Kontyû, Tokyo, 53 (2): 297–310. June 25, 1985

Taxonomic Notes on the Palaearctic Species of the *Lasioglossum nitidiusculum* Group, with Description of *L. allodalum* sp. nov. (Hymenoptera, Halictidae)[1)]

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Abstract The species group including *Lasioglossum* (*Evylaeus*) *nitidiusculum* and allied halictine species is defined. A key to the following Palaearctic forms is given and each is taxonomically commented: *L. melanopus*, *L. rufitarse*, *L. pseudonigripes*, *L. bassanum*, *L. matianense matianense*, *L. m. pluto*, *L. nitidiusculum nitidiusculum*, *L. n. pseudocombinatum*, and *L. allodalum* sp. nov. from Japan.

The present paper was first attempted to describe a new halictine species *L. allodalum* sp. nov. together with its bionomics studied in Japan. Later, the taxonomic part was extended as a synopsis of the Palaearctic species belonging to the *L. nitidiusculum* group. The bionomic part will be published separately.

Definition of the *Lasioglossum nitidiusculum* Group

Both sexes are characterized by the following features: (1) non-metallic carinaless *Evylaeus* (median area of propodeum posteriorly carinate). (2) propodeum moderately long, on the average as long as mesoscutellum; seen dorsally posterior contour of horizontal area not homogenously crescent, mid-laterally strongly curved while posterior margin nearly straight; longitudinal striae of median field either attaining the posterior margin or leaving a narrow smooth zone there. (2) mesopleura with fine and very indistinct punctures, merging in chagreened ground (=*Micralictus* WARNCKE 1975). (3) mesoscutum finely but distinctly and densely punctured, posteriorly usually somewhat sparser and interspaces more chagreened anteriorly and laterally. Frons finely and densely punctured. (4) medium-sized carinaless *Evylaeus*, 6–6.5 mm long, only some dwarf speciemens of *L. nitidiusculum* as small as 5.0 mm, only *L. rufitarse* robuster 6–7 mm. (5) further, characterized by very long male antennae, one of the longest in carinaless *Evylaeus* though less than in most carinate *Evylaeus* species. Gonostylus slender, weakly clavate. (6) distributed in cool regions of Holarctis, in the southern areas of West Palaearctis only in mountains (Figs. 14–16).

Although only the Palaearctic species are dealt herewith, the following Nearctic species belong to the same group: *L. foxii* (ROBERTSON, 1980) in Eastern N. America

1) Contribution No. 2760 from the Institute of Low Temp. Sci., Hokkaido University, Sapporo, Japan.

and *L ruficorne* (CRAWFORD 1907), *L. tracyi* (COCKERELL, 1936=probaly *L. diatretum* (VACHAL, 1904, ♂), *L. inconditum* (CŌCKERELL, 1910), *L. synthyride* (COCKERELL, 1906) and *L. vaporellum* (COCKERELL, 1910), all in the western United States from Washington to Arizona.

Distinction from similar or allied species or species groups

The present group is distinguished from the *L. tarsatum* group with long propodeum (SAKAGAMI *et al.*, 1982) by chagreened mesopleura in female and long antennae in male. The allied *L. minutissimum/semilucens* group has shorter propodeum or significantly smaller body. Even in *L. intermedium* (SCHENCK, 1868) and *L. scirpaceum* (WARNCKE, 1975), which connect the two groups, the body is maximally 6 mm, mesopleural punctures fine and dense but distinct, sharply impressed on the chagreened ground, and propodeal striae not exceeding basal 2/3, the apical surface with distinct wavewise chagreening.

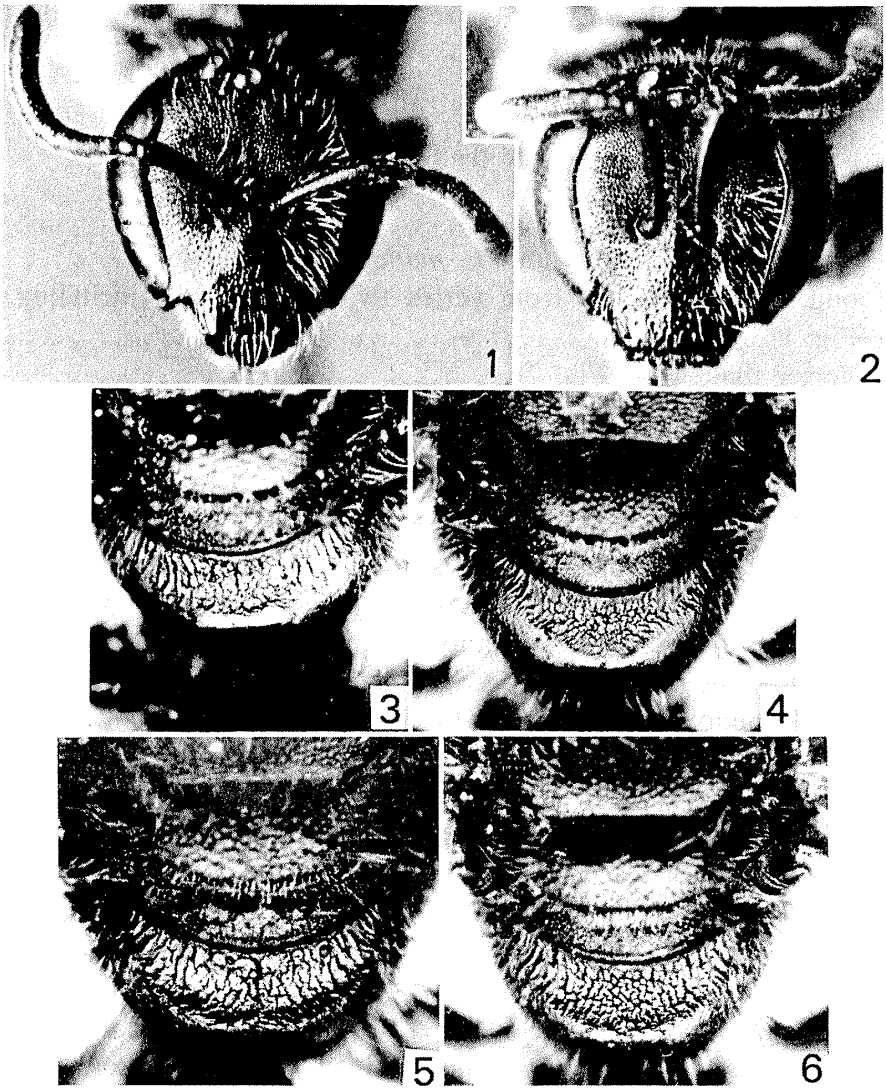
Otherwise few Palaearctic carinaless *Evylaeus* species possess such long propodeum as in the *L. nitidiusculum* group except the following species. These are mostly distributed in the S. Palaearctic and Indo-malayan regions and distinguished by the differences mentioned.

(1) Mesopleura with very fine and sharp punctures, interspaces polished. *L. kappadokium* EBMER, 1974—Gürün/Asia Minor. (2) mesopleura widely unpunctured, strongly polished. *L. limbellum* (MORAWITZ, 1876)—widespread in the southern parts of W. Palaearctis; *L. laevidorsum* (BLÜTHGEN, 1923)—Mediterranean to eastern W. Palaearctis; *L. cameronellum* (COCKERELL, 1911)—S. Himalaya; *L. matianicum* (BLÜTHGEN, 1926)—Matiana/Simala hills; *L. sutepinium* (COCKERELL, 1937)—N. Thailand; *L. eduardi* (BLÜTHGEN, 1931)—Darjeeling; *L. vulacanicum* (BLÜTHGEN, 1928)—Java, *L. perakense* (BLÜTHGEN, 1928)—Batang Padang. (3) mesopleura with sharp but sparse punctures, interspaces polished. *L. opaconitens* (BLÜTHGEN, 1931)—Iran to Turkestan; *L. acherontion* EBMER, 1978—Afghanistan; *L. fulgens* (NURSE, 1902)—N. India, *L. burmanicum* (BLÜTHGEN, 1926)—Burma; *L. polycton* (BINGHAM, 1908)—Simla; *L. cavillosum* (VACHAL, 1894)—Burma; *L. pseudopalmeri* (BLÜTHGEN, 1926)—Sikkim; *L. tenasserimicum* (BLÜTHGEN, 1926)—Tenasserim; *L. turneri* (BLÜTHGEN, 1926)—Assam. (4) propodeum slightly shorter than, or as long as in the *nitidiusculum* group but mesoscutum with extremely sparse punctures. *L. laevinode* (MORAWITZ, 1876)—Turkestan; *L. shillongnense* (BLÜTHGEN, 1926)—Assam; *L. atschinense* (BLÜTHGEN, 1931)—Sumatra. (5) mesopleura with punctures dull and coarse, only above chagreened. *L. stuepellum* (CŌCKERELL, 1937)—N. Thailand; *L. jacobsoni* (FRIESE, 1974)—Java. (6) some Nepali and Palaeotropical species, *e.g. L. sikkimense* (BLÜTHGEN, 1926) in Sikkim with frons finely and sparsely punctured and interspaces polished. (7) lateral fields of horizontal area of propodeum postward with finest, within sculpture easily overlooked, transverse carina; clypeus and supraclypeus very elongate and seen laterally remarkably convex. Tempora below weak-

ly carinate. *L. asellum* (PÉREZ, 1895)—western N. Aftrica, sporadically also in Spain.

Key to the Species

1. Females 1
— Males (those of *L. bassanum* and *L. matianense* unknown) 11
2. Head longer than wide (L=from vertex to end of clypeus including clypeal teeth) (Fig. 1) 3
— Head shorter than wide (Fig. 2) 6
3. Head unusually elongate *e.g.* L: W=2.01 : 1.65; Q=1.22, facial form given by outer orbits elongate oval. Propodeum long, striae of horizontal area coarsely rugo-granulate, reaching posterior margin, which is slightly edged. Terga finely punctured, diameter of punctures/ratio of interspaces to punctures on T_2 8–16 μ/0.2–2.0 ..... *melanopus* (DALLA TORRE)
Head less elongate, Q to 1.145. Outer orbits approximately circular 4
4. Propodeum a trifle shorter than scutellum and concave, striae reaching posterior margin, which is slightly edged, rarely narrowly bulged (Fig. 5). Terga very sparsely punctured, on T_2 basally denser, on disc medially 10–12 μ/2.0–4.0, marginal area medially smooth, laterally with very fine sparse punctures. Robust species, 6–7 mm ..... *rufitarse* (ZETTERSTEDT)
— Propodeum longer, as long as, or a trifle longer than scutellum, median field with striae finer, not reaching posterior margin, leaving narrow and polished band there (Figs. 3, 4, 6). Terga with punctures denser and more distinct, on T_2 interspaces 2.0, only rarely to 3.0, marginal area medially with sparse punctures. More delicate species, 5.5–6 mm 5
5. Punctures on terga coarser and sharper, on T_2 10–16 μ/0.5–2.0, rarely to 3.0, interspaces smooth, strongly polished. Head slightly slender, L: W=Q= 1.05–1.145 (Fig. 1) ..... *pseudonigripes* (BLÜTHGEN)
— Punctures finer and duller, 8–10 μ/0.5–2.5. Head shorter, Q=1.02 to 1.045. Variation of propodeal sculpture overlaping with that in *pseudonigripes*. Possibly a western subspecies of the latter ..... *bassanum* (WARNCKE)
6. T_{2-3} lateroposteriorly with white fimbriae. Propodeum exactly as in *rufitarse*. 7
— T_{2-3} without white fimbriae 8
7. Mesoscutum and terga sparsely punctured, interspaces 0.5–2.5 on mesoscutum medially and 1.0–4.0 or more on T_1 medially. ..... *matianense matianense* (BLÜTHGEN)
— Punctures denser, interspaces 0.1–1.2 on mesoscutum and 0.5–3.0 on T_1 .... *matianense pluto* EBMER
8. Propodeal sculpture unusually granularly striated, only laterally with some straight striae. Striae not reaching posterior and lateral margins which are



Figs. 1–6. Head and propodeum of females of *L. allodalum* sp. nov. and some allied species.——1–2, Head seen frontally of *L. pseudonigripes* and *L. allodalum*; 3–6, propodeal sculpture of *L. allodalum*, *L. nitidiusculum*, *L. rufitarse* and *L. parvulum*.

wavewise chagreened and shihing (Fig. 4). Punctures on terga stronger and more distinct, on T_2 10–16 μ/0.5–2.0.....9

— Propodeal sculpture rather homogenously striated, striae covering most parts of lateral areas and also reaching posterior margin, leaving only narow polished band at boundary between horizontal and vertical areas (Figs. 3, 6). Lateral area roughly chagreened and dull. Punctures on terga weaker and less sharper, on T_2 6–12 μ.....10

9. Head shorter L: W=Q=0.91–0.96. Mesoscutum posteriorly sparsely punctured, interspaces to 1.5. Marginal area of terga weakly paler ....*nitidiusculum nitidiusculum* (KIRBY)

— Head slightly longer, Q=0.96 to 0.99. Mesoscutum posteriorly with punctures denser, interspaces 0.1–0.5, only lateranteriorly to 1.5. Marginal area of terga yellowish.....*nitidiusculum pseudocombinatum* (BLÜTHGEN)

10. Head on the average shorter, Q=0.93–0.96. Propodeal declivity slightly oblique so that propodeum seen slightly longer than scutellum. Tergae sparsely punctured, on T_2 6–12 μ/0.5–4.0, marginal area medially smooth with fine punctures.....*parvulum* (SCHENCK)

— Head on the averge longer, Q=0.96 to 0.98. Propodeal declivity vertical so that propodeum seen shorter. Tergal punctation as in the former species but interspaces more chagreened, *e.g.* on T_2 disc chagreened with distinct transverse lineolation; marginal area mostly without punctures, chagreened with distinct transverse lineolation.....*allodalum* sp. nov.

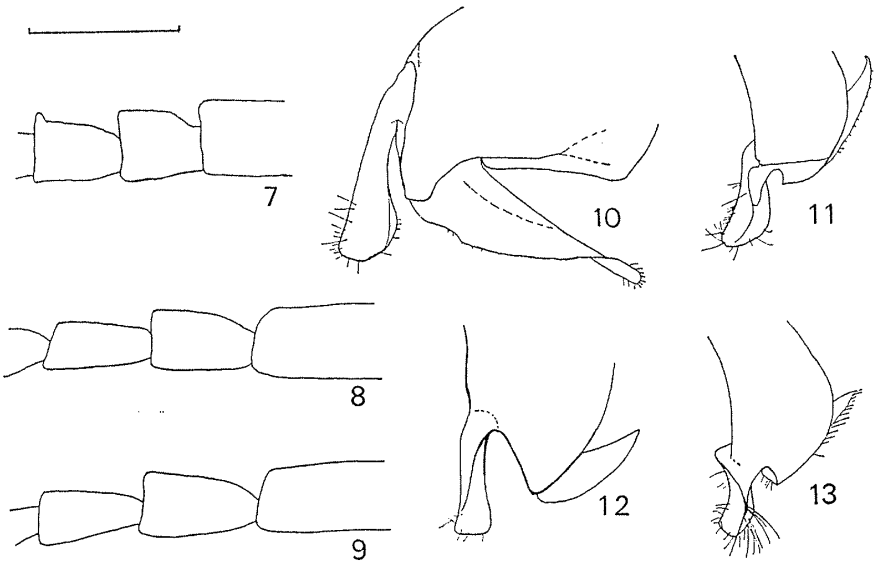
11. Sterna homogenously with sparse, loose and erect hairs.....12

— Hairs on S_{3-5} medially adhered, minute and inconspicuous, contrasting to a pair of lateral tufts consisting of long and erect hairs.....15

12. Hind distitarsi, especially D_1 short (Fig. 7). Gonostylus very long, clavate (Fig. 10). Propodeal median field marginally sharply edged, lateral field very roughly sculptured.....*rufitarse* (ZETTERSTEDT)

— Hind tarsi of normal length (Figs. 8, 9). Gonostylus shorter (Figs. 11–13). Median field marginally bulge-like rounded, rarely slightly edged, lateral field finely chagreened to smooth.....13

13. Head distinctly elongate oval, L: W=1.84 : 1.60, Q=1.15 (in lectotype)..... .....*melanopus* (DALLA TORRE)



Figs. 7–13. Hind tarsi (7–9) and gonostylus (10–13) of males of *L. allodalum* sp. nov. and some allied species (scale=0.25 mm).——7 and 10, *L. rufitarse*; 8 and 11, *L. parvulum*; 9 and 12. *L. allodalum*; 13. *L. nitidiusculum*. (Fig. 10 seen laterally, 11–13 seen dorsally).

— Head shorter, about as long as wide, Q=maximally 1.02.....14

14. Gonostylus seen dorsally shorter, strongly curved and apically conspicuously widened (Fig. 11). Median field relatively longer, 0.30–0.39 mm..... .....*parvulum* (SCHENCK)

— Gonostylus seen dorsally longer, straight and apically less widened (Fig. 12). Median field relatively shorter, 0.24–0.34 mm.....*allodalum* sp. nov.

15. Head shorter, about as long as wide, rarely slightly longer than wide, L: W= Q=maximally 1.004. Propodeal median field very finely granulated, laterally with some striae; apical bulge usually wide and strongly polished..... .....*nitidiusculum* (KIRBY)

— Head longer, L: W=1.66 : 1.57, Q=1.057 in a paratype in Zool. Mus., Moscow. In this specimen striae on median area coarser than in *L. nitidiusculum* and bulge shining but narrower. (How these features constant are unsettled until examination of more speciemens).....*pseudonigripes* (BLÜTHGEN)

Synopsis of the Species

The species are arranged in the order of taxonomic affinity. Synonymic lists include only important papers which are only partly cited in the references at the end of the paper.

Lasioglossum (*Evylaeus*) *nitidiusculum nitidiusculum* (KIRBY, 1802)

Melitta nitidiuscula KIRBY, 1802: 64–65, ♂, type loc. Barhamiae, England, lectotype in Brit. Mus., London.——*Hylaeus rugosulus* and *Hy. pusillus* SCHENCK, 1853: 153, 168, ♀, type loc. unmentioned (Hessen), type lost,——*Halictus nitidiulus* PÉREZ, 1903 (nec FABRICIUS; 1804), Esp. nouv. Mellif.: 50; 1903, Proc. Verb. Soc. Linn. Bordeaux 59: 217, ♀, type loc. Biskra, Algeria, lectotype in Mus. Hist. Nat., Paris,——*Halictus obsoletus* WARNCKE, 1973, Nachrbl. bayer. Ent. 22: 25 nom. nov. for *nitidulus* PÉREZ,——*Halictus nitidiusculus*, SAUNDERS, 1882, Tr. ent. Soc. London 219; BLÜTHGEN, 1918/19, Jb. Ver. Natk. Nassau 71: 202; 1920, Dtsch. ent. Ztschr.: 103, 127; PERKINS, 1922, Ent. mon. Mag. (3) 8: 51, 98–99; BLÜTHGEN in SCHMIEDEKNECHT 1930, Hym. N. & M. Europas; 746, 763,——*Lasioglossum* (*Evylaeus*) *nitidiusculum*, EBMER, 1971: 87; 1972, Polsk. Pismo ent. 42: 629; 1975, Senkenberg. biol. 56: 237, 239; 1976, Linz. biol. Beitr. 8: 250.

The lectotype designation for *Melitta nitidiuscula* is given here by A.W.E. Among three specimens preserved under the label "*nitidiuscula*" in KIRBY collection, British Museum, a male labelled "23 ♂", corresponding to the species number in KIRBY (1802), was chosen because the metasoma was intact and showed the pubescence of sterna mentioned in the original description well. This male had no head. Another male without metasoma was designated as paralectotype. Under "*nitidiuscula*", one female each of *L. nitidiusculum* and *L. minutum* were also included. Locality labels were absent in all the specimens. Diagnoses necessary for lectotype designation are given in SAUNDERS (1882), BLÜTHGEN (1920), PERKINS

(1922), BLÜTHGEN (1930) and EBMER (1971).

Among the three species which are common in W. Palaearctis, *L. nitidiusculum* is southerly most widespread, although it is not a real Mediterranean element (Fig. 15). The southern localities confirmed by A.W.E. are all at high altitudes, *e.g.* Sierra Nevada and Mountains of Peloponnes and Crete in Europe and localities higher than 1000 m alt. in Altas and Grand Cabylia in N. Africa. The old record from Biskra (PÉREZ, 1903) is actually from its northern vicinity at a higher altitude. Northward the species reaches 65°N (Finnland, ELFIVUS, 1968), and westward Ireland. The eastern limit is northerly not yet established. It has been recorded from Ufa (Ural) but never from Siberia. Southeastward the species reaches Kopet Dag (Quchan in Iran). This may be the eastern limit because it has never been recorded from well explored Afghanistan.

Lasioglossum (Evylaeus) nitidiusculum pseudocombinatum (BLÜTHGEN, 1921)

Halictus pseudocombinatus BLÜTHGEN, 1921, Mitt. Schweiz. ent. Ges. 13: 142–143, ♀, type loc. Asuni, Sardinia, holotype in Deuts. Entom. Inst., Eberswalde; *H. nitidiusculus*, WARNCKE, 1982: 71.

The differences from *L. n. nitidiusculum* are subtle and the male is still unknown. As only a few specimens have been collected from Sardinia (Fig. 15), whether this represents a good subspecies is not yet settled.

Lasioglossum (Evylaeus) pseudonigripes (BLÜTHGEN, 1934)

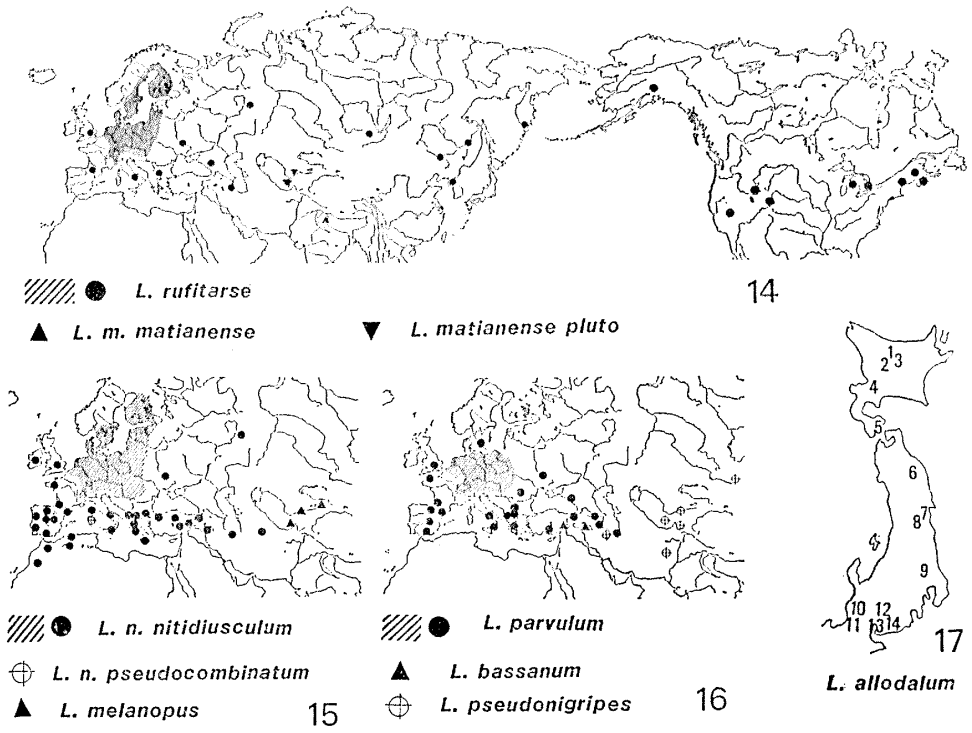
Halicus melanopus DALLA TORRE secund. BLÜTHGEN, 1931: 381-382, ♀ nec ♂,——*Halictus pseudonigripes* BLÜTHGEN, 1934, Dtsch. ent. Ztschr. 1933: 301–303, ♂, type loc. Iskandar, Uzbekstan, holotype in Zool. Mus., Moscow.

A little known species distributed from Iran to Mongolia (Fig. 16). Iran (NW Teheran, Darakeh), Pakistan (Ziarat), Soviet Asia (Rewak; Taldi-Bulek, Margelan; Chakimi; Porchar in Pamir; Tschil-dara; Samarkand; Saamin, 125 km E Samarkand; Valley Sarafschan), Mongolia (Chovd-Aimak).

Lasioglossum (Evylaeus) bassanum (WARNCKE, 1982)

Halictus bassanus WARNCKE, 1982: 73–74, ♀, type loc. Sivelan, Province Hakkari, Turkey, holotype in the author's coll.

Beside the type locality, this species is also westward known from Gürün (Fig. 16). Comparing this species with *L. nitidiusculum*, WARNCKE (1982) though that *L. bassanum* might be a subspecies of *L. nitidiusculum* if the male was examined. *L. bassanum* is certainly specifically different from *L. nitidiusculum* but its relation with *L. pseudonigripes*, which WARNCKE did not compare with his specimens is still



Figs. 14–17. Distribution of Palaearctic species of the *L. nitidiusculum* group.

uncertain until discovery of the male. It might be a western subspecies of *L. pseudonigripes*.

Lasioglossum (*Evylaeus*) *parvulum* (SCHENCK, 1853)

Melitta minuta KIRBY, 1802 (nec FABRICIUS, 1798): 61–62, ♀♂, type loc. Barhamiae, England, lectotype in Brit. Museum, London,——*Hylaeus parvulus* SCHENCK, 1853: 153–154, ♀, type loc. unmentioned (Hessen), lectotype in Forsch. Inst. Senckenberg, Frankfurt a. M.,——*Halictus striatus* SCHENCK, 1868, Beschr. nass. Bienen 2; 1869, Jb. Ver. Natk. Nassau 21/22: 306, ♀, type loc. unmentioned (Hessen), lectotype in Forsch. Inst. Senckenberg, Frankfurt a. M.,——*Halictus ferrugineipes* SCHENCK, 1868, Beschr. nass. Bienen 2; 1869, Jb. Ver. Natk. Nassau 21/22: 306, ♂, type loc. unmentioned (Hessen), lectotype in Forsch. Inst. Senckenberg, Frankfurt a. M.,——*Halictus minutus*, SAUNDERS, 1882, Tr. Ent. Soc. London: 219; BLÜTHGEN, 1920, Dtsch. ent. Ztschr.: 103, 125; PERKINS, 1922, Ent. mon. Mag. (3) 8: 52, 99; BLÜTHGEN in SCHMIEDEKNECHT, 1930, Hym. N. & M. Europas: 744, 763;——*Lasioglossum* (*Evylaeus*) *parvulum*, EBMER, 1971: 75, 87; 1974, Nachrbl. bayer. Ent. 23: 117–118. *Halictus minutus* WARNCKE, 1973 (nec SCHRANCK, 1781), Nachrbl. bayer. Ent. 23: 117–118.

The long used name *Halictus minutus* KIRBY must be rejected because of the secondary homonym. Meanwhile, WARNCKE (1973) believed that *Apis minuta* SCHRANK, 1781 could be used for this species. However, this taxon, of which the type material was lost, is a much bigger bee of which generic affiliation is unknown. KIRBY distinctly noted nidification of his bee in the soil, whereas the species of SCHRANK

nested in an old pillar exposed to sunbeams.

Distribution (Fig. 16) is similar to that in *L. nitidiusculum* but narrower in S–N extent, northward only to S. Sweden (56°N) and southward only on the following monutains, Sierra Nevada in Spain, Aspromonte in Calabria, Giona, Parnassos, Erymanthos, Chelmos and Killini Oros in Greece, and Taurus. A record from Elche, S. Spain, may be actually from the environ at higher altitude. Westward the species reaches S. England and eastward does not exceed Kiev, though reaches N. Iran to Shahpasand along the Caspian Sea.

Lasioglossum (*Evylaeus*) *allodalum* sp. nov.

Lasiolgossum (carinaless *Evylaeus*=*El.*) sp. 9, SAKAGAMI & FUKUDA, 1973: 247; SAKAGAMI, FUKUDA & KAWANO, 1974: 33; USUI *et al.*, 1976: 228; ISHII & YAMANE, 1981: 48; YAMAUCHI *et al.*, 1982: 421.

Female. 6.5 mm. Black, tergal margins narrowly reddish brown, pterostigma dark brown. Head nearly round in outline (Fig. 2), L: W=Q=0.997±0.014 (n=71, Fig. 18) slightly longer than in *L. parvulum* (Fig. 18). Clypeus only slightly produced below, chagreened, basally with scattered, irregularly arranged punctures (diameters of punctures 24–32 μ/interspaces 0.1 to 3.0 times wide as punctures; these expressions are used subsequently); apically with only a few punctures, smooth and very polished. Frons and vertex very finely and densely punctured (16–20 μ/0.1–

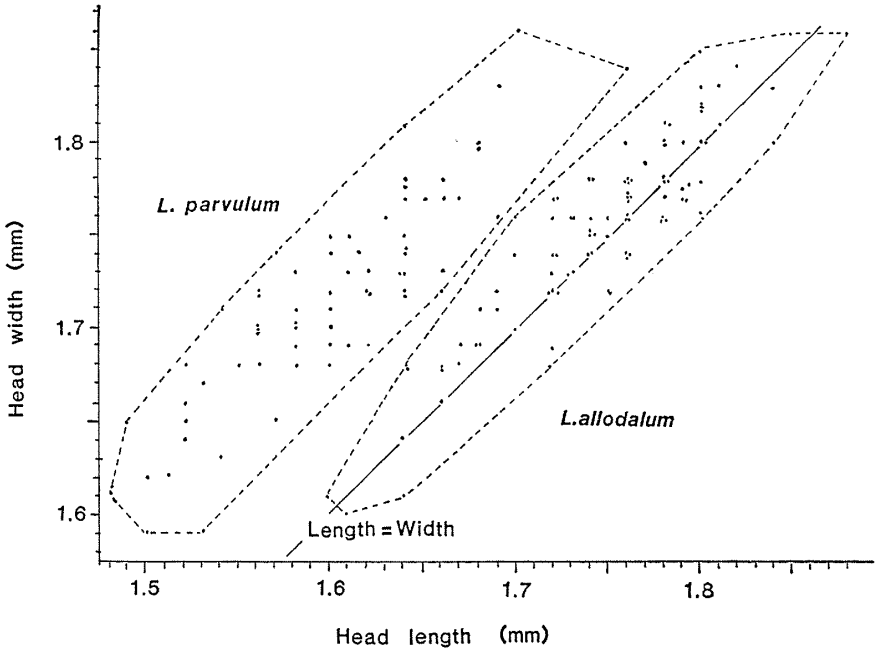


Fig. 18. Difference in ratio head length/width between *L. parvulum* and *L. allodalum* sp. nov.

0.2), chagreened and very mat. Face laterally granularly chagreened with scattered punctures upto 1.5 times distant than diameters.

Mesoscutum finely and fairly densely punctured (16–22 μ/0.2–1.0, posteriorly sparser, to 1.5), interspaces widely chagreened and silky mat, posteriorly more shining and sculpture superficial. Mesopleura densely chagreened with sparse punctures ($\pm$24 μ) nearly merged in the chagreened surface; above very mat, below with silky luster. Horizontal area of propodeum posteriorly roundly truncated, median field mat with dense striae, medially rather irregular (Fig. 3) though less than in *L. nitidiusculum*; transition to vertical area forming very narrow but distinctly polished transverse bulge with weak median depression often being less shining; laterally striae reaching lateral fields not well demarcated from median field.

Tergal margins not well differentiated, only laterally weakly depressed behind bosses. Basal part of tergum 1 widely smooth and strongly polished, with very fine chagreening in some specimens, only laterally with sparse and minute punctures. Disc of tergum 1 with very fine, scattered punctures (6–10 μ/1.0–4.0); marginal area only basally with similar punctures, interspaces fine and superficially chagreened, very polished. T_2 with punctures more distinct and regular (8–12 μ/1.5–2.5), although sparser and finer on marginal area; interspaces finely chagreened and polished. T_3 more distinctly chagreened, punctures minute ($\pm$8 μ), almost merging in the chagreened surface.

Pilosity sparse and of normal *Evylaeus* type. Hairs yellowish grey; tergal hair patches white, very small and confined to T_{2-3} basolaterally.

Male. 6–7 mm. Black to brownish black; clypeus apically, labrum and mandible medially yellow, flagella below and tarsi dark ocher, pterostigma dark brown.

Head shaped as in female. L: W=Q=0.85 to 1.02. Clypeus irregularly punctured (24–32 μ/0.3–1.5), interspaces smooth; supraclypeus with punctures 16–22 μ/0.1–1.5, interspaces chagreened. Frons rugose and very mat, with fine and dense punctures ($\pm$1.6 μ). Antenna long, attaining propodeum, L: W of flagellomere 30.32 : 0.21.

Mesoscutum with fine and moderately dense punctures (16–20 μ/0.5–1.0), interspaces on disc centrally nearly smooth and polished, peripherally chagreened. Mesopleura above together with hypoepimeral area with punctures $\pm$24 μ, partly dense and interspaces rugose and mat; below superficially chagreened and shining with punctures distinctly finer and sparser. Propodeum as in female but spaces between striae of median field polished and apical bulge stronger, more shining and superficially chagreened. Median field shorter (0.24–0.34 mm) than in *L. parvulum* (0.30–0.38 mm).

Metasoma cylindrical, tergal margins as in female. T_1 basally smooth and polished; disc sparsely and finely punctured (8–12 μ/0.8–2.5), interspaces smooth and very polished; marginal area only with sparse and minute punctures, interspaces polished with hardly perceptible transverse lineolation.

Pilosity sparse, grey with brownish tint. In fresh specimens, face below antenna

densely covered with appressed white hairs. Sterna sparsely and homogenously covered with erect hairs. Gonostylus fairly long (Fig. 12). Hind distitarsi of normal length (Fig. 9).

Holotype ♀, Kuriyagawa, Iwate Prefecture, Japan, 22 v 1977, Y. MAETA leg.

Paratypes (locality names are numbered in Fig. 17, from north to south, 1–5 in Hokkaido, 6–13 in Honshu), (1a) Inosawa, Asahigawa, 2 ♀, 10 v, 10 vi 1969; (1b) Asahiyama, Asahigawa, 1 ♀, 30 v 1970; (2) Nokanan nr. Higashikawa, 400 m, 112 ♀, 16 v–6 vii 1967; (3) Yukomanbetsu, 1000 m, 21 ♀, 16 v–21 ix, 1 ♂, 6 ix 1967; (4a) Campus of Hokkaido Univ., Sapporo, 6 ♀, 27 v–18 vi 1959; (4b) Botanical garden, Sapporo, 16 ♀, 21 iv–8 vii, 2 ♂, 8, 27 vii 1959; (4c) Mt. Moiwa, Sapporo, 18 ♀♀, 9 v–15 vi 1972; (5) Mt. Yokotsu nr. Hakodate 2 ♀, 5, 26 viii 1968; (6a) Kuriyagawa, Morioka, Iwate Pref., 4 ♀, v 22 1977; 1 ♂, 2 vii (emerged from nest; (6b) Takizawa nr. Morioka, Iwate Pref., 14 ♀, 16 iv–27 v 1977; (7) Rifucho nr. Sendai, Miyagi Pref., 4 ♀, 5 iv–24 v 1977; (8) Aone, 500 m, Miyagi Pref., 2 ♀, 29 iv 1981; (9) Mt. Yamizo, Daigo, Ibaraki Pref., 1 ♀, 14 iv 1978; (10) Arashi, Ono, Fukui Pref., 1 ♂, 31 vii 1974; (11) Yae, Nanjo, Fukui Pref., 1 ♀, 18 iv 1981.

Four ♀, 1 ♂ of 4b, 1 ♀ of 4a and 1 ♀ of 6 are in A.W.F. collection, all other paratypes and holotype are temporarily with S.F.S. Besides, S.F.S. examined three females from Gifu Pref. shown as 12, 13, 14, in Fig. 17 (YAMAUCHI *et al.*, 1982).

Using this occasion a brief comment is given on *Halictus monochromus* DALLA TORRE 1896 (Cat. Hym. 10 : 71) (=*H. unicolor* MOTSCHULSKY, 1866, nec BRULLÉ, 1939) described from Japan.

The original description is as follows: *Halictus unicolor* MOTSCHULSKY, 1866: 183 (male, from Japan) "stature et color Hal. rufitarsi sed abdomine unicolore. Elongatus, convexus-nitidus, niger, tibiis tarsisque rufo-piceis, capite thoraceque sordide cinereo villosis long. 3 1/2 l.-lat. 1 1/4 l." The type seems to be lost.

Certainly numerous *Evylaeus* species fit to this brief description. *H. monochromus* might be synonymous with *L. rufitarse* as treated by EBMER (1978) judging from the size. In this case *L. rufitarse* and *L. allodalum* are parapatric in Japan. But it might also be conspecific with *L. allodalum*. Until the presence or absence of *L. rufitarse* in Japan is clarified, it may be best to regard *H. monochromus* as a nomen dubium.

Lasioglossum (*Evylaeus*) *melanopus* DALLA TORRE

Halictus nigripes MORAWITZ in FEDČENKO, 1876 (nec LEPELETIER, 1841): 251, ♂, type loc. Karakazuk, Turkestan, lectotype in Zool. Mus. Moscow, —— *Halictus melanopus* DALLA TORRE, 1896, Cat. Hymen. 10: 70 nom. nov. for *H. nigripes* MORAWITZ,——*Halictus attritus* VACHAL, 1902, Rev. Russ. Ent. 2: 229, ♀, type loc. Ferghana, holotype (?) in Inst. Syst. Zool., Krakow, ——*Halictus melanopus* BLÜTHGEN, 1923, Arch. Naturg. 89 A, 5: 314–315; 1931: 382, ♂ (♀= *pseudonigripes*); 1933, Dtsch. ent. Zschr.: 301–303 ("erste Art"); WARNCKE, 1981, Boll. Mus. Civ. Stor. Venezia 32: 68.

Although the conspecificity of *Halictus attritus* (♀) with *L. melanopus* (♀) has been known since BLÜTHGEN (1933), WARNCKE (1981) thought that *L. urguticum* EBMER, 1972 (not BLÜTHGEN as cited by him) was also conspecific. However, *L. urguticum* belongs to the *L. tricinctum* group as mentioned in the original description. Then, it is possible that *L. urguticum* is the female of *L. ilicum* (BLÜTHGEN, 1924) known only by male.

The little known C. Asian mountainous species. Out of the type locality there are only the following records: New Margelan i. Ferghana; Sarydzas, 2000 m, E. Kirgis (Fig. 15).

Lasioglossum (*Evylaeus*) *rufitarse* (ZETTERSTEDT, 1838)

Halictus rufitarsis ZETTERSTEDT, 1838: 462–463, ♂♀, type loc. Karungi, Lapland, lectotype in Zool. Mus. Lund; SAUNDERS, 1882, Tr. ent. Soc. London: 219; BLÜTHGEN, 1920; Deutsch ent. Ztschr.: 101, 125–126; 1922, ibid: 47–49; PERKINS, 1922, Ent. mon. Mag. (3) 8: 52, 99, BLÜTHGEN in SCHMIEDEKNECHT, 1930: Hym. N. & M. Europas: 744, 762,——*Halictus parumpunctatus* SCHENCK, 1868, Beschr. nass. Bienen 2; Jb. Ver. Natk. Nassau 21/22: 306, ♂, type loc. unmentioned (Hessen), lectotype in Forsch. Inst. Senckenberg, Frankfurt a. M. *Halictus lucidus* SCHENCK, 1868, Beschr. nass. Bienen 2; Jb. Ver. Natk. Nassau 21/22: 309, ♀, type loc. Lippstadt, Germany, type lost,——*Halictus atricornis* SMITH, 1870, Ent. Annual: 26–27, ♀♂, type loc. Cheshire, England, lectotype in Hope Museum, Oxford,——*Lasioglossum Evylaeus*) *rufitarse*, EBMER, 1971: 76, 85; 1978: 206; 1982: 219.

Unlike the other four Holarctic halictine species, *L. rufitarse* does not exhibit any morphological differentiation between Palaearctic and Nearctic polpulations. In others, *Halictus* (*Halictus*) *rubicundus* (CHRIST, 1971) and *H.* (*Seladonia*) *confusus* SMITH, 1853 exhibit respectively racial and subspecific differentiation. In *Lasioglossum* (*Lasioglossum*) *leucozonium* (Schrank, 1781) and *L.* (*L.*) *zonulum* (SMITH, 1848), the Palaearctic populations are segregated in eastern and western subspecies, the latter being distributed in the Nearctis, too. Recently *L.* (*Evylaeus*) *boreale* EBMER, SVENSSON et SAKAGAMI, 1977, described from Arctic Sweden and N. Japan, was discovered from Inuvik, Arctic Canada, which was imperceptibly different from the Palaearctic specimens (SAKAGAMI, unpub.).

In Europe *L. rufitarse* is not strictly boreoalpine, sporadically found also from hilly and lowland areas between Alps and Scandinavia (Fig. 14), usually in forest areas. It does not reach the real S. European mountains. The southernmost records by A.W.E. are Prali, 1470 m, Cottic Alps; Colle del Melango, 1000 m, Liguria, Monti Parteni nr. Naples, 1200 m and Val Ordesa, Pyrenee. In N. Europe it exceeds the polar circle. In S.W. areas of the W. Palaearctis, it is known from Alibek/Dombai, Caucasus and Assalem, 1300 m, Talysch, N.W. Iran. From the E. Palaearctis it is recorded from N.W. China (Charbin) and N. Korea and also from Kamchatka. In the Nearctis it is known from Alaska, Nova Scotia, New Brunswick, Ontario and Michigan. A.W.E. examined the specimens from Maine, California and Colorado.

Lasioglossum (Evylaeus) matianense matianense (BLÜTHGEN, 1926)

Halictus matianensis BLÜTHGEN, 1926, Zool. Jb. Syst. 51: 635–638, type loc. Kashmir, holotype in USNM, Washington.

A paratype was collected from Matiana, Simla Hills. No other specimens have been collected (Fig. 14). This species exhibits a combination of the sculptural features of the *L. nitidiusculum* group and the fimbria on tergal margins which characterizes the *L. sexstrigatum* group, from which the species is distinguished by the longer propodeum. The discovery of males is requested to acsertain the closer taxonimic relationship.

Lasioglossum (Evylaeus) matianense pluto EBMER, 1980

Lasioglossum (Evylaeus) matianense pluto Ebmer, 1980: 497, ♀, type loc. Arkit, Kirgis, holotype in coll. auct.

One paratype from Čathal mountains 1600 m, W. Kirgis, and some other specimens from Samarkand/Saamin, 125 km E. Samarkand, 2200 m, Usbekstan (Fig. 14). In these additional specimens the finest transverse lineolation on the base of T_1 is absent.

Acknowledgments This study was in part supported by the Special Project Research on Biological Aspect of Optimal Strategy and Social Structure from the Ministry of Education, Science and Culture, Japan. In particular we thank Mr. T. MATSUMURA (Nasu), Dr. Y. MAETA (Matsue), Prof. M. MUNAKATA (Hakodate), Mr. K. GÔUKON (Sendai), Dr. S. YAMANE (Mito), Dr. K. YAMAUCHI (Gifu) and Mr. Y. HANEDA (Fukui) for the gift or loan of valuable materials and Mrs. I. NUMASA for her help in preparing the typescript.

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