

Six New Halictine Bee Species from Southwest Archipelago, Japan (Hymenoptera, Halictidae)¹⁾

Andreas W. EBMER,²⁾ Yasuo MAETA and Shōichi F. SAKAGAMI³⁾

Abstract Six new halictine bee species from Southwest Archipelago, Japan, *Lasioglossum (Evylaeus) solisortus* ♀, ♂; *L. (E.) naitoi* ♀; *L. (E.) virideglaucum* ♀, ♂ (also from Yunnan, S. China, and Honshu, Japan); *L. (E.) zipangu* ♀; *L. (E.) amamiense* ♀ and *L. (E.) smilodon* ♀, ♂, spp. nov., are briefly described compared with some allied species for the necessity of quick naming.

Key words: Six new species; *Lasioglossum (Evylaeus)*; halictine bees; southwestern Japan.

Introduction

Six new halictine bee species, *i. e.*, *Lasioglossum (Evylaeus) solisortus*, *L. (E.) naitoi*, *L. (E.) virideglaucum*, *L. (E.) zipangu*, *L. (E.) amamiense* and *L. (E.) smilodon* are described below. The first 2 species belong to the carinate *Evylaeus* (propodeal dorsum transversely carinate at the end), both black, not metallic, with relatively short head as in the *L. laticeps* group s. lat. (cf. Blüthgen, 1924). The 3rd species is also tentatively placed in the carinate *Evylaeus*, though the end of propodeal dorsum medially sharply angulate but not properly carinate. This species has green metallic head and mesosoma, and tentatively placed in the *L. morio* group, in which metasoma is black, not metallic. This group includes diverse species and considered to be artificial. Nevertheless, recognition of such conventional groups is inevitable and indispensable as the first step to systematize so difficult groups such as *Evylaeus*.

The remaining 3 species belong to the carinaless *Evylaeus* with propodeal dorsum neither carinate nor sharply angulate. Certainly this is the largest and most difficult group in Halictinae. The 3 species further belong to the *L. sexstrigatum* group (cf. Ebmer, 1971), which is represented by a single species, *L. sexstrigatum* (Schenck) in W. Palaearctics, but is fairly diversified in E. Palaearctics, with some invasions in S. E. Asia. Unlike the *L. morio* group mentioned above, this group is intuitively seen monophyletic. Nevertheless, the group delimitation is more difficult because there is no feature which is useful to delimit the group even conventionally, such as the black, non metallic metasoma in the *L. morio* group. An incomplete delimitation will be given tentatively before the description of *L. (E.) zipangu* sp. nov.

Locations of the islands, on which the examined specimens were collected, are shown in Fig. 1.

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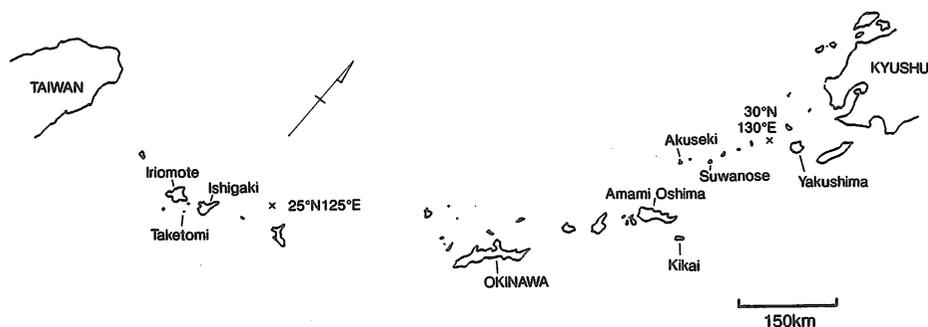


Fig. 1. The islands on which the specimens were collected.

Abbreviations

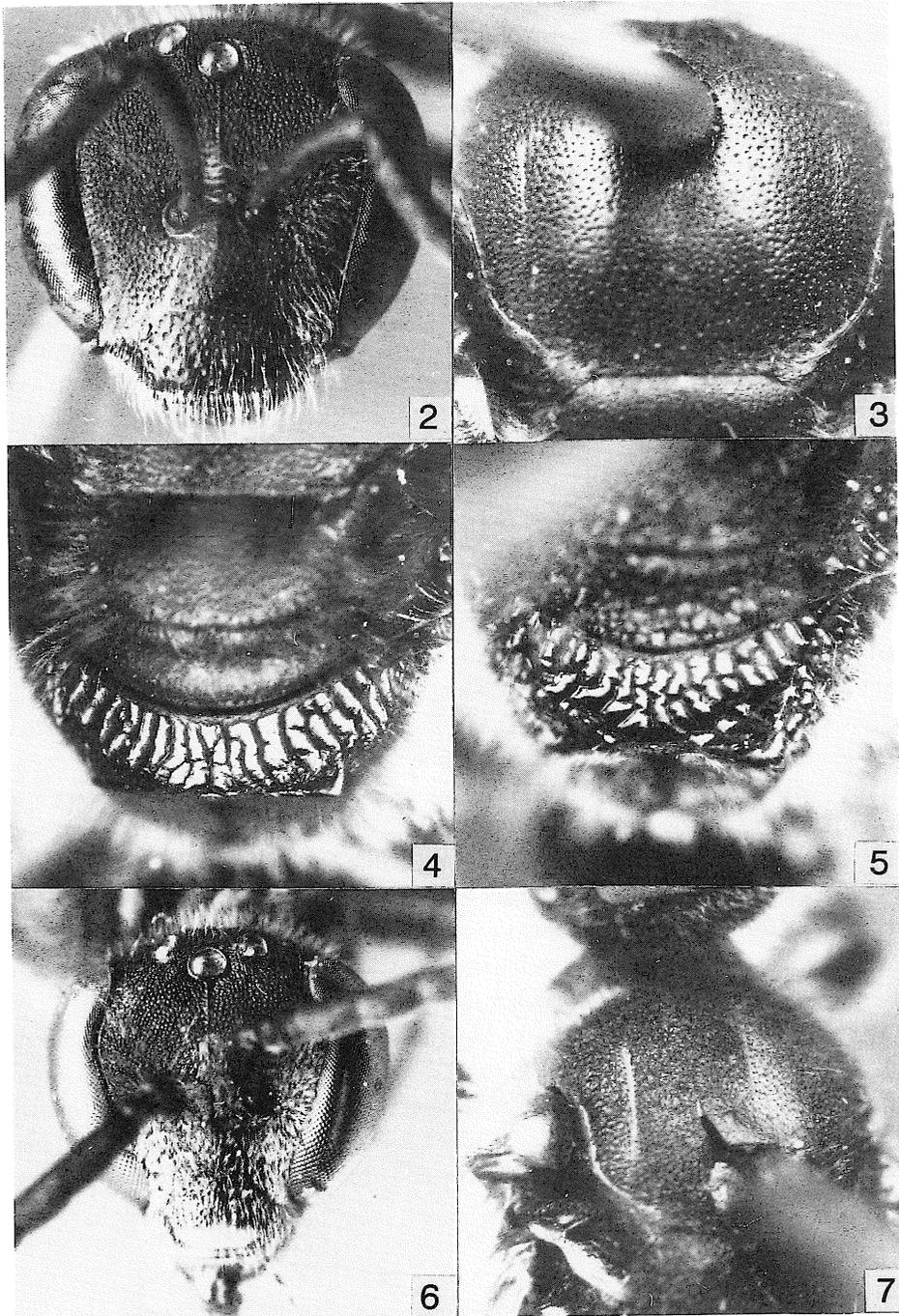
BL=body length, WL=wing length including tegula, HW, HL=head width, head length (excluding clypeal tooth), PP=punctures, $P\phi$ =diameter of puncture, IS = interspace between punctures or ridges, T n , S n = metasomal tergum n and sternum n .

Lasioglossum (Evylaeus) solisortus Ebmer et Maeta sp. nov. (etymology: sunrise)

Female BL 6.7-7.2 mm, WL 5.8-6.2 mm.

Head transverse (Fig. 2), HW/HL=1.08-1.12, similar to *L. laticeps* (Schenck 1868) (1.08-1.12, $n=2$), *L. sibiriacum* (Blüthgen 1923) and *L. vulsum* (Vachal 1903) (both 1.05-1.11, $n=5$). Face densely reticulo-punctate as in above 3 species. Mesoscutum (Fig. 3) homogeneously granular and dull, with PP very fine and rather weak ($P\phi \pm 10-15\mu$), homogeneously dense ($IS \approx P\phi$) on anterior and peripheral areas, whereas distinctly sparser posteriorly (IS to 2.0), never so coarse and dense as in the 3 cited species ($P\phi 20-25\mu$, $IS \leq P\phi$). Mesoscutellum with PP slightly but not conspicuously sparser on submedian elevation. Mesepisternum very coarsely reticulo-areolate, on the average coarser than in above 3 species, IS finely granular and shiny.

Propodeal dorsum (Figs. 4 and 5) shorter than mesoscutellum, ratio mesoscutellum/dorsum=1.1-1.2 (1.1-1.3 in *sibiriacum* and *vulsum*, $n=5$ in all 3 species, 1.0-1.3 in *laticeps*, $n=3$). Dorsum medially with longitudinal ridges, irregularly winding and partly branching but not properly anastomosing, IS rather wide, $\pm 75\mu$ ($\pm 50\mu$ and more irregularly winding in 3 compared species), finely granular and remarkably shiny as in the 3 species, posteriorly delimited with distinct transverse carina, being continuous to lateral carina of shield; Dorsum laterally characteristic (Fig. 8), posteriorly demarcated with obliquely ascending discontinuous but distinctly angulate elevation, starting from median carina; longitudinal ridges laterally more regularly parallel than medially as in many halictines, and descending down beyond oblique elevation. Lateral slope below demarcated with oblique carina, forming triangular



Figs. 2-7. *Lasioglossum solisortus* ♀ (2-4) and ♂ (5-7). 2. Head seen frontally, 3. Mesoscutum, 4 and 5. Propodeal dorsum, 6. Head seen frontally, 7. Mesosomal sculpture.

depression between transverse median carina (Fig. 4), somewhat resembling similar arrangement in the *L. vagans* group of the subgenus *Ctenonomia*. In general propodeal structure, particularly of lateral part, most similar to that in a Chinese consubgener *L. hoffmanni* (Strand 1915) (= *Halictus shishkini* Cockerell 1925 and probably also = *H. speculicaudum* Cockerell 1931), though its mesoscutum differing by dense, coarse and homogeneous punctures on smooth surface.

Hind tibial inner spur with 5-7 slender teeth. Basal terga smooth and shining with fine homogeneously sparse PP as in *laticeps*, *sibiriacum* and *vulsum*, but tergal margins not broadly semitransparent as in these species and *hoffmanni*.

In general habitus *L. solisortis* also resembling *L. fulvicorne koshunochare* (Strand 1914) from Koshun, Formosa (= Taiwan), especially in transverse head with moderately coarse facial sculpture, and tergal sculpture given above, but in this taxon the propodeal sculpture more irregular and mesoscutal sculpture of different type.

Male BL 7 mm.

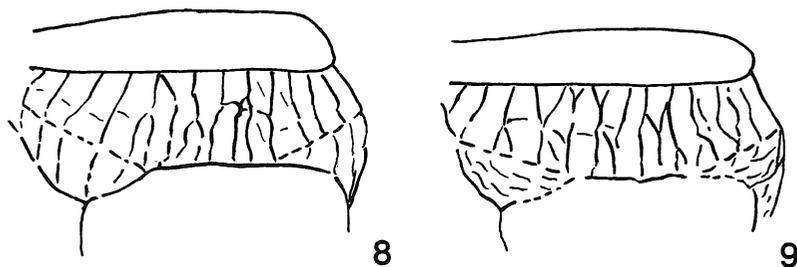
This unique male is considered to be conspecific with *L. solisortis* female by the similarity in mesoscutal and propodeal sculptures (Figs. 3-5 and 7-8) although conspecificity with *L. naitoi* females is still not decidedly rejected (Fig. 9).

Mandible, labrum, clypeus apically, and tarsi yellow. Flagella below pale brown. Similar to *L. laticeps* in transverse head (Fig. 6) (HW/HL=1.06); long antenna, attaining the base of T₁; coarse and winding longitudinal ridges of propodeal dorsum (Fig. 5); granular, coarsely networked mesepisternum; basally narrowed hind distitarsi.

Mesoscutum (Fig. 7) dull, with very fine and dense PP. Genitalia seen dorsally (Fig. 10) with gonostylus as in *L. laticeps*, but seen lateroventrally (Fig. 11) with only hair tuft, devoid of ventral retrose lobe, being similar to *L. minutulum* (Schenck 1853), and *L. setulosum* (Strand 1969), (Ebmer, 1971. Fig. 110), though these species have punctate mesepisternum, being rare in the carinate *Evyllaesus*. Thus, this male has a very characteristic, so far unknown combination of features.

Specimens examined (all from Iriomote Is.); Holotype, ♀, 15 iii 1974, T. Naito, to be deposited in Entomological Laboratory, Kyushu University, Fukuoka.

Paratypes, 1 ♀, Sonai, 26 iv 1988, Y. Maeta and M. Goubara; 10 ♀ 1 ♂, same data with Holotype. One ♀ on 26 iv 1988 and 1 ♀ on 15 iii 1974 in Ebmer collection, all others provisionally with Maeta and Sakagami, later some ones will be deposited in Entomological Laboratory, Kyushu University, Fukuoka, Laboratory of Insect Management, Shimane University, Matsue and Entomological Institute, Hokkaido University, Sapporo.



Figs. 8 and 9. Propodeal dorsum seen oblique-posteriorly of *Lasioglossum solisortis* (8) and *L. naitoi* (9), both ♀.

***Lasioglossum (Evylaeus) naitoi* Ebmer et Maeta (etymology, dedicated to Dr. T. Naito, who collected many halictines from Iriomote Is.)**

Female BL 6.5-7.0 mm, WL 5.6-6.7 mm.

Head (Fig. 12) transverse as in *L. solisortus*, HW/HL=1.09-1.20. Facial sculpture as in *L. solisortus* and other species cited there. Clypeus slightly convex as in *L. fulvicorne* (Kirby 1802). Mesoscutal sculpture (Fig. 13) unique among the known carinate *Evylaeus*. PP very fine and sparse on very finely and homogeneously granular and dull surface. Mesepisternum above coarsely reticulate, below very finely granular.

Propodeal dorsum (Figs. 9 and 14) medially slightly concave, ratio mesoscutellum /propodeal dorsum about as in *L. solisortus*, medially longitudinal ridges slightly and irregularly winding with IS $\pm 50-75\mu$; apical transverse carina laterally weaker than in *L. solisortus*; laterally ridges virtually not descending down on lateral slope (compare Figs. 8 and 9), and "lateral dorsum" and lateral slope less demarcated than in *L. solisortus*. Shield shallowly concave, finely granular with very sparse PP, laterally the lower 2/3 carinate. Tergal sculpture as in *L. solisortus*, but tergal apices not much depigmented.

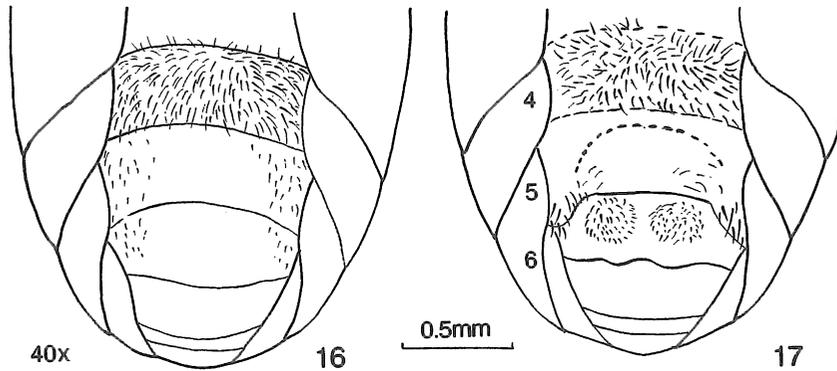
Specimens examined (all from Iriomote Is.): Holotype, ♀, 15 iii 1974, T. Naito, to be deposited in Entomological Laboratory, Kyushu University, Fukuoka. Paratypes 2♀, same data with holotype, 1♀, 25-26 iii 1985, Y. Maeta and A. Yoshida. Two paratypes in Ebmer collection and 1♀ provisionally with Y. Maeta.

***Lasioglossum (Evylaeus) virideglaucum* Ebmer et Sakagami sp. nov.**
(etymology: green + gray to grayish blue)

Leaving details elsewhere, here we will describe this species compared with *L. (E.) atroglaucum* (Strand 1913) known only by the unique male. The original description of this species gives us virtually nothing other than that this male has dark metallic green head and mesosoma, black metasoma and clypeus apically yellow. Examining the type specimen collected at Suisharyo, x, Formosa (=Taiwan), and deposited in Deutsch. Entom. Institut/Eberswalde, one of us (A. W. E.) noticed a peculiar hair tuft issuing from S₄ (Figs. 15 and 16). Later, somewhat similar hair tuft was found in another species collected from China and Japan, independently by A. W. E. and S. F. S. The latter is named *L. virideglaucum* sp. nov. and synoptically compared with *L. atroglaucum* as follows:

Character	<i>atroglaucum</i>	<i>virideglaucum</i> nov.
S ₅ , medially	without apical depression (Fig. 16)	with apical depression (Fig. 17)
S ₅ , lateral hair tuft	absent, only with sparse, short hairs	distinct
S ₆	only with sparse, short hairs	with a pair of round disc consisted of minute erect hairs
Head	distinctly HW/HL	about HW=HL (≅ ♀)

Mesoscutal sculpture	medially densely and homogeneously punctate	mediolongitudinal PP sparser (\approx ♀)
Gonostylus	elliptical, with 2 stout and long hairs (Fig. 18)	apically pointed, with more long hairs (Fig. 19)



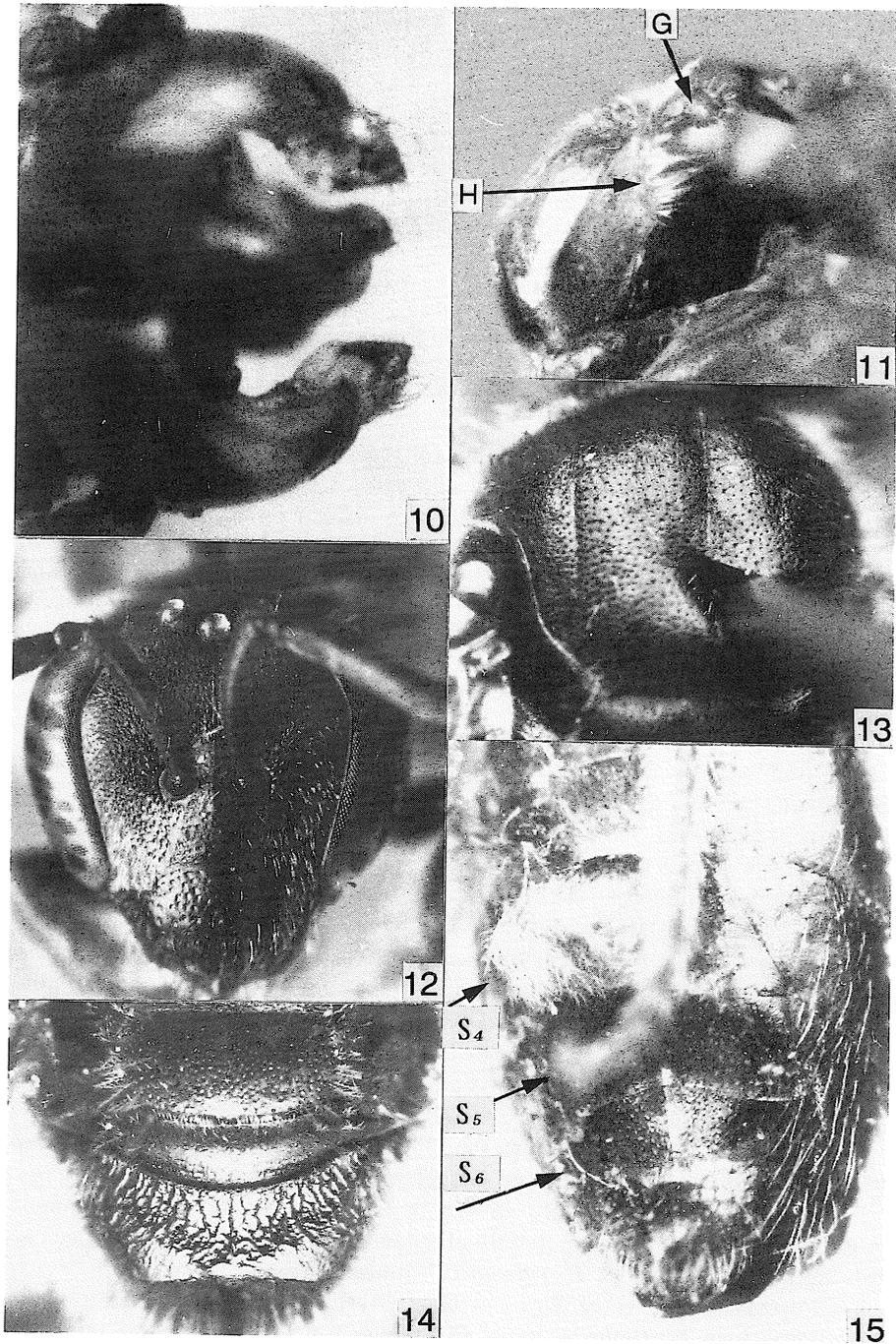
Figs. 16-17. Apical metasomal sterna of *Lasioglossum atroglaucum* ♂ (16) and *L. virideglaucum* ♂ (17).

Female is in general habitus similar to *L. problematicum* (Blüthgen) in NE. Asia, with head as long as wide, propodeal dorsum with fine and dense longitudinal streaks, but propodeal streaks shorter and sparser, posterior margins of T_{2-3} laterally with fine apical hairs far sparser. In males *L. virideglaucum* is similar to *L. problematicum* (not yet published) with triangularly projecting gonostylus, but otherwise terminalia are far less differentiated.

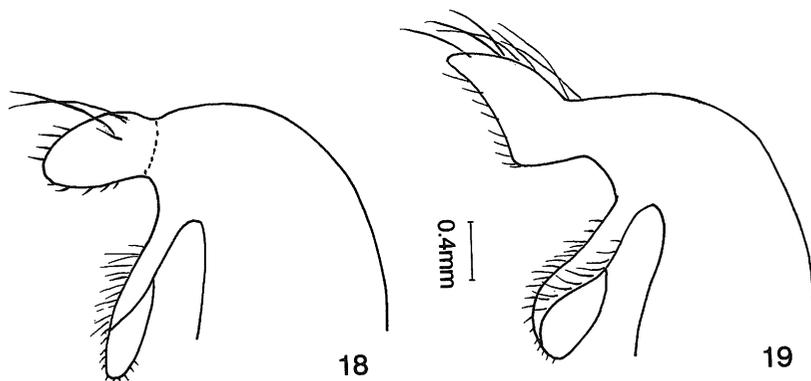
Specimens examined: Holotype, 1♂, Yunnan, S. China: Heishu, 35 km N of Lijiang, 23°13'N; 100°19'E, 18 vi-4 viii 1993, S. Bečvor. Paratypes, 2♀ 2♂, same data with holotype; All others from Japan, 5♀; 3♂, Yakushima Is., 2 vii-31 viii 1986, S. Ikudome (3♀, 2 vii, 2♀, 22 vii, 1♂, 8 viii, 2♂, 31 viii), 2♂, Yakushima, Kosugidani Hananoego, 24 viii 1952, Takeya and Hirashima; Fukui Pref. (Central Honshu), 1♀, Koike, 28 v 1978, H. Kurokawa; 1♀, Suwara, Ohno, 16 iv 1981, Y. Haneda, 1♀, Sabiraki, Ohno, 26 iv 1992, Y. Haneda; 1♀, Mt. Kammuri, 14 ix 1987, T. Murota; Yamanashi Pref. (Central Honshu), 2♀, Mt. Kushigata, 1900-2000 m, 22-23 x 1990, M. Kato; Aomori Pref. (Northernmost Honshu, all by M. Yamada), 2♀, Mt. Iwaki, 14 vi & 29 viii 1981, 1♀, Hirosaki, Zatoishi, 29 vi 1983; 1♀ 1♂, Hiraka, Mt. Kenashi, 26 viii 1993, 1♂, Takinomata, 4 ix 1982.

Holotype and paratypes from China, 1♀ from Mt. Iwaki (29 iii) and 1♂ from Mt. Kushigata (23 ix), are in Schwarz-Ebmer collection, Linz, Austria, and all others provisionally with S. F. S., to be returned to the owners or deposited in Entomological Laboratory, Kyushu University, Fukuoka, and Entomological Institute, Hokkaido University, Sapporo, Japan.

L. virideglaucum shares with *L. atroglaucum* developed hair tuft on S_4 but differs in triangularly pointed gonostylus, as seen in *L. problematicum* and another un-



Figs. 10-15. *Lasioglossum solisortus* ♂ (10-11), *L. naitoi* ♀ (12-14) and *L. atroglaucum* ♂ (15). 10. Apical part of genitalia, 11. Gonostylus (G) and ventral hairs tuft (H), 12. Head seen frontally, 13 and 14. Mesoscutal and propodeal sutures, 15. Apical metasomal sterna (S_4 - S_6) of type specimen.



Figs. 18-19. Gonostylus and ventral retrose lobe of *Lasioglossum atroglaucum* ♂ (18) and *L. virideglaucum* ♂ (19).

described Japanese species. On the other hand, elliptical gonostylus of *virideglaucum* is shared by a second undescribed Japanese species, which has also transverse head but sterna are simple. Further, all these species differ from *L. morio* (Fabricius) in W. Palaearctis, the representative species of the group, which has elliptical gonostylus but very wide, disc-like and semimembraneous ventral retrose lobe, whereas the gonostylus is elliptical. Thus, the *L. morio* group, conventionally defined by the black, non-metallic metasoma, seems to include fairly diverse subgroups. It must be mentioned that this interesting group has bionomically been little known. Even the bionomics of *L. morio*, being very common and eurytopic in Europe (Ebmer, 1988), has virtually been unknown except for a brief note "it is social" (Knerer, 1968). The only exception is *L. problematicum*, which was studied by one of us (S. F. S.) intensively (Sakagami, unpubl., a brief note in Sakagami *et al.*, 1984). Hundreds of nests observed from 1957-1984 show that ethologically this species is really 'problematical'. Its univoltine life is 'polysocial', *i. e.*, living as solitary females, or semisocial (association of the females emerged in the last autumn) or delayedly eusocial colonies (association of the female(s) emerged in the last autumn and her (their) mother, who is one year older). These sister or mother-daughter associations can be replaced by the stepsister or step-mother-daughter associations by joining of the alien females. On the other hand, the non-delayed eusocial colonies universally adopted by most temperate eusocial Hymenoptera, *i. e.*, associations of females emerged in the last autumn and her (their) daughters emerged "within the year" and act as workers, was confirmed only once as an ephemeral case.

As mentioned in Introduction the 3 following species belong to the *L. sexstrigatum* group, which is incompletely defined as follow:

1 - Carinaless *Evyllaes*, body brown to brownish black, rarely jet black (*L. gorge* Ebmer 1982), metallic or metallic-tended species yet unknown. Species with reddish metasoma rare, *e. g.*, *L. eidmanni* (Blüthgen 1930).

2 - Postmarginal area of $T_{(1)2-4}$ at least laterally with fine whitish to yellowish plumose hairs, forming fimbriae as in *Halictus* s. lat. This is unique in carinaless *Evyllaes* except for *L. mathianense* (Blüthgen 1926) and *L. m. pluto* Ebmer, 1980 of the *L. nitidiusculum* group with longer propodeum (Ebmer and Sakagami, 1985). Similar whitish bands are also known in *L. (carinate Evyllaes) marginatum* (Brullé 1832) and *L. (Sudila) kandiense* (Cockerell 1913) comb. nov., but in these species, white bands are formed from bristles not, from plumose hairs.

3 - Many species are known by female alone, but known males are characterized

by cephalic gigantism, usually accompanied with genal process (cf. *L. smilodon* described below). Once the variation range is known, a continuum from the small normal-headed male to the large gigantic male is expected to be obtained (cf. *L. ohei*, Sakagami *et al.*, 1966). Such male gigantism is also known in some other halictines, e. g., *L. (L.) eickworti* McGinley, some Australian species of *L. (Chilalictus)*, *L. (Sudila) alphenum* (Cameron 1897) and *L. (S.) bidentatum* (Cameron 1898) (both comb. nov. by Sakagami and Ebmer, unpubl.). If only the small, normal headed male is known, the distinction of the *L. sexstrigatum* group from the other carinaless *Evylaeus* groups becomes often difficult. For example, *L. subsemilucens* (Blüthgen 1934) was first placed near *L. semilucens* (Alfken), but later one of us (A. W. E.) regarded it as a non-gigantic male of *L. sexstrigatum* group based on the morphological syndrome.

4 - Additional features for both sexes, 4a-Head of moderate HW/HL ratio, neither too transverse nor too elongate. 4b-Mesosoma thickset, seen dorsally rather short compared with other *Evylaeus* groups. 4c-Propodeal dorsum generally short, often as long as metanotum, rarely as long as mesoscutellum. 4d-Mesepisternum with or without granuration, but never impunctate. 4e-Punctation of head and mesosoma not showing extremes, mostly fine, homogeneous and rather dense, rarely sparse on mesoscutum as in *L. siderum* (Cockerell 1911). Metasomal terga finely, sparsely and superficially punctate. 4f-Generally small, 5-7 mm long.

5 - Additional features for male. 5a-Gonostylus short, rodlike, very simple; ventral retrose lobe narrow, elongate, simple; both of little diagnostic value. 5b-Antenna of medium length.

Here the group is provisionally classified in 5 conventional subgroups mainly based on female.

I. *L. sexstrigatum* subgroup: T₁ smooth without striation, tergal margins with plumose fimbriae (Many species).

II. *L. fimbriatellum* subgroup: T₁ more or less striate, tergal margins as in I (Many species).

III. T₁ as in I, tergal margins without plumose fimbriae. Male with angulate mandible, but gena without process as in known males of I and II, antenna very short and gonostylus of different type from I and II (Only *L. japonicum* Dalla Torre 1896).

IV. T₁ as in II, but tergal fimbriae absent (=III) (Only *L. zipangu* nov. as described below).

V. Only known by a male, which is similar to I and II, but with only 2 instead of 3 submarginal cells (uncertain whether this represents an anomaly or not (*L. micante* Michener 1993 = *Prosopalictus micans* (Strand 1913), a junior homonym of *Halictus micans* Strand 1909 (= *Lg. breviventre* (Schenck 1853))).

***Lasioglossum (Evylaeus) zipangu* Ebmer et Sakagami sp. nov. (etymology: a historical name for Japan cited by Marco Polo, 1298 -'99)**

Female BL 5.1-6.2 mm, WL 4.6-5.0 mm.

Head transverse (Fig. 20). HW/HL=1.04-1.12, similar to *L. japonicum* (1.07-1.12), but facial and mesoscutal sculptures denser and duller. Mesoscutal PP (Fig. 21) very fine and homogeneously dense, IS finely granular and dull, similar to *L. taeniolellum* (Vachal 1903) of Subgroup I widespread in mainlands of Japan, but in the latter IS slightly shiner. Propodeal dorsum with longitudinal ridges medially

anastomosing (Fig. 22), IS as a whole finely granular and dull, again similar to *L. taeniolellum* but slightly shiner in the latter. T_1 very finely but distinctly striate, admixed with finest sparse PP, seen somewhat silky.

Specimens examined (All from Yaeyama Islands). Holotype ♀, Taketomi Is., 8 iii 1984, K. Yamauchi (to be deposited in Entomological Laboratory, Kyushu University, Fukuoka). Paratypes, 10 ♀ same data with holotype, Iriomote Is. 3 ♀, 25-26 iii 1985, Y. Maeta and Y. Yoshida; Ishigaki Is., 1 ♀, 3 v 1970, M. Shiokawa, *Rosa multiflora*, 1 ♀, vi 1984, K. Yamauchi. Three paratypes (each from Taketomi, Iriomote and Ishigaki, 1984) in Ebmer collection, all other paratypes provisionally with Maeta and Sakagami, to be deposited later in Kyushu University, Fukuoka and Hokkaido University, Sapporo, etc.

***Lasioglossum (Evyllaesus) amamiense* Ebmer et Sakagami sp. nov.**
(etymology: inhabiting Amami Oshima Is.)

Lasioglossum (carinaless *Evyllaesus*) sp. 1, Sakagami and Fukuda, 1971: 17-18.

Female BL 5.2-5.9 mm, WL 4.4-4.9 mm.

Previously one of us (S. F. S.) considered this species to be placed in Subgroup II for the presence of vestigial striation on T_1 , but now we are thinking to transfer it in Subgroup I, because striation is very subtle and virtually undetectable in some specimens. In general habitus this species resembles *L. taeniolellum* and is described compared with this species (abbr. = *t*).

1- Head transverse (Fig. 23). HW/HT=1.05-1.07, slightly longer > *t*, ±1.07).

2- Outer orbits narrowed downward but less sharply > *t*.

3- Apical fimbriae on T_{2-4} fairly dense as in *t*, but narrower.

4- Mesoscutal PP fine in both species ($P\phi \pm 10-15\mu$) (Figs. 24-25), but sparser and IS more evenly granular and duller in *amamiense*, while denser and IS rather shiner in *t*. In both species frons densely punctate, IS linear, seen microreticulate.

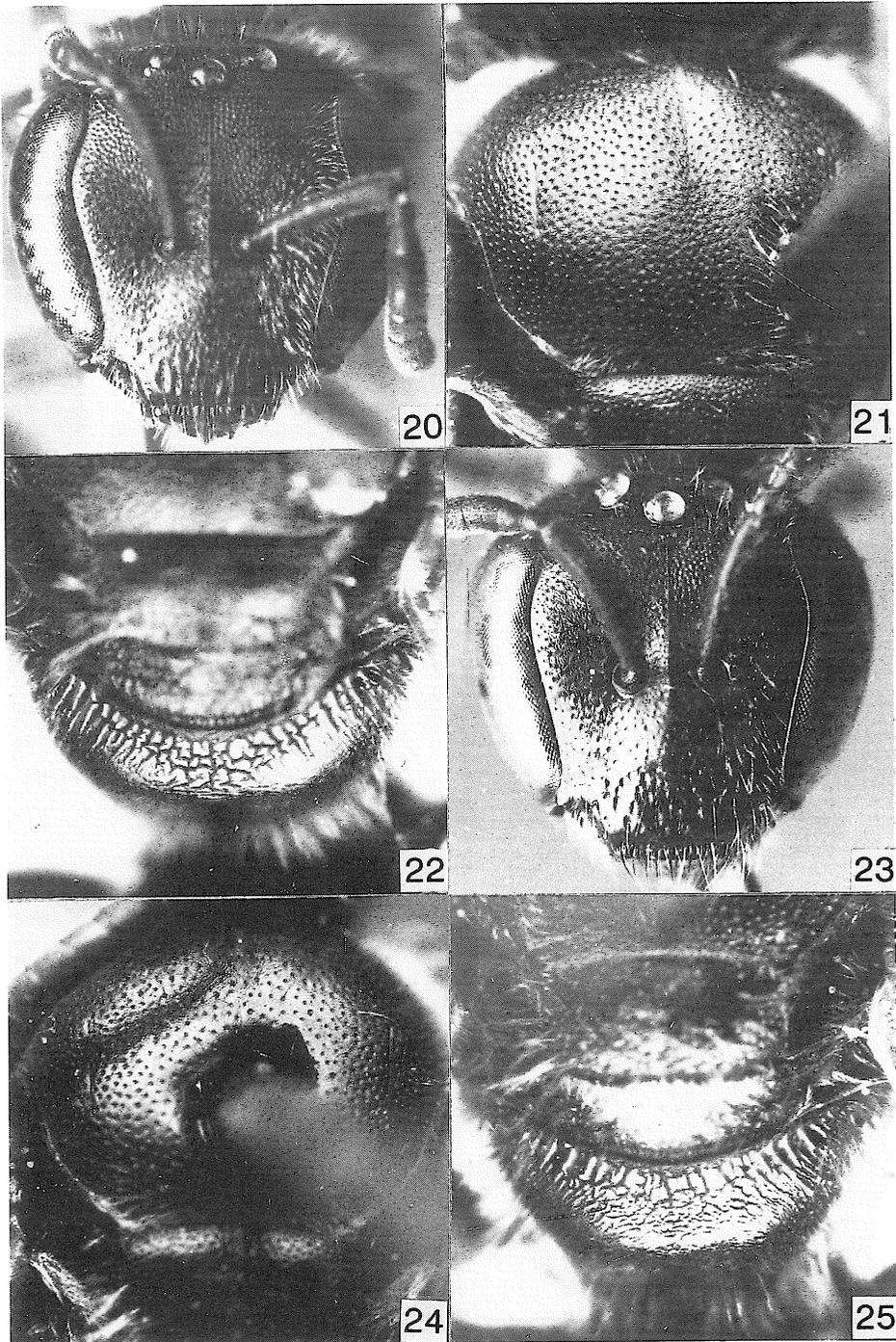
Specimens examined: Holotype, 1 ♀, Amami Oshima Is., Nishi-Nakama-Shinmura, 12 iv 1970, S. F. Sakagami and H. Fukuda. Paratypes, 1 ♀, Kikaijima Is. 3-6 x 1987, M. Tatsuno; all other ♀♀ from Amami Oshima, 1 ♀, Kasari, 9 iii 1983, Y. Haneda, all others by S. F. Sakagami and H. Fukuda in 1970 on weeds such as *Oxalis corniculata*, *Youngia japonica*, *Ixeris stolonifera*, 2 ♀, Shinmura, 10 iv, 13 ♀, Nase, 9 iv; 7 paratypes in Ebmer collection, all others provisionally with Sakagami, to be returned to the owner or deposited in other institutes.

***Lasioglossum (Evyllaesus) smilodon* Ebmer et Sakagami sp. nov.**
(etymology: extincted saber-toothed tiger)

Female BL 5.3-6.0 mm, WL 4.6-4.9 mm.

Head slightly longer than wide, HW/HL=0.96-1.00 ($x=0.98 \pm 0.02$, $n=5$) (Fig. 26). Face very finely punctate, $P\phi \pm 1.5\mu$, IS linear, seen microreticulate but PP rather weak. Mesoscutum (Fig. 28) medially with $PP\phi \pm 15\mu$, IS 1.0-1.5, sparser anteriorly, IS ±2.0; IS finely granular, somewhat networked and dull. Mesoscutum as in allied species.

Propodeal dorsum (Fig. 30) relatively short, ratio mesoscutellum/dorsum = 1: 0.8-0.9, distinctly convergent postward, longitudinal ridges confined basally, later-



Figs. 20-25. *Lasioglossum zipangu* ♀ (20-22) and *L. amamiense* ♀ (23-25).
 20 and 23. Head seen frontally, 21 and 22. Mesoscutal and propodeal
 sculptures, 24 and 25. Mesoscutal and propodeal sculptures.

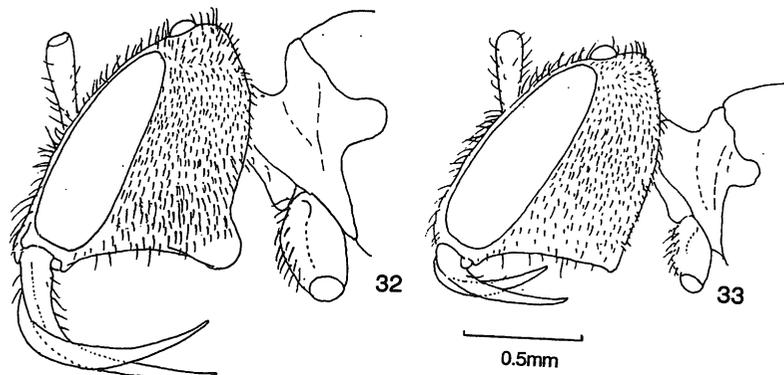
ally parallel-sided, medially slightly winding or partly anastomosing, IS laterally weakly shining, medially more granular, "postridge area" dull, coarsely granular with fine transverse striation, shield semi-tomented with sparse, erect plumose hairs; lateral carina confined to the lower half.

T₁ on base and disc anteriorly homogeneously striate and dull without PP; posteriorly striation admixed with fine PP. Apical fimbriae on T₂₋₄ distinct though broadly interrupted medially.

Within the *L. fimbriatellum* subgroup, this species is characterized by fine mesoscutal punctation, and propodeal dorsum with very short longitudinal ridges and apical striation.

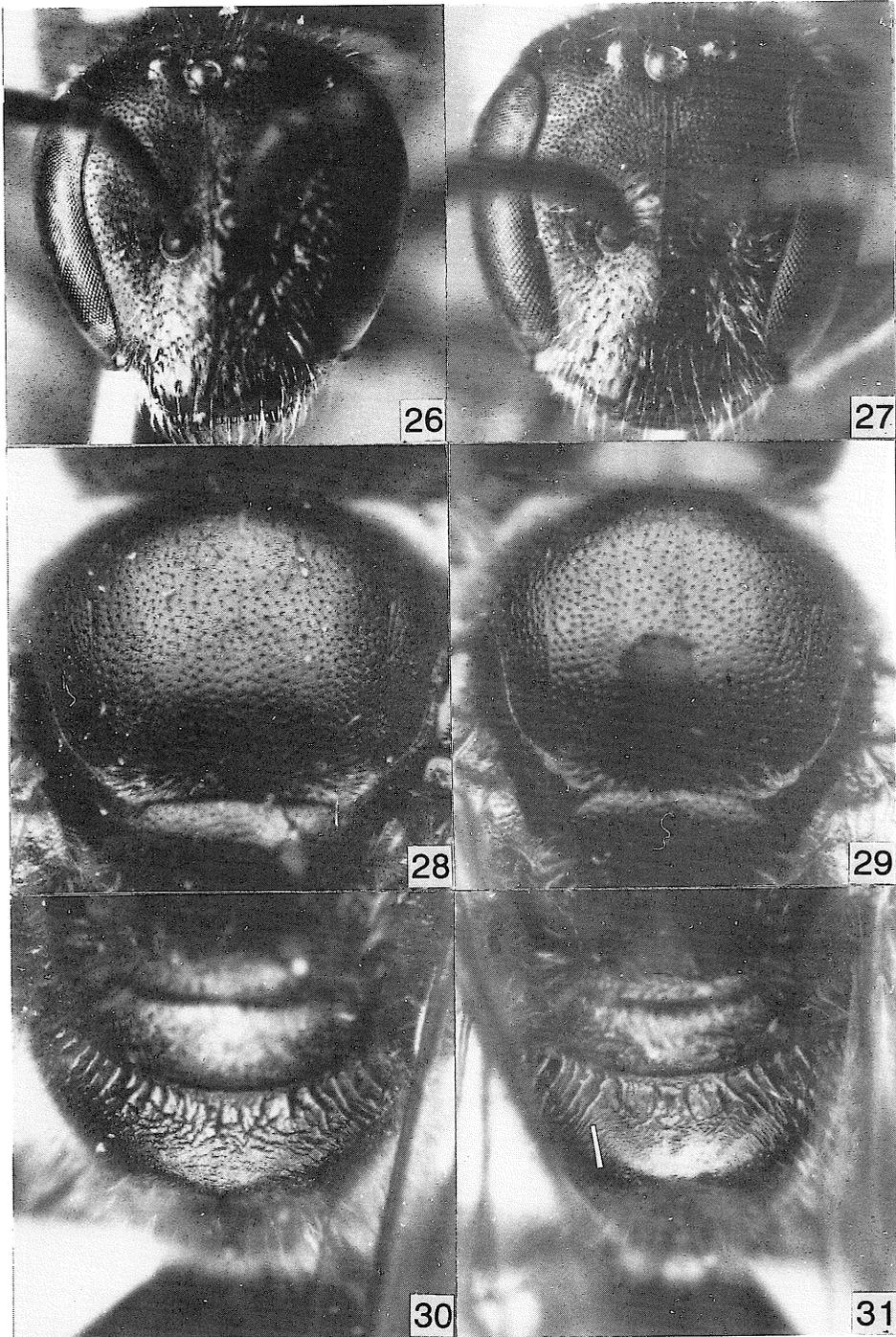
Male BL 4.9-5.4 mm, WL 4.1-4.6 mm.

Although only 5 males were available, polymorphic head gigantism is obvious (Figs. 32 and 33). Ratio HW/HL/mandible L/gena W (including process) in these males is in the ascending order of HW as follows (1 mm=40 units in mandible L, = 25 units in others): 1- 37/38.5/22/20, 2- 39/41/21/23, 3- 40/41/23/24, 4- 42/40.5/29/26, 5- 42/40.5/29/27. Head a trifle elongate as in ♀ (Fig. 27), mesoscutal and propodeal sculptures (Figs. 29 and 31) similar to ♀ but IS much smoother and shinier as in many halictines. Further details will be described later synoptically with other Japanese species of Subgroup II, of which ♂♂ have been undescribed except *L. ohei* Hirashima et Sakagami (Sakagami *et al.* 1966). As in these species, it is very likely that the smallest males are normal, not gigantic. Facial punctation is not sparser as in large male of *L. ohei*. Mandible rather slender than in the other allied species.



Figs. 32 and 33. *Lasioglossum smilodon*. Head seen in profile of larger (32) and smaller ♂ (33).

Specimens examined: (All collected by S. Ikudome from northern Islands of S. W. Archipelago, Fig. 1). Holotype, 1♀, Suwanose Is. (Tokara Islands), 31 vii 1985, *Ampelopsis brevipedunculata*. Paratypes, 2♀ 3♂, Akuseki Is. (Tokara), 150-230m, 22 viii 1985, *Sambucus racemosa* ssp. *sieboldiana*, *Psychotria serpens*, 1♀ same data with holotype, 1♀ Yakushima Is., Miyanoura, 0-10 m, 24 iv 1982, 1♂ Kikaijima Is., Nakama, 9 x 1987, *Sambucus*. All specimens are provisionally with S. F. S. Later each 1♀1♂ are deposited in Ebmer and Sakagami collections. Others paratypes will be returned to Dr. Ikudome, and someones further deposited in certain Institutions.



Figs. 26-31. *Lasioglossum smilodon*. Head seen frontally (26. ♀, 27. ♂). Mesosomal sculpture (28. ♀, 29. ♂). Propodeal sculpture (30. ♀, 31. ♂).

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