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REVIEW OF THE GENUS *LITUS* HALIDAY, 1833 IN THE HOLARCTIC AND ORIENTAL REGIONS, WITH NOTES ON THE PALAEARCTIC SPECIES OF *ARESCON* WALKER, 1846 (HYMENOPTERA: MYMARIDAE)

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Six species of the genus *Litus* Haliday are reviewed. *L. cynipseus* Haliday and *L. camptopterus* Novicky are newly recorded from Russia. Three new species: *L. karapuz* sp. n. (Japan and Republic of Korea), *L. sutil* sp. n. (Thailand), and *L. usach* sp. n. (Nepal) are described. New synonymies are proposed: *Litus* Haliday, 1833 = *Neolitus* Ogloblin, 1935, **syn. n.**; *L. camptopterus* Novicky, 1953 = *L. distinctus* Botoc, 1964, **syn. n.**; *L. cynipseus* Haliday, 1833 = *L. krygeri* Kieffer, 1913, **syn. n.** Two species are excluded from *Litus*: *Camptoptera enocki* (Howard, 1896), **comb. n.** and *Dicopomorpha schneideri* (Girault, 1912), **comb. n.**, and one species is transferred to *Litus* from *Neolitus*: *L. argentinus* (Ogloblin, 1935), **comb. n.** A key to the five species of *Litus* distributed in the Holarctic and Oriental regions is given. Notes are provided on the taxonomy and distribution of three Palearctic species of the genus *Arescon* Walker.

KEY WORDS: Hymenoptera, Mymaridae, *Litus*, *Arescon*, taxonomy.

С. В. Тряпицын, В. В. Березовский. Обзор рода *Litus* Haliday, 1833 (Hymenoptera: Mymaridae) Старого Света с заметками о палеарктических видах рода *Arescon* Walker, 1846 // Дальневосточный энтомолог. 2004. N 141. С. 1-24.

Дан обзор 6 видов рода *Litus*. Впервые для России указываются *L. cynipseus* Haliday и *L. camptopterus* Novicky. Описаны 3 новых вида: *L. karapuz* **sp. n.** (Япония, Южная Корея), *L. sutil* **sp. n.** (Таиланд) и *L. usach* **sp. n.** (Непал). Предложена новая синонимия: *Litus* Haliday, 1833 = *Neolitus* Ogloblin, 1935, **syn. n.**; *L. camptopterus* Novicky, 1953 = *L. distinctus* Botos, 1964, **syn. n.**; *L. cynipseus* Haliday, 1833 = *L. krygeri* Kieffer, 1913, **syn. n.** Два вида исключены из рода *Litus*: *Camptoptera enocki* (Howard, 1896), **comb. n.** и *Dicopomorpha schleideni* (Girault, 1912), **comb. n.**, а 1 вид переведен в *Litus* из *Neolitus*: *L. argentinus* (Ogloblin, 1935), **comb. n.** Дана определительная таблица 5 видов *Litus*, распространенных в Голарктической и Ориентальной областях. Приведены сведения о систематике и распространении 3 палеарктических видов рода *Arescon* Walker.

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INTRODUCTION

The genus *Litus* is one of the "classical" fairyfly genera described by Haliday (1833), which nevertheless has remained poorly known, even in Europe. This is the first attempt to revise the few described Old World (excluding Afrotropical) species of this genus, two of which also occur in the Nearctic region. Known world fauna of *Litus* now consists of 4 fossil species, catalogued by Noyes (2002), and 8 valid extant species (after the nomenclatural changes made herein and excluding *L. maculipennis* Ashmead, 1900, whose true identity needs to be clarified – it cannot possibly be a *Litus*); however, several exotic species remain undescribed, primarily in the Afrotropical and Neotropical regions.

Litus was recorded from Russia only recently, when 1 or 2 undetermined species were found in the southern Primorskii krai (Triapitsyn & Huber, 2000). After a more thorough examination, we found that they belong to the two widespread Holarctic species, *L. cynipseus* Haliday, 1833 and *L. camptoperus* Novicky, 1953. The latter is for the first time recorded beyond its type locality in Austria.

Additionally, we provide further notes on the taxonomy and distribution of the Palaearctic species of the genus *Arescon* Walker, 1846. These complement the recent review by Triapitsyn & Berezovskiy (2003) and are based on examination of the specimens which became available to us after that publication. An updated, more complete, diagnosis of *A. iridescens* (Enock, 1914) is provided based on the freshly collected specimens from Italy. The previously unknown male of *A. zenit* Triapitsyn et Berezovskiy, 2003 is described from Japan.

Collecting and preservation methods of the material from Primorskii krai were described by Triapitsyn & Berezovskiy (2001). Terms for morphological features are those of Gibson (1997). All measurements are given in micrometers (μm), as length or, where necessary, as length/width. Abbreviations used are: F = funicle segment of the female antenna or flagellomere of the male antenna; MT = Malaise trap; YPT = yellow pan trap. New distribution (country) records are marked by an asterisk (*).

Acronyms for depositories of specimens are as follows: CNCI, Canadian National Collection of Insects, Ottawa, Ontario, Canada; EMEC, Essig Museum of Entomology, University of California, Berkeley, California, USA; IBPV, Institute of Biology and Pedology, Vladivostok, Russia; INHS, Illinois Natural History Survey, Champaign, Illinois, USA; ISNB, Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium; MZHF, Zoological Museum, Finnish Museum of Natural History, Helsinki, Finland; OSUC, Museum of Biological Diversity, Ohio State University, Columbus, Ohio, USA; TAMU, Entomology Department, Texas A&M University, College Station, Texas, USA; UCRC, University of California, Riverside, California, USA; ZIN, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

The investigative responsibilities have been divided between the authors in such a way that S.V.T. is solely responsible for the entire text of this article, including its taxonomic part, while V.V.B. sorted mymarids from bulk samples, point-, card-, and slide-mounted the specimens, and made line drawings.

Genus *Litus* Haliday, 1833

Litus Haliday, 1833: 269, 345 (type species: *Litus cynipseus* Haliday, 1833, designated by Gahan & Fagan, 1923: 81); Walker, 1846: 50; Foerster, 1847: 207; Debauche, 1948: 48; Kryger, 1950: 64; Ogloblin, 1955: 498; Ison, 1958: 68; Annecke & Doult, 1961: 10; Viggiani, 1973: 231; Hellén, 1974: 13; Trjapitzin, 1978: 524; Graham, 1982: 224; Schauff, 1984: 41; Viggiani & Jesu, 1988: 1022; Viggiani, 1989: 145; Yoshimoto, 1990: 24; Huber, 1997: 503; Triapitsyn & Huber, 2000: 614.

Neolitus Ogloblin, 1935: 60 (type species: *Neolitus argentinus* Ogloblin, 1935, Loreto, Misiones, Argentina, by original designation), **syn. n.**; 1955: 498; Annecke & Doult, 1961: 10; Yoshimoto, 1990: 24.

Neolitiscus Ghesquière, 1946: 371. Unnecessary new name for *Neolitus*.

Lithisca Ogloblin, 1955: 498. Lapsus for *Neolitiscus*.

DIAGNOSIS. Based on the examined specimens and also the previous diagnoses by Debauche (1948), Schauff (1984), and Yoshimoto (1990), the description of the male *L. cynipseus* by Viggiani (1973), as well as the keys by Huber (1997) and Triapitsyn & Huber (2000), the following brief diagnosis of *Litus* is given. Body stout and mostly dark-colored; head and mesosoma strongly sculptured, mostly rugose-reticulate (sculpture patterns usually species-specific); mandible bidentate (unidentate mandible was reported by Viggiani (1973) for male of *L. cynipseus* whereas that of its female has 2 equally long teeth); female funicle 6-segmented (funicle segments without longitudinal sensilla), clava entire, with 4 longitudinal sensilla; male antenna 11-segmented (in one undetermined species F2 small and fused with F3 so that flagellum appears 8-segmented); mesoscutum usually with distinct notauli (indistinct in the minute *L. argentinus* (Ogloblin, 1935) comb. n. and *L. sutil* sp. n.), mesophragma projecting into metasoma; forewing narrow, basally with posterior margin not incised, marginal vein elongate and with dorsal macrochaetae short; coxae usually strongly reticulated, tarsi 5-segmented; metasoma semi-sessile (petiole much wider than long and inconspicuous, not visible in dry specimens), strongly sclerotized, with second tergum the longest; ovipositor short, male genitalia relatively simple (well illustrated by Viggiani, 1973).

COMMENTS. Graham (1982) provided a detailed nomenclatural history of *Litus*; we agree with his point of view regarding the status of its type species. *Litus* is almost a cosmopolitan genus unknown only from Australia and New Zealand; it may be quite common at times, especially if collected by Malaise, yellow pan, or flight intercept traps or sifted from leaf litter. The reliable host records indicate that *L. cynipseus* is an apparently gregarious egg parasitoid of large Staphylinidae (Coleoptera) (Kieffer, 1913; Kryger, 1913; Viggiani, 1973).

Members of *Litus* can be quite easily recognized using most recently published generic keys of Mymaridae, but only two of them, one by Yoshimoto (1990) for the New World and the other by Triapitsyn & Huber (2000) for the Palaearctic region, apply to both sexes. Males of *Litus* are extremely rare in collections; the only previously published record is that of the male of *L. cynipseus* in Italy (Viggiani, 1973). At UCRC, we have one point-mounted male specimen of an unidentified species of *Litus* from Amazonas, Colombia. F2 of the antenna in that winged specimen is much smaller than other flagellomeres and partially fused with F3.

The proposed synonymy of *Neolitus* under *Litus* is justified because neither of the two main distinguishing characters, used by Ogloblin (1935) to separate them, held or has been of a particular taxonomic value. First, Ogloblin himself (1955) admitted that both genera have a rounded posterior margin of the mesophragma, thus correcting his earlier statement (1935) that it is notched posteriorly in *Litus*. Second, absence of distinct notauli (it is worth mentioning here that A. A. Ogloblin did not clear his specimens before slide-mounting; in our well-cleared specimens of *L. argentinus* and also in the Oriental *L. sutil* sp. n., traces of notauli can be observed on the very short mesoscutum under high magnification) occurs in minute species in some other genera of Mymaridae, the majority of species in which have well-developed notauli. This is directly related to size reduction of the mesosomal terga in a few smallest representatives of such genera. Moreover, notauli may be absent even in some normal-sized species, such as for instance the Oriental *Anagrus dalhousieanus* Mani et Saraswat, 1973 (Chiappini & Lin, 1998), while all other known species of *Anagrus* Haliday, 1833 have distinct notauli.

The place of *Litus* within a higher hierarchy of Mymaridae was recently discussed by Huber (2002), who rightfully placed it in the cladogram on the same stem together with the *Camptoptera* Foerster, 1856 group of genera. Earlier, Viggiani (1989) placed *Litus* in the tribe *Alaptini* Perkins, 1912 of the subfamily Mymarinae based solely on the external male genitalic characters.

Key to species of *Litus* in the Holarctic and Oriental regions, females

- 1. F2 at most as long as pedicel, usually a little shorter 2
- F2 notably longer than pedicel 3
- 2. Clava relatively broader, 2.2-2.5 times as long as wide (in lateral view); mesoscutum with distinct notauli; forewing 13-14 times as long as wide
- 1. *L. cynipseus*

- Clava relatively narrower, about 3.5 times as long as wide (in lateral view); mesoscutum without distinct notauli; forewing about 21 times as long as wide 2. *L. sutil* sp. n.
- 3. Forewing blade bare except for two rows of microtrichia along margins (Fig. 6) 3. *L. camptopterus*
- Forewing blade with additional, incomplete or irregular rows of microtrichia in the distal half (Figs. 8, 10) 4
- 4. Clava lighter than other flagellar segments and relatively narrower, about 3.5 times as long as wide (in lateral view); forewing 15-16 times as long as wide 4. *L. karapuz* sp. n.
- Clava concolorous with other flagellar segments and relatively broader, about 2.8 times as long as wide (in lateral view); forewing about 12.7 times as long as wide 5. *L. usach* sp. n.

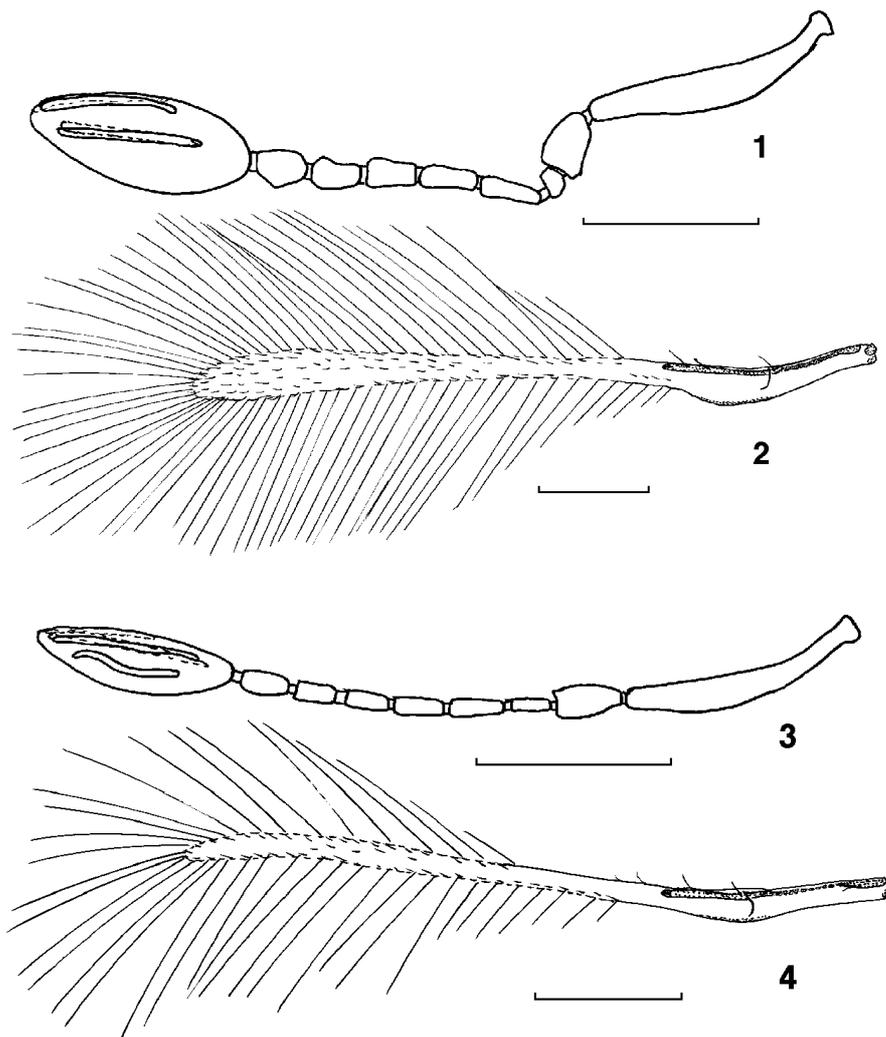
1. *Litus cynipseus* Haliday, 1833

Figs 1, 2

Litus cynipseus Haliday, 1833: 345 (lectotype – ♀, designated by Graham, 1982: 225, type locality unknown, likely in England (UK) or Ireland [Nat. Hist. Divis. National Mus. Ireland, Dublin], not examined); Walker, 1846: 51; Foerster, 1847: 207; Girault, 1911b: 363; Debauche, 1948: 51; Kryger, 1950: 67; Viggiani, 1973: 231; Botoc, 1974: 103; Hellén, 1974: 13; Trjapitzin, 1978: 524; Graham, 1982: 225; Thuryczy, 1983: 338; Huber, 1997: 503 (presence in the Nearctic region); Baquero & Jordana, 2002: 81.

Litus krygeri Kieffer (as *Krygeri*), 1913: 378 (?syntypes [type status not indicated] – about 70 ♀, Dyrehaven (near Copenhagen), Denmark [depository unknown, probably in Zool. Mus., Univ. Copenhagen, Copenhagen], not examined), **syn. n.**; Kryger, 1913: 380; Kryger, 1950: 67 (mentioned as conspecific with *L. cynipseus* but not formally synonymized).

MATERIAL. Russia: Moscow region: Fryazevo, 24.VII 2000, M. Tretiakov, 1 ♀ [UCRC]. Mamontovka, E. Shouvakhina: 20-31.VII 2000, 1 ♀; 1-10.VIII 2000, 1 ♀ [UCRC, ZIN]. Primorskii krai, Gornotayozhnoye, M. Michailovskaya: 27.V 1999, 1 ♀; 21-22.VI 1999, 1 ♀; 21-22.VII 1999, 2 ♀; 25-30.VII 1999, 3 ♀; 17-18.VIII 1999, 3 ♀; 27-28.VIII 1999, 1 ♀; 10-15.IX 1999, 2 ♀; 25-26.IX 1999, 3 ♀; 1-11.X 1999, 3 ♀; 21-24.X 1999, 9 ♀; 1-12.VI 2000, 1 ♀; 1-10.VIII 2000, 7 ♀; 9-12.X 2000, 3 ♀; 1-10.X 2001, 1 ♀; 24.IX-5.X 2002, 1 ♀ [IBPV, UCRC, ZIN]. **Austria:** Hundsheimer Berg near Hainburg, below 480 m, 23.XI-7.XII 1979, H. Zettel, 2 ♀. **Belgium:** Near Ethe and Buzenol, P. Grootaert: 11-25.VIII 1981, 1 ♀; 24.IX-9.X 1981, 1 ♀. Gembloux, C. Fassotte: 17-24.V 1982, 1 ♀; 7-14.VI 1982, 1 ♀. St. Martens-Latem, P. Grootaert: 5-12.VII 1981, 11 ♀; 2-29.VIII 1981, 2 ♀. Vance, 18-21.V 1981, P. Grootaert, 1 ♀ [CNCI]. Wanze, R. Detry: 23.V-6.VI 1982, 3 ♀ [CNCI]; 1-14.VII 1989, 3 ♀; 28.VII-11.VIII 1989, 1 ♀; 25.VIII-8.IX 1989, 1 ♀; 20.X-3.IX 1989, 2 ♀; 2-23.III 1990, 1 ♀; 27.IV-11.V 1990, 1 ♀. Waterloo, 1.IV-13.V 1992, P. Dessart, 1 ♀ [ISNB]. Warempage, VII 1983, I. Brogniez, 2 ♀ [CNCI]. **Canada:** Ontario: near Ancaster, 43°15'N, 80°00'W, 7-28.VII 1995, B. DeJonge, 1 ♀. Grenadier Island, 16-30.VIII 1994, CNC Hymenoptera Team, 1 ♀. Ottawa, 4.VI 1982, L. Huggert, 3 ♀. 44°47'12"N, 75°30'38"W,



Figs 1-4. 1, 2) *Litus cynipseus*, ♀ from Tourtirac, Département Gironde; 3, 4) *L. sutil* sp. n., holotype, ♀. 1, 3) antennae, 2, 4) forewings. Scale bars = 0.1 mm.

12-16.VIII 1994, L. Masner, 2 ♀ [CNCI, det. by J. Huber]. **Czech Republic**: Bohemia: Kunratice (near Prague), 8-11.VII 1991, J. Macek, 1 ♀. Near Revnice, 20-21.VIII 1999, L. Masner, 1 ♀. **England (UK)**: Berkshire Co., Ascot, Silwood Park, 11.VI 1994, J. Noyes, 1 ♀ [CNCI]. **France**: Département Gironde: Sainte Colombe, 44°54'N, 00°02'W, M. van Helden: 31.V 2000, 1 ♀; 17.VIII 2000, 2 ♀. Tourtirac, 44°53'57"N, 00°02'02"W, 100 m, 26-27.VI 2000, S. Triapitsyn, 1 ♀ [UCRC]. Département Hérault:

Cournnonsec, 24.IV-9.V 1980, J. Huber, 1 ♀. Montpellier, J. Huber: XI-XII 1977, 9 ♀; I-XI 1979, 15 ♀; II-VI 1980, 5 ♀. Département Var, near Tanneron, 27-29.VIII 1999, L. Masner, 1 ♀. **Hungary**: Vas Co., near Kőszeg, 16-19.V 2001, L. Masner, 2 ♀. **Italy**: Calabria: Camigliatello Silano, 26.VI 1988, J. Pinto, 1 ♀. La Sila, Lorica, 1300 m, 23.VI 1988, J. Pinto, 1 ♀ [CNCI]. Lazio, Roma Province: Caldaradi Manziana, 42°05.61'N, 12°05.91'E, 305 m, 10.VI 2003, M. Bologna, J. Munro, A. Owen, J. Pinto, 1 ♀. 0.8 km W Sasso, 42°02.97'N, 12°02.21'E, 264 m, 9-10.VI 2003, M. Bologna, J. Munro, A. Owen, J. Pinto, 4 ♀ [UCRC]. Sardinia, Tempio (Cusseddu): 8-15.V 1978, 3 ♀; 29.V-5.VI 1978, 2 ♀; 5-17.VI 1978, 3 ♀; 3-10.VII 1978, 2 ♀. Umbria, Perugia, Monte Peglia, 8-23.VI 1978 1 ♀. **Japan**: Honshu: Aichi Pref.: Douzuki, Obara, K. Yamagishi: 23.VII-7.VIII 1990, 2 ♀; 6-12.IX 1990, 1 ♀. Misawa, Seto, A. Takano: 1-28.VIII 1989, 1 ♀; 31.X-6.XI 1989, 1 ♀. Mt. Sanage-yama: 30.V-3.VII 1989, A. Takano, 1 ♀; 15-25.VIII 1989, A. Takano, 3 ♀; 12.IX-2.X 1989, A. Takano, 3 ♀; 7-13.VIII 1993, K. Yamagishi, 2 ♀. Shitara, Uradani, 900 m, 6-12.V 1994, K. Yamagishi, 1 ♀. Ibaraki Pref.: Mt. Tsukuba, 800 m, 18.IX-2.X 1989, M. Sharkey, 1 ♀. Tsuchiura, M. Sharkey: 7-16.V 1989, 2 ♀; 13-31.VII 1989, 7 ♀; 16-27.X 1989, 1 ♀. Tsukuba, M. Sharkey: 6-31.V 1989, 3 ♀; 14-25.VII-4.VIII 1989, 13 ♀. Iwate Pref.: Iwaizumi, Hitsutori, 770 m, 11-17.VIII 1991, A. Smetana, 7 ♀. Kawai, Yoshibezawa, 1050 m, 12-17.VIII 1991, A. Smetana, 2 ♀. Morioko area, 400 m, 17-31.IX 1989, H. Makihara, M. Sharkey, 1 ♀. Mt. Hayachine, 400 m, 19.VII-15.VIII 1989, H. Makihara, M. Sharkey, 5 ♀. Tochigi Pref., Kuriyama, 1420 m, 20-23.VIII 1991, A. Smetana, 3 ♀. Kyushu, Fukuoka Pref., Mt. Hiko, 25.VIII-4.XI 1989, K. Takeno & M. Sharkey, 1 ♀ [CNCI]. **Kyrgyzstan**: Dzhahal-Abad: near junction of Kara Kysmak and Chatkal Rivers, 42°04'00"N, 71°35'41"E, 2240 m, 18-19.VI 1999, C. Dietrich, 29 ♀. Teke-Uyuk Ravine, 41°29'12"N, 74°35'50"E, 1850 m, 30.VI 1999, C. Dietrich, 1 ♀. Osh, Karakulzha, Lajsu Ravine, 40°31'20"N, 73°37'10"E, 1815 m, 25.VI 1999, C. Dietrich, 1 ♀ [INHS, UCRC]. **Mexico**: Nuevo León, Municipio Guadalupe, Rincón de la Sierra, 11.VIII 1983, M. A. Rodríguez P., 1 ♀ [UCRC]. **Morocco**: Marrakech, Ouirgane, 31°08'N, 08°05'W, 1000 m, 19-26.I 1997, C. Kassebeer, 1 ♀. **Nepal**: Kakani, 23.VI-2.VII 1983, M. Allen, 1 ♀. Lalitpur, 2600 m, 14.X 1983, A. Smetana, 3 ♀. Phulcoki, 2600 m, 14.X 1983, A. Smetana, 1 ♀. **Netherlands**: Leersum, Brockhuizen, VI-X 1975, H. Vlug, 21 ♀ [CNCI]. Limburg, Valkenburg, 10.VII 1930, W. Soyka, 1 ♀ [EMEC]. **Republic of Korea**: Gangwon-do, Pyengchang: Donam, Byungnae, 24.IX 1998, J.-Y. Choi, 1 ♀. Jinbu, Dui, 23.IX 1998, J.-Y. Choi, 1 ♀ [UCRC]. **Serbia and Montenegro**: Montenegro, Crna Gora Cela, VIII 1986, N. Springate, 1 ♀. **Slovenia**: Kamna Gorica, 1-13.VIII 1978, L. Huggert, 4 ♀. Lesce, 7-13.VIII 1978, L. Huggert, 1 ♀. Radovljica, 2-13.VIII 1978, L. Huggert, 4 ♀. **Spain**: Navarra, Artikutza, 590-610 m, L. Martínez de Murguía: 1-15.V 1995, 1 ♀; 14.VII-11.VIII 1996, 1 ♀; 20.X-17.XI 1996, 2 ♀; 6-20.IV 1997, 1 ♀. **Switzerland**: Dielsdorf, 650 m, 17.VIII 1984, L. Masner, 3 ♀. Rickenbach, 560 m, 14-18.VII 1994, P. Flückiger, 2 ♀. Turgall, near Unterwasser, 1440 m, 4.VIII 1984, L. Masner, 2 ♀. **Turkey**: Kemer, 14-20.V 1991, J. LaSalle, 1 ♀ [CNCI]. **USA**: Maryland, Montgomery Co., Silver

Spring, 7-20.VII 1980, E. Grissell, 6♀. Georgia: Gordon Co., Fairmount, Salacoa Creek, 34°24'12"N, 84°40'08"W, 16.V 2002, D. Yanega, 4♀ [UCRC]. Texas, Brazos Co., College Station, Lick Creek Park, 31.V 1988, R. Wharton, 2♀ [TAMU, UCRC]. **Wales** (UK): Clwyd Co.: Dolywern (5 km S Llangollen), 29.VII 1999, J. Noyes, 1♀. Llangollen, 2.VIII 1999, J. Noyes, 2♀ [CNCI].

DIAGNOSIS. Female and male of *L. cynipseus* were well described and illustrated by Debauche (1948) and Viggiani (1973), respectively. It can be easily distinguished from all other known Holarctic and Oriental species of *Litus* by female antenna with short funicle segments and a broad, massive clava (Fig. 1), as well as characteristic chaetotaxy on the female forewing (Fig. 2) and sculptural patterns on the mesonotum. The main distinguishing features of female *L. cynipseus* are as follows. Body length 500-600; body and antenna dark brown to black, legs a little lighter (except coxae). Antenna (Fig. 1) with F1 very short, much shorter than pedicel or any other funicle segment; F2 the longest funicle segment, almost as long as pedicel; clava 2.2-2.5 times as long as wide in lateral view and about as long as combined length of 4 preceding segments; mesoscutum with distinct notauli; anterior part of propodeum strongly sculptured and with an incomplete, often inconspicuous medial longitudinal carina, posterior part of propodeum smooth; forewing (Fig. 2) 13-14 times as long as wide, its blade slightly infumated basally and almost hyaline distally, with two rows of microtrichia along the margins and many additional, irregularly arranged microtrichia in the distal half; the longest marginal cilia 4.6-5.0 times greatest width of the wing. Forewing blade is relatively and rather consistently more densely setose in the specimens from the eastern Palaearctic region (including those from Primorskii krai), so it is possible that these represent a separate, sibling species although we attribute that to geographical or/and host-induced intraspecific variability, because all other morphological features are the same as in the European or North American specimens. *L. cynipseus* is most closely related to an undescribed species from Kenya (numerous specimens at UCRC), with which it forms a distinct *cynipseus* species group within *Litus*. Arrangement of the longitudinal sensilla on the clava of the female antenna in these two species is different from such arrangement in *L. camptopterus* (Fig. 5) and other species related to the latter.

DISTRIBUTION. *Russia (Moscow region, Primorskii krai); *Austria, Belgium, Bulgaria (Donev, 1988b), *Canada, Czech Republic, Denmark (Kieffer, 1913 [as *L. Krygeri*]; Kryger, 1950), Finland (Hellén, 1974), *France, Greece (Donev, 1988a), Hungary, Italy, *Japan, *Kyrgyzstan, *Mexico, Moldova (Bouček, 1965), *Morocco, *Nepal, *Netherlands, *Republic of Korea, Romania (Botoc, 1974), *Serbia and Montenegro (Montenegro), *Slovenia, Spain, *Switzerland, *Turkey, United Kingdom (England, *Wales), *USA.

HOSTS. *Ocypus olens* (Möller, 1864) (Kieffer, 1913; Kryger, 1913, 1950; Viggiani, 1973) and *Staphylinus* sp. (Viggiani, 1973) (Staphylinidae).

COMMENTS. Walker (1846) mentioned that *L. cynipseus* was common near London in England while earlier Haliday (1833) had indicated that this species was not uncommon on grass near trees (without indicating any localities).

The synonymy of *L. krygeri* under *L. cynipseus* is obvious due to the rather detailed original description and a relatively good illustration by Kieffer (1913), in full agreement with the earlier remarks regarding their conspecificity by Kryger (1950), Novicky (1953), and Graham (1982), all of whom nevertheless came short of formalizing it.

2. *Litus sutil* S. Triapitsyn et Berezovskiy, sp. n.

Figs 3, 4

MATERIAL. Holotype – ♀ (on slide) [UCRC]: Thailand, Suphan Buri, Khao Yai National Park, 800 m, Haew Suwat Waterfall, 1.VII 1990, J. Heraty (collector's code H109).

DESCRIPTION. FEMALE. Color. Body brown to dark brown, appendages lighter colored (light brown to brown). Head almost as wide as mesosoma, strongly sculptured. Antenna (Fig. 3) sparsely setose; scape long, finely longitudinally striate; pedicel longer than F1; all funicle segments much longer than broad, F1 the shortest, F2 the longest, F3-F6 subequal in length, F6 slightly broader than preceding funicle segments; clava about 3.5 times as long as wide (in dorsal view), as long as combined length of 4 preceding segments (F3-F6), longitudinal sensilla occupying a little more than half length of clava, none of them reaching its base.

Mesosoma. Pronotum lightly sculptured, very short; remainder of mesosoma strongly sculptured. Mesoscutum very short, much shorter than scutellum, notauli inconspicuous. Scutellum a little longer than wide. Propodeum with different sculptural patterns anterior and posterior to transverse propodeal ridge, without a medial longitudinal carina. Forewing (Fig. 4) long and very narrow, 21 times as long as wide, with venation typical of the genus; blade slightly infuscated behind and just beyond venation but mostly hyaline; disc mostly bare except for a short, incomplete row of 3 microtrichia in the middle and 2 rows of microtrichia along margins; longest marginal cilia about 7 times greatest width of wing. Hind wing typical of the genus, about 27 times as long as wide; blade slightly infuscated just beyond venation but otherwise hyaline, mostly bare except for 1 row of microtrichia; longest marginal cilia about 9 times greatest width of wing. Forecoxa reticulate, metacoxa partially so, and mesocoxa smooth. Metasoma. Gaster a little shorter than mesosoma; ovipositor occupying about 1/3 length of gaster, slightly exerted beyond its apex.

Measurements: Body 369; head: 67/141; mesosoma: 157; metasoma: 145; ovipositor: 70. Antenna: scape: 124; pedicel: 39; F1: 25; F2: 32; F3: 26; F4: 26; F5: 26; F6: 27; clava: 109. Forewing: 506/24; longest marginal cilia: 173. Hind wing: 484/18; longest marginal cilia: 169. Legs (given as femur, tibia, tarsus): fore: 112, 97, 121; middle: 109, 139, 106; hind: 106, 167, 167.

MALE. Unknown.

DIAGNOSIS. This species is very easy to separate from all other known Oriental and Holarctic species of *Litus* by a very short mesoscutum with indistinct notauli and also by a very narrow forewing (length/width ratio 21:1) with very long marginal cilia

relative to the greatest width of the wing (about 7:1). It resembles *L. argentinus* whose female has a shorter forewing (about 18 times as long as wide), without additional setae in the middle of the blade besides the marginal rows of setae (Fig. 11). The funicle segments are relatively shorter and the clava is more massive (length/width ratio about 2.3:1) in *L. argentinus* than in *L. sutil* n. sp. These two species can be grouped together in the *argentinus* species group based on the shape and structure of the mesoscutum.

HOSTS. Unknown.

ETYMOLOGY. The specific name is a palindrome of the generic name.

3. *Litus camptopterus* Novicky, 1953

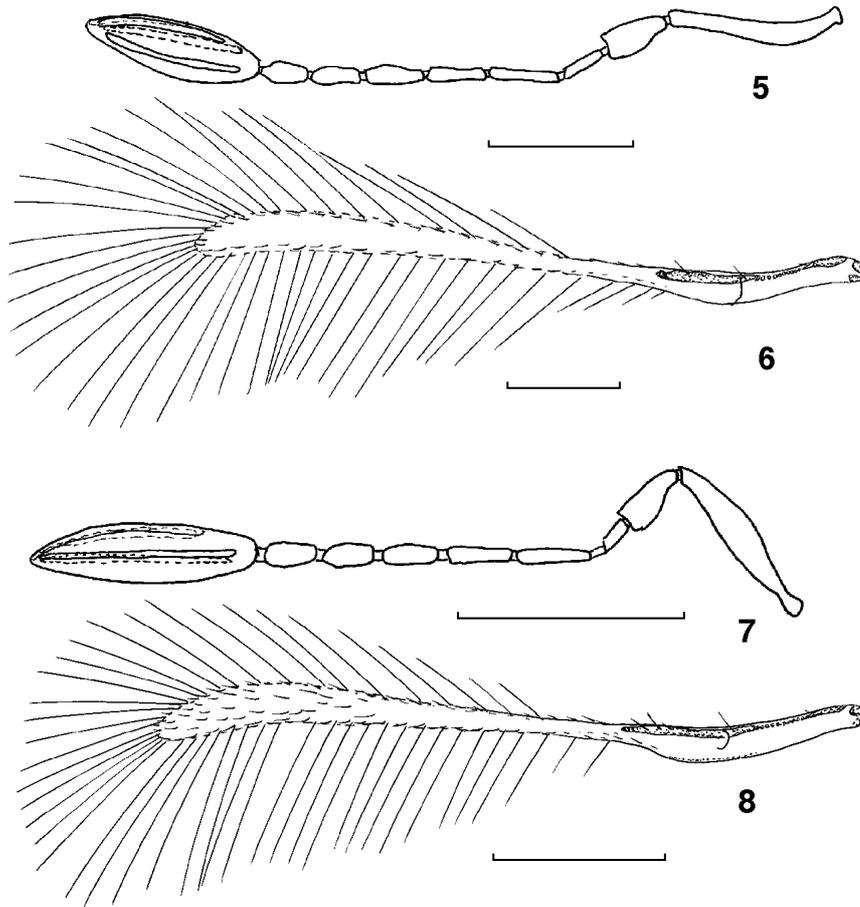
Figs 5, 6

Litus camptopterus Novicky, 1953: 14 (holotype – ♀, Frauenhofen (near Horn), Lower Austria, Austria) [?lost from Naturhistorisches Mus. Wien, Vienna], not examined).

Litus distinctus Botoc, 1964: 79 (Fig. 1) (?holotype (status of the type material not specified) – ♀, Malnas, Mures-Hungarian Autonomous Region, Romania [an unspecified collection in Romania], not examined), **syn. n.**

MATERIAL. **Russia:** Moscow region: Fryazevo, M. Tretiakov: 23.VIII 2000, 1 ♀; 25-31.VIII 2000, 2 ♀. Mamontovka, 10-20.VII 2000, E. Shouvakhina, 1 ♀ [UCRC, ZIN]. Primorskii krai, Gornotayozhnoye, M. Michailovskaya: 11-14.VII 1999, 1 ♀; 12-18.VIII 1999, 2 ♀; 11-12.VI 2000, 1 ♀; 22-30.VI 2000, 1 ♀; 1-10.VIII 2000, 3 ♀; 10-19.VII 2002, 1 ♀; 11-15.VIII 2003, 2 ♀ [IBPV, UCRC, ZIN]. **Canada:** Ontario, Nepean NCC, 6-11.VII 1989, L. Masner, 6 ♀. Québec, Gatineau Park, 7-14.VII 1989, L. Masner, 2 ♀. **Czech Republic:** Moravia, Lanzhot-Ranspurk, 7-9.VIII 1991, L. Masner, 1 ♀ [CNCI]. **Kyrgyzstan:** Dzhahal-Abad, 18 km WSW Kazarman, 41°22'01"N, 73°48'37"E, 1550 m, 15.VII 2000, C. Dietrich, 1 ♀. **Republic of Korea:** Gangwon-do, Chuncheon, Nam-myeon, Hudong-li, V-VI.2003, 6 ♀ [CNCI]. **Taiwan (China):** Nantou, Hsien, Tungpu, 1200 m, 1-4.VI 1990, J. Heraty, 1 ♀. **USA:** California, Butte Co., 5 mi. NE Butte, 8.V.1976, F. Andrews, 1 ♀ [UCRC]. Georgia, Liberty Co., St. Catherines Island, 6-10.IV 1995, A. Sharkov, 9 ♀ [OSUC, UCRC].

DIAGNOSIS. Novicky (1953) gave a good description of this species, which allows for its easy recognition in Europe from *L. cynipseus*, but unfortunately did not provide any illustrations, and that likely contributed to the long-lasting obscurity of *L. camptopterus* prior to this study. The main distinguishing features of female *L. camptopterus* are as follows. Body length 370-440; body and appendages mostly dark brown, scape and legs (except coxae) brown. Antenna (Fig. 5) with relatively long funicle segments (F1 a little shorter than pedicel and about as long as F6, F2 the longest funicle segment and longer than pedicel) and a slender clava (about 3.2 times as long as wide in lateral view and just a little longer than combined length of 3 preceding segments); mesoscutum with distinct notauli; anterior part of propodeum strongly sculptured and with an almost complete medial longitudinal carina, posterior part of propodeum (distad of the transverse propodeal ridge) with a faint and sparse



Figs 5-8. 5, 6) *Litus camptopterus*, ♀ from Moscow region; 7, 8) *L. karapuz* sp. n., holotype, ♀. 5, 7) antennae, 6, 8) forewings. Scale bars = 0.1 mm.

longitudinal striation; forewing (Fig. 6) very narrow, 14-15 times as long as wide, its blade slightly infumated and mostly bare, having just two rows of microtrichia along the margins; longest marginal cilia about 5 times greatest width of the wing. This species has a *Camptoptera* – like habitus and that is reflected in its specific name (Novicky, 1953). It is most closely related to *L. karapuz* sp. n. and *L. usach* sp. n. described below; these form a distinct (the *camptopterus*) species group within *Litus*. The only other described Old World species of *Litus* not included in the above key, the South African *L. brincki* Heqvist, 1960, probably belongs to the *camptopterus* group as well; according to the measurements given in the original description (Heqvist, 1960), its female has a relatively short forewing (length/width

ratio about 10.7:1) with rather short marginal cilia (longest marginal cilia/greatest width of forewing ratio 4.3:1), which somewhat contradicts Heqvist's diagnostic statement on p. 426 that "Marginal hairs of moderate length, three times as long as the width of the fore wing". The female antenna is rather long, with F1, F3 and F4 subequal in length and just a little shorter than pedicel or F2 (Heqvist, 1960).

MALE. Unknown.

DISTRIBUTION. *Russia (Moscow region, Primorskii krai); Austria, *Canada, *Czech Republic, *Kyrgyzstan, *Republic of Korea, *Romania, *Taiwan (China); *USA.

HOSTS. Unknown.

COMMENTS. Although we have not seen the type material of *L. distinctus*, the original description and illustrations of this species by Botoc (1964) leave no doubt about its conspecificity with the earlier described *L. camptopterus*, hence the above synonymy. One of the two Nearctic species of *Litus*, mentioned by Huber (1997) as an undescribed taxon, can be referred to *L. camptopterus*.

4. *Litus karapuz* S. Triapitsyn et Berezovskiy, sp. n.

Figs 7, 8

MATERIAL. Holotype – ♀ (on slide) [CNCI]: Japan, Kyushu, Fukuoka Pref., Mt. Hiko, 700 m, 9-19.VI.1989, K. Takeno, M. Sharkey, MT. Paratypes (on cards) [CNCI]: 1 ♀, same data as the holotype except the collection date (8-25.VIII.1989). Republic of Korea: Gangwon-do, Chuncheon, Nam-myeon, Hudong-li, V-VI.2003, 1 ♀. Jirisan, Harnyang-gun, Macheon-myon, Sarnjeong-li, IV-V.2003, 1 ♀.

DESCRIPTION. FEMALE (holotype and paratype). Color. Body and appendages brown to dark brown except clava notably lighter (appearing pale in dry specimens or light brown in slide-mounted specimens). Head almost as wide as mesosoma, with stronger sculpture on vertex. Antenna (Fig. 7) sparsely setose; scape slightly less than 5 times as long as wide (in lateral view), finely longitudinally striate; pedicel notably longer than F1 which is the shortest funicle segment; F2 the longest funicle segment; F3 longer than F4 or F5, which are subequal in length and a little longer than F6; clava about 3.5 times as long as wide (in lateral view), a little shorter than combined length of 4 preceding segments (F3-F6), longitudinal sensilla occupying almost entire length of clava, one pair of them almost reaching its base.

Mesosoma. Pronotum lightly sculptured, very short and thus hardly visible in dorsal view; remainder of mesosoma strongly reticulate except for posterior part of propodeum (almost smooth posteriad to transverse propodeal ridge). Mesoscutum with prominent notauli, shorter than scutellum. Anterior part of propodeum with complete medial longitudinal carina. Forewing (Fig. 8) narrow, 15-16 times as long as wide, with venation typical of the genus; blade slightly infuscated behind venation but otherwise mostly hyaline, with 2 complete rows of microtrichia along margins and 1 to 2 additional, incomplete rows of microtrichia in its apical (dilated) part; longest marginal cilia about 4.7 times greatest width of wing. Hind wing about 29 times as

long as wide; blade slightly infuscated and mostly bare except for 1 central row of microtrichia; longest marginal cilia a little more than 8 times greatest width of the wing. Fore- and metacoxa reticulate, mesocoxa almost smooth. Metasoma. Gaster a little longer than mesosoma; ovipositor occupying about 1/2 length of gaster, barely exerted beyond its apex.

Measurements (holotype): Body (without head): 394; head (width): 148; mesosoma: 182; metasoma: 212; ovipositor: 115. Antenna: scape: 100; pedicel: 41; F1: 24; F2: 46; F3: 41; F4: 33; F5: 33; F6: 30; clava: 139. Forewing: 539/35; longest marginal cilia: 164. Hind wing: 524/18; longest marginal cilia: 152. Legs (given as femur, tibia, tarsus): fore: 121, 109, 143; middle: 128, 163, 136; hind: 148, 188, 185.

MALE. Unknown.

DIAGNOSIS. Very closely related to both *L. camptopterus* and *L. usach* n. sp., clava in both of which is concolorous with other flagellar segments. The clava of *L. karapuz* sp. n. is also relatively longer than in the other two species (a little shorter than combined length of 4 preceding segments) and is about 3.5 times as long as wide. From *L. camptopterus*, this species also differs by the length of F1 relative to the length of pedicel and the presence of additional microtrichia on the forewing disc. The forewing of *L. karapuz* sp. n. is significantly narrower (length/width ratio 15-16:1) than that of *L. usach* n. sp. (length/width ratio 12.7:1).

HOSTS. Unknown.

ETYMOLOGY. The name is Russian noun for a little, stout child, referring to the minute size and a strongly built body of this species.

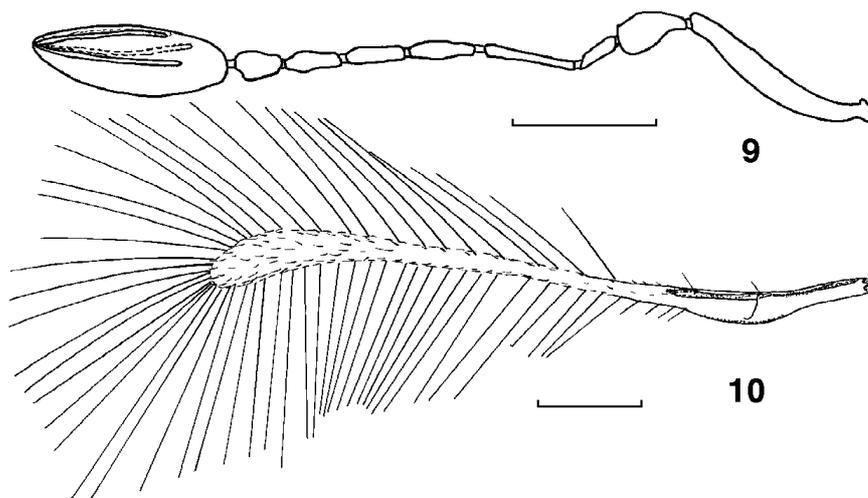
5. *Litus usach* S. Triapitsyn et Berezovskiy, sp. n.

Figs 9, 10

MATERIAL. Holotype – ♀ (on slide) [CNCI]: Nepal, Goropani Pass, 2850 m, 5.X 1983, A. Smetana, screen sweeping.

DESCRIPTION. FEMALE. Color. Body and appendages dark brown. Head almost as wide as mesosoma, with stronger sculpture on vertex. Antenna (Fig. 9) sparsely setose; scape long, about 7 times as long as wide (in lateral view), finely longitudinally striate; pedicel notably longer than F1; F2 the longest funicle segment, each subsequent funicle segment a little shorter than preceding segment; F6 the shortest and the broadest of funicle segments, almost as long as F1; clava about 2.8 times as long as wide (in lateral view), a little longer than combined length of 3 preceding segments (F4-F6), longitudinal sensilla occupying most length of clava.

Mesosoma. Pronotum lightly sculptured and very short; remainder of mesosoma strongly reticulate except for posterior part of propodeum. Mesoscutum with distinct notauli, shorter than scutellum. Anterior part of propodeum with incomplete medial longitudinal carina which touches propodeal transverse ridge posteriorly. Forewing (Fig. 10) rather wide for the genus (in the apical part only), notably curved inward posteriorly, 12.7 times as long as wide, with venation typical of the genus; blade slightly infuscated (more so behind venation), with 2 complete rows of microtrichia along margins and 2 to 4 additional, incomplete rows of microtrichia in



Figs 9, 10. *Litus usach* sp. n., holotype, ♀. 9) antenna, 10) forewing. Scale bars = 0.1 mm.

its apical (dilated) part; longest marginal cilia about 4.7 times greatest width of wing. Hind wing 27-28 times as long as wide; blade infuscated and mostly bare except for 1 central row of microtrichia; marginal cilia very long, the longest 10-11 times greatest width of the wing. Fore- and metacoxa strongly reticulate, mesocoxa almost smooth. Metasoma. Gaster longer than mesosoma; ovipositor occupying about 1/2 length of gaster, barely exerted beyond its apex.

Measurements (holotype): Body (without head): 443; head (width): 173; mesosoma: 190; metasoma: 253; ovipositor: 124. Antenna: scape: 130; pedicel: 45; F1: 32; F2: 62; F3: 45; F4: 38; F5: 36; F6: 31; clava: 128. Forewing: 701/55; longest marginal cilia: 260. Hind wing: 664/24; longest marginal cilia: 254. Legs (given as femur, tibia, tarsus): fore: 133, 124, 161; middle: 151, 196, 157; hind: 181, 221, 221.

MALE. Unknown.

DIAGNOSIS. As stated above, this species is closely related to both *L. camptopterus* and *L. karapuz* n. sp. (see diagnosis of the latter). The long antenna (Fig. 9) and peculiar forewing (Fig. 10) of *L. usach* sp. n. make its recognition easy.

HOSTS. Unknown.

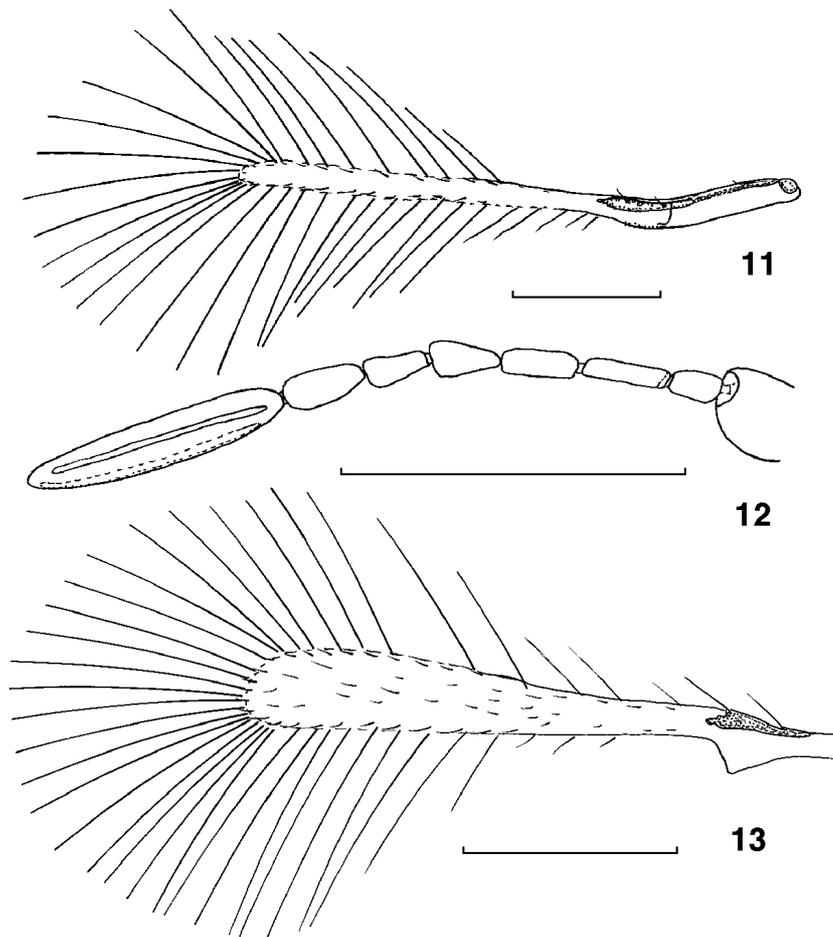
ETYMOLOGY. The name is Russian noun for a longhorned beetle, thus referring to the long antenna in this species.

COMMENTS. The holotype specimen of *L. usach* sp. n. lacks 1 leg from each pair of legs, but is otherwise in good condition.

6. *Litus argentinus* (Ogloblin, 1935), comb. n.

Fig. 11

Neolitus argentinus Ogloblin, 1935: 60 (?syntypes or ? holotype and paratype – 2♀, Loreto, Misiones [Museo de la Plata, La Plata, Buenos Aires], not examined).



Figs 11-13. 11) *Litus argentinus*, ♀ from Uruazu, Goiás; 12, 13) *Dicopomorpha schlei-
deni*, holotype, ♀. 12) antenna, 11, 13) forewings. Scale bars = 0.1 mm.

MATERIAL. **Brazil:** Goiás, Uruazu, 14°17'S, 48°55'W, 22-26.V 1996, Serra de Mesa Survey, 3 ♀. **Peru:** Madre de Dios, Manu National Park, Cocha Cashu Biological Station, 11°55'S, 77°18'W, 380 m, 1-30.IX 1986, K. Person, 1 ♀ [UCRC].

DIAGNOSIS. This species was well described and illustrated by Ogloblin (1935). Here we provide a drawing of the forewing of *L. argentinus* (Fig. 11) because the one accompanying the original description is incomplete, showing only its base. Absence of distinct notauli and the characteristic forewing allow for an easy recognition of this species.

MALE. Unknown.

DISTRIBUTION. Argentina, *Brazil, and *Peru.

HOSTS. Unknown.

COMMENTS. Two out of other three described extant Neotropical species of *Litus*, *L. missionicus* Ogloblin, 1955 (Argentina) and *L. neotropicus* Ogloblin, 1955 (Argentina), are not included in this review. The third such species, *L. maculipennis* Ashmead, 1900 (St. Vincent), described from a single male, without any doubt does not belong to *Litus* as it has a 13-segmented antenna (Ashmead, 1900), so its identity needs to be verified; from the original description one could make a wild guess that it might be a member of *Myrmecomymar* Yoshimoto, 1990.

The species excluded from the genus *Litus*

***Camptoptera enocki* (Howard, 1896), comb. n.**

Litus enocki Howard in Howard & Ashmead, 1896: 643 (syntypes – 2 ♀, Pundaluoya, Sri Lanka [National Museum of Nat. Hist., Washington, D.C.], examined); Girault, 1911a: 132; Girault, 1911b: 363.

DIAGNOSIS. Female antenna 7-segmented (F2 minute and obviously not noted either by L. O. Howard or later by A. A. Girault), all other morphological features also typical of the genus *Camptoptera*. One of the later described Oriental species of *Camptoptera* (especially those from India and Sri Lanka) thus has a good chance to fall into synonymy with this species. Male of *C. enocki* is unknown.

DISTRIBUTION. Sri Lanka.

HOSTS. According to the original description, the two syntype females of this species were reared by E. Green from an *Eriococcus* sp. (Homoptera: Coccinea: Eriococcidae), but such an unusual host record seems doubtful.

COMMENTS. Both syntype specimens of *C. enocki* are uncleaned but otherwise in good condition, mounted laterally on a slide in Canada balsam under the same coverslip. The original labels are as follows: 1. "*Mymar* sp. parasitical on *Eriococcus*"; 2. "Ceylon"; 3. "*Litus enocki* ♀ How type"; 4. [red] "*Litus enocki* How. Type No. 3263 U.S.N.M.".

***Dicopomorpha schleideni* (Girault, 1912), comb. n.**

Figs 12, 13

Litus schleideni Girault, 1912: 127 (holotype – ♀ (on slide), Herberton, Queensland, Australia [Queensland Mus., Brisbane], examined); Dahms, 1986: 507.

COMMENTS. Aside from having an apparently six-segmented funicle of the female antenna (Fig. 12) (although the seventh, a minute ring-like segment, may be present between F1 and F2 – the condition of the specimen does not allow for a definite answer regarding its presence or absence), this species has nothing to do with *Litus*. It belongs to the distinct and diverse Australasian, Oriental, and eastern Palaearctic group within *Dicopomorpha* Ogloblin, 1955, some species of which have an *Alaptus*-like forewing with an incised hind margin basally (Fig. 13) and a 6- or 7-segmented funicle of the female antenna (Triapitsyn & Berezovskiy, 2003).

TAXONOMIC NOTES ON THE PALAEARCTIC SPECIES OF *ARESCON*

1. *Arescon dimidiatus* (Curtis, 1832)

Arescon dimidiatus: Triapitsyn & Berezovskiy, 2003: 4.

MATERIAL (additional to the previous review). **Czech Republic**: Bohemia, Kunratice (near Prague), 17-24.VI 1992, L. Masner, J. Macek, 2 ♀, 1 ♂. Moravia, Lanzhot-Ranspurk, 7-9.VIII 1991, L. Masner, 1 ♀, 3 ♂ [CNCI]. **Finland**: Dragsfjärd, W. Hellén, 1 ♂. Helsinki, Kottby, W. Hellén, 1 ♂. Nystad, W. Hellén, 1 ♀, 3 ♂ [MZHF]. **Hungary**: Vas Co.: Kőszeg, Irotkó Mt., Lase Creek, 19.V 2001, L. Masner, 1 ♀. Near Kőszeg, 16-19.V 2001, L. Masner, 1 ♀. **Sweden**: Uppsala, Eriksberg, 25-31.VIII 1986, F. Ronquist, 1 ♀, 1 ♂. **Switzerland**: Turgall, near Unterwasser, 1440 m, 4.VIII 1984, L. Masner, 5 ♂ [CNCI].

DISTRIBUTION. Russia (Moscow region); Austria, Belgium, Czech Republic, Denmark, Finland, Germany, Hungary, *Sweden, *Switzerland, United Kingdom (England, Northern Ireland, Wales) (Triapitsyn & Berezovskiy, 2003).

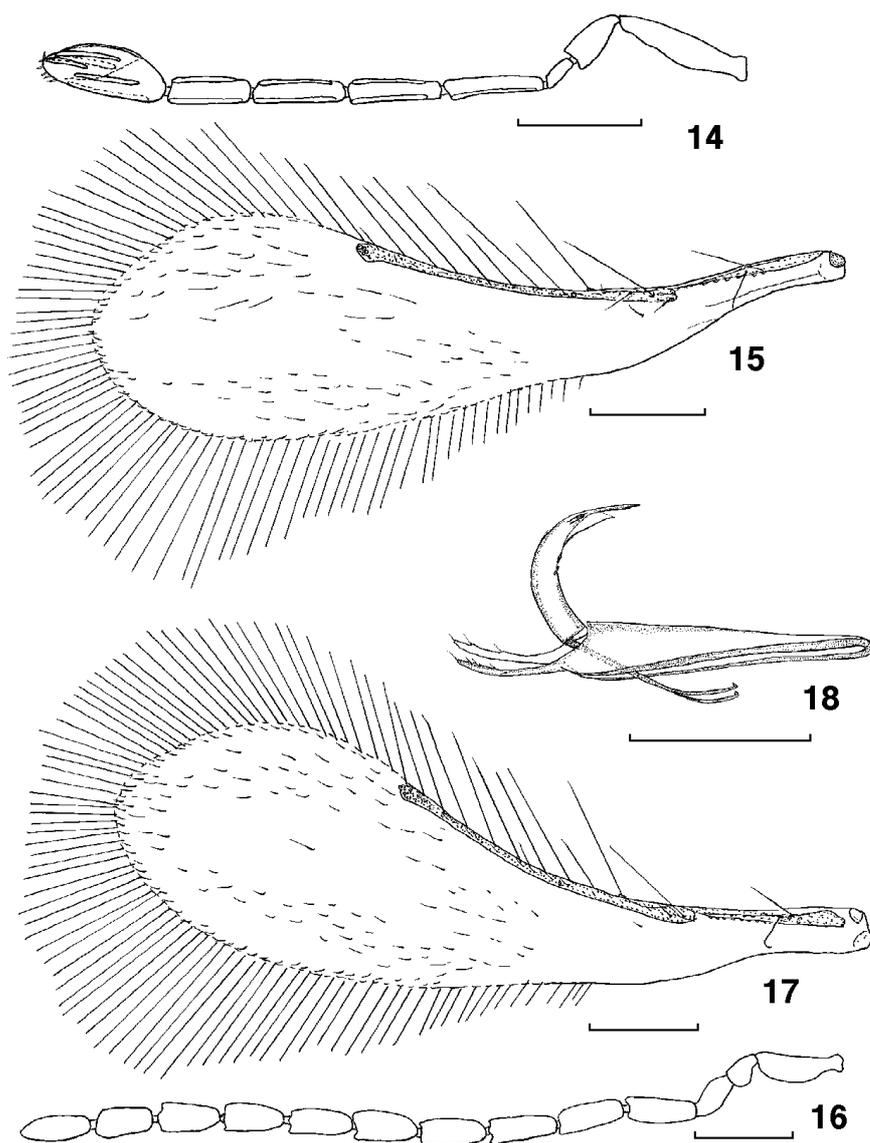
2. *Arescon iridescens* (Enock, 1914)

Figs 14-18

Arescon iridescens: Triapitsyn & Berezovskiy, 2003: 6.

MATERIAL (additional to the previous review). **Finland**: Hammarland, 25.VII 1953, W. Hellén, 1 ♂. Jomala, 22.VII 1953, W. Hellén, 1 ♀. Nystad, W. Hellén, 9 ♀, 3 ♂ [MZHF]. **Italy**: Lazio, Roma Prov., Castel Porziano Presidential Estate, M. Bologna, J. Munro, A. Owen, J. Pinto: La Focetta, 41°41.47'N, 12°22.63'E, 10 m, 11.VI 2003, 2 ♂. Ponte Guidoni, 41°45.42'N, 12°23.85'E, 80 m, 11-12.VI 2003, 37 ♀, 40 ♂ [UCRC]. Sicily, 20 km S Caltagirone, Santo Pietro area, 6.VI 1992, J. Pinto, 1 ♀ [CNCI].

DIAGNOSIS. Females and males of *A. iridescens* are very easy to distinguish from all other Palearctic species of *Arescon* by a characteristic broad forewing with a distinct, oval bare area in the middle of the disc (Figs. 15, 17) and also by the venation reaching about 2/3 of forewing's length. In addition, the main distinguishing features of female *A. iridescens* are as follows. Body length 700-825 (600-750 in the Finnish specimens according to Hellén, 1974). Coloration of body and appendages brown to dark brown except as follows: head trabeculae, ocellar and occipital sutures, scape, pedicel, axilla (partially), posterior scutellum, legs, and base of gaster light brown; eyes and ocelli pink. Head a little wider than mesosoma; mandible 4-dentate, with three of the teeth acute and one obtuse. Antenna (Fig. 14) sparsely setose, scape slender and with cross-ridges; pedicel finely longitudinally striate, a little longer than F1; all funicle segments much longer than wide, F1 without longitudinal sensilla, F2 longest of funicle segments and with 1 longitudinal sensillum, each subsequent funicle segment slightly shorter than preceding one, F3-F5 each with 2 longitudinal sensilla; clava entire, incompletely subdivided dorso-laterally (from the



Figs 14-18. *Arescon iridescens* from Castel Porziano Presidential Estate, Lazio (14, 15 – ♀, 16-18 – ♂). 14, 16) antennae, 15, 17) forewings, 18) genitalia, lateral view. Scale bars = 0.1 mm.

inner side only), longer than any of the funicle segments but much shorter than combined length of F4 and F5, about 2.5 times as long as wide (in lateral view), with 6 longitudinal sensilla and also several short modified setae (sensilla) on the

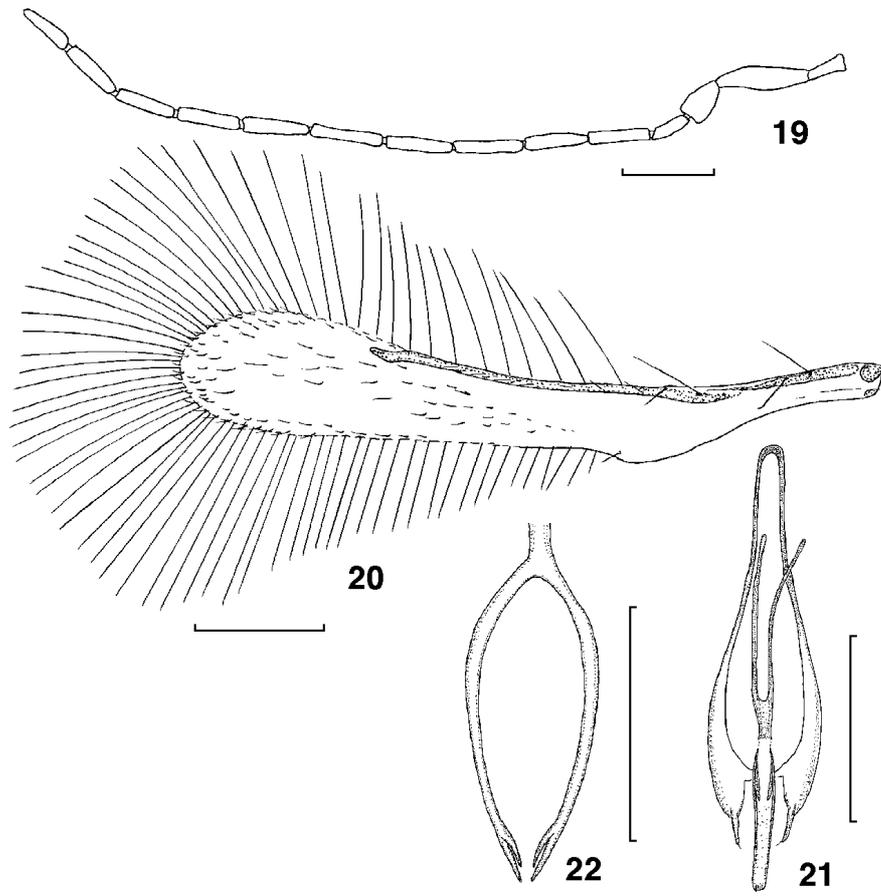
ventral side near apex. Mesosoma shorter than metasoma; pronotum very narrow; mesoscutum, axilla, and posterior scutellum finely longitudinally striate, midlobe of mesoscutum with a pair of short setae and each side lobe with a seta; anterior scutellum almost smooth, much shorter than mesoscutum and slightly longer than posterior scutellum, with a pair of long setae, scutellar placoid sensilla closer to anterior margin of anterior scutellum; metanotum with distinct rhomboidal dorsellum; propodeum smooth, almost as long as scutellum, with 1 pair of setae. Forewing (Fig. 15) 3.3-3.4 times as long as wide, with venation reaching about 2/3 length of wing; hypochaeta on submarginal vein long, reaching past posterior margin; the other hypochaeta (one next to base of marginal vein) inconspicuous and short; first and second distal macrochaetae (following Annecke & Doutt, 1961) just a little longer than proximal macrochaeta; marginal vein with additional 5 or 6 macrochaetae distad of second distal macrochaeta (their number may differ even in the same specimen) and also with 2 very long, but weaker setae between the first 3 distal macrochaetae; proximal placoid sensillum a little closer to first distal macrochaeta than to second one; blade slightly infuscated basally but otherwise hyaline ("the beautiful iridescence of the wings", noted by Enock (1915) in his second, unnecessary published description of *A. iridescens*, can be seen only at certain angle and is apparently caused by reflection of the light, such phenomenon often occurs in other mymarids as well); disc with distinct, oval bare area in the middle, chaetotaxy as in fig. 15; longest marginal cilia about 4/5 greatest width of wing. Hind wing about 27 times as long as wide; blade hyaline; longest marginal cilia 5-6 times greatest width of wing. Metasoma with petiole small but well conspicuous in slide-mounted specimens, much wider than long; ovipositor occupying 0.8-0.9 times length of gaster, either barely or more often notably exerted beyond its apex, ovipositor/metatibia ratio 1.6-1.7:1. Male *A. iridescens* is similar to female in size and coloration except for the normal sexually dimorphic characters and the following. Antenna (Fig. 16) typical of the genus, F1 shortest of flagellar segments, other flagellomeres more or less subequal in length. Forewing (Fig. 17) a little broader than in female, 3.1-3.2 times as long as wide, longest marginal cilia relatively shorter than in female, about 3/4 of greatest wing's width; genitalia (Fig. 18) typical of the genus, as illustrated (apparently for the same species) by Viggiani (1989), occupying more than half (usually about 0.7) length of gaster; aedeagus and parameres projecting out from tip of gaster. Kryger (1950) obviously was confused about pertinence of these easily visible projecting parts to the genitalia, noting the following in his brief diagnosis of the male of *A. iridescens* (p. 76): "Abdomen with 3 small appendages resembling 3 fingers".

DISTRIBUTION. Denmark (Kryger, 1950), England (UK), Finland, and Italy.

3. *Arescon zenit* S. Triapitsyn et Berezovskiy, 2003

Figs 19-22

Arescon zenit Triapitsyn & Berezovskiy, 2003: 7 (holotype – ♀, Gornotayozhnoye, Ussuriysk district, Primorskii krai, Russia [ZIN], examined).



Figs 19-22. *Arescon zenit*, ♂ from Jozankei, Sapporo, Hokkaido. 19) antenna, 20) forewing, 21) genitalia, dorsal view, 22) sclerotized projections of metasomal sternum. Scale bars = 0.1 mm.

MATERIAL (additional to the previous review). **Russia:** Primorskii krai, Gornotayozhnoye, 11-15.VIII 2003, M. Michailovskaya, 1 ♀ [UCRC]. **Japan:** Hokkaido, Sapporo, Jozankei, 350 m, 20-31.VII 1989, M. Sharkey, K. Maeto, 1 ♂. Honshu: Aichi Pref., Shitara, Uradani, 900 m, 13-19.VI 1994, K. Yamagishi, 1 ♂. Ibaraki Pref., Mt. Tsukuba, 800 m, 18.IX-2.X 1989, M. Sharkey, 1 ♀. Kyushu, Fukuoka Pref., Mt. Hiko, 700 m, 10-21.VII 1989, K. Takeno, M. Sharkey, 1 ♀ [CNCI].

DESCRIPTION. MALE (hitherto unknown). Body length 700-800. Similar to female (Triapitsyn & Berezovskiy, 2003) except for the normal sexually dimorphic characters and the following. Antenna as in fig. 19. Forewing (Fig. 20) slightly broader

than in female, 5.7-5.9 times as long as wide; longest marginal cilia 1.9-2.1 times greatest width of forewing. Genitalia (Fig. 21) typical for the genus, however this species has well-developed sclerotized projections of the metasomal sternum (seemingly on the hypopygium) that apparently support the genitalia from the sides (Fig. 22). Such a morphological feature also occurs in an undescribed species of *Arescon* from Trckov Reserve, Orlický Hory, Czech Republic (1♂ in CNCI, coll. 16-25.V 1994 by J. Macek) but is lacking (or is inconspicuous) in males of the other two described Palaearctic species of *Arescon* and also in another undescribed species of *Arescon* from Radovljica, Slovenia (1♂ in CNCI, coll. 2-13.VIII 1978 by L. Huggert).

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