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TAXONOMIC NOTES ON *LISPE* (DIPTERA, MUSCIDAE). PARTS 1–9

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[Вихрев Н.Е. Заметки по таксономии рода *Lispe* (Diptera, Muscidae). Разделы 1-9]
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Ключевые слова: *Diptera, Muscidae, Lispe, новые виды, новые синонимы, систематика*

Summary. The world fauna of the *Lispe leucospila* group, *L. tentaculata* group, *L. nivalis* group, *L. scalaris* group, *L. nana* species complex, *L. kowarzi* species complex, *L. desjardinsii* group and *L. longicollis* group are considered. Five new species *L. medvedevi* **sp. nov.**, *L. tomkovichi* **sp. nov.**, *L. martirei* **sp. nov.**, *L. triangularis* **sp. nov.** and *L. dmitryi* **sp. nov.**; one subspecies *L. fulvitarsus asiatica* **ssp. nov.** and hitherto unknown males of *Lispe nubilipennis* Loew, 1873 and *Lispe flavipes* Stein, 1913 are described. Eight new synonymies are proposed: *Lispe leucospila* (Wiedemann, 1830) = *Lispe eidsvoldica* Malloch, 1925, **syn. nov.**; *Lispe irvingi* Curran, 1937 = *Lispe mapaiensis* Paterson, 1953, **syn. nov. =** *Lispe andrewi* Paterson, 1953, **syn. nov.**; *Lispe pectinipes* Becker, 1903 = *Lispe paraspila* Zielke, 1972, **syn. nov.**; *Lispe tentaculata* (De Geer, 1776) = *Lispe alpinicola* Zhong, Wu & Fan, 1981 **syn. nov.**; *L. scalaris scalaris* Loew, 1847 = *Lispe scalaris* ssp. *maroccana* Canzoneri & Meneghini, 1966, **syn. nov.**; *Lispe* Latreille, 1796 = *Lispacoenosia* Snyder, 1949, **syn. nov.**; *Lispe fulvitarsus* (Snyder, 1949) **comb. nov.** = *Lispe asetopleura* Vikhrev, 2012 **syn. nov.** The identification keys for considered species groups, species complexes and proposed here *L. tentaculata* supergroup are given.

Резюме. Рассмотрена мировая фауна групп видов *Lispe leucospila*, *L. tentaculata*, *L. nivalis*, *L. scalaris*, *L. desjardinsii* group и *L. longicollis*, видовых комплексов *L. nana*, *L. kowarzi*. Описано 5 новых видов: *L. medvedevi* **sp. nov.**, *L. tomkovichi* **sp. nov.**, *L. martirei* **sp. nov.**, *L. triangularis* **sp. nov.** и *L. dmitryi* **sp. nov.**; 1 подвид: *L. fulvitarsus asiatica* **ssp. nov.** Также дано описание неизвестных до настоящего времени самцов *Lispe nubilipennis* Loew, 1873 и *Lispe flavipes* Stein, 1913. Предложено 8 новых синонимов: *Lispe leucospila* (Wiedemann, 1830) = *Lispe eidsvoldica* Malloch, 1925, **syn. nov.**; *Lispe irvingi* Curran, 1937 = *Lispe mapaiensis* Paterson, 1953, **syn. nov. =** *Lispe andrewi* Paterson, 1953, **syn. nov.**; *Lispe pectinipes* Becker, 1903 = *Lispe paraspila* Zielke, 1972, **syn. nov.**; *Lispe tentaculata* (De Geer, 1776) = *Lispe alpinicola* Zhong, Wu & Fan, 1981 **syn. nov.**; *L. scalaris scalaris* Loew, 1847 = *Lispe scalaris* ssp. *maroccana* Canzoneri & Meneghini, 1966, **syn. nov.**; *Lispe* Latreille, 1796 = *Lispacoenosia* Snyder, 1949, **syn. nov.**; *Lispe fulvitarsus* (Snyder, 1949) **comb. nov.** = *Lispe asetopleura* Vikhrev, 2012 **syn. nov.** Даны определительные ключи для всех рассмотренных групп видов и видовых комплексов, а также для предложенной в статье супергруппы *L. tentaculata*.

INTRODUCTION

There are probably some 200 species of *Lispe* Latreille 1796 worldwide. The genus seems to have originated from the southern part of the Palaearctic region, since it shows the most impressive diversity in warm zone of Asia and Africa. The subsequent *Lispe* settlement in warm and dry Australia also led to a significant diversity, the settlement of America probably took place via the Bering land bridge only and hence the diversity of *Lispe* in America is less. *Lispe* have successfully colonized most of the islands including the remote ones, the only large territory where *Lispe* is totally absent is New Zeland.

The division of the large genus *Lispe* into 3 species-groups was first proposed by Snyder [1954] for Nearctic fauna. Hennig [1960] in his work on Palaearctic Muscidae divided the Holarctic fauna of *Lispe* into 6 species-groups and several species with unclear relationship. Other publications were devoted to the fauna of *Lispe* of smaller regions or countries, and authors did not try to consider the taxonomy of the whole genus or the large part of it. This method of approaching is rather pragmatic: it allows to provide easier identification keys by excluding species not recorded from a certain territory. On the other hand the efficiency of such regional approach depends on our knowledge of species ranges which is often very limited and incomplete. I am trying to consider the world fauna of *Lispe* and for this reason I came back to the taxonomic approach of considering the genus instead of the territorial one. Anyway a different point of view is often helpful. In this paper I review the World fauna of *Lispe* from 6 species-groups with 3 and more species each and 2 species complexes with 2–3 species each. The *L. leucospila* group was previously considered by Vikhrev [2011a]; the *L. tentaculata* group – by Snyder [1954], Hennig [1960] and Vikhrev [2011b]; the *L. nivalis* group – by Vikhrev [2012b]; the *L. scalaris* group – by Hennig [1960] and Vikhrev [2012a]; the *L. kowarzi* species complex – by Vikhrev [2012b]; the *L. longicollis* group – by

Hennig [1960] and Vikhrev [2012c]. The *L. desjardinsii* group, *L. nana* species complex and *L. tentaculata* supergroup are proposed in the present study for the first time. Thus the paper is divided into 9 parts.

MATERIAL AND METHODS

The majority of the specimens studied are stored in the Zoological Museum of Moscow University, Russia (ZMUM); in this case specimen attribution is not indicated in the text. Other collections are abbreviated as follows:

ANIC – Australian National Insect Collection, Canberra, Australia.

DEI – Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany.

TAUI – Tel-Aviv University, Israel.

ZIN – Zoological Institute, St. Petersburg, Russia.

ZMHU – Museum für Naturkunde, Humboldt-Universität zu Berlin, Germany.

The collectors' names are abbreviated as follows: KT – Konstantin Tomkovich, NV – Nikita Vikhrev. Localities (where possible) are given as follows: country, region, geographical coordinates, the last are given in the Decimal Degrees format.

The following abbreviations for morphological structures are used: *f1*, *t1*, *f2*, *t2*, *f3*, *t3* = fore–, mid–, hind– femur or tibia; *ac* = acrostichal setae; *dc* = dorsocentral setae; *a*, *p*, *d*, *v* = anterior, posterior, dorsal, ventral seta(e); *prst* – presutural, *post* – postsutural. The abbreviation for the tarsi as *tar* followed by a pair of digits separated by a hyphen was proposed by Vikhrev (2011b): 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, *tar2–4* = 4th segment of mid tarsus; *tar3–1* = hind basitarsus.

Synonymies are listed only for the species to which the new synonymies are considered, for full lists of synonymies see regional Diptera Catalogues: Pont [1977], Pont [1980], Pont [1986], Pont [2012a]. Illustrations are original unless otherwise indicated.

1. *Lispe leucospila* species–group

Notes on the *L. leucospila* group. Species of the *Lispe leucospila* species-group have the following set of characters: palpi relatively narrow; *t1* with strong *p* seta; *t2* with 1 *pd*; *t3* with 1 *ad*, 1(2) *av* (indistinct among dense setulae in *L. irvingi* Curran, 1937) and a row of *pv* setulae in apical half of *t3* in males; anterior *prst dc* absent, *dc* 1+3(4) (strong + weak, (weak), strong, strong); sternite 5 with weak sclerotization; cerci long, halves of cercal plate widely divided, conjoined at the very base only. Ecologically they differ from most other *Lispe*: their typical habitats are grassy lawns being seasonally or artificially watered, or similar natural habitats, usually secondary sites with short or sparse grass and moderately wet soil.

The taxonomy of the nominative species *L. leucospila* (Wiedemann, 1830) was recently considered by Vikhrev [2011a] and here I allow myself to repeat this rather complicated problem. Stein [1913: 549] examined one of syntypes of *L. leucospila* (Wiedemann, 1830) and found it conspecific with African specimens of *Lispe pectinipes* Becker, 1903 due to the presence of 3 dark vittae on scutum of which the median one extends on scutellum. Based on Stein's opinion Hennig [1960: 439] came to a conclusion that the vast majority of the available material belongs to the same widespread species hereinafter referred to as *L. leucospila* (Wiedemann, 1830) sensu Hennig. Hennig examined the type material of *Lispe pectinipes* Becker, 1903, *Lispe cochlearia* Becker, 1904 and *Lispe mixticia* Séguy, 1941 and found them conspecific and synonymized these species to *L. leucospila* (Wiedemann, 1830) sensu Hennig. He also revealed 3 female specimens from S–E China differing from others and described them as the new subspecies *Lispe leucospila sinica* Hennig, 1960. *L. leucospila sinica* Hennig, 1960 differs from *L. leucospila* (Wiedemann, 1830) sensu Hennig as follows: mostly brown and shining scutum; abdomen mostly shining black with abdominal lateral grey vittae reduced to a small paired whitish spots; wing darkened as in col. pl. I: *1–2*. Later on Pont [1986] elevated the status of *L. leucospila sinica* Hennig, 1960 to a valid species level, *Lispe sinica* Hennig, 1960.

But later Lyneborg [1970] examined the type material of *L. pectinipes* Becker, 1903 (1♂ and 2♀ syntypes from totally 10♂ and 10♀ in the type series which I also examined and found homogeneous) and *L. leucospila* (Wiedemann, 1830) (the entire type series of 1♂ and 2♀ syntypes) and found that terminalia of the male syntype of *L. pectinipes* (designated as lectotype by [Lyneborg, 1970: 43]) were similar to the Hennig's drawing given for *L. leucospila* (Wiedemann, 1830) sensu Hennig [Hennig, 1960: plate XX, Fig. 399 and Textfig. 154], but the terminalia of the male syntype of *L. leucospila* (Wiedemann, 1830) (designated as lectotype by [Lyneborg, 1970: 44]) were different. So, Lyneborg restored *L. pectinipes* Becker, 1903 as a valid species. Lyneborg identified his material belonging to the *Lispe leucospila* species-group from Spain and Algeria as *L. pectinipes*. Pont [1991] examined the *L. leucospila* group material from Arabian Peninsula. Again, no specimen with male terminalia fitting the lectotype of *L. leucospila* (Wiedemann, 1830) was recorded at all and the majority of specimens was identified as *L. pectinipes* Becker, 1903 (1♂ and 2♀ named by Pont as "*Lispe* sp. of *leucospila* group" actually belong to *Lispe maculata* Stein, 1913 (see the cercal plate given by [Pont, 1991: 354, fig. 18] and col. pl. I: *10* in this paper). Meanwhile Asian authors still used the name *L. leucospila* (Wi-

edemann, 1830) in the sense of Hennig; another species from this group recorded from E Asia was identified as *L. sinica* Hennig, 1960 [Xue & Zhang, 2005]. So, the main question was: what is *L. leucospila* (Wiedemann, 1830) apart from Wiedemann's syntypes?

Vikhrev [2011a] examined a rich materal of *L. pectinipes* collected from the Canary Islands to Taiwan and quite a good material identified as *L. sinica*. It was found that the cerci and abdominal pattern of *L. sinica* are similar to that of *L. leucospila* reported by Lyneborg [1970], and that the characteristic wing darkening of *L. sinica* is a variable character (see discussion below in: Synonymies: *L. eidsvoldica*). In that work I came to the conclusion that the less common species was described in the early 19th century as *Lispe leucospila* (Wiedemann, 1830) = *Lispe sinica* Hennig, 1960, while a more common and widespread species was described in the 20th century as *L. pectinipes* Becker, 1903 = *L. leucospila* (Wiedemann, 1830) sensu Hennig = *L. leucospila* (Wiedemann, 1830) in the sense of Asian authors. Thus the situation with the *L. leucospila* group in the Palaearctic and Oriental regions was clarified and turned out to be rather plain, for only 2 species are present there. The same two species are listed for Australia (and Oceania) by Pont [2012a], but *L. leucospila* is included due to uncertain type locality "Ostindien" and *L. pectinipes* was recorded for Hawaiian Isl. (probably invasive). Recently I have examined Australian material in ANIC. The *L. leucospila* group is represented in Australia by *Lispe eidsvoldica* Malloch, 1925, but this spesies is synonymized with *L. leucospila* below.

Meanwhile the situation in the Afrotropical region remained uncertain, a total of 9 species from the *L. leucospila* group was listed from this area [Pont, 1980; Pont, 1991]: *L. afra* Curran, 1937, *L. andrewi* Paterson, 1953, *L. irvingi* Curran, 1937, *L. lateralis* Stein, 1906, *L. leucospila* (Wiedemann, 1830), *L. maculata* Stein, 1913, *L. mapaiensis* Paterson, 1953, *L. paraspila* Zielke, 1972 and *L. pectinipes* Becker, 1903. *L. leucospila* is an East Asian species, and according to Vikhrev [2011a] its records from the Afrotropical region should be regarded as misidentification of *L. pectinipes*. *L. lateralis* Stein, 1906 was regarded [Stein, 1913] as a synonym of *L. leucospila* and therefore this name is a synonym of *L. pectinipes*. *L. afra* Curran, 1937 was described from a single female holotype [Curran, 1937] which was not a good idea at all, especially in the *L. leucospila* group. Fortunately this doubtful species was synonymized with *L. irvingi* by Paterson [1953]. Recently I had a possibility to examine rather representative Afrotropical material and now I would like to offer my point of view on the remaining 6 African species of the *L. leucospila* group: 3 species I regard as new synonyms, an identification key is offered and the structure of the cerci for the remaining 3 species is illustrated.

It is well possible that the world fauna of the *L. leucospila* group is limited to 4 species considered in this paper. The group is not known from the Nearctic or Neotropical regions.

Synonymies. Four species of the *Lispe leucospila* group listed above may be reliably distinguished at least in males by a set of characters including the *t3* chaetotaxy, structure of cerci, scutal and abdominal patterns. The scutal and abdominal patterns are useful in dividing *L. leucospila* and *L. maculata* (disc of scutum mostly glossy black; abdomen glossy black, with only small isolated whitish spots) from *L. pectinipes* and *L. irvingi* respectively (disc of scutum mostly grey dusted; abdomen with wide uninterrupted lateral grey stripes). But the details of scutal and abdominal patterns are subject to variation and I am convinced that these details are not the characters the description of the new species may be based on. Minor variations of the scutal and abdominal patterns do not correlate with other characters. Most species were described from very limited material, while examination of more representative series do not confirm their validity. For this reason I regard the following species as synonyms.

Lispe paraspila Zielke, 1972 (type locality: Madagascar, Mont. d'Ambre, ≈12.5S 49.2E). The chaetotaxy of *t3* and the drawing of cerci [Zielke, 1972: 149, fig. 2] fit *L. pectinipes* (col. pl. I: *6*). According to [Zielke, 1972: 149] *L. paraspila* is said to differ from *L. pectinipes* by "dark mesonotum with brownish pollinosity" only. Such dirty-brownish scutum is not rare in aged specimens of *L. pectinipes*. So, *Lispe pectinipes* Becker, 1903 = *Lispe paraspila* Zielke, 1972 syn. nov.

Lispe mapaiensis Paterson, 1953 (type locality: [Mozambique], Mapai, ≈22.8S 32.0E), has the chaetotaxy of *t3* and the shape of the cercal plate similar to those of *Lispe irvingi* Curran, 1937 ([Paterson, 1953: 168–174 and fig. 19] and col. pl. I: *7, 8* of this paper). *L. mapaiensis* was described as a species with median and submedian thoracic vittae distinct and wide. The comparison of male cerci of specimens from Kenya (with the scutal pattern less distinct, that is *L. pectinipes*-like) and specimens from Tanzania (with the more distinct, *L. mapaiensis*-like scutal pattern) shows no reason to regard them as different species. So, *Lispe irvingi* Curran, 1937 = *Lispe mapaiensis* Paterson, 1953 syn. nov.

Lispe andrewi Paterson, 1953 (type locality: South Africa, Zoutpansberg, ≈23.0S 29.9E) was described on base of a more extensive black pattern on tergite 4 (tergite 3 in original description) and the cerci broader than in *L. irvingi* (but the drawing of cerci was not given). In fact, the extensity of the black area on tergite 4 is variable in details; while the cerci may look somewhat broader or narrower depending on the point of view. So, *Lispe irvingi* Curran, 1937 = *Lispe*

andrewi Paterson, 1953 syn. nov.

Lispe eidsvoldica Malloch, 1925 (type locality: Australia, QLD, Eidsvols, ≈25.37S 151.12E). Vikhrev [2011a] reported that the wing darkening in *L. leucospila* is actually a variable character. I supposed that the wing darkening is usually distinct in freshly emerged specimens and indistinct in aged ones as shown on col. pl. I: *1–2* with a fresh female from Thailand and an aged one from India. I also supposed that the instability of the wing pattern leads to similar effects in aged specimens and in those collected long ago, that is why Stein or Lyneborg could not find the wing darkening in 100–150 year old syntypes of *L. leucospila*. Presently I am inclined to regard the Indian origin of the specimen rather than its age as the cause of this situation. Specimens of *L. leucospila* collected in the end of rainy season in Gujarat state of India (the westernmost known locality) have very weak wing darkening too. Also Indian specimens have the 2nd proepisternal seta distinct, although weak. Again, in its easternmost area of distribution in Australia *L. leucospila* (as *L. eidsvoldica*) has wing darkening absent or indistinct and stronger 2nd proepisternal seta, otherwise *L. eidsvoldica* is similar to *L. leucospila* including the male genitalia. So, *Lispe leucospila* (Wiedemann, 1830) = *Lispe eidsvoldica* Malloch, 1925 syn. nov.

Lispe irvingi Curran, 1937
Col. pl. I: *4, 7, 8*

Lispe afra Curran, 1937: Paterson, 1953: 174.
Lispe mapaiensis Paterson, 1953: 171, **syn. nov.**
Lispe andrewi Paterson, 1953: 169, **syn. nov.**
Material examined:
Botswana, ***S Distr***., Kanye, 24.95S 25.34E, 1270 m asl, 28–30.01.2013, A.Medvedev, 8♂, 12♀.
Kenya: ***Makueni*** Co., Hunters Lodge, 900 m asl, 2.214S 37.714E, 08.08.2003, S.Kleynberg, 2♂; ***Narok*** Co., Mara R. (about 1.7S 35.4E, 1800 m asl), 03.06.1986, D.Gerling, 1♀ (TAUI).
Madagascar, ***Anosy*** reg., 50km W of Fort Dauphin (Tolanaro env., 25.0S 46.5E), 22.04.1991, F.Kaplan & A.Freidberg, 1♂, 2♀ (TAUI).
Tanzania: ***Pwani*** reg., Ruvu R., 6.48S 38.83E, 10–13.09.2012, D.Gavryushin, 6♂, 5♀; ***Morogoro*** reg., Ngerengere R., 6.83S 37.67E, 19.09.2012, D.Gavryushin, 1♀.
Uganda: Mujenje, Aug.1913, Katona, 1♀ (ZMHU); Masaka env., Katera forest [0.9S 31.5E], 1150 m asl, V.1972, E.Babyetagara, 1♂ (Canadian National Collection, Ottawa).
Disrtibution. Afrotropical, including Madagascar.

Lispe leucospila (Wiedemann, 1830)
Col. pl. I: *1, 2, 9*

Coenosia leucospila Wiedemann, 1830.
Lispe leucospila sinica Hennig, 1960: 440.
Lispe sinica Hennig, 1960: Pont, 1986.
Lispe leucospila (Wiedemann, 1830): Lyneborg, 1970: 43, Figs 23, 24, 25.
Lispe leucospila (Wiedemann, 1830): Vikhrev, 2011a: 216, Figs 4, 6.
Lispe eidsvoldica Malloch, 1925, **syn. nov.**
Material examined:
Paratypes *Lispe leucospila sinica* Hennig, 1960: 440, 2♀ (ZIN). **China**, [***Laoning*** prov.], Mukden [Shenyang, 41.8N 123.4E], 12.07.1952, I.Rubtsov.
Australia: ***QLD***: Dawson R. near Duaringa [23.76S 149.76E], 8.05.1970, Z.Liepa, 11♂, 12♀ (ANIC); Herberton env., [17.37S 145.43E], 1.05.1967, D.H.Colless, 5♂, 5♀ (ANIC); Townsville, Malaise trap, 18.01.2012, G.Cocks, 1♂. ***NSW***, Terry Hie Hie [29.8S 150.2E], M.J.Muller, 15.03–2.04.1974, 3♂, 2♀, 22–23.11. 1973, 2♂, 1♀ (ANIC). ***NT***, Katherine env., 20.08.1973, L.P.Kelsey, 1♂ (ANIC). ***ACT***, [Canberra] Black Mount, 22.01.1968, D.H.Colless, 1♂ (ANIC).
Cambodia: ***Kampot*** prov., Bokor Hill Station, 1000 m asl., 10.627N 104.026E, 08–10.12.2010, NV, 1♂; ***Koh Kong*** prov., a wet grassland, 11.660N 103.097E, 29.11.2010, NV, 4♂, 7♀.
Thailand: ***Chonburi*** prov., Jomtien, 12.87N 100.90E, 1-30.11.2007–2009, NV, 3♂, 6♀; ***Kanchanaburi*** prov., Kanchanaburi, Kwai R., 14.030N 99.522E, 27–30.01.2014, NV, 1♀; ***Phang Nga*** prov., Khao Lak env., 8.65N 98.25E, 20.12.2010, NV, 1♀.
India: ***Goa*** state, Poinguinim, 14.97N 74.09E, 15.01.2009, KT, 1♀; ***Gujarat*** state: Kothara env., 23.1N 68.9E, 5.10.2012, KT, 1♂, 1♀; Mandvi env., 22.821N 69.364E, 10–12.10.2012, KT, 1♂; ***Rajasthan*** state, Dhawala (27.46N 76.54E), 02.03.2011, NV, 1♀.
Disrtibution. East Asia and Australia. Distributed in a triangle: W India (Gujarat); Far East (China, Shenyang, ≈ 41.8N 123.4E (type locality and the northernmost locality known) and Japan, Honshu); E Australia.

Lispe maculata Stein, 1913
Col. pl. I: *3, 10*

Lispe sp. of *leucospila* group: Pont, 1990: 354, Figs. 18, 19 (**Yemen**, Aden, 1♂, 2♀).
Material examined:
Syntype 1♀ (ZMHU). [**Zimbabwe**], Salisbury, G.A.K.Marshall. *L. maculata* was described by 1♂, 3♀, but the remaining syntypes have not been found [Pont, Werner, 2006].
Ethiopia: ***Oromia*** reg.: Bale Mt., Goba, 2660 m asl, 7.025N 39.980E, 18.03.2012, NV, 1♀, Ambo PPRC, 8.97N 37.86E, savannah, 01.11.2009, L.Rybalov, 1♂; Debre Libanos, 2550 m asl, 9.732N 38.816E, 28.09.2005, L.Friedman, 1♂, 2♀ (TAUI); Debre Liba-

nos, 2500 m asl, 9.732N 38.816E, 29–30.07.2012, NV, 6♂, 10♀; ***Amhara*** reg., Tana Lake env., 1800 m asl, 11.54N 37.39E, 2–4.08.2012, NV, 2♂, 1♀.
Kenya: ***Laikipia*** Co., Thomson Falls env., 0.05N 36.38E, 2350 m asl, 21–23.12.2013, NV, 4♂; ***Nyandarua*** Co.: Ol Bolosat L., 2330 m asl, 0.02N 36.40E, 24.11.2012, D.Gavryushin, 10♂, 3♀; Ol Bolosat L., 0.12S 36.43E, 2330 m asl, 20.12.2013, NV, 12♂, 7♀.
Malawi, ***Northern*** reg., Mzimba env., 12.01S 33.66E, 25.12.2009, A.Freidberg, 1♂ (TAUI).
Uganda, Mujenje, Aug.1913, Katona, 3♂ (ZMHU).
Distribution. Afrotropical: Ethiopia, Kenya, Malawi, Uganda, Yemen, Zimbabwe (type locality, Harare, 17.8S 31.0E). According to my observations this species prefers higher altitudes and colder (rainy) season than *L. pectinipes*.

Lispe pectinipes Becker, 1903
Col. pl. I: *5, 6*

Lispe cochlearia Becker, 1904.
Lispe mixticia Séguy, 1941.
Lispe leucospila (Wiedemann, 1830): Hennig 1960: 440, Taf. XX, 399 and Textfig. 154, misidentification.
Lispe leucospila (Wiedemann, 1830): Xue & Zhang, 2005: 122.
Lispe leucospila (Wiedemann, 1830): Paterson, 1953: 168, misidentification.
Lispe pectinipes Becker, 1903: Lyneborg, 1970: 43, Figs. 20, 21, 22.
Lispe pectinipes Becker, 1903: Vikhrev, 2011a: 216, Fig. 5.
Lispe lateralis Stein, 1906. Regarded as a synonym of *L. leucospila* [Pont & Werner, 2006], but is a synonym of *L. pectinipes*.
Lispe paraspila Zielke, 1972: 149, **syn. nov.**
Material examined:
Lectotype 1♂ (des. Lyneborg, 1970: 43) and **paralectotypes** 9♂, 10♀ (ZMHU). [**Egypt**] Cairo [14.11–4.12.1898].
Holotype *Lispe lateralis* Stein, 1906 1♀ (ZMHU). [**Mozambique**], Delagoabai, R. Monteiro.
Syntype *Lispe cochlearia* Becker, 1904, 1♀ (ZMHU). [**Canary**] La Palma [Isl. 8–16.04.1901].
Palaearctic and ***Oriental*** regions: 170 specimens from: Algeria, Azerbaijan (*Lenkoran*), Egypt (*Cairo*, *Luxor*), Greece (*Crete*), India (*Andhra Pradesh, Assam*, *Goa*, *Gujarat*, *Rajasthan*), Indonesia (*Java*), Israel, Morocco (*Essaouira*), Malaysia (*Borneo Sabah*), Russia (*Krasnodar*), Spain (*Canary*), Sri Lanka, Taiwan, Turkey (*Antalia*, *Aydin*, *Hatay*, *Izmir*, *Konya*, *Mugla*), Thailand (*Chonburi*, *Chantaburi*, *Kanchanaburi*, *Mae Hong Son*, *Phang Nga*) (ZMUM and ZMHU).
Afrotropical region:
Ethiopia: ***Amhara*** reg.: Blue Nile R., 1070 m asl, 10.08N 38.19E, 31.07.2012, NV, 3♂, 3♀; Tana Lake env., 1800 m asl, 11.54N 37.39E, 2–4.08.2012, NV, 5♂, 1♀; Tissisat env., 1670 m asl, 11.488N 37.595E, 02.08.2012 NV, 1♂, 1♀; Hayk L., 1920 m asl, 11.325N 39.688E, 06.08.2012, NV, 3♂; ***Oromia*** reg.: Bale Mt., Goba, 2660 m asl, 7.025N 39.980E, 18.03.2012, NV, 1♂; Melkasa env., 8.43N 39.32E, 22.09.2003, A.Freidberg, 1♂ (TAUI); Debre Zeit, Hora L., 1900 m asl, 8.757N 38.993E, 10.07.2012, NV, 8♂, 1♀.
Kenya: ***Makueni*** Co., Hunters Lodge, 900 m asl, 2.214S 37.714E, 08.08.2003, S.Kleynberg, 2♂, 1♀; Simba, 2.15S 37.60E, 18.08.2005, L.Friedman, 1♂; ***Narok*** Co., Mara R. (about 1.7S 35.4E, 1800 m asl), 03.06.1986, D.Gerling, 1♀; ***Nakuru*** Co., Gilgil (0.5S 36.3E, 1950 m asl), 24.08.2003, L.Friedman, 1♀; ***Laikipia*** Co., 50km S of Maralal (0.7N 36.6E, 1800 m asl), 21.08.1983, A.Freidberg, 1♂ (all TAUI).
[**Namibia**]: South Africa, Windhoek, [22.6S 17.1E], 22.01.1988, D.Simon, 3 ♂, 1♀ (TAUI).
Yemen: Taiz, [13.57N 44.01E], banana plantation, 24.01.1975, Sakharova, 1♀.
Distribution. Afrotropical from Ethiopia to Namibia and Madagascar. Palaearctic from Morocco and Canary to China. The northernmost locality known – Russia, Krasnodar reg., Sochi, 43.42N 39.93E. Oriental from India to Sunda Islands.

Identification key for the *Lispe leucospila* group from the Palaearctic and Oriental regions and Australia, ♂ and ♀

– ♂♀: Disc of scutum densely dusted, with rather narrow brown median vitta from neck to tip of scutellum, submedian vittae hardly distinct. Wing hyaline. Widespread in Palaearctic and Oriental regions, but absent in Australia. ♂: Cercal plate – col. pl. I: *6*; *t3* with 8–11 longer *pv* setae; abdomen dull black, with a wide lateral whitish-grey vitta uninterrupted (sometimes interrupted by a black stripe on posterior part of tergite 4). ♀: Abdomen densely grey dusted, only dorsally with black spots (col. pl. I: *5*) ..... ***pectinipes*** Becker
– ♂♀: Disc of scutum dusted only in lateral part, with wide, glossy black, distinct median and submedian vittae, disc of scutellum entirely glossy black. Wing darkened before apex: as in col. pl. I: *1* (E Asia) or 2 (India) or darkening indistinct (Australia). ♂: Cercal plate – col. pl. I: *9*; *t3* with 5–6 shorter *pv* setae; abdomen black with whitish-grey separated lateral spots. ♀: Abdomen entirely glossy black, only small paired whitish lateral spots present, see col. pl. I: *1–2* (these spots sometimes are reduced up to a single pair on tergite 5 only) .... ***leucospila*** Wiedemann

Identification key for the *Lispe leucospila* group from the Afrotropical region, ♂ and ♀

1. Tibiae dark, only knees yellowish (in old and faded specimens tibiae may become yellowish). Abdo-

men glossy black, only small separated whitish dorso-lateral spots present as in col. pl. I: *3* (in females these spots sometimes are reduced to a single pair on tergite 5 only). Disc of scutum mostly glossy blackish, with three wide, glossy black median and submedian vittae, disc of scutellum entirely glossy black. Brown frontal triangle hardly distinct on brown–black interfrontalia. Body length 5–5.5 mm. ♂: *t3* with 4–6 sparse and short *pv* setae. Cercal plate – col. pl. I: *10* ..... ***maculata*** Stein

– Tibiae yellowish. Abdomen with wide grey lateral vittae (more or less interrupted only posterior part of tergites 4). Disc of scutum densely dusted, with brown median vitta from neck to tip of scutellum. Yellowish dusted frontal triangle distinct on dark interfrontalia. ♂: *t3* with at least 8 longer *pv* setae **2**

2. *Prst dc* seta situated at the middle of the presutural half of scutum; body length 4–5.5 mm. ♂: Cercal plate – col. pl. I: *6*; *t3* with strong *av* seta and with 8–11 fine *pv* setulae on apical half .... ***pectinipes*** Becker

– *Prst dc* seta situated in the posterior part of the presutural half of scutum; body length 5–6.5 mm. ♂: Cercal plate – col. pl. I: *7* and *8*, with long lateral hairs; *t3* without strong *av* seta, but apical half of *av*, *v* and *pv* surfaces with numerous long fine setulae ..... ***irvingi*** Curran

2. *Lispe tentaculata* species-group

Notes on the *L. tentaculata* group. The *Lispe tentaculata* group was reviewed by Vikhrev [2011b], but there are several reasons why I consider it here again. 1) After the revision *Lispe emdeni* Vikhrev, 2012 was described. The new species belongs to this group, it is included into the presented key which is modified as compared to that in Vikhrev [2011b]. 2) The new distributional data are being added. 3) Nearctic species of the *L. tentaculata* group were examined and discussed.

Hennig's [1960] distinction of the *L. tentaculata* group are based on wide palpi which are abruptly narrowed in the basal half; sternite 5 with 2 lateral and 1 median posterior processes; the leg chaetotaxy: *t1* without *p* seta; *t2* with 1 *p* seta only; *t3* with strong *ad* and weak *pd*, without *av*. Hennig included 7 species in the *L. tentaculata* group: the Palaearctic *L. consanguinea* Loew, 1858, *L. sericipalpis* Stein, 1904 (= *L. quaerens* Villeneuve, 1936) and *L. orientalis* Wiedemann, 1824; Holarctic *L. tentaculata* (De Geer, 1776); Nearctic *L. sociabilis* Loew, 1862 and *L. patellata* Aldrich, 1913. I can add the following characters shared by these 7 species: arista long plumose; *dc* setae well developed 2+4 or 2+3 or 1+4; meron with hairs above hind coxa; fresh water habitats.

The species-groups of *Lispe* related to the *L. tentaculata* group are considered in Parts 3–5 and the relationship between them is discussed in Part 6 of the present paper.

2.1. The Old World

Lispe consanguinea Loew, 1858
Col. pl. I: *19*

Material examined: over 200♂ and ♀. New records in addition to localities listed in Vikhrev [2011b]:
Belarus, *Minsk* region; **Kazakhstan**: *Akmola*, *W. Kazakhstan* regions; **Russia**: *Bashkortostan*, *Buryatia*, *Jewish AO*, *Kaliningrad*, *Kaluga*, *Orenburg*, *Ryazan*, *Rostov, Saratov*, *Tver*, *Vladimir, Voronezh*, *Volgograd* and *Zabaykalsky* regions; **Uzbekistan**, *Tashkent* region.
Distribution. All Palaearctic between 62°N and 38°N, mainly sandy beaches of large rivers.

Lispe draperi Séguy, 1933
Col. pl. I: *15*

Material examined: over 20 ♂ and ♀ from **Morocco** are listed in Vikhrev [2011b]. New material:
Morocco: ***Al Haouz*** prov., Oukaimeden, 2600 m asl, 13–17.05.2012, NV, 6♂, 1♀; ***Essaouira*** prov., 24–29.03.2009, NV, 11♂, 4♀; 1–5.05.2012, NV, 11♂, 13♀; ***Marrakech*** prov., 22–23.03.2009, NV, 2♂, 6♀; ***Ouarzazate*** prov., 12.05.2012, NV, 3♂, 7♀.
Distribution. Algeria (type locality) and Morocco.

Lispe emdeni Vikhrev, 2012
Col. pl. I: *11, 12, 13, 14*

Material examined:
Type series: ♂ Holotype **India**, ***Rajasthan*** state, Jaipur env., 26.96N 75.85E, 21–22.03.2011, NV, 9♂, 3♀; Paratypes: 8♂, 3♀, same data as the holotype; 7♂, 6♀, Sawai Madhopur env., 26.02N 76.38E, 26.02.2011, NV; 3♂, ***Madhya Pradesh*** state, Jubblepore (= Jabalpur, ≈23.2N 79.9E), 03.05.1905, E.Brunetti (Natural History Museum, London, UK). New material:
India, ***Gujarat*** state, Junagadh env., 21.526N 70.481E, forest stream millpond, 20–30.10.2012, KT, 6♂, 5♀.
Ethiopia, ***Amhara*** reg.: Tissisat env., 1670 m asl, 11.488N 37.595E, 02.08.2012 NV, 1♂; Wirgesa env., 1950 m asl, 11.539N 39.609E, 06.08.2012, NV, 1♂, 2♀.
Distribution. Known from Central India and Ethiopia.
Remarks. All specimens were collected on big stones or rocks along rivers. The Ethiopian specimens differ from the type series by dark posterior tibiae and darker abdominal pattern, but certainly belong to the same species. One point in the description of *L. emdeni* (1–2 + 4 *dc*) has to be corrected. The comparison with related species like *L. sericipalpis* shows that hardly distinct (if present) anterior presutural pair of dorsocentrals should be for uniformity regarded as absent and *dc* should be described as 1+4 (weak + weak, weak, medium, strong).

Lispe orientalis Wiedemann, 1824

Material examined: about 200♂ and ♀. New records in addition to those given in Vikhrev [2011b]: **Egypt**,

Sinai (TAUI); **India**: *Assam*, *Meghalaya*, *Gujarat*, *Mizoram* (TAUI) and *Uttarakhand* states; **Indonesia**, *Java* (ANIC); **Israel**, Eilat env. (TAUI); **Sri Lanka**, Nuwara Eliya; **Turkey**, *Mugla* prov.; **Vietnam**, *Lao Cai* prov.

Distribution. S Palaearctic from W Turkey (Izmir) to Rassian Far East (Primorsky Kray), the northernmost record Russia, Sochi env, 43.0°N. Oriental from India to Indonesia.

Lispe sericipalpis Stein, 1904

Lispe quaerens Villeneuve, 1936: Vikhrev, 2011b.

Material examined: over 200♂ and ♀. New records in addition to those given in Vikhrev [2011b]: **China**, *Yunnan* prov.; **India**: *Meghalaya*, *Uttarakhand* states; **Israel**, Meron Mt. (TAUI); **Russia**, *Krasnodar* reg., **Vietnam**, *Lao Cai* prov.

Distribution. S Palaearctic from Spain to China, the northernmost record Russia, Sochi env, 43.2°N. Oriental from India to Indonesia.

Lispe tentaculata (De Geer, 1776)

Col. pl. I: *16, 18*

Lispe tibialis Macquart, 1839: Pont, 2012: 93.

Lispe alpinicola Zhong, Wu & Fan, 1981 **syn. nov.**

Material examined: over 400 specimens from a vast territory from the Iberian to Kamchatka Peninsulas, see: [Vikhrev, 2011b], here only new and interesting records are listed.

Egypt, ***Sinai***, Wadi El Arbain, 27.08.1975, Gerling, 4♂, 2♀ (TAUI).

Ethiopia: ***Amhara***, Hayk L., 1920 m asl, 11.325N 39.688E, 06.08.2012, NV, 1♀; ***Oromia***: Debre Libanos, 2500 m asl, 9.732N 38.816E, 29–30.07.2012, NV, 1♂; Debre Zeit, Hora L., 1900 m asl, 8.757N 38.993E, 10.08.2012, NV, 1♀.

Spain, ***Canary***, Tenerife, Buenavista, temporary pool, 25–26.03.2011, NV, 7♂, 5♀.

Distribution. Holarctic. The northern distributional limit of *L. tentaculata*, which is well beyond the Arctic Circle, was discussed in [Vikhrev, 2011b], and here I define more exactly the southern limit. In the highlands along the East African Rift *L. tentaculata* was collected during the rainy season in several localities, though it was a rather uncommon species throughout Ethiopia. Thus, *L. tentaculata* is now known from 69°N to 9°N, it is one of the most extended ranges among non-synanthropic species. No wonder that *L. tentaculata* was found also in Sinai, but it was not as expected in the Canary Islands. The archipelago is located 10 times nearer to Morocco (inhabited by *L. draperi*) than to the Iberian Peninsula inhabited by *L. tentaculata*. Specimens of *L. tentaculata* from Tenerife have the body and palpi darker than in typical form and were reasonably described as *L. tentaculata* var. *canariensis* Becker, 1904. Pont [2012b: 93] noted that *Lispe tibialis* Macquart, 1839 described from Canary is a synonym of either *L. tentaculata* or *L. draperi*, thus, the answer is *L. tentaculata*.

Synonymy. It is remarkable that the only species with aberrant leg chaetotaxy among the *L. tentaculata* group is *L. tentaculata* itself: *t1* with 0 or 1 *p*; *t2* with 1(2) *p*; *t3* with 1–2(3) *ad* and 1(2) *pd*. Previously [Vikhrev 2011b] I expressed my doubts about validity of *Lispe alpinicola* Zhong, Wu & Fan, 1981 (type locality: China, Lhasa, 29.65N 91.14E, 3650 m asl) which differs by the presence of additional *p* setae on *t1* and *t2*. Now my collection of *L. tentaculata* with additional seta(e) on tibiae is replenished, most of such specimens are collected in northern or mountain localities (note Tibetian type locality of *L. alpinicola*) and I think I have to take the responsibility to propose the synonymy: *Lispe tentaculata* (De Geer, 1776) = *Lispe alpinicola* Zhong, Wu & Fan, 1981 syn. nov.

Identification key for the *L. tentaculata* group from the Old World

1. *dc* 1+4, only posterior pair of *prst dc* present, 2 anterior pairs of *post dc* weak to hardly distinct. Presutural *ac* hairs weak and short, in 3–7 rows **2**
– *dc* 2+4 or 2+3, all strong (except *L. consanguinea* with 2 anterior pairs of *post dc* weak). Presutural *ac* hairs stronger, in 3–4 rows **4**
2. Body length 4–4.5 mm; palpi yellow; *prst ac* in 3 rows; *f3* with apical *pv* seta; occiput with black undusted area in upper part. ♂: col. pl. I: *11*; fore tarsus modified as in col. pl. I: *14*; terminalia – col. pl. I: *12, 13*. India, Ethiopia ..... ***emdeni*** Vikhrev
– body length 5–7 mm; palpi yellow or dark; *prst ac* in 4–7 rows; *f3* apical *pv* setae; occiput evenly grey dusted. ♂ fore tarsus simple. S Palaearctic, North and mountain areas of Oriental region **3**
3. Body length 5–6 mm; palpi black; *prst ac* in 4–5 rows; ♂ terminalia – see: [Vikhrev, 2011b]; *f3* with only 1 *v* seta at base ..... ***sericipalpis*** Stein
– body length 6–7 mm; palpi yellow; *prst ac* in 6–7 rows; ♂ terminalia – see: [Vikhrev, 2011b]; *f3* with complete (though rather irregular) rows of *av* and *pv* setae ..... ***orientalis*** Wiedemann
4. *f3* without strong submedian *av* seta(e); scutellum bare below at apex; *dc* 2+4(3), 2(1) anterior pairs of *post dc* weak (much weaker than 2 posterior pairs); *t2* and *t3* yellow. ♀: 2nd and 3rd *post dc* never approximated; median pruinose patch on scutum always absent. ♂: cercal plate – col. pl. I: *19* .... ***consanguinea*** Loew
– *f3* with 1–3 strong submedian *av*; scutellum with some fine hairs below at apex; ♂ *dc* 2+3, ♀ 2+4 *dc*, all *dc* strong, in ♀ 2nd and 3rd *post dc* approximated, a median pruinose patch at level of 2nd and 3rd *post dc* present (but sometimes ♀ has dc seta as in ♂); *t2* and *t3* dark or yellow *L. draperi*. ♂: cercal

plate – col. pl. I: *18* **5**

5. Tibiae dark, only knees yellow. *f3* usually with 2–3 long submedian *av* and 2–4 weak but distinct *av* in basal half. Widespread including E Africa, but absent in the Maghreb region. ♂: sternite 5 – col. pl. I: *16* ..... ***tentaculata*** (De Geer)
– posterior tibiae at least in basal half yellowis, usually both *t2* and *t3* entirely yellow. *f3* usually with only 1 long submedian *av*, *av* setae in basal half indistinct. Maghreb region only. ♂: sternite 5 – col. pl. I: *15* ..... ***draperi*** Séguy

2.2. The New World

Lispe patellata Aldrich, 1913

Material examined:
Canada, ***NWT***, Rabbitskin R., [37km] SW of Ft. Simpson [61.65N 121.90W], 12.06.1972, B.V.Petarson, 1♂, 1♀.
USA, ***UT***, Strawberry valley [40.2N 111.1W], 2360 m asl, 9.07.1961, J.G.Chillcott, 1♂.

Lispe sociabilis Loew, 1862
Col. pl. I: *17*

Material examined:
Canada, ***ONT***, Ottawa, R.J.Vockeroth: 2.09.1984, 1♂; 16.06.1963, 1♀.
USA: ***SC***, 2♀; ***GA***, 1♂, 1♀ (ZMHU); ***WI***, Madison, 9–15.05.1936, F.Snyder, 2♂, 2♀ (DEI); ***NC***, Highlands [35.05N 83.20W], 1160 m asl, 27.08.1957, J.G.Chillcott, 1♂, 1♀.

Lispe tentaculata (De Geer, 1776)

Material examined:
Canada, ***BC***: Ketchum L. [58.37N 131.75W, 1100 m asl], 26.08.1960, W.W. Moss, 1♀; Telegraph Creec [57.9N 131.2W], 28.08.1960, W.W.Moss, 1♂.
USA, ***WI***, Dane Country, 31.07.1935, F.Snyder, 4♂; ***MN***, Aitkin, 4.07.1937, F.Snyder, 1♂ (DEI); ***TX***, 23mi W Ft. Dawis [30.6N 104.2W, 1520 m asl], 1.06.1959, F.McAlpaine, 1♀; Big Bend NP [29.3N 103.3W], 17.05.1959, F.McAlpaine, 1♂.
Discussion. In the Nearctic region the genus *Lispe* was revised by Snyder [1954]. Females of the *L. tentaculata* species–group "are practically impossible to distinguish from one another, and the characters used in the key are far from invariable" [Snyder, 1954: 36]. Nearctic males of *L. tentaculata* usually have posterior tibiae yellow(ish) as in N African *L. draperi*, but other characters including the shape of sternite 5 confirm that it is yellow-tibia form of *L. tentaculata*. According to Snyder the male genitalia of 3 Nearctic species of the *L. tentaculata* group are identical; I reexamined the male genitalia and found that cercal plates are identical; the structure of the sternite 5 of *L. patellata* is identical to that of *L. tentaculata* (col. pl. I: *16*), but sternite 5 of the most deviated *L. sociabilis* (col. pl. I: *17*) slightly differs: the median processes are narrower and longer. Nearctic males of the *L. tentaculata* group differ as follows:

1. *tar1–1* without finger-like process, *tar1–2* slightly shorter than *tar1–1*; sternite 5 – col. pl. I: *17* .... ***sociabilis*** Loew
– *tar1–1* with finger–like process, *tar1–2* longer; sternite 5 – col. pl. I: *16* **2**
2. *tar1–2* 2 times longer than *tar1–1*; palpi moderately wide (distinctly less wide than length of antenna); tibiae yellow(ish) or dark ..... ***tentaculata*** (De Geer)
– *tar1–2* subequal to or slightly longer than *tar1–1*; palpi remarkably wide (wider than length of antenna); tibiae always dark ..... ***patellata*** Aldrich

The taxonomic status of these 3 species should be specified, but the origin of the existing situation seems to me rather obvious. Initially the genus *Lispe* was absent in the New World, but several Palaearctic species (like *L. tentaculata*, *L. uliginosa*, *L. pygmaea*, *L. canadensis* and/or *L. flavinervis*) reached N America via the Bering land bridge. The commonest and the northernmost *L. tentaculata* reached N America several times and presently we observe a mixture of descendants of about 3 waves of this spreading.

3. *Lispe nivalis* species-group

Notes on the *L. nivalis* group. Four species recently were included in the *L. nivalis* group [Vikhrev, 2012b], *L. bivittata* Stein, 1909; *L. nivalis* Wiedemann, 1830; *L. hennigi* Vikhrev, 2012 and *Lispe subbivittata* Mou, 1992. In this paper two more species from the *L. nivalis* group are described from Madagascar and N India. I suppose that the *L. nivalis* group is related to the *L. tentaculata* group (discussed in Part 6).

The taxonomic problems with *L. bivittata*, *L. subbivittata* and *L. ochracea* Becker 1910 were discussed in [Vikhrev, 2012b], here I specify certain points. *Lispe bivittata* Stein, 1909 and *Lispe subbivittata* Mou, 1992 are closely related species with elongated setulae on *a* surface of apical part of *t3* in males, but these species can be reliably distinguished in both sexes as recommended in the identification keys below. In Xue & Zhang [2005] females with strong submedian *av* seta on *f3* were correctly associated with males of *L. subbivittata* with about 20 longer *av* to *ad* setulae on apical half of *t3*; females without median *av* on *f3* were associated to males of *L. bivittata* with only 5–6 shorter *ad* setulae on apical half of *t3*. For this reason the name *Lispe subbivittata* Mou, 1992 was used in [Vikhrev, 2012b] and is used in this paper, though I'm not sure that it is the oldest name. There is no doubt about the synonymy of *L. nigrifacies* Becker, 1914 (type locality: Taiwan) and *L. haha* Snyder, 1965 (type locality: Japan, Haha-jima Isl., 26.67N 142.15E) with *L. bivittata*, examination of type material and detailed description of Snyder [1965] con-

firm it, but the synonymy of *Lispe ochracea* Becker, 1910 (type locality: Yemen, Sokotra) to *L. bivittata* proposed by Emden [1951] and accepted by Hennig [1960] is not so obvious. *Lispe ochracea* Becker, 1910 was described by a single female from Sokotra and according to Becker's [1910] original description, the female type has *f3* with strong median *av* seta, so it looks that *L. ochracea* is not a synonym of *L. bivittata*, but *L. subbivittata* is a synonym of *L. ochracea*. From the characters mentioned in corresponding papers it is clear that male *L. ochracea* sensu Emden [1941] and female *L. bivittata* sensu Pont [1991] are conspecific with *L. subbivittata*. The distributional data also indicate that *L. ochracea* is not conspecific with *L. bivittata*: the latter is widespread in S-E Asia and spread westward till India only, all records from N-E Africa and Arabian Peninsula (i.e. around Sokotra) belong to *L. subbivittata*. In 2011 I asked Dr. T. Galinskaya who visited the Naturhistorisches Museum, Vienna to look for the type of *L. ochracea* but it was not found (though it was in Vienna in 1981 (Dr. A. Pont, pers. com.)). Without examination of the type and with female holotype itself probably lost, I am not ready to call in question the generally accepted synonymy of *L. ochracea* to *L. bivittata*.

Lispe bivittata Stein, 1909
Col. pl. I: *20*

Lispe ochracea Becker, 1910.
Lispe nigrifacies Becker, 1914.
Lispe haha Snyder, 1965.
Material examined:
Paralectotypes of *L. bivittata* 1♂, 1♀ (ZMHU): [**Indonesia**], ***Java***, Semarang, Jacobson.
Holotype *L. nigrifacies* ♂ (DEI): Formosa, Kankau, 09.1912, H.Sauter.
50 ♂ and ♀ from: **Cambodia**, *Koh Kong* prov.; **India**: *Uttarakhand* state; **Myanmar**, *Shan* state; **Thailand**: *Mae Hong Son*, *Nakhon Ratchasima* and *Phuket* prov.; **Vietnam**: *Lao Cai* prov. are listed in [Vikhrev, 2012b].
New material:
India, ***Assam*** state, Chapar env., Champamati R., 40m asl, 26.32N 90.46E, 1–3.01.2014, KT, 11♂, 6♀.
Thailand, ***Kanchanaburi*** prov., Saiyok Yai NP env., 14.44N 98.86E, 1–4.02.2014, NV, 2♂, 1♀.
Distribution. Oriental from India to Indonesia (Java – type locality).

Lispe hennigi Vikhrev, 2012
Col. pl. I: *23*

Material examined:
Holotype ♂, **paratypes** 1♂, 2♀ (ZMUM): **Thailand, *Mae Hong Son*** prov., 19.57N 98.28E, 650 m asl, 20–25.11.2010.
Distribution. N Thailand.

***Lispe medvedevi* sp. nov.**
Col. pl. I: *24*

Holotype: male, **Madagascar**, ***Toamasina*** prov., Andasibe env., 940 m asl, 18.932S 48.417E, 10.03.2012, A.Medvedev.
Paratypes: 15♂, 9♀, same label, 8–13.12.2012.
Description. Male, body length 5–6 mm.
Head. Fronto-orbital plates blackish in upper 2/3, densely yellow-whitish dusted in lower 1/3, with 3–4 inclinate and 2 reclinate setae and an outer row of setulae. Interfrontalia dirty-blackish, frontal triangle subshining black. Face and parafacials densely dusted, colour from whitish-yellow to blackish-grey, cheeks whitish-yellow, occiput grey dusted. Antenna black, arista long plumose with the longest hairs twice as long as antenna width. Parafacial with a row of setulae. Vibrissae medium long, palpi moderately widened, yellow.
Thorax. Scutum and scutellum brownish-black, subshining, with a pair of indistinct greyish vittae between ac and dc rows, postpronotal lobe and pleura densely grey dusted. Thoracic setae: *prst ac* in 4–5 irregular rows; 0+2 strong *dc* (or 1–2 + 3–4 *dc*, considering hardly distinct anterior pairs); postpronotal 1; intraalars absent; supraalars 1+1; notopleural 2, otherwise notopleura bare; katepisternal setae — 1:2; anepimeron with 5–6 setulae arranged in 1 row or almost so; meron with 1–3 setulae above hind coxa; scutellum with setulae below at apex. Wing hyaline, slightly brownish, vein M straight, calypters yellowish-white, halteres light brown.
Legs black with grey dusting, but *t2* and basal half of *t3* dirty yellow. Fore coxa with a tuft of long, apically curved setae on posterior surface, *f1* with complete rows of *pd* and about 7 *pv* setae. *t1* without setae except preapicals. *f2* with 2 *pd* setae at apex and in apical quarter; in basal 1/3 with 2–3 rather strong straight *pv* setae and 1 short *a* seta. *t2* with 1 submedian *p* seta. Hind coxa bare on inner posterior surface. *f3*: in median 1/3 with 2–3 *av* setae which are at most hardly as long as femur width, usually shorter and with 1 *av* at apex; with 3(2) *pv* in basal half (the median one the longest, about 2× as long as femur width and 1 *pv* preapical. *t3* with submedian *ad* and short *pd*. Pulvilli small.
Abdomen subshining black with indistinct grey median vitta, tergites 3 to 5 each with large white anterolateral spots. Sternite 5 membranous, reduced to a pair of sclerites with weak sclerotization; cercal plate as in col. pl. I: *24*.
Female. Differs from male as follows: fore coxa without tuft of long setae; *f3* without median *av* and *pv* setae; abdomen wider, with grey median vitta more distinct; anterolateral spots on tergites 3 and 4 whitish-grey, tergite 5 mainly hidden.
Diagnosis. *Lispe medvedevi* sp. nov. differs from the closely related Afrotropical *L. nivalis* by yellow

palpi; chaetotaxy of posterior femora and structure of cercal plate in ♂.

Etymology. The new species is named after the collector, Andrey Medvedev (Moscow, Russia).

Lispe nivalis Wiedemann, 1830
Col. pl. I: *21*

Material examined: almost 100 ♂ and ♀ from: **Ethiopia**: *Amhara* and *Oromia* reg.; **Morocco**: *Essaouira*, *Ouarzazate* and *Tan-Tan* prov.; **Portugal**; **Spain**: *Canary* and *Granada* prov. were listed in [Vikhrev, 2012b]. New material:

Botswana, ***S Distr***., Kanye, 24.95S 25.34E, 1270 m asl, 28–30.01.2013, A.Medvedev, 1♂, 4♀.

Kenya: ***Laikipia*** Co., Thomson Falls env., 0.05N 36.38E, 2350 m asl, 21–23.12.2013, NV, 4♂, ***Nakuru*** Co.: Hell's Gate NP, 0.895S 36.32E,1860 m asl, 19.12.2013, NV, 7♂, 2♀; Malewa R., 1900 m asl, 0.67S 36.39E, 19.11.2012, D.Gavryushin, 1♀.

Tanzania, ***Morogoro*** reg., Ngerengere R., 6.83S 37.67E, 21.09.2012, D.Gavryushin, 13♂, 4♀.

Togo, Missahohe [6.9N 0.6E], 10.05.1894, E. Baumann, 1♀ (ZMHU).

South Africa, ***KZN***, Durban [29.8S 31.0E], 1902, F.Muir, 2♂, 8♀ (ZMHU).

Distribution. S-W Palaearctic: Spain, Portugal, N Africa, Arabian Peninsula. Widespread Afrotropical species, except Madagascar where it is replaced by related *L. medvedevi* sp. nov.

Lispe subbivittata Mou, 1992
Col. pl. I: *22*

Lispe bivittata spp. *subbivittata* Mou, 1992.

Material examined: more 30 ♂ and ♀ from **India:** *Rajasthan* and *Uttarakhand* states; **Ethiopia**, *Amhara* reg. are listed in [Vikhrev, 2012b]. New examined material: **Egypt**, Elephantine [Aswan], Reimoser, 1♀ (ZMHU).

India: ***Andhra Pradesh*** state, Qundlakamma R., 15.562N 80.119E, 2.03.2014, KT, 1♂, 1♀; ***Gujarat*** state: Bhuj env., 23.25N 69.66E, 2–3.10.2012, KT, 10♂, 5♀; Junagadh [21.52N 70.46E] env., 20–30.10.2012, KT, 4♂, 3♀; ***Orissa*** state, Daspalla env., 20.38N 84.77E, 17–25.01.2014, KT, 2♂, 1♀.

Sri Lanka, Ceylon, Nalanda [7.67N 80.64E], Lichtwardt, 1♂ (DEI).

Distribution. S-E Palaearctic: from Arabian Peninsula and Iran to N-E China (Laoning prov., type locality). North of the Afrotropical region: Ethiopia, Sudan, Yemen. Oriental region: India and Sri Lanka.

Lispe tomkovichi sp. nov.
Col. pl. I: *25*

Holotype: male, **India**, ***Assam*** state, Chapar env., Champamati R., 40m asl, 26.32N 90.46E, 1–3.01.2014, K.Tomkovich.

Paratypes 2♂, 4♀, same label.

Other material: **India**: ***Rajasthan*** state, Sawai Madhopur env., 26.02°N 76.38°E, 25.02.2011, NV, 1♀; ***Orissa*** state, Gop env., 19.982N 86.016E, 8–9.01.2014, KT, 1♀ (I preferred do not include those females collected without males in the type series).

Description. Male, body length 6.2–6.8 mm.

Head. Fronto-orbital plates blackish in upper half, whitish-grey dusted in lower half, with 3–4 inclinate and 2 reclinate setae and an outer row of setulae. Interfrontalia dirty-blackish, frontal triangle subshining black. Face, parafacials and cheeks densely yellowish-grey dusted, occiput grey dusted. Antenna black, arista plumose with the longest hairs 1.5× as long as antenna width. Parafacial with a row of setulae. Vibrissae medium long. Palpi yellow.

Thorax. Scutum and scutellum brownish, subshining, with a pair of indistinct greyish vittae between ac and dc rows, postpronotal lobe and pleura densely grey dusted. Thoracic setae: 0+1 *ac*, *prst ac* hairs merge with other scutal ground hairs; 0+2 strong *dc* (or 1–2 + 3–4 *dc*, considering hardly distinct anterior pairs); postpronotal 1; intraalars absent; supraalars 1+1; notopleural 2, otherwise notopleura bare; katepisternal setae – 1:2; anepimeron with 7–8 setulae placed in about 3 rows and occupying a rounded area*; meron with 1(2) setulae above hind coxa; scutellum with setulae below at apex. Wing hyaline, vein M straight, calypters white, halteres light brown.

Legs. Coxae and femora black with grey dusting; tibiae yellow, with greyish dusting in apical halves; tarsal segments 1 and 2 yellowish, segments 3 to 5 – dark. Fore coxa with a tuft of long setae on posterior surface, *f1* with complete rows of *pd* and about 7 *pv* setae. *t1* without setae except preapicals. *f2* with a complete row of 16–17 strong *pv* setae which are about as long as femur width and a complete row of 14–15 weaker and shoter *av* setae; typical 1–2 *a* setae in basal half and 2 preapical *pd* also present. *t2* with 1 submedian *p* seta. Hind coxa bare on inner posterior surface. *f3* in apical 2/3 with rows of 7–9 *av* and 7–8 *pv* setae, the longest and strongest setae are in the middle of each rows and almost twice as long as femur width. *t3* with submedian *ad* and short *pd*. Pulvilli small.

Abdomen. with tergites 1+2 to 5 dorsally evenly grey dusted, laterally shining black, ventrally brownish-grey dusted; tergites 3 to 5 each with large dorso-lateral whitish spots. Sternite 4 (and to a lesser extent

*Setulae on anepimeron for want of anything better seem to be important for distinguishing females of *L. tomkovichi* sp. nov. from *L. bivittata* or *L. hennigi*, all female paratypes of *L. tomkovichi* sp. nov. have only 8 anepimeral setulae. But I have to report that one male paratype has these setulae more numerous, 13 to be precise, so this character might be variable.

sternite 3) covered with dense and elongated hairs. Cercal plate as in Col. pl. I: *25*.

Female. Differs from male as follows: palpi brownish-yellow; fore coxa without tuft of long setae; *f2* without distinct *pv* and *av* rows of setae (though setulae on *pv* surface still stronger and longer than in females of related species of the *L. nivalis* group); *f3* without strong *av* and *pv* setae except apical *pv* (but *av* and *pv* setae/setulae in apical half of *f3* are distinctly stronger and longer than in related species of the *L. nivalis* group); *t1* dark, *t2* and *t3* yellow but more densely grey dusted); tarsi dark, but *tar2–1* still yellow; abdomen wider, rather evenly grey dusted, with vague dirty-whitish dorso-lateral spots on tergites 3 and 4; sternites 4 and 3 covered with usal scarse short setulae.

Diagnosis. Males *Lispe tomkovichi* sp. nov. differ from other species of the *L. nivalis* group by a rich set of characters: yellow palpi, bicolorous tarsi, *pv* and *av* rows of setae on *f2* and *f3*; densely setulose sternite 4. The structure of the cercal plate is rather like that of *L. subbivittata*. The identification of female is not as easy, but characters recommended in the key below seem reliable enough.

Etymology. The new species is named after the collector, Konstantin Tomkovich (Moscow, Russia).

Identification key for the *Lispe nivalis* species-group, ♂

1. *f3* with 1 to 3 strong submedian *pv* setae or with a row of 7–8 *pv* in apical half; fore coxa with a tuft of long setae posteriorly; anepimeron with 6–8 hairs; *t3* without *ad* setulae at apical half **2**
– *f3* without strong *pv* setae except for preapical one; fore coxa without long setae posteriorly; anepimeron with 10–15 hairs placed in about 3 rows and occupying a rounded area; *t3* with *ad* setulae at apical half below strong *ad* seta **5**
2. *f3* in apical 2/3 with dense rows of 7–9 *av* and 7–8 *pv* setae; *f2* with a complete and dense row of 16–17 strong *pv* setae which are about as long as femur width and a complete row of 14–15 weaker and shoter *av* setae; tarsal segments 1 and 2 yellowish, segments 3 to 5 – dark; sternite 4 (and to a lesser extent sternite 3) covered with dense and elongated hairs; hairs on anepimeron placed in 2–3 rows and occupying a rounded area. (Palpi yellow.) Cercal plate — col. pl. I: *25*. N India ..... ***tomkovichi* sp. nov.**
– *f3* with at most 3–4 *av* and 2–3 *pv* sparsely placed setae; *f2* at most with 3 *pv* in basal half; all tarsi dark; sternite 4 and 3 covered with usual short and sparse hairs; hairs on anepimeron placed in a single horizontal row or almost so **3**
3. *f3* with 1 submedian *pv* and 1 submedian av setae; abdomen widened on segments 3 to 5, with an obtuse apex; with whitish-grey dusting. Cercal plate – col. pl. I: *23*. N Thailand. (Palpi darkened, but yellow at base.) ..... ***hennigi*** Vikhrev
– *f3* with more than submedian *pv* and av setae; abdomen of a normal shape with a pointed apex; shining black except for 3 pairs of lateral white spots. Africa, S-W Europe, Madagascar **4**
4. Palpi yellow. *f2* with 2(3) strong *v* setae in basal half. *f3* with a submedian *av* seta at most hardly as long as femur width, usually shorter. Cercal plate – col. pl. I: *24*. Madagascar ..... ***medvedevi* sp. nov.**
– palpi black. *f2* with 2–3 weak *v* setulae in basal half. *f3* with a submedian *av* seta 1.5–2× as long as femur width. Cercal plate – col. pl. I: *21*. Africa, S-W Europe ..... ***nivalis*** Wiedemann
5. *t3* below strong *ad* with a dense brush of about 20 setulae on *ad*, *a* and *av* surfaces; *tar3–1* with dense short curved setulae on *av* surface; notopleupon with 1–3 setulae in the area between strong notopleural setae. Cercal plate – col. pl. I: *22* ..... ***subbivittata*** Mou
– *t3* below strong *ad* with a sparse row of 5–6 *ad* setulae; *tar3–1* without curved *av* setulae; notopleupon bare in the area between strong notopleural setae. Cercal plate – col. pl. I: *20* ..... ***bivittata*** Stein

Identification key for the *Lispe nivalis* species-group, ♀

1. *f3* with 1 strong submedian *av* setae; notopleupon with 1 to several setulae on area between strong notopleural setae ..... ***subbivittata*** Mou
– *f3* without submedian *av* setae; notopleupon bare on area between strong notopleural setae **2**
2. *f3* with several short but distinct *av* and *pv* setae in apical half; *f2* with *pv* setulae stronger and longer than ground setulae; *tar2–1* yellow. (Palpi brownish-yellow; anepimeron with 8 hairs placed in 2–3 rows occupying a rounded area.) N India ..... ***tomkovichi* sp. nov.**
– *f3* without distinct *av* and *pv* setae in apical half except 1 apical *pv*; *f2* with ground setulae on *pv* surface; *tar2–1* dark **3**
3. Anepimeron with 5–6 hairs placed in a single horizontal row or almost so **4**
– anepimeron with 13–15 hairs placed in 3–5 rows occupying a rounded area ..... ***bivittata*** Stein
4. Presutural *ac* in 3 rows; N Thailand ..... ***hennigi*** Vikhrev
– presutural *ac* in 4–5 rows; Africa, S-W Europe, Arabian Peninsula, Madagascar **5**
5. Palpi yellow. Madagascar ..... ***medvedevi* sp. nov.**
– palpi black. Africa, S-W Europe, Arabian Peninsula ..... ***nivalis*** Wiedemann

4. *Lispe scalaris* species-group

Notes on the *L. scalaris* group. The *Lispe scalaris* species-group [Hennig, 1960] initially included 4 spe-

cies. It had been recently revised by Vikhrev [2012a] who reduced the number of species to 3: *Lispe scalaris* Loew, 1847 (= *Lispe persica* Becker, 1904), *Lispe nubilipennis* Loew, 1873 and *Lispe elegantissima* Stackelberg, 1937. In this paper one more species *Lispe flavipes* Stein, 1913 is added to the *L. scalaris* group, descriptions of the previously unknown males of *L. nubilipennis* and *L. flavipes,* and an identification key for the *L. scalaris* group are given.

The *L. scalaris* group can be characterized as follows: densely dusted small species; occuring in arid regions of Eurasia and Africa; palpi relatively narrow, abruptly narrowed toward base; *prst ac* setulae in 2 (rarely partly in 3) rows distinctly separated from scutal setulae; *dc* 2+3 all strong; postpronotal lobes with strong spinules on anterior and inner parts; leg chaetotaxy as follows: *t1* without setae, *t2* with 1 *p*, *t3* 1 *ad* seta only. The male terminalia of all species of the *L. scalaris* group are characteristic. The relationship of the *L. scalaris* group with other groups is considered in Part 6.

Lispe elegantissima Stackelberg, 1937
Col. pl. II: *31, 32, 33*

Material examined:
Holotype ♂ (ZIN): Turkmenia, Tashaus [**Turkmenistan**, ***Dashoguz***, 41.9N 59.9E], 1937, A. Stackelberg.
Kazakhstan: Kyzylorda reg., pond near Syr Darya R., 45.757N 62.312E, 15–19.05.2011, KT, 19♂, 34♀.
Tajikistan: «низовья Вахша» (low Vakhsh R.) = Khatlon prov., approx. 37.5N 68.5E, 17.03.1944, A. Stackelberg, 2♂, 2♀ (ZIN).
Turkmenistan: Lebap prov., Chardzhou env., 25.04.1990, A.Ozerov, 1♂, 9♀; Ahal prov., Ashgabat env., 5.05.1990, A.Ozerov, 1♀.
Distribution. Palaearctic, Central Asia.

Lispe flavipes Stein, 1913
Col. pl. II: *26, 27*

Material examined:
Madagascar, ***Toamasina*** reg., Manambato, 18.75S 49.15E, 27–30.11.2012, A.Medvedev, 7♂, 5♀.
Description of male. Body length 5–5.6 mm. *Head* densely dusted: fronto-orbital plates yellow-white (shining black spots on upper part absent); interfrontalia dark grey; frontal triangle very distinct, wide, yellow; face and parafacials golden-yellow, cheeks whitish; occiput whitish-grey (without shining black spots on upper part). Fronto-orbital plates with 2(3) inclinate, 1 reclinate setae and several setulae in outer row. Parafacials narrow, virtually bare (single very weak, short and sparse setulae may present). Antenna basally yellow, postpedicel black; aristal hairs half as long as antenna width. Palpi narrow, yellow. *Thorax* densely grey dusted, scutum with indistinct narrow vittae along dorsocentrals. *dc* 2+3 all rather strong; *prst ac* hairs in 3 rows (anteriorly sometimes in 2 widely separated rows, posteriorly in 3–4); katepisternals 1:2; anepimeron with 1–3 setulae; meron bare. Wings brownish darkened in apical 1/3 (col. pl. II: *26*). *Legs*. Trochanters, femora, tibiae and fore tarsus yellow, posterior tarsi darkened. *f2* with 1 *pd* at apex and 1 *pd* at apical 1/3; *f3* with short submedian *ad*; *t1* without setae; *t2* with 1 *p*; *t3* with short *ad*. *Abdomen* evenly grey dusted (col. pl. II: *26*). Cercal plate – col. pl. II: *27*.
Female similar to male, differs as follows: *f3* without *av*; wing hyaline. (My female specimens from Madagascar have abdomen evenly grey dusted as in males, but according to Stein's [1913] description females from S Africa have tergite 4 (Stein's "ring 3") with a pair of shining black spots.
Distribution. Afrotropical, known from S Africa (type locality, Willowmore, ≈33.29S 23.49E) and Madagascar

Lispe nubilipennis Loew, 1873
Col. pl. II: *28, 29, 30*

Material examined:
Holotype, ♀ (ZMHU): Sarepta [Russia, Volgograd env., ≈48.52N 44.51E].
Kazakhstan: ***W. Kazakhstan*** reg., Uralsk env., Barbastau R., 51.21N 51.97E, 28.08.2012, KT, 2♂, 2♀.
Russia: ***Astrakhan*** reg., Baskunchak L. env., fresh pond, 48.165N 46.82E, 3–6.05.2010, KT, 1♀; ***Kalmykia*** reg.: 47.595N 44.592E, 08.06.2012, KT & NV, 1♂, 3♀; Ergeninsky env, 47.6N 44.5E, 01.05.2013, NV, 2♂, 11♀; ***Orenburg*** reg., Sol-Iletsk env., 51.342N 55.013E, 28.08. KT, 1♀; ***Rostov*** reg., Kamensk-Shakhtinsky env., 48.242N 40.404E, 01.06.2013, NV, 4♂, 4♀; ***Volgograd*** reg.: Sarpa saltish lake, 48.35N 44.61E, 7.06.2012, NV, 1♀ (15–20km from type locality); Breslavka env, 48.5355N 44.131E, 30.04.2013, NV, 1♀.
Description of male. Body length 4.8–5.1 mm. *Head*: fronto-orbital plates yellow-white, with shining black spots on upper part; interfrontalia black; frontal triangle wide, yellow in anterior part, subshining black and hardly distinct in posterior part; face and parafacials whitish-yellow, cheeks whitish; occiput whitish-grey, with shining black spots on upper part. Fronto-orbital plates with 2–3 inclinate, 2 reclinate setae and several setulae in outer row. Parafacials with distinct setulae. Antenna basally dirty-yellow, postpedicel black; aristal hairs half as long as antenna width. Palpi narrow, yellow. *Thorax*. Scutum brownish-grey dusted, with wide shining dark vittae aside from *dc* rows, humeral calli, notopleura and the rest of pleura dusted. *dc* 2+3 or 2+4; *prst ac* hairs in 2 rows; katepisternals 1:2; anepimeron with 1–3 setulae; meron bare. Wings darkened as in *L. elegantissima*, but less distinct: the darkening is better visible at an acute angle of view in apical third of wing before apex (col. pl. II: *28*). *Legs* dirty-yellow, but femora dark except very apex. *f2* with 1 *pd* at apex,

1 *pd* at apical 1/3 and with a complete row of short but strong pv setae, which are longer in basal 1/3; *f3* with an irregular row of short *pv* setae in basal half and 1 *pv* at apex, a tuft of longer fine *p* setae present at very base of *f3*; *t1* without setae; *t2* with 1 *p*; *t3* with short *ad*. *Abdomen* grey dusted with extensive black shining areas: tergite 1+2 is black laterally and ventrally; tergites 3 and 4 are black posterolaterally and ventrally, tergite 5 is entirely black except anterodorsal dusted stripe (col. pl. II: *28*). Cercal plate – col. pl. II: *30*, sternite 5 – col. pl. II: *29*.

Female differs from male as follows: *f2* and *f3* without ventral setae; abdomen more dusted, black area less extensive.

Distribution. Palaearctic, Caspian Lowland.

Lispe scalaris Loew, 1847
Col. pl. II: *34a, 34b, 35*

Lispe persica Becker, 1904: Vikhrev, 2012a: 109-111.
Lispe scalaris ssp. *maroccana* Canzoneri & Meneghini, 1966 **syn**. **nov**.

Material examined:

Holotype of *L. scalaris* ♀ (ZMHU): [**Turkey**], Smirna [*Izmir*].

Syntypes of *L. persica* 1♂, 2♀ (ZIN): Sistan, 21.05.1898, N. Zarudnyi [**Iran**, ***Sistan and Baluchestan*** prov., 27N 61E].

Egypt: ***Cairo***, XI (Nov), 1♂ with Becker's identification label; Assuan, II (Febr) 2♂, 1♀ with identification labels by Becker, Kowarz and Hennig (ZIN).

Ethiopia: ***Oromia***, Ziway L., 1640 m asl, 7.91N 38.73E, 12.03.2012, NV, 11♂, 2♀.

India: ***Rajasthan*** **state**, Jaipur env., 23–26.02.2011, NV, 8♂, 5♀.

Israel: Yeruham (30.99N 34.90E), 22.07.1962, J.Kugler, 1♂, 2♀ (TAUI); Mash'abbesade (31.01N 34.78E), 21.07.1986, A.Freidberg, 3♂, 2♀ (TAUI), Kinneret L. env., 32.7N 35.6E, 27.11.2011, NV, 1♂ (ZMUM).

Morocco: ***Essaouira*** prov., Essaouira env., 1–5.05.2012, NV, 3♂, 3♀; ***Ouarzazate*** prov., 29.85N 5.61W, 30.03.2011, A.Gusakov, 1♂, 1♀; ***Tan-Tan*** prov., Draa R., 28.528N 10.947W, 11.05.2012, NV, 3♂, 5♀.

Turkmenistan: ***Mary*** **prov**., Kushka env. [35.3N 62.3E], 20.05.1990, A.Ozerov, 13♂, 4♀; ***Ahal*** **prov**., Tejen [37.4N 60.5E], 15.05.1969, A.Zhelochovtsev, 2♀.

Distribution. Palaearctic from Morocco to Central Asia; Oriental, India and Afrotropical, Ethiopia.

Remarks. Since the last publication on *L. scalaris* [Vikhrev, 2012a] new series were collected from Ethiopia and Morocco. The Ethiopian record expands the distribution range of *L. scalaris* to the north part of the Afrotropical region. Being a mixture of specimens with more or less dusted scutum and abdomen, the Ethiopian material also confirms the synonymy of *Lispe persica* Becker, 1904 with *L. scalaris* [Vikhrev, 2012a]. Some females *L. scalaris* collected in 2012 in Morocco have yellow femora (col. pl. II: *34b*), whereas other Moroccan females have the posterior femora darkened in basal half only, but there are also Moroccan specimens with typical darkening of femora. Females with yellow femora fit Pont's [1991: 355] description of *Lispe* sp. from Saudi Arabia. I regard these specimens as yellow-leg form of *L. scalaris*.

Synonymy. The characters given for *Lispe scalaris* ssp. *maroccana* Canzoneri & Meneghini, 1966 (type locality: Morocco, oued Moulouja [Moulouya River, ≈ 35.12N 2.35W]) are within the limits of variability of *L. scalaris* discussed in [Vikhrev, 2012a] and in "Remarks" above, so I regard *L. scalaris scalaris* Loew, 1847 = *Lispe scalaris* ssp. *maroccana* Canzoneri & Meneghini, 1966, syn. nov.

Identification key for the *Lispe scalaris* species-group, ♂ and ♀

1. Legs including all femora entirely yellow. Fronto-orbital plates evenly yellow-white dusted, shining black spots on upper part absent. *prst ac* hairs in the posterior part of presutural area in 3 rows. Parafacials virtually bare (only very weak, short setula(e) may be sometimes found). Occiput evenly grey dusted; abdomen evenly grey dusted (or at least tergite 3 without black spots). S Africa and Madagascar. Body length 5–5.6 mm. ♂ *f3* with submedian *av* seta. Wing apically brownish darkening (col. pl. II: *26*). Cercal plate – col. pl. II: *27* ..... ***flavipes*** Stein

– Femora partly to entirely darkened (except rare yellow-leg specimens of *L. scalaris*, in this case body length 4.5 mm or less). Fronto-orbital plates with shining black spots on upper part. *prst ac* hairs in 2 rows. Parafacials always with distinct row of setulae. Occiput with shining black area in upper part; abdomen with extensive shining black areas (at least tergite 3 with black spots). S Palaearctic, N of Africa. Body length 3.5–5.1 mm. ♂ *f3* without submedian *av* seta **2**

2. Wing more or less distinctly darkened, as shown on col. pl. II: *28* and *31*. Abdomen with extensive shining black area (or at least ventral and lateral parts of tergites 1+2 and 3 partly shining black or almost entirely shining black), see col. pl. II: *28* and 31. Scutum always with distinct wide shining vittae. ♂ *f2* ventrally with setae. Pricaspian lowland and Central Asia **3**

– Wing not darkened. Abdomen with shining black area less extensive, ventral and lateral parts of tergites 1+2 and 3 always dusted (col. pl. II: *34a, 34b*). Scutum often without distinct shining vittae, or vittae present, but less distinct. ♂ *f2* ventrally without setae. Cercal plate – col. pl. II: *35*. S Palaearctic from India and Central Asia to Morocco, also known from Ethiopia ..... ***scalaris*** Loew

3. Wing distinctly darkened (col. pl. II: *31*). Anepi-

sternum with black shining stripe (col. pl. II: *30*). Abdomen with black area more extensive, ventral and lateral surfaces entirely black. Tibiae darkened in apical half. Body length 3.8–4.4 mm. ♂ *f3* with *pv* setae in basal half. Cercal plate – col. pl. II: *33*, sternite 5 – col. pl. II: *32*. Central Asia .... ***elegantissima*** Stackelberg

– Wing less distinctly darkened col. pl. II: *28*). Anepisternum without black shining stripe. Abdomen with black area less extensive, laterally with separated black shining spots. Tibiae yellow.Body length 4.8–5.1 mm. ♂ *f3* without *pv* setae. Cercal plate – col. pl. II: *30*, sternite 5 – col. pl. II: *29*. Caspian Lowland .. .. ***nubilipennis*** Loew

5. *Lispe nana* species complex

Notes on the *L. nana* species complex. It is not clear to me why Hennig had not included *L. nana* Macquart, 1851 in the *L. tentaculata* group. *L. nana* shares all the group characters excluding hairs on meron [not mentioned by Hennig, 1960] and has the cercal plate and sternite 5 very much like those of *L. consanguinea*. On the other hand, the *L. nana* species complex shares most of the characters with the *Lispe scalaris* species group including such a probably apomorphic character as the presence of strong spinules on the anterior and inner parts of the postpronotal lobes. The *L. nana* species complex differs from the *L. scalaris* group only by the presence of a weak *pd* seta on *t3*; more widened palpi and the structure of male terminalia. The unique character of the *L. nana* complex is the presence of small rounded black knob-like process at each anterior ventromarginal corner of tergite 3 in males. Thus, *L. nana* has an intermediate position between *L. tentaculata* and *L. scalaris* groups. *L. nana* is a widespread S Palaearctic species which is most common in the spring season. The few specimens collected in Chuvashia, Kaliningrad, Kaluga and Ryazan regions of Russia show that 55–56°N is the northern distributional limit of *L. nana*. This species is known as a successful colonist of the remote islands (Canary, Azores, Cape Verde). Examined specimens from the Canaries, northern Oriental region (India) and northern Afrotropical region (Ethiopia, Zwai Lake) are typical *L. nana*. But 1000 km southward from Ethiopia where *L. nana* was still recorded, in the vicinity of Naivasha Lake in Kenya the *L. nana* species complex is represented by different species hereinafter referred to as *Lispe triangularis* sp. nov. The third species belonging to the *L. nana* species complex is described here as *Lispe martirei* sp. nov. from Reunion Island. *Lispe triangularis* sp. nov. and *Lispe martirei* sp. nov. only slightly differ from each other and *L. nana*, but they were collected in large series which are homogeneous and all specimens in hand may be reliably attributed to one of the species in both sexes.

***Lispe martirei* sp. nov.**

Col. pl. II: *36, 37, 38, 39*

Holotype: male, **France overseas** reg., ***Reunion*** Island, Plaine des Cafres env, 1650 m asl, 21.17S 55.59E, 25.10.2012, D.Martire.

Paratypes 6♂, 9♀: France overseas reg., Reunion Island, Plaine des Cafres env, 1650 m asl: 21.2S 55.59E 21.09.2012, D.Martire, 2♂; 21.17S 55.59E, 08.10.2012, D.Martire, 1♀; 21.17S 55.59E, 25.10.2012, D.Martire, 3♂, 6♀; 21.17S 55.59E, 12.11.2012, D.Martire, 1♂, 2♀.

Description. Male, body length 4.4–5.1 mm.

Head. Interfrontalia and fronto-orbital plates entirely velvet black (col. pl. II: *37*). Frontal triangle reaches lunula, black with microrough surface. Parafacials, face and genae grey dusted. Occiput grey dusted in lower half, in upper half black with a pair of grey median spots which do not extend on upper part of frons. Fronto-orbital plate with 3–5 inclinate and 2 proclinate setae and several hairs in outer row. Parafacial with 1(2) row of hairs all along, hairs are distinctly stronger than those in other species of the *L. nana* complex. Antennae black, postpedicel 2.5 times as long as wide; arista with hairs longer than half width of antenna, apical third of arista almost bare. Vibrissae medium strong. Palpi remarkably large, more than 2× as wide as antenna width; outer surface of palpi covered with dense silver-grey dusting; inner surface yellowish. Proboscis thickened, at least 1.5× wider than in the related *L. nana*, mentum of proboscis shining black.

Thorax. Scutum shining black, only a pair of a narrow brown vittae present along *ac* row, these vittae distinct on the presutural area, on the postsutural area vittae less distinct on the anterior half and absent on the posterior half. Scutellum entirely shining black. Pleura with thin grey dusting. Thoracic chaetotaxy: *prst ac* in 3 irregular rows; *dc* 2+3 all strong; intraalars 1+1; supraalars 1+1; postpronotal 2; postpronotal lobes with spinulose setae on anterior part (more dense and long, but less strong than in *L. nana*); katepisternals 1+2; anepimeron with 2–4 setulae; meron bare above hind coxa; scutellum bare at apex below.

Wings evenly darkened, calypters dirty-yellowish with brown margin, halter brownish-yellow.

Legs dark, but fore knees and mid and hind tibiae dirty yellow. *f1* with a row of *pv* setae; *t1* without setae; *f2* with fine *v* seta near base and 1 *pd* preapical; *t2* with *p* seta at middle; *f3* with 1 fine, long *v* seta near base; *t3* with 1 *ad* and 1 *pd* setae at middle. Tarsi unmodified; hind coxa without seta on inner posterior margin.

Abdomen mostly shining black, only ventral part of tergites with dark grey dusting. Tergites 3 to 5 each with paired lateral whitish rounded spots on the ante-

rior half, these spots do not merge with ventral dusting; tergites 1+2 to 4 with median whitish spot on the posterior half, spot on tergite 1+2 greyish and small (col. pl. II: *36* and *38*). Abdominal tergite 3 with a small rounded black knob-like process at each ventral fore-marginal corner (visible on not dissected abdomen). Cercal plate – col. pl. II: *39*, sternite 5 – col. pl. II: *40*, they slightly differ from those of *L. nana*, but the diagnostic value of these differences seems to me doubtful.

Female differs from male as follows: body length 4.7–5.5 mm; parafacial all along with two rows of hairs; palpi entirely dark brown; *dc* 2+4(3), all *post dc* except the posterior pair are weak and hair-like; abdominal tergite 3 not modified; grey dusting on ventral part of abdominal tergites is less dark and more extensive, lateral whitish spots on the anterior half of the tergites 3 to 5 are less rounded and more elongated.

Diagnosis. *Lispe martirei* sp. nov. differs from other species of *L. nana* species complex by dark palpi; darkened wings and border of calypters; remarkably dark abdominal pattern. Apart from these unique for *Lispe martirei* sp. nov. characters there are several other diagnostic characters given in the identification key below.

Etymology. Named after the collector, Dominique Martire (Reunion, France).

Lispe nana Macquart, 1835

Col. pl. II: *40, 41, 42*

Material examined: over 160 ♂ and ♀. **Azerbaijan**, *Lankaran* reg.; **Belarus**, *Minsk* reg.; **Egypt**, *Sinai*; **Ethiopia**: ***Oromia*** reg., Ziway L., 1640m asl, 7.91N 38.73E, 11.03.2012, NV, 2♂, 3♀; ***Amhara*** reg., Hayk L., 1920m asl, 11.325N 39.688E, 06.08.2012, NV, 1♂; **India**: *Rajasthan* and *Uttarakhand* states; **Israel**; **Kazakhstan**, *Atyrau* reg.; **Morocco**: *Al Haouz*, *Marakesh*, *Ouarzazate* and *Essaouira* prov.; **Portugal**; **Russia**: *Chuvashia*, *Kaliningrad*, *Kalmykia*, *Krasnodar* and *Ryazan* reg.; **Spain**, *Canary*; **Tajikistan**: *Dushanbe* and *Khatlon* reg.; **Turkey**: *Adana*, *Antalya*, *Bolu*, *Hatay*, *Kayseri*, *Mersin*, *Sakarya* and *Zonguldak* prov.; **Turkmenistan**: *Lebap* and *Mary* prov.

Distribution. Palaearctic from Canary to Central Asia, North of Oriental and Afrotropical regions.

Lispe triangularis **sp. nov.**

Holotype: male, **Kenya**, ***Nakuru*** Co., Elementaita Lake, 0.477S 36.266E, 1780 m asl, 17.12.2013, N.Vikhrev.

Paratypes 18♂, 32♀: **Kenya**, ***Nakuru*** Co.: Elementaita Lake, 1800 m asl, 0.46S 36.26E, 20–21.11.2012, D.Gavryushin, 9♂, 11♀; Elementaita Lake, 0.477S 36.266E, 1780 m asl, 17.12.2013, NV, 1♂, 2♀; Hell's Gate NP, 0.895S 36.32E,1860 m asl, 19.12.2013, NV, 7♂, 18♀; ***Nyandarua*** Co.: Ol Bolosat Lake, 2330m, 0.02°N 36.40°E, 24.11.2012, D.Gavryushin, 1♂, 1♀.

Description. Male, body length 4.3–4.7 mm.

Head. Interfrontalia black, fronto-orbital plates mostly black, but grey in lower 1/3. Frontal triangle wider than in *L. martirei* sp. nov., reaching lunula, with remarkable glossy-black surface. Parafacials, face and genae grey dusted. Occiput grey dusted in lower half, in upper half black with a pair of grey median spots which do not extend on upper part of frons. Fronto-orbital plate with 3–5 inclinate and 2 proclinate setae and several hairs in outer row. Parafacial with a row of fine hairs in lower 2/3. Antenna black, postpedicel 2.5 times as long as wide; arista with hairs longer than half width of antenna, apical third of arista almost bare. Vibrissae medium strong. Palpi yellow with tint whitish dusting, less (×1.5 times) widened than in *L. nana* or *L. martirei* sp. nov. Proboscis thickened (more than in *L. nana*, less than in *L. martirei* sp. nov.), mentum of proboscis shining black.

Thorax. Scutum shining black, only a pair of a narrow brown vittae present along *ac* row, these vittae distinct on the presutural area, on the postsutural area vittae less distinct on the anterior half and absent on the posterior half. Scutellum shining black, with grey dustet area in basal quater. Pleura with thin grey dusting. Thoracic chaetotaxy: *prst ac* in 3 irregular rows; *dc* 2+3 all strong; intraalars 1+1; supraalars 1+1; postpronotal 2; postpronotal lobes with spinulose setae on anterior part (more dense and long, but less strong than in *L. nana*); katepisternals 1+2; anepimeron with 2–4 setulae; meron bare above hind coxa; scutellum bare at apex below.

Wings hyaline, very slightly darkened, calypters whitish, halter yellow.

Legs dark, but fore knees and mid and hind tibiae dirty yellow. *f1* with a row of *pv* setae; *t1* without setae; *f2* with fine *v* seta near base and 1 *pd* preapical; *t2* with *p* seta at middle; *f3* with 1 fine, long *v* seta near base; *t3* with 1 *ad* and 1 *pd* setae at middle. Tarsi unmodified; hind coxa without seta on inner posterior margin.

Abdominal pattern like that in *L. nana*: ventral half densely light grey dusted, dorsal half mostly shining black. Tergites 3 to 5 each with paired lateral whitish-grey spots on the anterior half, these spots merge with ventral dusting; tergites 1+2 to 4 with median whitish spot on the posterior half, spot on tergite 1+2 indistinct. Abdominal tergite 3 with a small rounded black knob-like process at each ventral fore-marginal corner (visible on not dissected abdomen). Cercal plate and sternite 5 like those of *L. nana*.

Female differs from male as follows: body length 4.8–5.2 mm; *dc* 2+4(3), all *post dc* except the posterior pair are weak and hair-like; abdomen pointed at apex, abdominal colour pattern like in male but less contrast.

Diagnosis. *Lispe triangularis* sp. nov. differs from other species of *L. nana* species complex by glossy black frontal triangle. Apart from this unique for

Lispe triangularis sp. nov. character there are several other diagnostic characters given in the identification key below.

Etymology. Named after the characteristic glossy black frontal triangle of this species.

Identification key for the *Lispe nana* species complex, ♂ and ♀

1. Scutum with dense grey dusting (sometimes the dusting is more worn-out than in col. pl. III: *44*, but median part always brownish dusted). Scutellum dusted, at most apical third black. Wing hyaline. *t1* yellow at least in basal half. Grey median spots on upper part of occiput extend on upper part of frons. Proboscis not thickened. (Fronto-orbital plates whitish dusted in anterior half. Frontal triangle dusted brown. Palpi wide, yellow.) ♂: *f3* with 2–3 fine *av* setae in basal 3/5; *t3* with several fine *pv* setulae in median part. (Cercal plate roundish as in col. pl. II: *42*, sternite 5 with postero-median tooth longer and narrower as in col. pl. III: *43*). Widespread in S Palaearctic, Ethiopia ..... ***nana*** Macquart
– scutum shining black, only a pair of narrow brownish submedian vittae present in anterior half (col. pl. II: *41*). Scutellum shining black as scutum, at most basal third thinly dusted. Wing more or less darkened. *t1* yellow at very base only. Grey median spots on upper part of occiput do not extend on upper part of frons. Proboscis thickened. ♂: *f3* without fine *av* setae; *t3* without *pv* setulae. Reunion and Kenya **2**
2. Frontal with microrough surface, fronto-orbital plates entirely black (col. pl. II: *37*). Parafacials with an irregular row of 1–2 rather strong hairs all along. Palpi remarkably large; in females dark brown; in males densely grey dusted on outer surface, but yellowish in inner surface. Proboscis distinctly thickened. Wings evenly darkened, calypters with brown margin. Abdomen mostly shining black, only ventral part of tergites with dark grey dusting; tergites 3 to 5 with paired lateral whitish rounded spots on the anterior half, these spots do not merge with ventral dusting. (Cercal plate as in col. pl. II: *42*, sternite 5 with postero-median tooth shorter and wider as in col. pl. III: *43*). Reunion ..... ***martirei*** **sp. nov.**
– frontal triangle glossy black, fronto-orbital plates whitish dusted in anterior third. Parafacials with a row a fine hairs in lower 2/3 only. Palpi smaller, yellow. Proboscis less thickened. Wings less darkened, calypters with whitish-yellow margin. Abdominal pattern like that in *L. nana*: ventral half densely light grey dusted, dorsal half mostly shining black; paired lateral spots on tergites 3 to 5 merge with ventral dusting. Kenya ..... ***triangularis*** **sp. nov.**

6. *Lispe tentaculata* supergroup

An intermediate position of the *L. nana* complex between the *L. tentaculata* and *L. scalaris* groups suggests the relationship of these groups. *L. tentaculata* and *L. nivalis* groups also seem to me closely related, these groups share the following characters: chaetotaxy of all tibiae; meron with hairs above hind coxa; fresh water habitats; in addition species of the *L. nivalis* group shares with *L. tentaculata* and *L. draperi* such an uncommon character as the presence of setulae below at apex of scutellum. I think that the *L. tentaculata* group, *L. nivalis* group, *L. scalaris* group and *L. nana* species complex form the *L. tentaculata* supergroup of about 20 related species which inhabit silty or sandy ecotopes near running or stagnant freshwater. Below an identification key for the species-groups of the *L. tentaculata* supergroup is provided:

1. Meron with hairs above hind coxa. Usually medium size species. *prst ac* in 4–6 rows; *dc* from 0+2 to 2+4 ..... **2**
– meron bare. Usually small species. *prst ac* in 2(3) rows; always 2+3 strong *dc* **3**
2. Disc of scutum mostly shining black with only thin dusting; palpi less widened and more gradually narrowed toward base; tropical and subtropical zones; scutellum always with hairs below at apex; strong *dc* setae always reduced to 0+2. ♂: sternite 5 membranous, reduced to a pair of small triangular sclerites with weak sclerotization; cercal plate small, of a pincers-like shape ..... ***L. nivalis*** group
– disc of scutum with dense dusting; palpi more widened in apical half and more abruptly narrowed in basal half; mostly subtropical and temperate zones; scutellum without or with hairs below at apex; *dc* setae not reduced, 2+4, 2+3 or 1+4 (the latter case may be regarded as 0+2 because anterior *dc* are weak, but still stronger than in *L. nivalis* group). ♂: sternite 5 not reduced, with strong sclerotization and typically with a tridental-shaped posterior margin; cercal plate bigger, not of a pincers-like shape ..... ***L. tentaculata*** group
3. *t3* with *pd* seta. Palpi remarkably widened. ♂: Abdominal tergite 3 with a small rounded knob-like process at each ventral fore-marginal corner (visible on not dissected abdomen); cercal plate of a rounded shape ..... ***L. nana*** complex
– *t3* without *pd* seta. Palpi relatively narrow ♂: Abdominal tergite 3 unmodified; cercal plate with a pointed apex ..... ***L. scalaris*** group

7. *Lispe kowarzi* species complex

Notes on the *L. kowarzi* species complex. *Lispe kowarzi* Becker, 1903 was placed by Hennig [1960] among several species with uncertain relationship

within the genus *Lispe*. It is an easily recognizable in both sexes species due to the black body with shining black scutum and abdomen and contrasting yellow fore tarsus; other characters: antennae unusually long; *t1* with 1 *p*; *t2* with 1 *ad* and 1 *pd*; *t3* with 1 *pd*, 1 *ad* and 1 *av*. Another interesting feature of the *L. kowarzi* is a reduction of the characteristic *Lispe*-setulae on the anepimeron above the posterior katepisternal seta, there are only 1–3 these setulae which are very weak so they are often broken or hardly visible on the dark background even if not broken. Vikhrev [2012b] reported that *L. kowarzi* may be divided into 2 geographic forms, the western subspecies *L. kowarzi kowarzi* Becker, 1903 (from India and Sri Lanka to Morocco and Senegal) and the eastern one *L. kowarzi pallitarsis* Stein, 1909 (S-E Asia, Indonesia) (col. pl. III: *43a, 43b*). Males of both subspecies of *L. kowarzi* have strong ventral setae on posterior femora: *f2* with 3–4 long ventral setae on basal half, *f3* with 2 strong *v* setae, in before and beyond middle; in females these setae absent. There is one more related to *L. kowarzi* species initially known from Afrotropical region and refered here as *Lispe fulvitarsus* (Snyder, 1949) (= *Lispacoenosia fulvitarsus* Snyder, 1949 = *Lispe asetopleura* Vikhrev, 2012, see Synonymy below). *L. fulvitarsus* has all the characters mentioned above for *L. kowarzi* but *Lispe*-setulae on the anepimeron are totally reduced and males have not strong setae on *f2* and *f3*. There are also several less important differences in body, legs and wings coloration so distinguishing African specimens of *L. fulvitarsus* from *L. kowarzi* and especially from distributed in N Africa *L. kowarzi kowarzi* is not problematic [Vikhrev, 2012b].

Taxonomic difficulties. A fresh material collected from South Asia makes the situation more complicated. I am inclined to identify part of specimens from the *L. kowarzi* species complex collected in Sri Lanka, India and Myanmar as *L. fulvitarsus asiatica* ssp. nov. The most important diagnostic characters for *L. kowarzi* complex are shown in Table 1.

The only unique character of *L. fulvitarsus asiatica* ssp. nov. is elongated (distinctly longer than abdomen) and more darkened wings in males (col. pl. III: *44a*). *L. fulvitarsus fulvitarsus* and *L. f. asiatica* ssp. nov. share absence of strong submedian setae on *f2* and *f3* in males. *L. f. asiatica* ssp. nov. shares with *L. kowarzi* the presence of setulae on anepimeron. Katepisternal setae, *dc* setae and colour of palpi may be variable characters as seen from Table 1. In contrast with that, the submedian ventral setae on male posterior femora are always either present and strong or absent, no intermediate speciemen was found among rich examined material, that is why I used this character for dividing the *L. kowarzi* complex into two species. Identification of females is more problematic, especially so if *L. fulvitarsus asiatica* ssp. nov. and *L. kowarzi pallitarsis* are sympatric somewhere between Myanmar and Thailand. The substantial variability in the *L. kowarzi* species complex does not permit to reject the possibility that African and Asian subspecies of *L. fulvitarsus* and both subspecies of *L. kowarzi* is a single polymorphic species. May be molecular data will help to clarify the situation.

Synonymy. Genus *Lispacoenosia* Snyder, 1949 was described as *Lispe*-like Muscidae with several Coenosiinae characters: only one pair of the recinate frontal setae; a bare anepimeron; the katepisternal bristles situated in a nearly equilateral triangle [Snyder, 1949]. Usually *Lispe* has 1:2 katepisternals, but 1:1:1 also occurs, for example, in *L. pygmaea* Fallen, 1825 or in *L. kowarzi*. The reclinate frontal setae in *Lispacoenosia* are reduced: posterior pair is weak, anterior pair is very weak, so partly or entirely broken in most specimens. It is not a unique case, for example, anterior reclinate frontal seta is also reduced in *Lispe flavipes* Stein, 1913. Setulae on anepimeron are remarkably weak in *L. kowarzi* or again in *L. flavipes*, in African specimens of *Lispacoenosia* these setulae are entirely reduced. *L. fulvitarsus asiatica* ssp. nov. supports the synonymy of *Lispacoenosia* to *Lispe*: it has 1–3 very fine setulae on anepimeron and weak though usually distinct anterior recinate frontal setulae, otherwise *L. fulvitarsus asiatica* ssp. nov. and *Lispacoenosia fulvitarsus* are very much alike. Snyder [1949] did not mention the obviously related *L. kowarzi*, most probably he was unfamiliar with this species. So, *Lispe* Latreille, 1976 = *Lispacoenosia* Snyder, 1949, syn. nov. and *Lispacoenosia fulvitarsus* Snyder, 1949 is *Lispe fulvitarsus* (Snyder, 1949) **comb. nov.**

In my turn I was unfamiliar with *Lispacoenosia fulvitarsus* Snyder, 1949, so *Lispe fulvitarsus* (Snyder,

Table 1

Some important diagnostic characters for the *L. kowarzi* species complex

	L. kowarzi kowarzi	*L. kowarzi pallitarsis*	*L. fulvitarsus fulvitarsus*	*L. fulvitarsus asiatica*
ventral setae on *f2* ♂	4	4	0	0
ventral setae on *f3* ♂	2	2	0	0
palpi	black – brown	dirty yellow – black	yellow	yellow – dirty yellow
katepisternal setae	1:1:1	0:1:1 (rarely1:1:1)	1:1:1	0:1(w):1
dc setae	1 + 2–3	0 + 1–2	0 + 1	0 + 1
setulae on anepimeron	1–3	1–2	bare	1–2
elongated wing ♂	no	no	no	yes

1949) = *Lispe asetopleura* Vikhrev, 2012 **syn. nov.**

Lispe fulvitarsus fulvitarsus (Snyder, 1949) **comb. nov.**
Col. pl. III: *44b*

Lispacoenosia fulvitarsus Snyder, 1949.
Lispe asetopleura Vikhrev, 2012: 424 **syn. nov.**
Material examined:
Cameroon: ***Northwest*** reg., Bamenda env., [≈ 6.01N 10.35E], 1200 m asl, 18.11.1987, F.Kaplan, 2♂ (TAUI).
Ethiopia: ***Amhara*** reg.: Blue Nile R., 1070 m asl, 10.08N 38.19E, 31.07.2012, NV, 1♂, 1♀; ***Oromia*** reg.: Ziway L., 1640 m asl, 7.91N 38.73E, 11–13.03.2012, NV, 9♂, 1♀; Langano L., 1590 m asl, 7.646N 38.706E, 13–15.03.2012, NV, 7♂, 6♀; Awasa L., 1690 m asl, 7.079N 38.478E, 15–16.03.2012, NV, 1♂, 1♀.
Kenya: ***Kiambu*** Co., Limuru, 1.107S 36.631E, 2280 m asl, 15.12.2013, NV, 2♂; ***Nakuru*** Co., Elementaita Lake, 0.477S 36.266E, 1780 m asl, 17.12.2013, NV, 1♂, 1♀.
Distribution. Afrotropical: Cameroon, Congo, Ethiopia (type locality of *Lispe asetopleura*), Ghana (type locality of *Lispacoenosia fulvitarsus*), Kenya, Nigeria, Tanzania, Madagascar.

Lispe fulvitarsus asiatica **ssp. nov.**
Col. pl. III: *44a*

Holotype: male, **Sri Lanka**, Marawila env., 7.440N 79.816E, 26–31.12.2012, N.Vikhrev.
Paratypes 18♂, 7♀: **Sri Lanka**, same label as Holotype, 13♂, 6♀; **India**, ***Orissa*** state, Gop env., 19.982N 86.016E, 8–9.01.2014, KT, 4♂, 1♀; Puri env., 19.82N 85.85E, 11–14.01.2014, KT, 1♂.
Other material not included in the type series:
India: ***Goa*** state, Calangute [15.54N 73.77E], 17.01.2008, NV, 1♂, 1♀; ***Orissa*** state, Chilika Lake, 9.68N 85.18E, 4–9.02.2014, KT, 1♀.
Myanmar: ***Shan*** state, Inle L., 30.11.2009, NV, 2♂, 1♀.
Description. Male, body length 4.1–4.5 mm.
Head. Frons distinctly narrowed at anterior quarter. Fronto-orbital plates black in posterior half, whitish dusted in anterior half; interfrontalia matt black; frontal triangle wide, glossy-black. Fronto-orbital plates with 4 pairs of inclinate, 2 pairs of reclinate setae (anterior pair weak) and with an outer row of fine setulae. Parafacials whitish dusted, narrow, with a row of setulae. Cheeks whitish dusted, 1.5 times as wide as antenna width. Occiput grey dusted, with a pair of large glossy-black spots in upper half. Antenna black, unusually long (almost equal to distance to mouth margin), aristal hairs longer than antenna width. Vibrissae strong, palpi yellow.
Thorax. Most of scutum (except of notopleura), scutellum and anterior anepisternum shining black, otherwise thorax grey dusted. Thoracic setae: *prst ac* in 3–4 rows; *dc* 0+1; postpronotal 1 weak; intraalars absent; supraalars 1+1; notopleural 2; katepisternal setae – 0:1:1 (the lower one very weak); anepimeron with 1–3 fine setulae, meron bare.
Wing distinctly more darkened and more elongated in comparison with other taxons of the *L. kowarzi* complex (col. pl. III: *43, 44*). Wing length 3.7 mm, males of *L. kowarzi pallitarsis* with the same body size have wing length 3.0–3.1 mm; wing shape also differs, it is narrow in basal half and more sharply widened in apical half. Calypters whitish, halter black.
Legs mostly black with whitish dusting, but fore tarsus except *tar1–1* red, *t2,* and *t3* translucent yellowish in basal third. *f1* with *pd* row and 3–4 short *pv* at apex; *t1* compressed laterally, with strong *pv* seta; *f2* with short submedian *a*, with 1 apical and 1 preapical *pd* setae; *t2* with strong *ad* and *pd*; *f3* with a short *ad* row and 1–2 fine ventral setae at base, strong submedian v setae absent; *t3* with *av*, *ad* and *pd* setae. Pulvilli small.
Abdomen glossy black with paired whitish spots on anterior margin of tergites 3 to 5. Sternite 5 weakly sclerotized, cercal plate alike that in *L. kowarzi*.
Female differs from male as follows: body size 4.5–5.1 mm; wing only slightly darkened and elongated in comparison with female of *L. kowarzi*; abdomen ovate, whitish spots on tergites 3 to 5 smaller, sometimes hardly distinct.
Diagnosis. *L. fulvitarsus asiatica* ssp. nov. differs from African the subspecies as given in the identification keys below. Male *L. fulvitarsus asiatica* ssp. nov. differs from males of both subspecies of *L. kowarzi* by absence of strong *v* setae on *f2* and *f3* and by elongated and darkened wings. Female *L. fulvitarsus asiatica* ssp. nov. differs from female *L. kowarzi kowarzi* by reduced dorsocentral and katepisternal setae (Table 1). Distinguishing *L. fulvitarsus asiatica* ssp. nov. from *L. kowarzi pallitarsis* seems problematic in female sex.
Etymology. The name indicates Asian distribution of subspecies.

Lispe kowarzi kowarzi Becker, 1903
Col. pl. III: *43a*

Lispe kowarzi Becker, 1903.
Lispe pakistanensis Shinonaga & Afzal, 1989: Vikhrev, 2012b: 425.
Lispe kowarzi kowarzi Becker, 1903: Vikhrev, 2012b: 424-425.
Material examined:
India: ***Andhra Pradesh*** state, Bapatla env., 15.92N 80.47E, 19.02.2014, KT, 2♂; ***Goa*** state, 26.02.2008, KT, 1♂; ***Gujarat*** state: Bhuj env., 23.25N 69.66E, 2–3.10.2012, KT, 15♂, 12♀; Junagadh, 21.52N 70.46E, 19–21.10.2012, KT, 4♂, 1♀; ***Orissa*** state, Chilika Lake, 19.68N 85.18E, 4-9.02.2014, KT, 1♂; ***Rajasthan*** state, Sawai Madhopur env., 26.02N 76.38E, 26.02.2011, NV, 2♀; ***Uttarakhand*** state, Haridwar, 29.96N 78.19E, 10.09.2011, NV, 1♂.
Iran: Sistan (presently ***Sistan and Baluchestan*** prov., 27N 61E), May.1898, N. Zarudnyi, 4♂♀(ZIN).

Israel: Kinneret L. env., 27.10.2011, NV, 8♂, 1♀.
Morocco: ***Essaouira*** prov., 25.03.2009, NV, 1♀.
Senegal: ***Fatick*** reg., Sine-Saloum estuary (14.1N 16.7W), 2–6.03.2007, NV, 3♀.
Sri Lanka, Marawila env., 7.440N 79.816E, 26–31.12.2012, NV, 2♂, 2♀.
Turkey: ***Antalya*** prov., Manavgat env., 36.76N 31.45E, 1-30.10.2006–09, NV, 11♂, 9♀.
Distribution. S Palaearctic: Morocco, Egypt (type locality), Israel, Turkey (the northernmost record – 36.8N), Iran, Pakistan. Oriental: India, Sri Lanka. Afrotropical, Senegal.

Lispe kowarzi pallitarsis Stein, 1909
Col. pl. III: *43b*

Lispe pallitarsis Stein, 1909.
Lispe kowarzi pallitarsis Stein, 1909: Vikhrev, 2012b: 424-425.
Material examined:
Cambodia: ***Kep*** prov., Kep, 10.50N 104.33E, 06.12.2010, NV, 1♂, 2♀; ***Koh Kong*** prov., Koh Kong env., 11.6N 103.0E, 28.11–04.12.2010, NV, 1♀.
Malaysia, ***Sabah*** state (Borneo): Kota Kinabalu env., 28.12.2011, NV, 6♂, 2♀; Beringgis beach, 5.79N 115.99E, 19–26.02.2014, N.Vikhrev, 4♂; ***Selangor*** state, Sungai Pelek env., 2.6N 101.7E, 6–7.02.2014, NV, 10♂, 3♀.
Thailand: ***Chanthaburi*** prov., Khao Khitchakut env., 04.11.2009, NV, 1♂, 1♀; ***Chonburi*** prov., Pataya env., Dec.2006–09, NV, 28♂, 14♀; ***Kanchanaburi*** prov., Saiyok Yai NP env., 14.44N 98.86E, 2.02.2014, NV, 1♀; ***Mae Hong Son*** prov., Pai env., 11.11.2009, 2♂; ***Phuket*** prov., 14.02.2009, NV, 1♂, 3♀; ***Rayong*** prov., Ban Phe, 08.12.2008, NV, 1♀; ***Sa Kaeo*** prov., 13.77N 102.07E, 9.02.2009, NV, 1♀; ***Trat*** prov., Ko Chang Isl., 14.12.2011, NV, 1♀.
Distribution. S-E Asia: Thailand, Cambodia, Malaysia, Indonesia (type locality).

Identification key for the Lispe kowarzi species complex, ♂

1. *f2* and *f3* without strong ventral setae ..... ***fulvitarsus*** Snyder **(2)**
– *f2* with 3–4 long ventral setae on basal half, *f3* with 2 strong submedian *v* setae ..... ***kowarzi*** Becker **(3)**
2. Anepimeron bare. Wings not elongated and only slightly darkened. Posterior tibiae yellow. Afrotropical ..... ***fulvitarsus fulvitarsus*** (Snyder, 1949)
– anepimeron with 1–3 setulae. Wings elongated and distinctly darkened. Posterior tibiae yellowish only in basal third. India, Sri Lanka, Myanmar ..... ***fulvitarsus asiatica*** **ssp. nov.**
3. *dc* 1+3(2); katepisternals always 1:1:1 all strong; abdomen without white spots, at most rather indistinct spots on tergite 4 present. N Africa, S Palaearctic, India ..... ***kowarzi kowarzi*** Becker
– *dc* reduced to 0+1 (or 0+2, in this case the anterior pair is very weak); katepisternal 1:1:1 or 0:1:1, lower katepisternal often weak; abdomen with whitish spots on tergites 3 to 5. S-E Asia ..... ***kowarzi pallitarsis*** Stein

8. *Lispe desjardinsii* group

Notes on the *L. desjardinsii* group. I offer to place *Lispe desjardinsii* Macquart, 1851, *Lispe pennitarsis* Stein, 1918, and *Lispe tuberculitarsis* Stein, 1913 into the *Lispe desjardinsii* species-group. Species of the *Lispe desjardinsii* group resemble those of the *L. longicollis* group: medium to large size; grey dusted flies with long legs and slender body; *t3* with submedian *av*, *ad* and *pd* setae; rather narrow and graduatelly widened palpi. They differ as follows:

– *t1* with submedian *d* and *pv* setae; vein M not curved forward at apex; *dc* 1–2 + 3; *t2* without ventral seta; meron bare. ♂: fore tarsus modified, mid or hind tarsi unmodified ..... ***L. desjardinsii*** **group**
– *t1* without submedian *d* seta, *pv* setae absent or present; vein M curved forward at apex; *dc* 2 + 4; *t2* with or without ventral seta; meron bare or with setulae above hind coxa. ♂: fore tarsus unmodified, hind or mid tarsi often modified ..... ***L. longicollis*** **group**

The *L. desjardinsii* group is restricted to the freshwater habitats of the Afrotropical region. *L. tuberculitarsis* is more deviated: females of this species can be reliably identified by chaetotaxy of thorax and legs, males differ by modification of the fore tarsus, *f3* chaetotaxy and structure of genitalia. Males of *L. desjardinsii* and *L. pennitarsis* differ only by modification of the fore tarsus, otherwise similar, females of these species in my opinion are similar (see Remarks to *L. pennitarsis*).

Lispe desjardinsii Macquart, 1851
Col. pl. III: *45*

Lispe remipes Becker, 1913.
Material examined:
Syntypes *L. remipes* Becker, 1♂, 2♀. **Madagaskar**, 28.08.1912, Sikora (ZMHU).
[**Cote d'Ivoire**] W. Africa, Londana [8.2N 7.7W], 6.07.1890, 1♀ (DEI).
Kenya, ***Nakuru*** Co., pool near Malewa R., 1900 m asl, 0.67S 36.39E, 19.11.2012, D.Gavryushin, 1♂, 1♀.
Reunion, étang du Gol, niveau de la mer [≈21.29S 55.39E], 30.08.2012, D. Martiré, 2♂, 1♀.
Uganda, Masaka env., Katera forest [0.9S 31.5E], 1150 m asl, V.1972, E.Babyetagara, 1♂ (Canadian National Collection, Ottawa).
Distribution. Afrotropical, incuding Reunion and Mauritius (type locality).

Lispe pennitarsis Stein, 1918
Col. pl. III: *49, 50*

Material examined:

Madagascar, Toamasina prov., Andasibe, 18.94S 48.42E, 8–13.12.2012, A.Medvedev, 75♂, 28♀; F.Sikora, 1♂ (ZMHU).

Distribution. Madagascar.

Remarks. Couri et al. [2006] distinguished *L. pennitarsis* from *L. desjardinsii* by darker posterior tibiae and *t3* with only 2 submedian setae. However, darkening of the tibiae is not a reliable character and "hind tibia with only two setae on middle third" is an error: males and females of *L. pennitarsis* have *t3* with 3 submedian setae: *av*, *ad* and *pd*, as in other species of the *L. desjardinsii* group. Material listed in Couri et al. [2006] and ZMUM material listed here show that in Madgascar *L. pennitarsis* is widespread and common whereas Madagascarian records of *L. desjardinsii* and *L. tuberculitarsis* are singular, so females from Madagascar should be preliminary identified as *L. pennitarsis,* while females from African mainland, Reunion or Mauritius as *L. desjardinsii*.

Lispe tuberculitarsis Stein, 1913
Col. pl. III: *46, 47, 48*

Material examined:

Syntypes. [**South Africa**], Durban 7.09.1902, F. Muir, 1♂ (ZMHU). [**South Africa**] Durban, 1902, F.Muir, 2♀ (ZMHU), marked by N. Vikhrev as syntypes.

Ethiopia: *Amhara* reg., Hayk L., 1920 m asl, 11.325N 39.688E, 06.08.2012, NV, 13♂, 15♀.

Kenya, ***Nakuru*** Co., Naivasha Lake, 1900 m asl, 0.815S 36.323E, 17.11.2012, D.Gavryushin, 1♀.

Madagascar, *Toamasina* prov., Manambato, 18.75S 49.15E, 27.11.2012, A.Medvedev, 1♀.

Distribution. Afrotropical.

Remarks. *L. tuberculitarsis* was described by Stein by 1♂, 2♀ from Tansania (Mto-ja-kifaru, Katona leg.) and 1♂, 2♀ from S Africa (Durban, 1902, F.Muir). Pont and Werner [2006] found in ZMHU only "1♂ syntype, pinned on a cork mount with a printed label Durban./F. Muir.1902". Pont and Werner presumed that "syntypes in MNM [Budapest] were destroyed in 1956. The other syntypes collected by Muir were not found in CUM [Cambridge] or BMNH [London]." I found among unsorted Muscidae material in ZMHU 2♀ *L. tuberculitarsis* pinned on a cork mount with a printed label "Durban./F. Muir.1902". I marked these females as syntypes, so only the series from Tansania seems to be lost.

Identification key for the L. desjardinsii species-group, ♂ and ♀

1. *dc* 1+3; palpi blackish at least in apical half. ♀: *f3* with submedian *av* 1.5× longer than femur width; parafacial with hairs mostly in only one row. ♂: *f3* in middle with 1 *av* (2.5–3× longer than femur width) and 1 *pv* (2× longer than femur width) setae, basal half of *f3* without spine-like *pv*; *tar1–1* flattened, *tar1–2* with ventral tubercule in middle; cercal plate and sternite 5 – col. pl. III: *47, 48* .... ***tuberculitarsis*** Stein
– *dc* 2+3; palpi yellowish. ♀: *f3* with submedian *av* at most as long as femur width; parafacial with hairs in 2 rows. ♂: *f3* in middle with 1 *av* (1.5× longer than femur width) and without *pv*, basal half of *f3* with a row of spine-like *pv*; fore tarsus modified in a different way; cercal plate and sternite 5 as in col. pl. III: *49, 50* **2**
2. ♂: *tar1–1* and *tar1–2* with a row of more or less scale-lake *pv* setulae, *tar1–5* unmodified. Common in Madagascar ..... ***pennitarsis*** Stein
– ♂: *tar1–1* and *tar1–2* unmodified, *tar1–5* with a characteristic dilated and flattened at apex setula. Widespread in Africa, recorded from Reunion, uncommon in Madagascar ..... ***desjardinsii*** Macquart

9. *Lispe longicollis* group, subgroup 1

Notes on the *L. longicollis* group. The *Lispe longicollis* species-group was proposed by Hennig [1960] based on the characteristic shape of a vein M which is distinctly curved forward at apex. Hennig divided the group into two subgroups: Subgroup 1 includes the species with ventral seta on *t2* (usually absent in *L. microptera*) and the meron with hairs above the hind coxa; Subgroup 2 includes *L. assimilis* Wiedemann, 1824, *L. glabra* Wiedemann, 1824, *L. manicata* Wiedemann, 1830, *L. nuba* Wiedemann, 1830 and *L. pacifica* Shinonaga & Pont, 1992 with the meron bare and *v* seta on *t2* absent.

The *Lispe longicollis* group was recently revised by Vikhrev [2012c], but in 2012–2013 an interesting and important new material was collected. This material confirmed my conclusions for Subgroup 2 [Vikhrev, 2013c], so I do not consider this subgroup here again. But newly collected specimens (from Australia, Botswana, India (Gujarat), Kenya, Madagascar and Sri Lanka) allow to add 3 more species to the Subgroup 1 of the *L. longicollis* group (namely: *Lispe paraneo* Zielke, 1972, *Lispe xenochaeta* Malloch, 1923, and described below *Lispe dmitryi* sp. nov.) and to provide more accurate information about species considered in Vikhrev [2012c]. The identification key is completely revised and is now divided into two parts: one for the reliably separated males and the other for not so reliably separated females. I also found the precise position of the *v* seta on *t2* (*av*, *v* or *v–pv*) to be hardly a usable character and excluded it from the key.

Lispe barbipes Stein, 1908
Col. pl. III: *62*

Material examined:

Syntypes: ♀ (ZMHU): S. W. Afrika / Kalahari / Moocane / a.d. Wasserspiegel / L. Schultze S.; ♂: S.

W. Afrika / Luderitzbucht / S. Schultze.
5 ♂ from **S Africa** and **Namibia** were listed in Vikhrev [2012c]. New material:
Botswana: ***S Distr***., Kanye, 24.95S 25.34E, 1270 m asl, 28–30.01.2013, A.Medvedev, 20♂, 11♀.
Remarks. *L. barbipes* was described from series of 1♂ and 2♀ from Ostrand der Kalahari zwischen Kanya und Mookane [Stein, 1908]. The type material of *L. barbipes* in ZMHU was examined by Pont and Werner [2006], for that time it consisted of 1♀ syntype and probably 1♂ syntype. The female syntype was labeled "S. W. Afrika / Kalahari / Moocane / a.d. Wasserspiegel / L. Schultze S." [= Botswana, Mookane, 23.7S 26.6E] which agreed with the type locality given in [Stein, 1908]. The putative male syntype was labeled "S.W. Afrika / Luderitzbucht / L. Schultze S." [= Namibia, Luderitz, 26.65S 15.16E], this locality was not mentioned in Stein's paper. Pont and Werner [2006] noted that "there must be some doubt as to whether this is actually a syntype, since the locality [of syntype] ... is on the coast of Namibia rather than at the eastern edge of the Kalahari desert in Botswana." It is unknown whether the existing Stein's ♂ syntype is not a syntype or Stein had confused labels, however, in this situation it is best to assume that the true ♂ syntype is untraceable at present. In my revision of the *Lispe longicollis* group [Vikhrev, 2012c] I assumed that the ♀ syntype and putative ♂ syntype in ZMHU were conspecific, but now I came to the opposite conclusion. Currently I have got new material: a large series of *L. barbipes* auct. from Botswana and a large series of *L. paraneo* from Madagascar and Botswana. Females of *L. barbipes* auct. have *t1* with a row of 4-7 short but strong *d* setae, as in males, and *f3* with rather strong *av* seta before middle. The doubtless female syntype in ZMHU has none of these characters and fits *L. paraneo*. Hence the only doubtless syntype which can be found at present is a female conspecific to *L. paraneo*. However, Stein's description of male leaves doubtlessly refers to *L. barbipes* in the current sense, while the Stein's true male syntype is untraceable. This makes designation of the existing ♀ syntype as the lectotype undesirable. In this situation I prefer to retain the current sense of *L. barbipes* and *L. paraneo* in spite of the mentioned problems with the name-bearing types of the former.
Distribution. Afrotropical: South Africa, Namibia, Botswana.

Lispe cilitarsis Loew, 1856
Col. pl. III: *60*

Material examined:
Syntype ♂, ZMHU. Also seen by Hennig (1960: 426), [**Egypt**] Assyud [Asyut], Frauenfeld, 1♂.
85 ♂ and ♀ from Egypt, Ethiopia: *Amhara* and *Oromia*, Israel, Morocco were listed in Vikhrev [2012c].
New material: **Ethiopia**, *Afar* reg., Mille env., 530 m asl, 11.381N 40.731E, 9.08.2012, NV, 1♀.
Distribution. Palaearctic: N Africa and Near East. Afrotropical, N Ethiopia.

Lispe dmitryi **sp. nov.**
Col. pl. III: *55, 56, 57*

Holotype, male, **Kenya**, ***Nakuru*** Co., Elementaita Lake, 1800 m asl, 0.46S 36.26E, 20–21.11.2012, D.Gavryushin.
Paratypes: 45♂, 15♀: the same data as Holotype, 26♂, 11♀; Elementaita Lake, 0.477S 36.266E, 1780 m asl, 17.12.2013, NV, 19♂, 4♀.
Description. Male (col. pl. III: *55*), body length 6.5–7.5mm.
Head. Frontal triangle remarkably narrow, yellowish-grey dusted; interfrontalia blackish; fronto-orbital plate blakish with 3–5 inclinate and 2 proclinate setae and dense hairs in outer row. Upper parafacials with golden-brown spot, otherwise parafacials and cheek whitish dusted, occiput grey, parafacial with a row of hairs. Antenna black, postpedicel short, only 2 times longer than pedicel. Arista with hairs half as long as antenna width. Vibrissae medium strong. Palpi dirty-yellow.
Thorax. Pleura densely grey dusted, scutellum and disc of scutum brown, thinly dusted; vittae indistinct. prst *ac* in 5 irregular rows; *dc* 2+4 (medium, medium+weak, weak, strong, strong); katepisternals 1+2; anepimeron with 10–12 setulae; meron with 2–4 setulae above hind coxa. Wings hyaline, slightly brownish, vein M distinctly curved forward at apex, calypters white, halter yellow.
Legs black with grey dusting, only knees and base of tibiae yellowish. *f1* with a row of *pd* setae and a row of *pv* setulae; *t1* with submedian *p* seta hardly longer than tibia width. *f2* with *a* seta at middle and 2 *pd* preapicals; *t2* with *p* seta at middle and *v* seta in apical third, apical 2/3 of *pv* surface with a row of fine long (2× longer than tibia width) setulae; *tar2–1* with a complete row of elongated *p* setulae. *f3* before middle with 3(2) *av* (1.5× as long as femur width) and 3(2) *pv* (weaker and slightly longer than *av* setae), 2–3 fine *v–pv* setulae at base, at apex with 1 short *pv*, preapical *av* indistinct; *t3* with submedian *ad* and *pd* setae, *av* seta absent. Hind tarsus modified: *tar3–1* not curved, laterally flattened, in lateral view 1.5× wider than width of *t3*, on *ad* surface only with a row of rather short fine setulae.
Abdomen with dense whitish dusting; tergites 3 to 5 with a pair of large black fused spots each. Cercal plate – col. pl. III: *56*, sternite 5 – col. pl. III: *57*.
Female differs from male as follows: body length 7–8mm; *t2* and *tar2–1*without a row of *p* setulae; *f3* with only 1 short median *av*; hind tarsus simple.
Diagnosis. *Lispe dmitryi* sp. nov. differs from other species of the *L. longicollis* group, subgroup 1 as is

shown in the keys for males and females below.
Etymology. Named after the collector of the type series, Dmitry Gavryushun (Moscow, Russia).

Lispe ethiopica Vikhrev, 2012
Col. pl. III: *59*

Material examined: **Holotype** and 47 ♂ and ♀ **paratypes** from Ethiopia, *Oromia* region, 47 ♂ and ♀ were listed in Vikhrev [2012c]. New material:
Kenya, ***Nakuru*** Co., Elementaita Lake, 1800 m asl, 0.46S 36.26E, 20–21.11.2012, D.Gavryushin, 16♂, 19♀; Elementaita Lake, 0.477S 36.266E, 1780 m asl, 17.12.2013, NV, 1♂, 1♀.
Distribution. Afrotropical: Ethiopia and Kenya.

Lispe longicollis Meigen, 1826
Col. pl. III: *51, 52*

Material examined: over 200 ♂ and ♀. New records in addition to localities listed in Vikhrev [2012c]:
Belarus, ***Minsk*** reg., Barysaw, Berezina R., 54.239N 28.494E, 5.07.2013, D.Gavryushin, 13♂, 5♀.
Kyrgyzstan, ***Chuy*** prov, Bishkek, 42.90N 74.62E, 17.09.2013, NV, 3♂, 1♀.
Russia: ***Kaliningrad*** reg., Khrabrovo env.,54.88N 20.60E, 23.08.2013, KT, 1♂; ***Rostov*** reg., Kamensk-Shakhtinsky env., 48.242N 40.404E, 01.06.2013, NV, 2♂ ♂; ***Primorsky krai*** reg., Khanka L., 45.06N 131.99E, 15-19.06.2014, NV, 2♂, 2♀.
Distribution. Palaearctic. Known from C Europe to Far East of Russia. Common on saltish water in Central Asia and Caspian Lowland. The northern limit of distribution is around 55°N.

Lispe microptera Seguy, 1937
Col. pl. III: *58*

Material examined: India, *Rajasthan* state, 25 ♂ and ♀ were listed in Vikhrev [2012c]. New material:
India, ***Andhra Pradesh*** state, Bapatla env., 15.92N 80.47E, 19.02.2014, KT, 2♂; Kakinada env., 16.99N 82.27E, 30-31.01.2014, KT, 1♂, 1♀; ***Gujarat*** state: Bhuj env., 23.25N 69.66E, 2–3.10.2012, KT, 14♂, 3♀; Junagadh, 21.52N 70.46E, 19–21.10.2012, KT, 2♂; Somnath env., 20.88N 70.41E, 07.11.2012, KT, 1♀; ***Orissa*** state, Chilika Lake, 19.68N 85.18E, 4-9.02.2014, KT, 1♀.
Sri Lanka, Marawila env., 7.440N 79.816E, 26–31.12.2012, NV, 2♂, 1♀.
Distribution. Known from India, Pakistan (type locality) and Sri Lanka.
Remarks. In the description of female *L. microptera* (Vikhrev, 2012c) I wrote that the females normally have not *v* seta on *t2*. The addition material shows that leg chaetotaxy in *L. microptera* is more variable: ♀ *t2* with or without *v* seta; ♂ *t2* normaly without *v* seta, but rarely *v* seta present on one leg; *t3* without *av* in ♂, with *av* in ♀.

Lispe paraneo Zielke, 1972
Col. pl. III: *61*

Material examined:
Botswana: ***S Distr***., Kanye, 24.95S 25.34E, 1270 m asl, 28–30.01.2013, A.Medvedev, 16♂, 8♀; ***N-W Distr***., Maun, 19.92S 23.51E, 940 m asl, 3–8.02.2013, A.Medvedev, 5♂, 2♀; ***Central Distr***., Nata, Nata R., 20.21S 26.18E, 915 m asl, 9.02.2013, A.Medvedev, 4♂, 4♀.
Madagascar, Toliara env, 23.28S 43.62E, 18–19.11.2012, A.Medvedev; 13♂, 4♀.
Distribution. Known from Botswana and Madagascar (type locality).

Lispe xenochaeta Malloch, 1923
Col. pl. III: *53, 54*

Material examined:
Australia: ***NSW***, Jindabyne L., 900 m asl, 36.41S 148.60E, 16.02.2013, NV, 3♂, 7♀. ***SA***: Morgan env., Murray R, 34.03S 139.73E, 10.02.2013, NV, 8♂, 8♀; Salt Creek, 34.279S 136.168E, 8–9.02.2013, NV, 1♀. ***VIC***, Hopetoun, Lake, 35.725S 142.369E, 11.02.2013, NV, 3♂, 1♀.
Distribution. Australia.

Identification key for the L. longicollis species-group, subgroup 1, ♂

1. Hind tarsus simple. Temperate zone of Eurasia or Australia **2**
– hind tarsus modified: widened and/or curved, with a brush of setae. Africa or Oriental region **3**
2. Apical 1/5 of all femora yellow (col. pl. III: *53*); *f3* with 2–3 *v* setae and 1 *av* seta in basal 1/3; sternites 4 and 3 covered with remarkably dense hairs; cercal plate – col. pl. III: *54*. Australia ..... ***xenochaeta*** Malloch
– femora entirely dark, only knees yellowish; *f3* without ventral setae at base, submedian *av* seta placed beyond middle; sternites 4 and 3 covered with ordinary hairs; cercal plate – col. pl. III: *52*. Palaearctic ..... ***longicollis*** Meigen
3. *t2* with 1 *p* only, *v* seta absent (rarely *v* present on one leg); *f3* in basal half with 4–5 fine long (2–2.5 femur width) *pv* and 1(2) *av*; hind tarsus modified: *tar3–1* slightly laterally compressed and outward curved, with waved *v* setulae more dense at base and at apex; *tar3–2* with waved *v* setulae; cercal plate – col. pl. III: *58*. Pakistan, India, Sri Lanka .. .. ***microptera*** Seguy
– *t2* with 1 *p* and 1 *v* seta. Chaetotaxy of *f3* and modification of hind tarsus not as above. Africa **4**
4. *f3* without strong *av* seta(e) (except preapical and long but fine *v* seta(e) at very base of *f3*); *p* seta on *t1* shorter than tibia width **5**
– *f3* with strong *av* seta(e) (either 2 long submedian *av* or 1 *av* in basal 1/3); *p* seta on *t1* longer than tibia

width **7**

5. Hind tarsus shortened, distinctly shorter than *t3* length; *tar3–1* dorso-ventrally remarkably flattened, at least 1.5× wider than *t3*, *av* and *pv* hairs on *tar3–1* at most as long as *t3* width; palpi black(ish); mid tarsus simple; cercal plate – col. pl. III: *59*. Ethiopia, Kenya ..... ***ethiopica*** Vikhrev
– hind tarsus not shortened, at least as long as *t3* length; *tar3–1* not flattened, at most as wide as *t3*, *av* and *pv* hairs on *tar3–1* 2× as long as *t3* width; palpi yellow **6**
6. Mid tarsus with a row of curled setulae on *p* surface; cercal plate – col. pl. III: *60*. N Africa, N Ethiopia, Near East ..... ***cilitarsis*** Loew
– mid tarsus without a row of *p* setulae; cercal plate – col. pl. III: *61*. Madagascar and Botsvana .... ***paraneo*** Zielke
7. *f2* basally with 2–3 remarkably strong and long straight ventral spines; *f3* in basal 1/3 with 1–2 *av* and 1 long fine *pv*; *t1* with a row of 5–7 short but strong *d* setae; *t2* and *tar2–1* without elongated *p* setulae; *t2* usually without *p* seta; *t3* at apical 1/3 with a tuft of long waved setae on *ad* to *av* surface; *tar3–1* elongated, strongly downward curved; with long waved *v* setulae; cercal plate – col. pl. III: *62*. South Africa, Namibia, Botswana .... ***barbipes*** Stein
– *f2* without remarkable spines though several ventral setae present at basal half; *f3* before middle with 3(2) *av* (1.5× as long as femur width) and 3(2) *pv* (weaker and slightly longer than *av* setae); *t2* in apical 2/3 of *pv* surface with a row of fine long (2× longer than tibia width) setulae; *tar2–1* with a complete row of elongated *p* setulae; *tar3–1* not curved, laterally flattened, in lateral view 1.5× wider than width of *t3*, without long *v* setulae; cercal plate – col. pl. III: *56*, sternite 5 – col. pl. III: *57*. Kenya .. .. ***dmitryi*** **sp. nov.**

Identification key for the L. longicollis species-group, subgroup 1, ♀

1. *f3* with both submedian and apical *av* setae. Australia or Palaearctic excluding N Africa and Near East **2**
– *f3* without submedian or apical *av* setae. Africa or Indian subcontinent **3**
2. Apices of all femora yellow, all tibiae entirely yellow. Australia ..... ***xenochaeta*** Malloch
– Only knees yellow, at least *t1* darkened. Palaearctic from 55N to 35N ..... ***longicollis*** Meigen
3. India, Pakistan, Sri Lanka. *f3* with submedian *av* very weak or absent, apical *av* absent. Palpi yellow..... ***microptera*** Seguy
– Africa (including N Africa) and Near East **4**
4. *f3* with submedian *av* present and apical *av* absent. Either *t1* with a row of short *d* setae or *t3* without *av* **5**
– *f3* with submedian *av* absent and apical *av* present. *t1* without *d* setae or *t3* with *av* **6**
5. *t1* with a row of 4–6 short but strong *d* setae. *t3* with *av*. Palpi yellow. S Africa, Namibia, Botswana ..... ***barbipes*** Stein
– *t1* without a row of 4–6 short but strong *d* setae. *t3* without *av*. All tibiae darkened. Palpi brownish, Kenya ..... ***dmitryi*** **sp. nov.**
6. Palpi dark. Ethiopia, Kenya ..... ***ethiopica*** Vikhrev
– palpi yellow **7**
7. N Africa, Near East, North of Ethiopia .... ***cilitarsis*** Loew
– Botswana, Madagascar ..... ***paraneo*** Zielke

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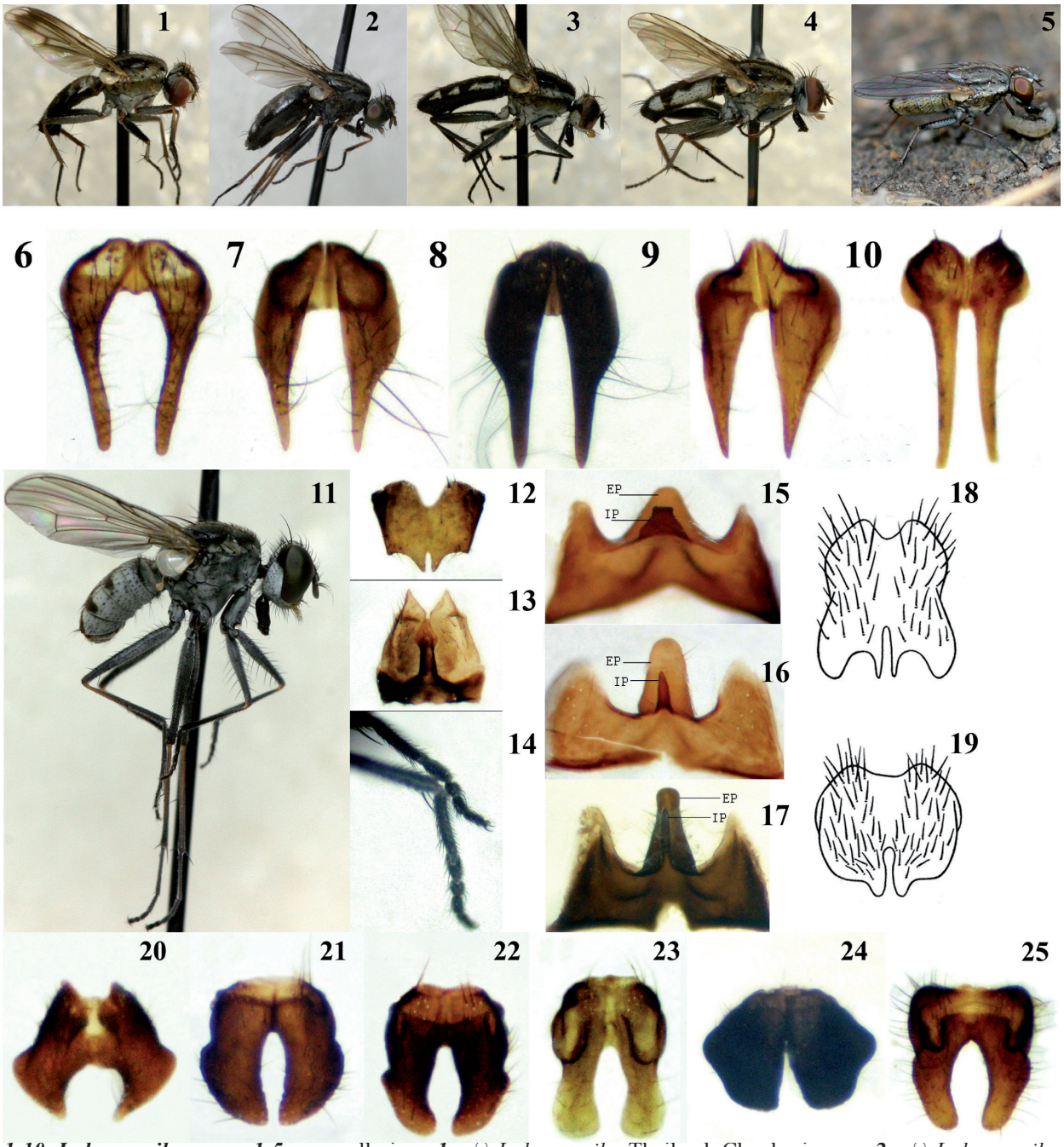
ЦВЕТНАЯ ТАБЛИЦА I **COLOR PLATE I**



1-10. L. leucospila group: ***1-5*** – overall view: ***1*** – ♀ *L. leucospila*, Thailand, Chonburi prov.; ***2*** – ♀ *L. leucospila*, India, Rajasthan state; ***3*** – ♂ *L. maculata*; ***4*** – ♂ *L. irvingi*; ***5*** – ♀ *L. pectinipes*. ***6-10*** – male cercal plates: ***6*** – *L. pectinipes*; ***7*** – *L. irvingi* (specimen with *L. pectinipes*-like scutal pattern, Kenya); ***8*** – *L. irvingi* (specimen with *L. mapaiensis*-like scutal pattern, Tanzania); ***9*** – *L. leucospila*; ***10*** – *L. maculata*.

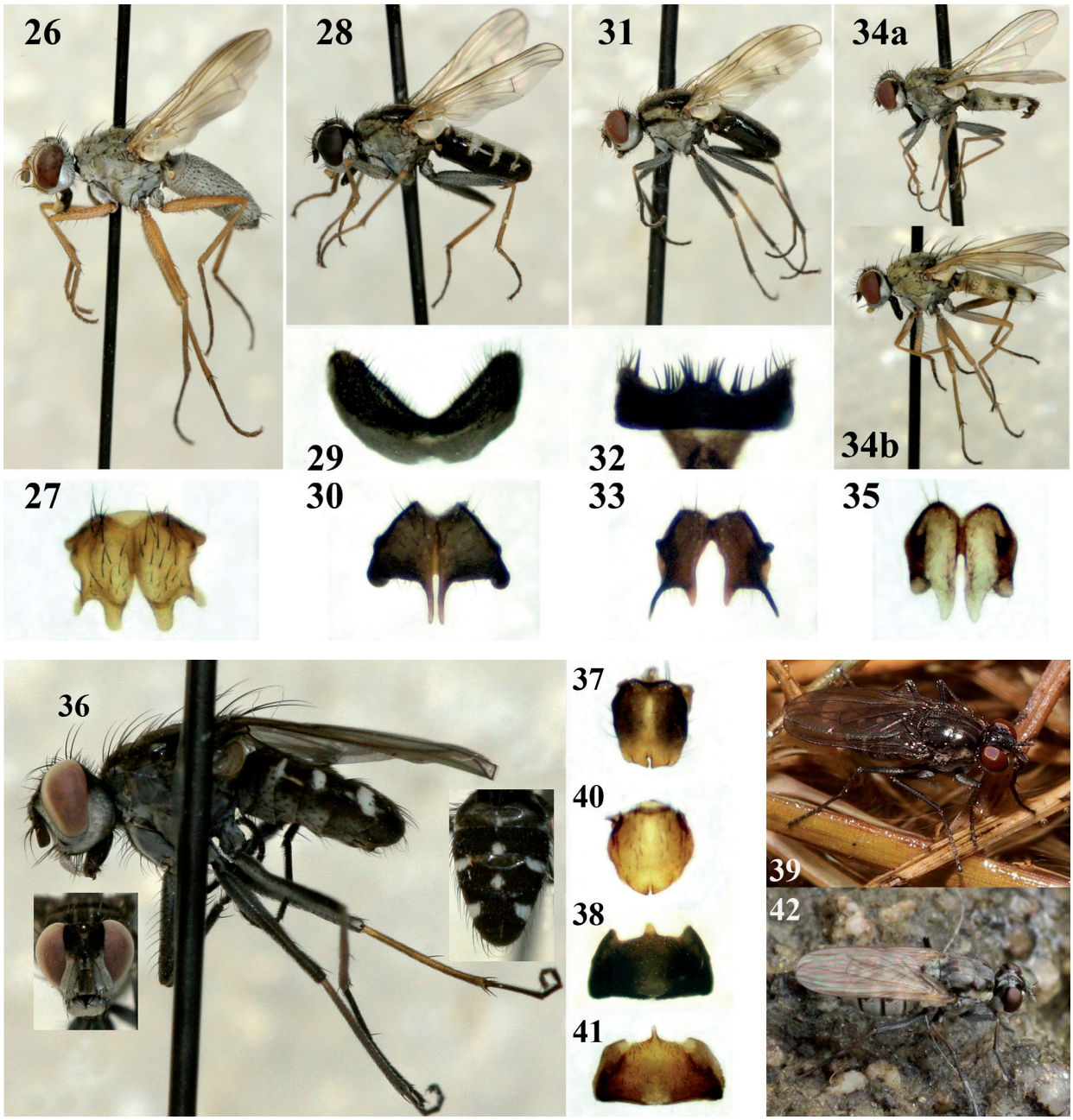
11-19. L. tentaculata group: ***11-14*** – *L. emdeni* ♂: overall view (***11***), cercal plate (***12***), sternite 5 (***13***), fore legs (***14***). ***15-17*** – male sternite 5, view from inner side (EP – external median process; IP – internal median process): ***15*** – *L. draperi*; ***16*** – *L. tentaculata*; ***17*** – *L. sociabilis*. ***18-19*** – male cercal plate (by Hennig): ***18*** – *L. tentaculata*; ***19*** – *L. consanguinea.*

20-25. L. nivalis group: cercal plates: ***20*** – *L. bivittata*; ***21*** – *L. nivalis*; ***22*** – *L. subbivittata*; ***23*** – *L. hennigi*; ***24*** – *L. medvedevi* **sp. nov.**; ***25*** – *L. tomkovichi* **sp. nov.**

1-10. Группа ***L. leucospila***: ***1-5*** – общий вид: ***1*** – ♀ *L. leucospila*, Таиланд, пров. Чонбури; ***2*** – ♀ *L. leucospila*, Индия, Раджастан; ***3*** – ♂ *L. maculata*; ***4*** – ♂ *L. irvingi*; ***5*** – ♀ *L. pectinipes*. ***6-10*** – церки самцов: ***6*** – *L. pectinipes*; ***7*** – *L. irvingi* (экземпляр с совпадающим с *L. pectinipes* рисунком на скутуме, Кения); ***8*** – *L. irvingi* (экземпляр с рисунком на скутуме как у *L. mapaiensis*, Танзания); ***9*** – *L. leucospila*; ***10*** – *L. maculata*.

11-19. Группа ***L. tentaculata***: **11-14** – *L. emdeni* ♂: общий вид (***11***), церки (***12***), стернит 5 (***13***), передняя нога (***14***). ***15-17*** – стернит 5 самца, вид с внутренней стороны (EP – внешний срединный вырост; IP – внутренний срединный вырост): ***15*** – *L. draperi*; ***16*** – *L. tentaculata*; ***17*** – *L. sociabilis*. ***18-19*** – церки [по Hennig, 1960]: ***18*** – *L. tentaculata*; ***19*** – *L. consanguinea*

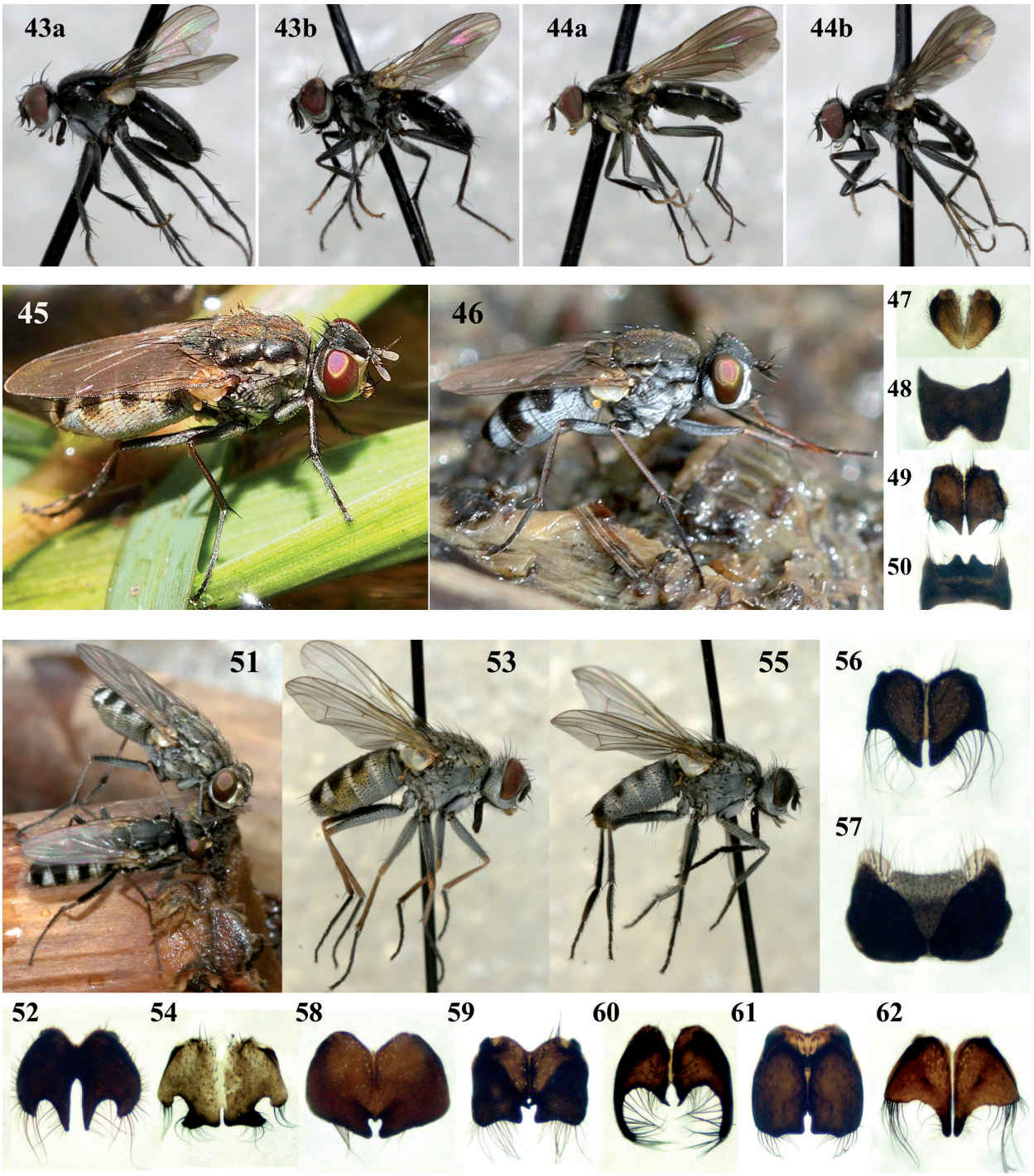
20-25. Группа ***L. nivalis***. церки: ***20*** – *L. bivittata*; ***21*** – *L. nivalis*; ***22*** – *L. subbivittata*; ***23*** – *L. hennigi*; ***24*** – *L. medvedevi* **sp. nov.**; ***25*** – *L. tomkovichi* **sp. nov.**



26-35. L. scalaris group: *L. flavipes*: ♂ overall view (***26***), cercal plate (***27***); *L. nubilipennis*: ♂ overall view (***28***), sternite 5 (***29***), cercal plate (***30***); *L. elegantissima*: ♂ overall view (***31***), sternite 5 (***32***), cercal plate (***33***); *L. scalaris*: ♂ overall view (***34a***), ♀ (yellow-leg form) overall view (***34b***), cercal plate (***35***).
36-42. L. nana species complex: *L. martirei* **sp. nov**.: ♂ overall view, head and abdomen (***36***), cercal plate (***37***), ♂ sternite 5 (***38***), ♀ overall view (photo D. Martire) (***39***); *L. nana*: cercal plate (***40***), ♂ sternite 5 (***41***), ♀ overall view (photo P. Alvarez) (***42***)

26-35. Группа ***L. scalaris***: *L. flavipes*: ♂ общий вид (***26***), церки (***27***). *L. nubilipennis*: ♂ общий вид (***28***), стернит 5 (***29***), церки (***30***); *L. elegantissima*: ♂ общий вид (***31***), стернит 5 (***32***), церки (***33***); *L. scalaris*: ♂ общий вид (***34a***), ♀ (форма с желтыми бедрами): общий вид (***34b***), церки (***35***).
36-42. Комплекс видов ***L. nana***: *L. martirei* **sp. nov**.: ♂ общий вид, голова и брюшко (***36***), церки (***37***), ♂ стернит 5 (***38***), ♀ общий вид (фото D. Martire) (***39***); *L. nana*: церки (***40***), ♂ стернит 5 (***41***), ♀ общий вид (фото P. Alvarez) (***42***)

ЦВЕТНАЯ ТАБЛИЦА III **COLOR PLATE III**



43-44. L. kowarzi species complex: *L. kowarzi*: ***43a*** – *L. kowarzi kowarzi,* ♂; ***43b*** – *L. kowarzi pallitarsis,* ♂. *L. fulvitarsus*: ***44a*** – *L. fulvitarsus asiatica* **ssp. nov**., ♂; ***44b*** – *L. fulvitarsus fulvitarsus,* ♂.
45-50, L. desjardinsii group: ***45*** – *L. desjardinsii,* ♀ (photo D. Martire); ***46-48*** – *L. tuberculitarsis,* ♂: overall view (***46***), cercal plate (***47***), sternite 5 (***48***); ***49-50*** – *L. pennitarsis,* ♂: cercal plate (***49***), sternite 5 (***50***).
51-62. L. longicollis group, subgroup 1: ***51-52*** – *L. longicollis*: ♀ and ♂ (***51***), cercal plate (***52***); ***53-54*** – *L. xenochaeta,* ♂: overall view (***53***), cercal plate (***54***); ***55-57*** – *L. dmitryi* **sp. nov**., ♂: overall view (***55***), cercal plate (***56***), sternite 5 (***57***); ***58-62*** – cercal plates: ***58*** – *L. microptera*; ***59*** – *L. ethiopica*; ***60*** – *L. cilitarsis*; ***61*** – *L. paraneo*; ***62*** – *L. barbipes.*

43-44. Комплекс видов ***L. kowarzi***: *L. kowarzi*: ***43a*** – *L. kowarzi kowarzi,* ♂; ***43b*** – *L. kowarzi pallitarsis,* ♂. *L. fulvitarsus*: ***44a*** – *L. fulvitarsus asiatica* **ssp. nov**., ♂; ***44b*** – *L. fulvitarsus fulvitarsus,* ♂.
45-50. Группа ***L. desjardinsii***: ***45*** – *L. desjardinsii* ♀ (фото D. Martire); ***46-48*** – *L. tuberculitarsis,* ♂: общий вид (***46***), церки (***47***), стернит 5 (***48***); ***49-50*** – *L. pennitarsis,* ♂: церки (***49***), стернит 5 (***50***).
51-62. Группа, подгруппа ***L. longicollis*** 1: *L. longicollis*: ♀ и ♂ (***51***), церки (52); ***53-54*** – *L. xenochaeta* ♂: общий вид (***53***), церки (***54***); ***55-57*** – *L. dmitryi* **sp. nov**. ♂: общий вид (***55***), церки (***56***), стернит 5 (***57***); церки: ***58*** – *L. microptera*; ***59*** – *L. ethiopica*; ***60*** – *L. cilitarsis*; ***61*** – *L. paraneo*; ***62*** – *L. barbipes.*