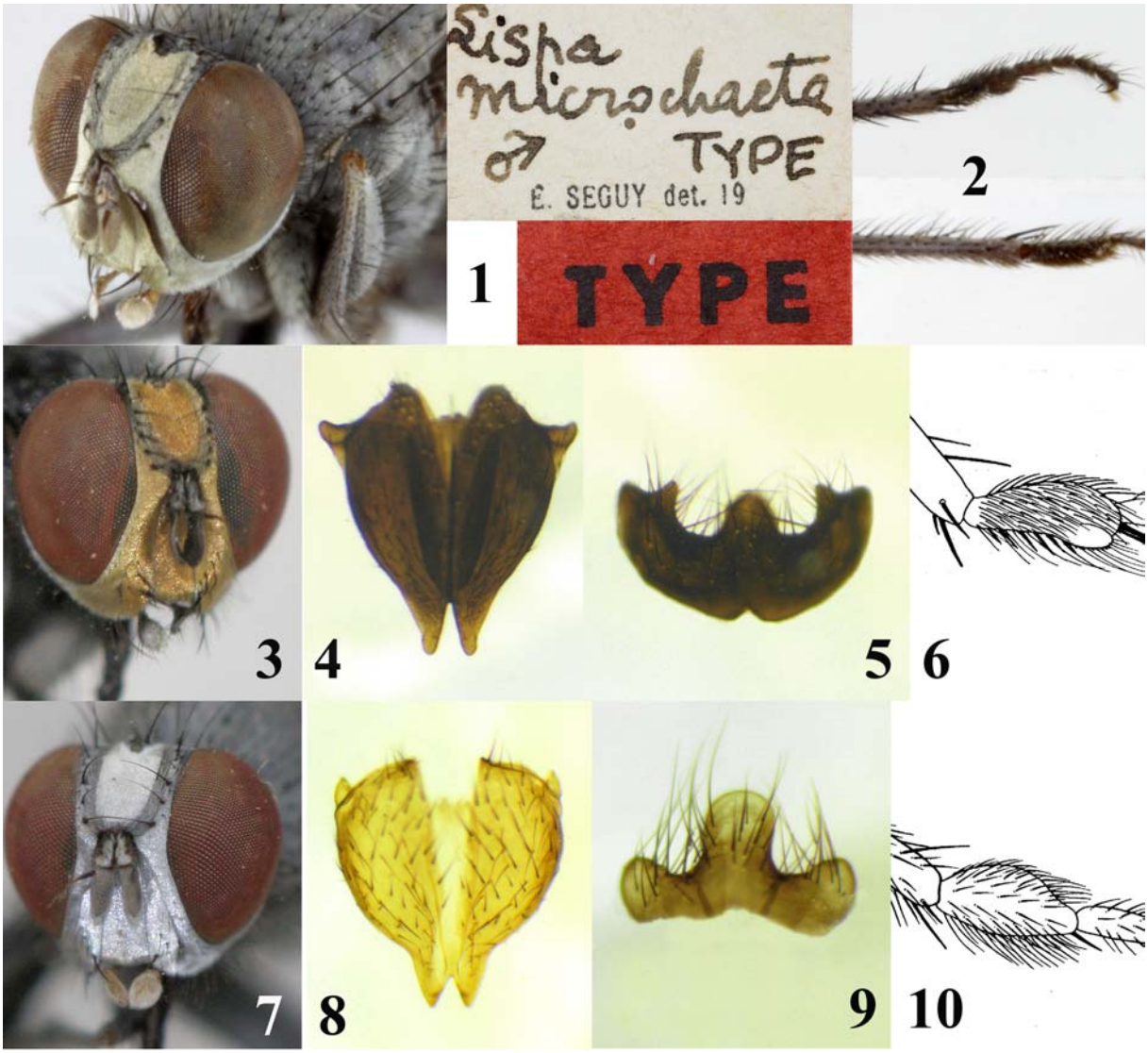
RUSSIA: *Astrakhan* reg., Baskunchak salt-lake, 48.19°N 46.82°E, 2–4.05.2010, K. Tomkovich, 1♂; *Kalmykia* reg., Manych saltish L., 46.029°N 43.441°E, 9.06.2012, N. Vikhrev, 3♂♂, 1♀; *Kurgan* reg., Lebyazhye distr., (55.08°N 66.91°E), 20.07.2012, V. Sorokina, 2♂♂, 1♀; *Orenburg* reg., Sol-Iletsk env., 51.342°N 55.013°E, 28.08. K. Tomkovich, 2♀♀; *Omsk* reg., Omsk, Solenoe salt lake, 54.887°N 73.349°E, 24.07.2012, O. Kosterin, 6♂♂, 1♀; *Volgograd* reg., salt pool, 48.465°N 44.570°E, 8.06.2012, N. Vikhrev, 2♂♂, 1♀ (all ZMUM).

UKRAINE, *Odessa* reg., Odessa env., Kuaylnik (46.57°N 30.74°E),14–16.09.1938, B. Rohdendorf, 30 ♂♂♀♀ (ZMUM).

TURKEY: *Adana* prov., seashore salt marsh, 36.74°N 35.62°E, 12.04.2010, N. Vikhrev, 7♂♂♀♀ (ZMUM); *Ankara* prov, Tuz Lake, 38.78°N 33.63°E, 20.04.2010, N. Vikhrev, 11 ♂♂♀♀ (ZMUM); *Hatay* prov., Samandag env., salt lake, 36.074°N 35.953°E, 16.04.2010, N. Vikhrev, 1♂, 2♀♀ (ZMUM); *Mersin* prov., seashore salt marsh, 36.31°N 34.01°E, 22.04.2010, N. Vikhrev, 23♂♂♀♀ (ZMUM); *Mugla* prov., Iztuzu beach (36.80°N 28.61°E), 9–17.06.2010, A. Grzywacz, 5♂♂, 6♀♀ (*NCU*).

UK, N Wales, Isle of Anglesey, Cymyran, sandy saltmarsh, 53.25°N 4.55°W, 7.09.2006, J. Bratton, 1♂, 1♀ (JB).

DISTRIBUTION. Was known from Europe, N Africa and Near East. Material listed above shows that *L. caesia* is also widely distributed in SE of European Russia and W



Figs 1–10. *Lispe* spp., ♂♂: 1–2 — *L. microchaeta*, Holotype; 3–6 — *L. caesia*; 7–10 — *Lispe odessae*; 1, 3, 7 — head; 2 — *tar3-1* from different points of view; 4, 8 — cercal plate; 5, 9 — sternite 5; 6, 10 — *tar3-1* [after Hennig, 1960: 404: textfigg 100 and 98].

Рис 1–10. *Lispe* spp., ♂♂: 1–2 — *L. microchaeta*, голотип ; 3–6 — *L. caesia*; 7–10 — *Lispe odessae*; 1, 3, 7 — голова; 2 — *tar3-1* с разных сторон; 4, 8 — церки; 5, 9 — стернит 5; 6, 10 — *tar3-1* [по Hennig, 1960: 404: textfigg 100 and 98].

Siberia, though is rather uncommon in the north-eastern part of the natural habitat.

SYNONYMY. In the original description Séguy [1940] compared *L. microchaeta* with *L. pygmaea* Fallén, 1825 and *L. flavicincta* Loew, 1847, both having nothing to do with *L. microchaeta*. Hennig [1960] reexamined the type material and found the true identity of this species: *L. microchaeta* is *L. caesia* with yellow palpi instead of the typical blackish ones. We also reexamined the holotype of *L. microchaeta* and came to the same conclusion. The characteristic modification of male *tar3-1* (Figs 2, 6) makes *L. caesia* unmistakable. Hennig [1960] regarded the considered taxon as a yellow-palpish subspecies *L. caesia microchaeta*, while we offer here a more radical point of view that the species is monotypical. The dusting of frontal triangle, face and palpi widely vary in *L. caesia*: the frontal triangle and face vary from deep yellow (as on Fig. 3) to yellowish-white (Fig. 1); the palpi could be almost black (Fig. 3) or dirty-yellow with darkened apex or rarely almost pure yellow (Fig.1). We have seen specimens of *L. caesia* with yellow palpi from Morocco, Russia (W Siberia, Omsk reg.) and UK. We regard *Lispe caesia* Meigen, 1826 = *Lispe microchaeta* Séguy, 1940: 342, **syn.n**.

Lispe odessae Becker, 1904
Figs 7–10

Lispe odessae Becker, 1904. Type locality: Ukraine, Odessa.
Lispe odessae Becker, 1904: Hennig, 1960.
Lispe caesia Meigen, 1826: Canzoneri & Meneghini, 1966.
Lispe caesia Meigen, 1826: Pont, 1986.
Lispe caesia microchaeta Séguy, 1940: Zhang et al., 2016.

TYPE MATERIAL. Holotype, ♂: Odessa, 50437, IX (Becker notebooks: 1 ex., 8.ix.1903, "am Ufer Salzsees" (= on the banks of Salt Lake in German) "Liman" (= estuary, in Russian) = Ukraine, Odessa, 46.5N 30.7E, coastal salt lake bank, 8.09.1903 (ZMHU).

OTHER MATERIAL. CHINA: *Liaoning* prov., Jinzhou City, Longqi Bay, 40.87N 121.25E, 8–12.08.2014, Xinyu Li, 7♂♂, 15♀♀ (MBFU); *Xinjiang* prov., Kalamaili_Nature_Reserve, 45.1N 88.9E: 14–16.08.2009, Dong Zhang, 3♂♂, 7♀♀; 26.05.2014, Dong Zhang, 1♂; 8–19.08.2014, Ming Zhang, 3♂♂ (MBFU).

KAZAKHSTAN: *Kyzylorda* reg., Aralsk, salt lake, 46.79N 61.67E, 12.05.2011, K. Tomkovich, 1♀; *W. Kazakhstan* prov., Shalkar L., 50.58°N 51.79°E, 27.08.2012, K. Tomkovich, 1♂ (all ZMUM).

MONGOLIA, Yuzhno-Gobiyskiy aimak (*Omnogovi* prov.): 40 km SSE of Nomgon (42.45°N 105.25°E), V. Zaitsev, 9.08.1967, 1♀; 10 km NE of Onch-Khairkhan-Ula Mt. (42.16°N 104.93°E), V. Zaitsev, 9.04.1967, 1♂ (ZIN).

RUSSIA: *Astrakhan* reg., Baskunchak salt-lake, 48.19°N 46.82°E, 2–4.05.2010, K. Tomkovich, 20♂♂, 9♀♀; *Kalmykia* reg.: Elista env., 46.213°N 43.956°E, 9.06.2012, N. Vikhrev, 1♀, Priyutnoe env, 46.1N 43.5E 2–3.05.2013, N. Vikhrev, 2♂♂, 3♀♀; *Orenburg* reg., Sol-Iletsk env., 51.342°N 55.013°E, 28.08.2012, K. Tomkovich, 3♀♀; *Volgograd* reg., salt pool, 48.465°N 44.570°E, 8.06.2012, N. Vikhrev, 1♂ (all ZMUM).

TURKMENISTAN, *Mary* reg., Bathyz NR, ≈37°N 62°E, 25.05.1991, A. Ozerov, 1♂, 2♀♀ (ZMUM).

DISTRIBUTION. Inland salt basins and estuaries at sea shore. Palaearctic, from E Europe to Asian Far East. Hereby newly recorded for China, Kazakhstan, Mongolia, Russia and Turkmenistan.

DISCUSSION. For a long time *L. odessae* was known by the male holotype only. Hennig [1960] examined the holotype, made redescription of *L. odessae* and gave recommendation how to distinguish this species from *L. caesia*. We also examined the holotype and 80 freshly collected specimens of *L. odessae* (see above). We came to the same conclusion as Hennig: it is a valid and good species which differs from the related *L. caesia* as follows:

1. ♂♂ 2
– ♀♀ 3
2. *t3* on *av*-surface with a complete row of fine elongated setulae, without strong setae. *t2* with *ad* seta about 2 times shorter than *pd* seta. *tar3-1* diamond-shaped as on Fig. 10. Frontal triangle and face silvery-white dusted, without yellowish tint (Fig. 7). Palpi yellow (Fig. 7). Sternite 5 with long median process; short and rounded lateral processes as on Fig. 9. Cercal plate similar to that of *L. caesia*, but more roundish shaped and with shorter apical prongs (Fig. 8). ..... *odessae* Becker
– *t3* on *av*-surface without fine elongated setulae, but with 2 (1–3) strong setae in apical 1/3. *t2* with *ad* seta as long or longer than *pd* seta. *tar3–1* with ventral rounded process in apical half as on Figs 2 and 6. Frontal triangle and face yellow-white (Fig. 1) to deep yellow (Fig. 3) dusted. Palpi blackish (Fig. 3) or dirty-yellow with blackish apex, rarely yellow (Fig. 1). Sternite 5 with short median process; lateral processes longer and bifurcated at apices as on Fig. 5. Cercal plate similar to that of *L. odessae*, but narrower and with longer apical prongs (Fig. 4). ..... *caesia* Meigen
3. *f3* with preapical *av*. Palpi yellow. Body length 5–7 mm. ..... *odessae* Becker
– *f3* without preapical *av*. Palpi blackish or blackish at apex or dirty yellowish, rarely yellow. Body length 6.5–8 mm. ..... *caesia* Meigen

Canzoneri and Meneghini [1966] synonymized *L. odessae* with *L. caesia*. Based on this synonymy and the absence of any formal refutation of it, Pont [1986] listed in the Palaearctic Catalogue *L. odessae* as a synonym of *L. caesia*. Since that, this point of view became generally accepted and was also used in Zhang et al. [2016] review of the *Lispe caesia* group. Presently we would like to refute it. As translated from Italian to English, Canzoneri and Meneghini [1966] reasons were as follows: «we recently examined a specimen of *L. odessae* from Denmark, Museum of Copenhagen: it perfectly fits the description given by Hennig for *L. odessae*. However, the genitalia and the leg chaetotaxy are indistinguishable from those of *L. caesia*.» Firstly, either the specimen perfectly fits *L. odessae* or it has characters of *L. caesia*. Secondly, if some specimen looks as *L. caesia*, has the genitalia, tibial chaetotaxy and *tar3-1* modification as in *L. caesia*, than indeed *L. caesia* it is. Even in the field practice *L. odessae* differs from *L. caesia* not only by smaller size and bright silvery frons, but also being faster and more cautious species than *L. caesia*.

Through the above discussed erroneous view on *L. odessae* as a synonym, this species was misidentified as *L. caesia microchaeta* in the recent publication on the *Lispe caesia* species group [Zhang et al., 2016]. Thus, *L. odessae* is a species hereby newly recorded for China as well as for Kazakhstan, Mongolia, Russia and Turkmenistan.

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