

A Taxonomic Study of the Mordellid Subgenus *Stenoglipa* (Coleoptera, Mordellidae)

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Abstract. The subgenus *Stenoglipa* Franciscolo is taxonomically reviewed and revised on the basis of a number of specimens from the Oriento-Australian Regions. Two supergroups, 4 groups, 3 subgroups, 26 species and 8 subspecies are recognized. Descriptions or redescriptions are given to all these taxa, with illustrations of species and subspecies and keys to these taxa. The status of the subgenus is newly defined. Sixteen new species and 7 new subspecies are described, a new synonym is proposed, a species is newly raised to an independent species from subspecific rank, and a species is newly transferred from other genus.

Phylogenetic relationships of groups and species, and patterns of distribution are also analysed on the basis of careful comparative study of morphological key characters.

Key words: *Stenoglipa*, Mordellidae, taxonomy, new taxa, new synonym.

Introduction

The genus *Glipa* LeConte, which contains about 105 known species at present, is widely distributed in the tropical and subtropical regions of the world, and is particularly diverse in the Oriental Region. They are closely related to broadleaved forests, many species inhabit natural forests, and some are known as noxious pests for pine forestry. It is very important to clarify their diversity and behaviour, though such studies have not advanced as yet. The genus is sometimes divided into three subgenera, *Glipa*, *Macroglipa* Franciscolo and *Stenoglipa* Franciscolo.

Stenoglipa Franciscolo was originally established as a subgenus of *Neoglipa* Franciscolo which has been regarded as a junior synonym of *Glipa* LeConte since Ermisch (1965). However, *Glipa malaccana* Pic, the type species of *Stenoglipa*, bears some unique features in the genus *Glipa*, as follows: broadly isosceles-triangular terminal segment of maxillary palpus,

hairless eye, thin and long antenna with only feebly serrate 5-10th segments, slender pygidium with acutely pointed apex, transverse eighth abdominal sternite in male with projected apical angles and slender and simply shaped parameres. Moreover, *Glipa malaccana* Pic and the allies apparently differ in their habit from other species of the genus *Glipa*. Thus, *Stenoglipa* seems to be considered a good subgenus.

At present, 6 species and 2 subspecies of the subgenus *Stenoglipa* have been known from the Oriental Region and two species from New Guinea: *G. annulata* (Redtenbacher, 1868) (= senior synonym of *malaccana* Pic) from Southeast Asia and New Guinea, *G. ishigakiana* Kôno, 1932 from the southern Ryukyus and South China, *G. rectefasciata* Pic, 1941 from northern Vietnam, *G. azumai* Nakane, 1950 from Southwest Japan and South China, *G. griseopubens* (Franciscolo, 1952) from New Guinea, *G. nipponica* Nomura, 1957 from Southwest Japan and Hainan Is., *G. malaccana gracilis* (Chûjô, 1964) from Thailand, *G. ishigakiana kotoensis* Nomura, 1967 from Lan Yu Is. and the Philippines, and *G. kurosawai* Takakuwa, 1985 from the Ogasawara Islands. However, many more species should actually occur in this faunal region !

More than 20 years ago, I came across a strange

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species belonging to the subgenus *Stenoglipa* from the northern Ryukyus (Takakuwa, 1976b). At a glance, it is closely allied to *G. malaccana* Pic (= *hatayamai* sp. nov. in the present paper), but doubtless different from that species in having densely hairy eyes, stouter and longer pygidium and stout parameres. In fact, it soon became clear that the species in question was *Glipa malaccana nipponica* Nomura, 1957, the type series of which included two different species, *malaccana* Pic and *nipponica* Nomura. Therefore, *nipponica* has been treated as an independent species since Takakuwa (1985b).

Continuously, in assembling many specimens of the subgenus *Stenoglipa*, I noticed that they included many unknown species. They are often quite similar in the external characters with the species previously known, for example, body coloration, maculate pattern and slender pygidium, though showing apparent differentiations in the eighth abdominal sternite of the male, parameres and some other details. At the same time, I was convinced that *Ophthalmoglipa australis* Franciscolo, 1952 from New Guinea should actually belong to the subgenus *Stenoglipa*. This beautiful species decisively differs from Oriental *Stenoglipa* in the elytral maculate pattern which resembles that of the type species of *Ophthalmoglipa* Franciscolo from Africa, but exactly agrees with *Stenoglipa* in almost all characters. Moreover, some unknown species of the subgenus *Stenoglipa* from New Guinea and its adjacent regions also have similar coloration and maculation to *G. australis*. Thus, close morphological convergence occurs in the subgenus *Stenoglipa*, and makes the taxonomy difficult and troublesome.

In this paper, I am going to revise the subgenus *Stenoglipa* from taxonomical viewpoint. First, a renewed definition will be given of the subgenus *Stenoglipa*. Secondly, species-groups and lower taxa will be described. And lastly, phylogenetic relationship and distributional pattern will be analysed.

The present paper is a partially revised and reset version of the doctoral dissertation to the Tokyo University of Agriculture.

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Taxonomic Studies of the Subgenus *Stenoglipa*

1) Materials and methods

About 1700 specimens of the subgenus *Stenoglipa* were examined in dry condition. Of these, the greater

part was collected as the private collection of mine, some parts as Mr. T. Hatayama's private collection (HPC), and a few specimens were borrowed from the Museo Civico di Storia Naturale "Giacomo Doria", Genova (MCSN), the National Science Museum (Nat. Hist.), Tokyo (NSMT), and the Entomological Laboratory, College of Agriculture, Ehime University, Matsuyama (CAEU). Mr. Hatayama's collection and mine are mainly composed of specimens collected by themselves and by many other entomologists.

All the specimens, including two holotypes newly designated in this paper, borrowed from the above two museums and a university will be returned. The remaining holotypes designated in this paper are deposited in the Kanagawa Prefectural Museum of Natural History, Odawara. Many specimens including paratypes of my collection used in this paper will be deposited in the collection of the same museum. The remainder will be sent to the above museums of Genova, Paris and Tokyo, or to a few coleopterists studying mordellids. Mr. Hatayama's collection will be returned to him.

Many materials were mounted in a style as similar as possible, so as to make their comparison easy. Male genital organs of some specimens were taken out, carefully divided into individual parts, and pasted on a small card with each specimen. Eighth abdominal sternite of male was spread out and glued to a card with the outer face above.

Habitus of photographs are fundamentally taken in the same magnification. Figures of antennae, pygidia, 8th abdominal sternites of males and parameres are also shown in the same magnification.

Body length means the value from the apex of labrum to elytral apices (excl. pygidium). Length of pygidium means from the apex to the posterior margin of the 6th abdominal tergite. Ratio of length and width of anal sternite is measured as shown in Fig. 1. Lengths of pygidium and anal sternite are measured as in Fig. 2. The other body parts are measured in a usual way.

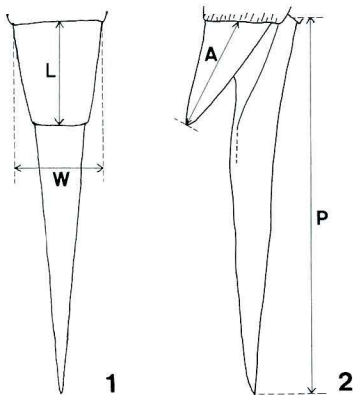


Fig. 1. Length (L) and width (W) of anal sternite.

Fig. 2. Lengths of pygidium (P) and anal sternite (A).

2) General morphology of the subgenus *Stenoglipa* Francisco

Morphological characteristics

Subgenus *Stenoglipa* Francisco, 1952

Neoglipa (*Stenoglipa*) Francisco, 1952, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 331, 344 (type species: *Glipa malaccana* Pic, 1911); Nakane, 1956, *Ent. Rev. Japan*, **7**: 17.

Glipa (*Stenoglipa*): Nakane, 1956, *Ent. Rev. Japan*, **8**: 51; Nomura, 1967, *Ent. Rev. Japan*, **19**: 7; Horák, 1994, *Folia Heyrovskyana*, **2**: 101.

Glipa: Nomura, 1963, *Icon. ins. japon. Col. nat. ed.*, **2**: 247; Nomura, 1966, *Ent. Rev. Japan*, **18**: 47; Nomura, 1957, *Ent. Rev. Japan*, **8**: 40; Takakuwa, 1985, *Coleoptera Japan Col. Osaka*, **3**: 379; Fan & Yang, 1993, *Mem. Beijing nat. Hist. Mus.*, (53): 45.

Neoglipa: Nakane, 1957, *Shin-Konchû*, Tokyo, **10**(1): 52.

Ophthalmoglipa: Francisco, 1952b, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 332, 353. (Part.).

Body relatively large, 7.3-14.5mm in length, slender, black, usually with yellow to yellowish brown mouth-parts, reddish brown basal 4 segments of antennae and fore femora, and blackish red claws and spurs; head decorated with fuscous to dark brownish pubescence on vertex; eye entirely hairless or scarcely haired, though sometimes densely hairy; maxillary palpus slender, with terminal segment shaped like a broad isosceles triangle; male antenna long and slender, always longer than the width of head and sometimes so than the pronotal width, weakly or indistinctly serrate usually in 5-10th segments, each of which is distinctly longer than wide, with terminal segment fusiform to elongate-fusiform often with excavated inner side; female antenna apparently shorter and broader than in male, often shorter than the width of head and always so than the pronotal width, clearly serrate in 5-10th segments, each of which is more or less longer than wide, with terminal segment usually apparently shorter than in male; pronotum arcuate at sides, strongly so basad, usually with 3-4 black spots, a pair of laterals and a median longitudinal one which is often separated before and behind; scutellum densely clothed with whitish hairs usually; elytra long, more than 2.15 times as long as the widest part, strongly, straightly or excavatedly attenuate posteriad, with fuscous to purplish brown fine pubescence at humeri and the posterior parts to them, with 3 deep golden or yellowish to whitish maculations, one fundamentally XX-shaped, second usually biannular (X-shaped) and sometimes transversely fasciate at or behind middle, and the last always whitish and crescent or semicircular at each apex or just before each apex; pygidium evidently long,

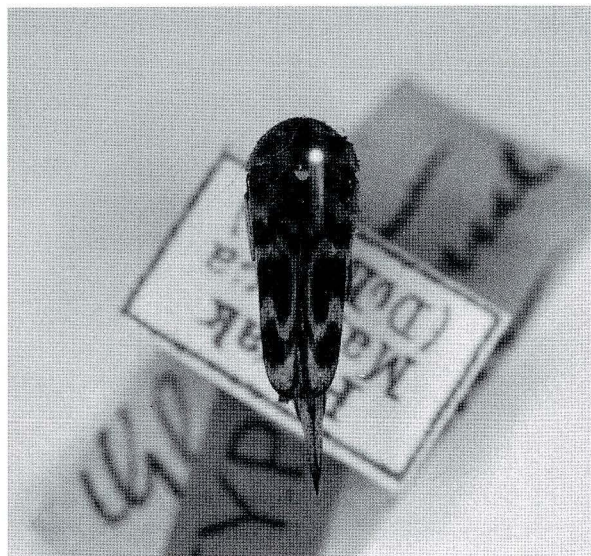


Fig. 3. Habitus of the type specimen of *Glipa malaccana* Pic, the type species of *Stenoglipa* Franciscolo.

more than 0.44 times as long as elytra, more than 0.96 times as long as elytral width, more than 2.2 times as long as anal sternite, strongly attenuate towards apex which is usually pointed in dorsal view, and often with acutely carinate dorsum; anal sternite longer than wide, almost flattened in ventral aspect in the male, transversely truncate or slightly projected apicad at apex; dorsal ridge on hind tibia present or indistinct; hind tarsus nearly without dorsal ridge; eighth abdominal sternite of male variable in shape, bell-shaped or shovel-shaped or triangular with distinct apico-median projection, and sometimes provided with a pair of apico-lateral projections; parameres of male genitalia slender, relatively simple in shape, with basal parts small, with left paramere usually longer and rarely shorter than the right which is devoid of a wing-shaped projection at basal part and usually provided with a rather thin ventral sclerotized branch.

This subgenus is very closely similar to the African genus *Ophthalmoglipa* Franciscolo, 1952 in general appearance, but differs from it in the next two important character states: 1) elytral maculate pattern as follows: basal one barely exceeding basal 1/3, middle to post-middle one X-shaped or transversely fasciate, and apical or preapical band always narrower than the preceding one (in *Ophthalmoglipa*, basal one exceeding basal 2/5, 2 pairs of small marks on middle, and posterior band distinctly wider than the preceding one); 2) parameres with the left one shallowly and longitudinally concave at the inner part (rather swollen in *Ophthalmoglipa*), with the right smooth at the base of membranous branch (with a distinct projection in *Ophthalmoglipa*). Also it is quite different from the other groups of the genus *Glipa* and its related genera above all in the following points: eyes

hardly haired though sometimes densely hairy; terminal segment of maxillary palpus shaped like a broad isosceles triangle; pygidium distinctly long, strongly attenuate towards apex which is usually pointed in dorsal view, often with acutely carinate dorsum; fore tibia thin, usually straight, almost with neither inner longitudinal cicatrix nor inner long setae; parameres of male genitalia slender, relatively simple in shape, small at basal parts; right paramere without a wing-shaped projection at the basal part, usually with a rather thin ventral sclerotized branch.

Ecological characteristics

Almost all the species inhabit natural forests. Adults actively move about in the sun, and are often found on certain growths under trees, especially on ferns or *Alocasia* G. Don (family Araceae), in the vicinities of such small spaces as those along small streams or forest trails which are not always sunny. They dive to the leaves from above, then sometimes minutely play just like a dance there, or soon remove to other leaves one after another as if enjoy skipping or suddenly jump up. Foods of adults have hitherto been unknown except Franciscolo (1982); however, they doubtless eat fern spores, because they are usually and amply found in their intestines. Larvae have been totally unknown, though they certainly feed on dead trees, because adults sometimes emerge from them. Once, I observed a female of *G. (S.) hatayamai izuinsulana* subsp. nov. laying eggs into the fine split of the cutting face of a trunk of *Machilus Thunbergii* Sieb. et Zucc. (family Lauraceae) on Miyake Is. of the Izu Islands, central Japan. The log seemed to have been cut several days before.

Distributional characteristics

The members of the subgenus *Stenoglipa* are distributed in the tropics and subtropics of the Asia-Australasian Region. Twenty-one species hitherto known are concentrically distributed in the Oriental Region from Wallacea to Japan and are mostly numerous in the Sundalands, four species occur in the Australian Region, and one species on the Palau Islands of Micronesia. The northern limit of distribution is marked by the Izu Islands of Japan, the western limit at the India Peninsula, and the eastern limit at Banuatu of Melanesia.

3) Descriptions of individual taxa

The subgenus *Stenoglipa* Franciscolo can be roughly divided into two large groups which are considered as

being monophyletic, respectively. The two groups are called as supergroups in the present paper.

Key to supergroups

1. Gena distinctly projected outwards at the middle; eyes densely hairy; fore tibia of male more or less curved inwards; 8th abdominal sternite of male stout, apparently longer than wide, bell-shaped; parameres relatively stout, with ventral sclerotized branch of the right excavated at apex, and with the left distinctly projected as a wing at the left margin Supergroup of *G. nipponica*.
- Gena usually very narrow, indistinctly projected outwards at the middle; eyes almost hairless or more sparsely haired usually; fore tibia of male usually straight; 8th abdominal sternite of male thinner, wider than long or slightly longer than wide, shovel-shaped or triangular often with apico-lateral projections; parameres slenderer, with ventral sclerotized branch of the right not excavated at apex, and with the left not so projected, often excavated at the left margin Supergroup of *G. annulata*.

Supergroup of *G. nipponica*

Body large, 9.5-14.5mm in length, slender; gena apparently projected outwards at the middle; eyes densely hairy; terminal segment of maxillary pulpus relatively narrow; antenna stout, relatively short; apical black mark of pronotum obsolete or fused with basal median one; elytra usually with yellowish basal maculation which is W-shaped at the bottom, with a pair of middle longitudinal annular ones, with preapical band not reaching each apex; mesosternal process relatively broad, truncate at apex; abdominal sternites 3-7 decorated with fuscous fine pubescence on each apex; pygidium very long, gently attenuate apicad, extremely narrowly rounded or truncate at apex in dorsal view, dully pointed or narrowly truncate in lateral view, with dorsal aspect gently but highly carinate; fore tibia of male more or less curved inwards; 8th abdominal sternite of male relatively stout, bell-shaped with apex bilobed at the middle, apparently longer than wide; parameres relatively stout, more or less darkened in apical portions, with ventral sclerotized branch of the right paramere excavated at the apex, and with the left distinctly projected as a wing at the left margin.

This supergroup comprises the following four species. They are allopatrically distributed in East Asia and the Sundalands.

Key to the Species

1. Body stouter; antennal last segment of male almost

quadrate, or fusiform with inner margin more or less excavated before and behind; pronotum without apical black maculation; middle annular maculations of elytra zigzag before and behind; pygidium less than 0.65 times as long as elytra; fore tibia of male distinctly curved inwards, with long inner setae before base 2.

- Body slenderer; antennal last segment of male fusiform; pronotum with clear apical black maculation; middle annular maculations of elytra gentle before and acutely zigzag behind; pygidium more than 0.65 times as long as elytra; fore tibia of male slightly curved inwards, without long inner setae 3.
2. Eye not reaching hind margin of gena; antennal last segment of male fusiform with inner margin more or less excavated before and behind; pygidium of male whitish in more than basal half of laterals, shorter, 1.4 times as long as elytral width, 2.8 times as long as anal sternite; 8th abdominal sternite of male longer; left paramere carinate at the right margin; right paramere not so stout *G. nipponica* Nomura.
- Eye reaching hind margin of gena; antennal last segment of male almost quadrate; pygidium of male black except for base, longer, 1.53 times as long as elytral width, 3.2 times as long as anal sternite; 8th abdominal sternite of male shorter; left paramere almost not carinate at the right margin; right paramere evidently stouter *G. rectefasciata* Pic.
3. Head, pronotum and base of elytra decorated with yellowish pubescence; antenna broader, 2.8 times as long as wide in terminal segment of male, with 3rd segment distinctly shorter than 5th; apical bilobed projection of 8th abdominal sternite larger *G. tricolor* (Wiedemann).
- Upper surface decorated with whitish pubescence; antenna narrower, 3.3 times as long as wide in terminal segment of male, with 3rd segment slightly shorter than 5th; apical bilobed projection of 8th abdominal sternite smaller *G. gracillima* sp. nov.

Glipa (Stenoglipa) nipponica Nomura, 1957

(Fig. 4A-G)

Glipa malaccana nipponica Nomura, 1957, Ent. Rev. Japan, **8**: 40 (partim: Okinawa Is., Yaku-shima Is.); Nomura, 1963, Icon. ins. japon. Col. nat. ed., **2**: 247 (partim: ditto); Kiyoyama, 1974, Beetles, Osaka, **3**: 19 (Yaku-shima Is.).

Glipa nipponica: Takakuwa, 1985, Coleopt. Japan Col. Osaka, **3**: 379, pl. 65, no. 21 (Goto Isls., N. & C. Ryukyus); Fan & Yang, 1993, Mem. Beijing nat. Hist. Mus., (53): 47, 59 (Hainan Is.).

Glipa (Stenoglipa) malaccana nipponica?: Ejima et al., 1981, Natural History of the Goto Islands, Japan, p. 299, pl. 17, no. 17-b (Goto Isls.).

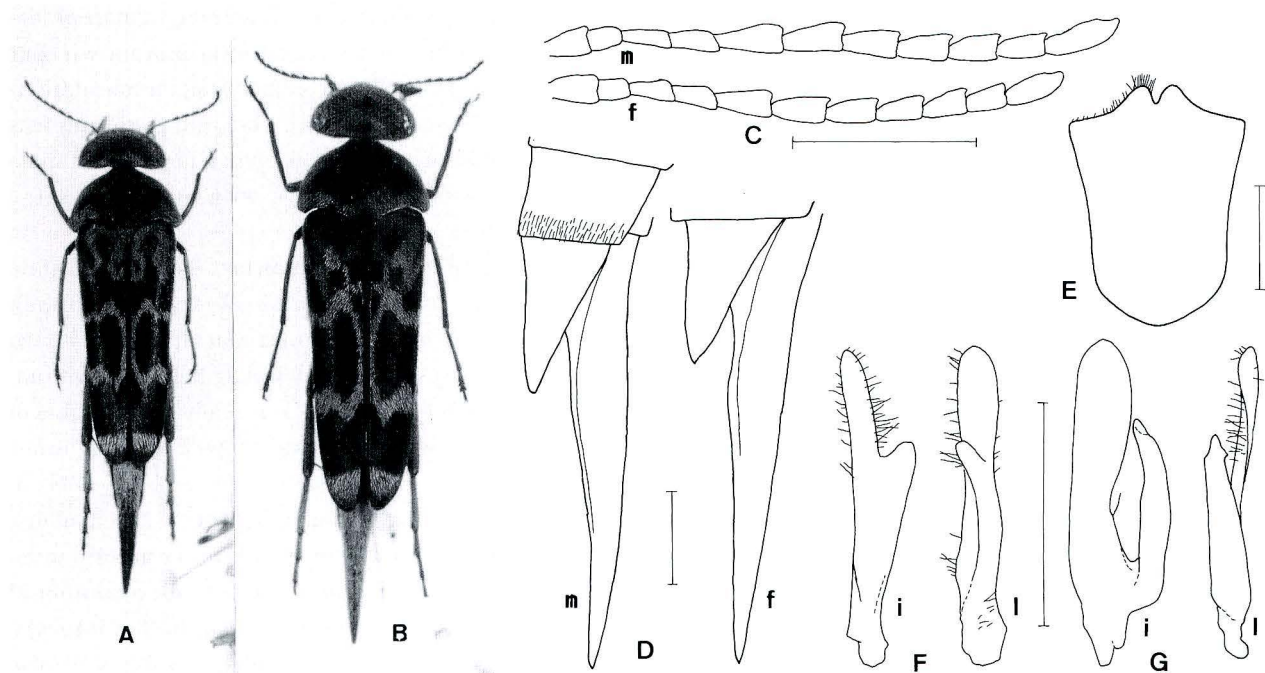


Fig. 4. *G. (S.) nipponica* Nomura. —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Glipa sp.: Takakuwa, 1976, Coleopt. News, Tokyo, (34): 6 (Kumage Isls.).

Male. Body robust and thick in the group; dorsum decorated with golden yellow pubescence on head, pronotum, scutellum and basal area of elytra, with whitish one in the remaining parts. Head weakly convex, about 1.19-1.2 times as wide as long; gena distinctly, rectangularly projected with rounded apex at the middle, visible from above; eyes elliptical, not reaching hind margin of gena, densely clothed with erect hairs all over. Antenna relatively short, a little longer than the width of head (1.08: 1), fairly shorter than pronotal width (0.86: 1), very wide in the subgenus, especially in 5-7 segments, 2.2 times as long as wide in 10th segment, serrate at 5-10th; terminal segment 3.0 times as long as wide, 1.64 times as long as the penultimate, with inner margin more or less excavated before and behind. Pronotum 1.26 times as wide as head, usually with 3 black basal spots (apical one usually absent), the middle being sometimes vague and small, a pair of laterals each a little wider than long, obcordate. Elytra 2.3-2.55 times as long as wide, attenuate posteriad with slightly excavated sides; each basal maculation tending to be separated on either side by a longitudinal black line; middle annular maculations strongly zigzag near suture in front, moderately zigzag behind; preapical fascia slightly oblique. Pygidium about 0.6 times as long as elytra, 1.4 times as long as elytral width, 2.8 times as long as anal sternite, straightly convergent to apex which is

extremely narrowly truncate in dorsal view, curved downwards and dully pointed at apex in lateral view, clothed with whitish pubescence in about basal 1/2; dorsal aspect with median longitudinal cicatrix at apical 1/2. Eighth abdominal sternite 1.38 times as long as wide, widely bilobed at apex. Parameres as figured; left paramere slightly longer than the right, stout especially at base, straight at the right margin which is carinate; right paramere stout for a member of the subgenus, with basal part rather flat.

Female. Yellowish pubescence on body paler. Antenna shorter, about as long as width of head, 1.64 times as long as wide at 10th segment, 2.5 times so at terminal one which is 1.5 times as long as the penultimate. Elytral middle annular maculations more elongate, rarely connected with basal ones. Pygidium about 3.2 times as long as anal sternite, clothed with whitish pubescence all over, without dorsal cicatrix.

Length: 10.3-13.4mm.

Specimens examined. Holotype (♂, Izumi, Okinawa Is., Ryukyus, 1-VII-1952, K. Sato col.) (NSMT); SW Japan: 1 ♀, Mt. Sannohzan, Nakadohri Is., Goto Isls., off NW Kyushu, 4-VIII-1979, T. Shimamoto leg. (HPC); Yaku Is., N. Ryukyus: 1 ♂, Miyanouura, 30-VII-1971, M. Kamisaka leg.; 1 ♀, same, 23-VII-1975, H. Akiyama leg.; 1 ♂, Ohkawarindo, 9-VII-1994, S. Nirasawa leg.; 1 ♀, Nagakubo, 11-VII-1997, Y. Notsu leg.; 1 ♂, Kurio, 12-VII-1997, Y. Notsu leg.; Amami-oshima Is., C. Ryukyus: 1 ♀,

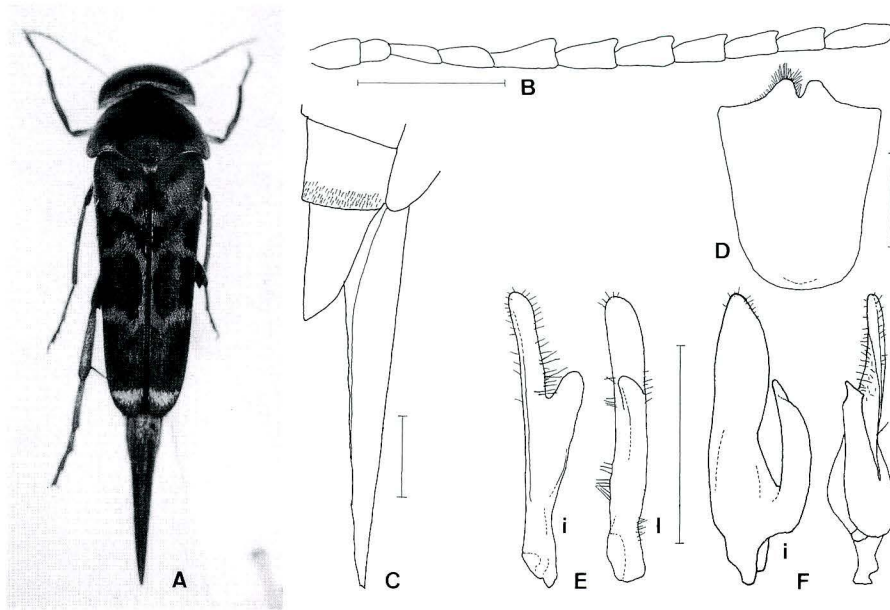


Fig. 5. *G. (S.) rectefasciata* Pic, ♂. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; D, 8th abdominal sternite of male; E, left paramere; F, right paramere. —i, inner view; l, lateral view. (Scales: 1mm.)

24-VI-1973, T. Kita leg.; 6 ♂♂ 2 ♀♀, Kamiya, 1 ~ 3-VII-1999, M. Takakuwa leg.; 5 ♂♂ 1 ♀, Mt. Akatsuchi, 2-VII-1999, M. Takakuwa leg.; Okinawa Is., C. Ryukyus: 1 ♀, Yamashiro, Ishikawa-shi, 25-VI-1995, R. Yakita leg.; 2 ♂♂, Yona, 15-VI-1997, R. Yakita leg.; 1 ♂ 1 ♀, same, 28~29-VI-1997, R. Yakita leg.; 1 ♀, same, 12-VII-1997, R. Yakita leg.

Distribution. Goto Isls. and N. & C. Ryukyus (SW Japan), Hainan Is. (S. China)?.

This large species was originally described as a subspecies of *G. malaccana* (= *annulata*), and the allotype belongs to quite different species, *G. (S.) hatayamai* sp. nov. (which has been considered until now conspecific with the former). At a glance, *G. nipponica* resembles *hatayamai* sp. nov. in general appearance, though they belong to two different species-groups as mentioned elsewhere. It seems most probable that the record from Hainan Is. by Fan & Yang (1993) was misidentified to the following species.

***Glipa (Stenoglipa) rectefasciata* Pic, 1941**

(Fig. 5A-F)

Glipa rectefasciata Pic, 1941, Échange, (3): 3 (Tonkin).

Glipa (Stenoglipa) rectefasciata: Horák, 1994, Folia Heyrovskyana, 2: 102 (N. Vietnam).

Male. General appearance just as in the preceding species. Head weakly convex, about 1.4 times as wide as long; gena somewhat rectangularly projected with widely rounded apex at the middle, visible from above; eyes elliptical, rather widely reaching hind margin of gena, densely clothed with erect hairs all over. Antenna 1.12 times as long as the width of head, apparently shorter than pronotal width (0.93: 1), very

wide in the subgenus, especially in 5-7 segments, 2.14 times as long as wide in 10th segment, serrate at 5-10th; terminal segment rather elongate-quadrate with inner margin enlarged before middle, 2.92 times as long as wide, 1.4 times as long as the penultimate. Pronotum 1.2 times as wide as head, usually with 3 black basal spots (apical one absent), the middle being vague and very small, a pair of laterals each relatively small, circular. Elytra 2.46 times as long as wide, attenuate posteriad with slightly excavated sides; each basal maculation as in the preceding species though consisting of whitish pubescence on the bottom; middle annular maculations weakly zigzag in front and behind; preapical fasciae each semicircular. Pygidium about 0.62 times as long as elytra, 1.53 times as long as elytral width, 3.2 times as long as anal sternite, straightly convergent to apex which is extremely narrowly truncate in dorsal view and obliquely, narrowly truncate at apex in lateral view, clothed with whitish pubescence in about basal 1/5 - 1/6; dorsal aspect with median longitudinal cicatrix at apical 1/2. Eighth abdominal sternite 1.29 times as long as wide, widely bilobed at apex. Parameres as figured; left paramere slightly longer than the right, straight at the right margin which is gently carinate; right paramere very stout for a member of the subgenus, with basal part distinctly, longitudinally concave and distinctly elevated at the left side, with ventral sclerotized branch evidently thickened.

Female. Unknown.

Length: 10.5mm.

Specimen examined. 1 ♂, Mt. Tam Dao, Vinh Phu Prov., N. Vietnam, 29-31. V. 1999, native collector.

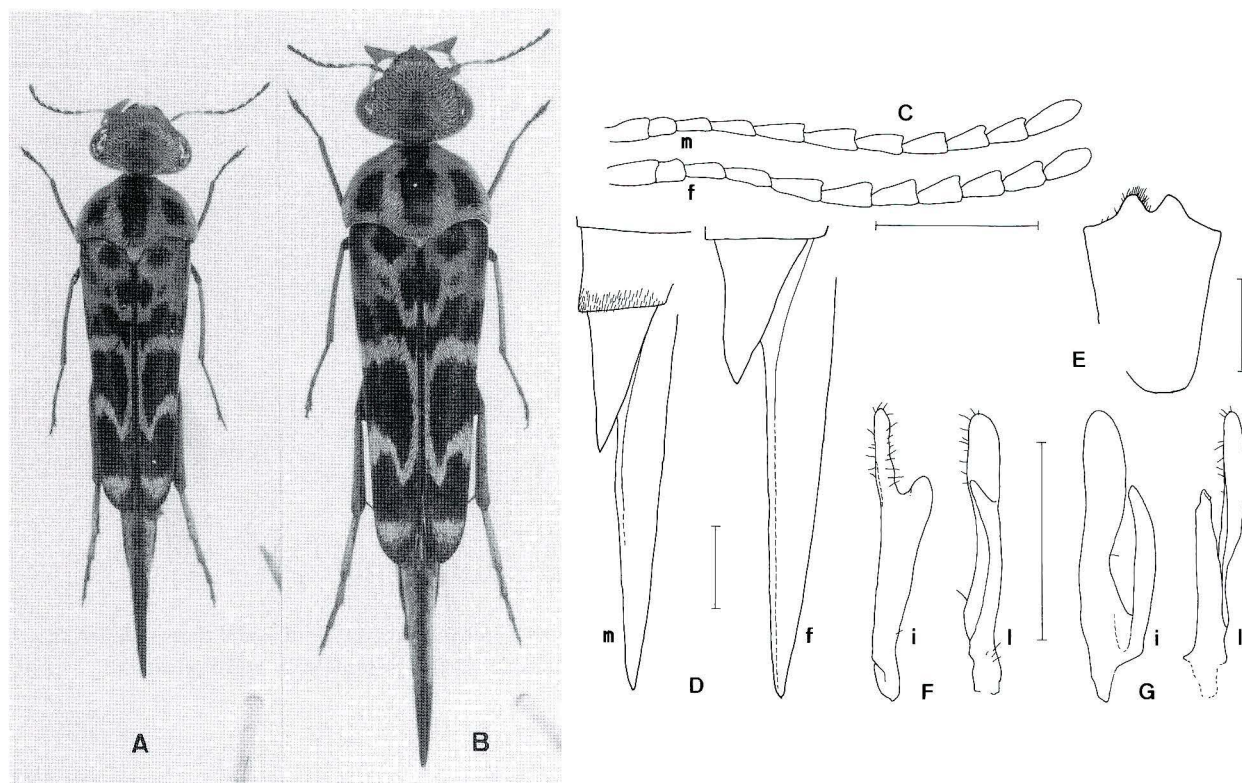


Fig. 6. *G. (S.) tricolor* (Wiedemann). —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Distribution. Northern Vietnam.

This species is very closely related to the preceding Japanese species as Horák (1994) noted, but certainly differs from it especially in the distinctly stout parameres.

***Glipa (Stenoglipa) tricolor* (Wiedemann, 1823)**

(Figs. 6A-G, 7A, B)

Mordella tricolor Wiedemann, 1823, Zool. Mag. Kiel, 2(1): 81 (Java).

Glipa tricolor: Blair, 1940, Occ. Pap. Bernice P. Bishop Mus., 16: 147; Chûjô, 1942, Mushi, Fukuoka, 14: 83 (Caroline Is.).

Male. Body thin and slender; upper surface decorated with golden to light yellow pubescence on head, pronotum and basal area of elytra, with whitish one in the remaining parts. Head weakly convex, about 1.2 times as wide as long; gena roundly projected at the middle, barely visible from above; eyes oval, barely reaching hind margin of gena, densely clothed with erect hairs except for antero-dorsal part. Antenna relatively short, a little longer than the width of head (1.1: 1), apparently shorter than pronotal width (0.92: 1), fairly wide in the subgenus, 2.0 times as long as wide in 10th segment, serrate in 5-10th; 3rd segment distinctly shorter than 5th (1: 1.3); terminal segment 2.8 times as long as wide, 1.5 times as long as the penultimate. Pronotum 1.15 times as wide as head,

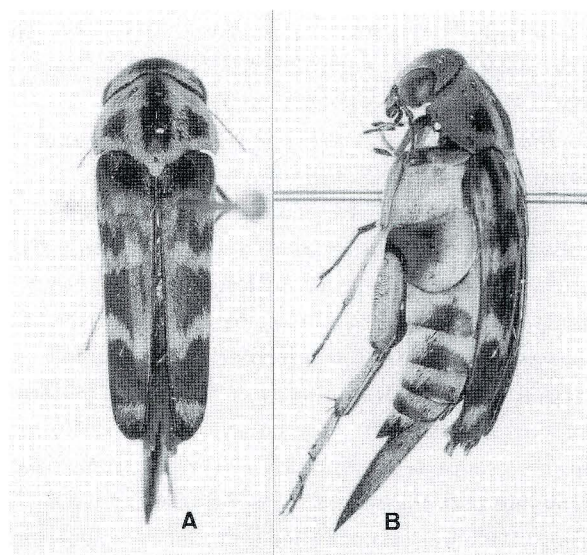


Fig. 7. Habitus of the type specimen of *Mordella tricolor* Wiedemann. —A, dorsal view; B, lateral view. (Photographed by H. Karube.)

with 3 black maculations, the middle being longitudinal from apex to before base, a pair of laterals being nearly circular. Elytra 2.55 times as long as wide, attenuate posteriad with slightly excavated sides; each basal maculation enlarged, with W-shaped part of the bottom consisting of whitish yellow pubescence; middle annular maculations hardly zigzag before, acutely zigzag behind. Pygidium 0.65 times as long as elytra, 1.57 times as long as elytral width,

about 2.8 times as long as anal sternite, straightly convergent to apex which is extremely narrowly truncate in dorsal view, dully pointed at apex in lateral view, clothed with whitish pubescence in about basal 1/2 of laterals; dorsal aspect without median cicatrix. Eighth abdominal sternite 1.4 times as long as wide, widely bilobed at apex. Parameres as figured; left paramere slender for a member of the group, as long as the right, weakly excavated at the right margin, distinctly projected as a wing at the left margin; right paramere slenderer than in the preceding two species.

Female. Head rather flat, about 1.17 times as wide as long; gena rectangularly projected with rounded apex, visible from above. Antenna broader, slightly shorter than the width of head; terminal segment 2.2 times as long as wide, 1.2 times as long as the penultimate. Pronotum 1.23 times as wide as head. Pygidium 1.52 times as long as elytral width, about 3.3 times as long as anal sternite.

Length: 10.5mm (♂), 14.5mm (♀).

Specimens examined. 1 ♂ 1 ♀, Sibolga, 450-600m in alt., N. Sumatera, 29 ~ 30-IV-1994, M. Takakuwa leg.

Distribution. Java, N. Sumatera (Indonesia), Caroline Isls.? (Micronesia).

This species is closely related to *G. (S.) nipponica* from Japan especially in the characters of the 8th abdominal sternite and male genitalia, though it has different maculate pattern, oval eye, longer pygidium and male fore tibia without long inner setae.

Notes. This species was originally described as a member of the genus *Mordella* from Java. So far as photographs of the type specimen were scrutinized by the present author, it is apparently the same species as the above specimens from Sumatera though slightly differing from them in the middle annular maculations of the elytra which are more internally waved on both front and behind. The type specimen is a female and is deposited in the Rijksmuseum van Natuurlijke Historie, Leiden (Fig. 7).

Blair (1940) and Chûjô (1942) recorded the present species from the Caroline Islands of Micronesia, but it is most probably different species judging from the locality.

***Glipa (Stenoglipa) gracillima* sp. nov.**

(Fig. 8A-F)

Male. Body thin and slender; upper surface decorated with whitish pubescence. Head rather flat, about 1.2 times as wide as long; gena fairly, roundly projected at the middle, visible from above; eyes oval, barely not reaching hind margin of gena, densely clothed with erect hairs except for antero-dorsal part. Antenna slender for a member of the group, longer than the width of head (1.14: 1), a little shorter than pronotal width (0.95: 1), 2.4 times as long as wide in 10th segment, rather weakly serrate in 5-10th; 3rd segment slightly shorter than 5th (1: 1.05); terminal segment 3.3 times as long as wide, 1.42 times as long as the penultimate. Pronotum 1.16 times as wide as head, with 3 black maculations, the middle being longitudinal from apex to before base, a

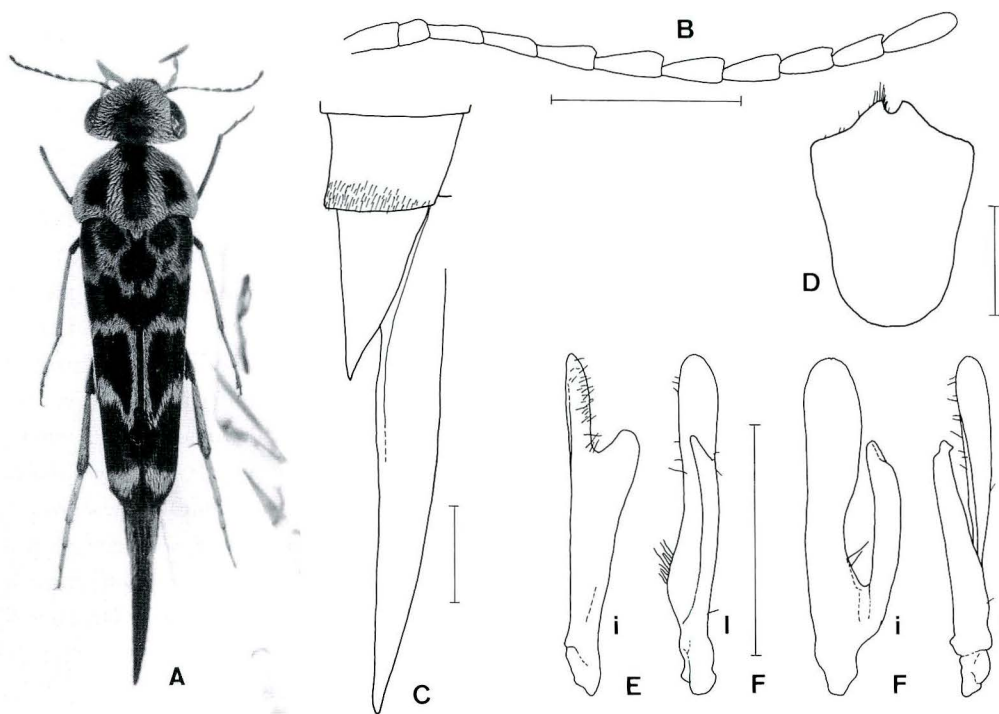


Fig. 8. *G. (S.) gracillima* sp. nov., ♂. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; D, 8th abdominal sternite; E, left paramere; F, right paramere. —i, inner view; l, lateral view. (Scales: 1mm.)

pair of laterals quadrate. Elytra 2.56 times as long as wide, rather straightly attenuate posteriad; each basal maculation thin, not touching scutellum; middle annular maculations slightly zigzag before, acutely zigzag behind. Pygidium 0.68 times as long as elytra, 1.64 times as long as elytral width, about 3.1 times as long as anal sternite, straightly convergent to apex which is extremely narrowly truncate in dorsal view, dully pointed in lateral view, clothed with whitish pubescence in about basal 1/2 of laterals; dorsal aspect with indistinct median longitudinal cicatrix near the middle. Eighth abdominal sternite 1.37 times as long as wide, narrowly bilobed at apex. Parameres as figured, similar in shape to those of the preceding species though somewhat stouter.

Female. Unknown.

Length: 12.0-12.3mm.

Type series. Holotype, ♂, Mt. Bawang, W. Kalimantan, Borneo, IV-1990, N. Nishikawa leg. Paratype: 1 ♂, same data as the holotype.

Distribution. SW Borneo (Indonesia).

This new species is doubtless most closely related to the preceding species, especially in the character of parameres, but should be regarded as a good species mainly because of the following respects: upper surface decorated with whitish pubescence; antenna slenderer, with 3rd segment slightly shorter than 5th; elytral basal maculation thinner, not touching to scutellum.

Supergroup of *G. annulata*

Body small to moderately large, 7.3-13.6mm in length; gena hardly or a little projected outwards at the middle; eye usually hairless though sometimes haired; terminal segment of maxillary palpus very broad; apical black spot of pronotum apparent or fused with basal median one; elytral maculations variable; mesosternal process relatively narrow, broadly arcuate at apex; abdominal sternites 3-7 without pubescence or sometimes decorated with fine fuscous pubescence on each apex; pygidium relatively short to very long, usually abruptly attenuate apicad, almost pointed at apex in dorsal view, acutely pointed or narrowly truncate in lateral view, usually with dorsal cicatrix; fore tibia of male usually almost straight; 8th abdominal sternite distinctly membranous, shovel-shaped or triangular often with apico-lateral projections, a little longer than wide or wider than long; parameres usually fairly slender, transparently yellowish in apical portions, with sclerotized branch of the right not excavated at apex, and with the left not projected as a wing at the left margin.

This supergroup is very variable in morphology and

classified into four groups as shown below. They are either allopatrical or sympatrical, widely distributed in East and Southeast Asia and New Guinea and their neighbouring areas.

Key to Species-groups

1. Elytra with yellowish transverse band just behind middle; anal sternite clothed with fuscous pubescence almost all over; 8th abdominal sternite of male longer than wide or as long as wide, shovel-shaped with distinct apico-lateral projections; ventral sclerotized branch of right paramere distinctly arcuate inwards Group of *G. australis*.
— Elytra with yellowish to whitish annular maculations near middle; anal sternite clothed with whitish pubescence at base and lateral parts; 8th abdominal sternite of male longer than wide or wider than long, shovel-shaped or triangular sometimes with apico-lateral projections; ventral sclerotized branch of right paramere nearly straight or slightly arcuate 2.
2. Pygidium longer, more than 0.65 times in male, 0.58 times in female as long as elytra, more than 1.5 times in male, 1.3 times in female as long as elytral width; 8th abdominal sternite of male shovel-shaped with distinct apico-lateral projections; ventral sclerotized branch of right paramere reflexed outwards at apex Group of *G. longispinosa*.
— Pygidium relatively short, less than 0.63 times in male, 0.56 times in female as long as elytra, less than 1.46 times in male, 1.3 times in female as long as elytral width; 8th abdominal sternite of male shovel-shaped usually without distinct apico-lateral projections or triangular; ventral sclerotized branch of right paramere not reflexed outwards 3.
3. Eyes often clearly haired though sometimes not hairy; antenna more or less shorter and broader; pygidium often shorter, usually very narrowly rounded or dully pointed at apex in dorsal view, often narrowly truncate or dully pointed at apex in lateral view; sclerotized branch of left paramere always divergent from the middle of base of dorsal membranous branch Group of *G. azumai*.
— Eyes almost not hairy though often with a few hairs on postero-lateral parts; antenna usually slenderer; pygidium often longer, usually acutely pointed at apex in dorsal and lateral views; sclerotized branch of left paramere always divergent from the right margin of the base of dorsal membranous branch Group of *G. annulata*.

Group of *G. australis*

Body moderate in shape; gena narrow, barely visible from above; eyes not so convex, broadly oval,

hairless though sometimes with extremely minute sparse hairs; pronotum decorated with 3 black spots, median longitudinal one and a pair of lateral ones; elytra with yellowish basal maculations variable in pattern, with yellowish transverse band just behind middle, each with preapical whitish lunate mark hardly reaching apex which is moderately rounded; pygidium stout, straightly attenuate apicad, acutely or dully pointed at apex; mesosternal process relatively broad, truncate or very gently arcuate at apex; abdominal sternites 3-6 each with black band which bears fuscous hairs; anal sternite clothed with fuscous pubescence almost all over; 8th abdominal sternite of male longer than wide or as long as wide, shovel-shaped with distinct apico-lateral projections; left paramere rather stout, slightly narrowed basad in inner view; right paramere with ventral sclerotized branch flattened, distinctly arcuate inwards.

Key to Species

1. Eyes narrowly reaching hind margins of genae; elytral basal maculation *W*-shaped, broken into pieces on disc; pygidium without median dorsal cicatrix; anal sternite decorated with whitish pubescence on middle of base *G. franciscoloi* sp. nov.
- Eyes widely reaching hind margins of genae; elytral basal maculation not *W*-shaped; pygidium with distinct median dorsal cicatrix; anal sternite without whitish pubescence 2.
2. Elytral basal maculation longitudinally fasciate; anal sternite 1.5 times as long as wide 3.
- Elytral basal maculation *XX*-shaped; anal sternite 1.37 times as long as wide 4.
3. Body above decorated with golden yellow pubescence; eyes almost hairless; middle fascia of elytra thicker, reaching sutures; pygidium shorter, less than 0.61 times as long as elytra, less than 1.39 times as long as elytral width; ventral sclerotized branch of right paramere straight in lateral view *G. australis* (Franciscolo).
- Body above decorated with yellowish white pubescence; eyes rather densely clothed with minute erect hairs on lower parts; middle fascia of elytra distinctly thinner, hardly reaching sutures; pygidium longer, 0.63 times as long as elytra, 1.45 times as long as elytral width; ventral sclerotized branch of right paramere reflexed near apex in lateral view *G. subflava* sp. nov.
4. Head and pronotum decorated with yellowish pubescence; antenna longer than the width of head in female; basal maculation of elytra far apart from middle fascia which is thinner *G. komiyai* sp. nov.

— Head and pronotum decorated with silvery pubescence; antenna shorter than the width of head in female; basal maculation of elytra connected with middle fascia which is distinctly thicker *G. sp.*

Glipa (Stenoglipa) franciscoloi sp. nov.

(Fig. 9A-C)

Ophthalmoglipa australis: Franciscolo, 1952, Annali Mus. civ.

Stor. nat. Giacomo Doria, **65**: 332, 354, figs. A, no. 3; C, nos. 1, 4, 7, 8; D, no. 1 (partim) (New Guinea).

Male. Unknown.

Female. Head strongly convex, about 1.21 times as wide as long, clothed with light yellow pubescence; gena relatively wide, roundedly projected at the middle; eye broadly oval, about 1.22 times as long as wide, narrowly reaching hind margin of gena. Antenna slightly longer than width of head (1.03: 1), 2.26 times as long as wide in 5th segment, 2.2 times in 10th; terminal segment 2.55 times as long as wide, 1.27 times as long as the penultimate, excavated behind apex of inner margin. Pronotum 1.22 times as wide as head, decorated with yellow pubescence. Elytra 2.4 times as long as wide, strongly and slightly excavatedly attenuate posteriad; basal golden yellow maculation *W*-shaped, broken into pieces on disc, reaching basal 2/9; middle fascia vivid golden yellow, 0.17 times as long as elytra, faintly waved at front and hind margins. Pygidium rather stout, 0.52 times as long as elytra, 1.26 times as long as elytral width, 2.84 times as long as anal sternite, straightly and strongly convergent to apex which is dully pointed in dorsal view and narrowly, obliquely truncate in lateral view, clothed with whitish pubescence beyond basal 3/7; dorsal

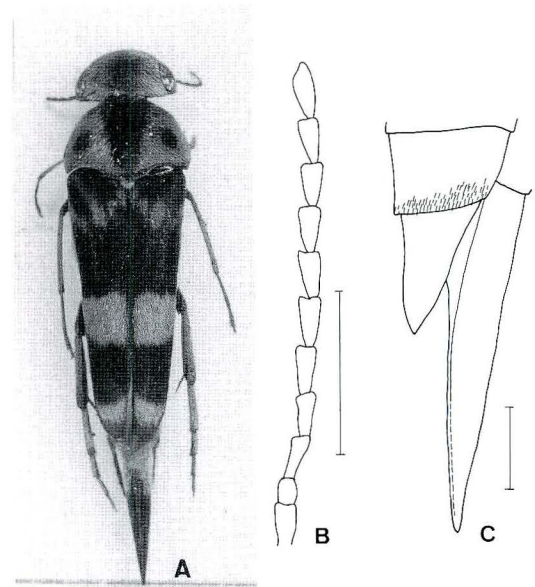


Fig. 9. *G. (S.) franciscoloi* sp. nov., ♀, holotype. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view. (Scales: 1mm.)

aspect acutely carinate though without median cicatrix. Anal sternite transversely truncate at apex, convex in ventral aspect, provided with whitish pubescence on middle of base.

Length: 11.4mm.

Holotype. ♀, Paumomu Riv., SE Papua New Guinea, IX ~ XII-1892, Loria leg. (MCSN) (a cotype of *Ophthalmoglipa australis* Franciscolo, 1952).

Distribution. SE Papua New Guinea.

This new species is somewhat peculiar in the species-group as mentioned above.

The holotype is labelled "N. Guinea S. E., Paumomu riv., LORIA, IX-XII 92", "Co-Typus", "Museo Civico di Genova", "♂", "*Glipa australis*", "♀, det. Takakuwa, M."

Glipa (Stenoglipa) australis

(Franciscolo, 1952), **comb. nov.**

(Fig. 10A-G)

Ophthalmoglipa australis Franciscolo, 1952, Annali Mus. civ.

Stor. nat. Giacomo Doria, **65**: 332, 354, figs.A, no.3; C, nos.1,4,7,8; D, no.1 (partim) (New Guinea); 1982, Nat. Hist. Rennell Is., p.52.

Male. Head rather strongly convex, about 1.23 times as wide as long, clothed with golden yellow pubescence; gena very narrow, hardly projected at the middle; eye broadly oval, about 1.17 times as long as wide, widely reaching hind margin of gena. Antenna 1.22 times as long as width of head, longer than pronotal width (1.04: 1), 2.75 times as long as wide in 5th segment, 2.45 times in 10th; terminal segment 3.77 times as long as wide, 1.44 times as long as the penultimate, with inner margin excavated anteriad.

Pronotum 1.17 times as wide as head, clothed with golden yellowish pubescence, with a pair of lateral black spots rather small and circular. Elytra 2.28 times as long as wide, strongly and straightly attenuate behind the middle; each basal discal golden yellow maculation longitudinally fasciate from base to basal 1/3, connected with lateral oblique fascia running from just behind humerus to the apex; middle band vivid golden yellow, usually waved at front and hind margins. Pygidium 0.55-0.61 times as long as elytra, 1.34-1.39 times as long as elytral width, about 2.36 times as long as anal sternite, straightly and strongly convergent to apex which is acutely pointed, clothed with whitish pubescence in about basal 1/3-2/5 of lateral parts; dorsal aspect very acutely carinate, with distinct median cicatrix. Anal sternite 1.5 times as long as basal width, roundedly projected at apex, faintly concave longitudinally at apical 1/2 of ventral aspect. Eighth abdominal sternite 1.12 times as long as wide, with apical median projection bilobed at apex, with apical angles parabolically projected. Fore tibia curved in apical 1/2. Parameres stout; dorsal membranous branch of the left one short; ventral sclerotized branch of the right one bent at middle.

Female. Body somewhat robuster, with more or less paler pubescence on head and pronotum. Antenna 1.05 times as long as width of head, twice as long as wide at each of 5th and 10th segment, 2.6 times as long as wide at terminal one which is 1.3 times as long as the penultimate. Pygidium shorter, 0.53 times as long as elytra. Anal sternite about 1.2 times as long as wide, convex in ventral aspect, nearly truncate at apex.

Length: 8.7-11.4mm.

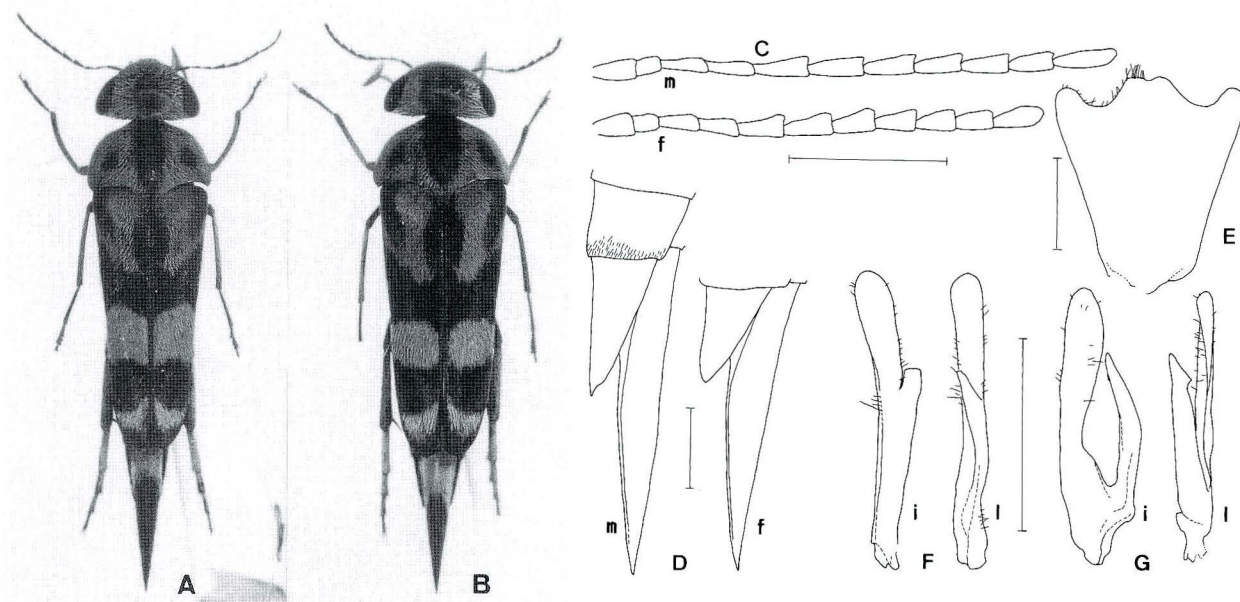


Fig. 10. *G. (S.) australis* (Franciscolo). —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

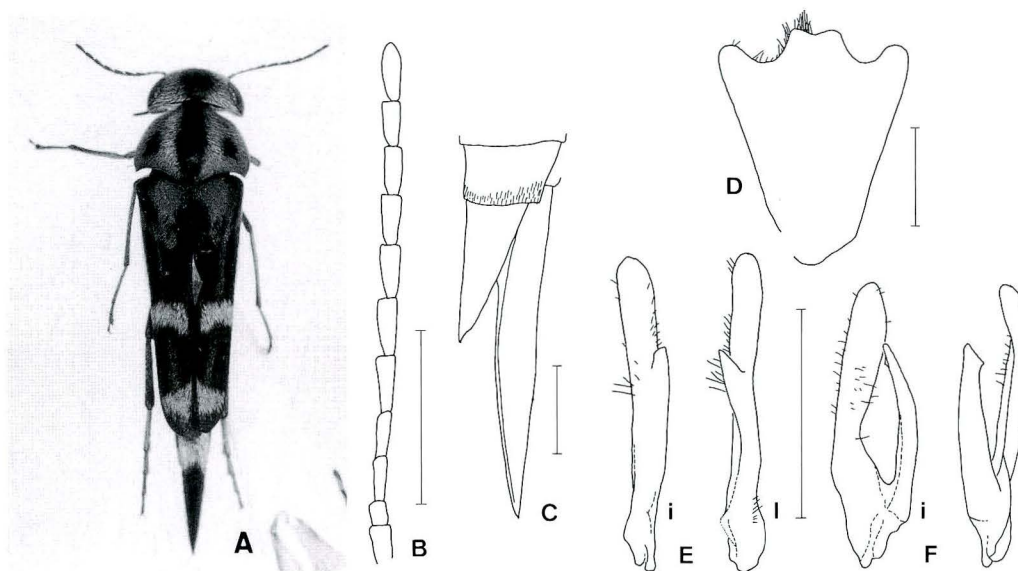


Fig. 11. *G. (S.) subflava* sp. nov., ♂, holotype. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; D, 8th abdominal sternite; E, left paramere; F, right paramere. —i, inner view; l, lateral view. (Scales: 1mm.)

Specimens examined. E. Papua New Guinea: 4 ♂♂, Afore, 700m in alt., Oro Prov., 18-III-1994, H. Matsuka leg.; 2 ♂♂, Lae, 27-XII-1978, M. Takakuwa leg.; 1 ♂ 1 ♀, Posheka, nr. Lae, Morobe Prov., 19-I-1983, Y. Komiya leg.; 1 ♂ 1 ♀, Popondetta, 1-I-1979, M. Takakuwa leg.; 1 ♂, same, 19-II-1990, H. Matsuka leg.; 1 ♀, Bulolo, 800m in alt., Morobe Prov., 25-XII-1981, Y. Komiya leg.; Wau, 1200m in alt., Morobe Prov., Y. Komiya leg.: 5 ♂♂ 1 ♀, 5-I-1982; 3 ♂♂, 6-I-1982; 9 ♂♂, 14-I-1982; 1 ♂ 2 ♀♀, Espiritu Santo Is., New Hebrides Isls., Banuatu, 6-III-1998, M. Ito leg.

Distribution. Kai Isls. (E. Indonesia), New Guinea, Bismarck Is. (Papua New Guinea), Rennell Is. (S. Solomon), Espiritu Santo Is. (Banuatu).

Dr. Roberto Poggi of the Museo Civico di Storia Naturale "Giacomo Doria", Genova kindly taught me that the type series of *Ophthalmoglipa australis* Franciscolo contain three maculate patterns and what pattern is the holotype. The remainder two patterns are newly described under the names of *G. franciscolo* sp. nov. and *G. komiyai* sp. nov. in the present paper, respectively.

Adults are usually found on leaves of growths under trees, and are considered actually to eat fern spores though Franciscolo (1982) noted as "adults feed on nectar".

Glipa (Stenoglipa) subflava sp. nov.

(Fig. 11A-F)

Very closely allied to the preceding species, but apparently differs from it in the following characters.

Male. Body above clothed with yellowish white pubescence instead of golden yellow one. Eyes subcircular, 1.19 times as long as wide, rather densely

clothed with minute erect hairs on lower parts. Elytra 2.3 times as long as wide, more strongly attenuate apicad; basal longitudinal fascia shorter, prolonged a little beyond basal 1/4; middle fascia distinctly narrow, hardly reaching sutures. Pygidium stouter and longer, 0.63 times as long as elytra, 1.45 times as long as elytral width, about 2.32 times as long as anal sternite, clothed with whitish pubescence in more than basal 2/5. Anal sternite 1.67 times as long as basal width. Eighth abdominal sternite 1.24 times as long as wide. Legs brownish; fore tibiae arcuate inwards. Ventral sclerotized branch of right paramere arcuate inwards in inner view, reflexed near apex in lateral view.

Female. Unknown.

Length: 8.4-9.1mm.

Type series. Holotype, ♂, Malkiyoku, Palau Isls., Micronesia, 31-VIII-1940, S. Nagasawa leg. (NSMT). Paratypes: 2 ♂♂, same data as the holotype (NSMT).

Distribution. Palau Isls. (Micronesia).

Glipa (Stenoglipa) komiyai sp. nov.

(Fig. 12A-G)

Ophthalmoglipa australis: Franciscolo, 1952, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 332, 354, figs.A, no.3; C, nos.1,4,7,8; D, no.1 (partim) (New Guinea).

Male. Head rather strongly convex, about 1.2 times as wide as long, clothed with whitish yellow to golden yellow pubescence; gena rather narrow, roundly projected at the middle; eyes broadly oval, about 1.22 times as long as wide, widely reaching hind margins of genae. Antenna 1.3 times as long as width of head, longer than pronotal width (1.08: 1), 2.6 times as long as wide in 5th segment, 3.4 times in 10th; terminal segment slender, 3.9 times as long as wide, 1.23 times

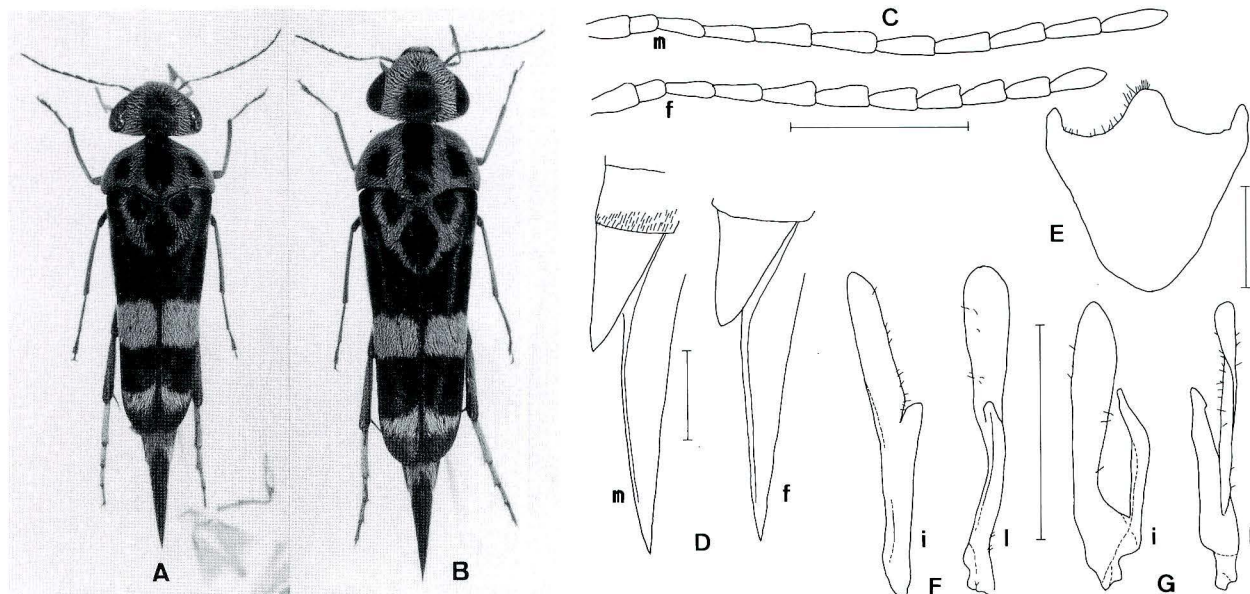


Fig. 12. *G.(S.) komiyai* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

as long as the penultimate. Pronotum 1.2 times as wide as head, decorated with the same pubescence as on head, with a pair of lateral black spots rather large and a little longitudinal. Elytra 2.39 times as long as wide, strongly and straightly attenuate behind the middle, then parallel-sided towards apical 1/6; each basal discal golden yellow maculation distortedly X-shaped, reaching basal 1/4-1/3, often not connected with lateral line running from just below humerus to the cross point; middle band vivid golden yellow, usually weakly waved at front and hind margins. Pygidium rather slender, 0.54-0.57 times as long as elytra, 1.3-1.35 times as long as elytral width, about 2.22 times as long as anal sternite, straightly and strongly convergent to apex which is acutely pointed, clothed with whitish pubescence in about basal 1/3-2/5 of lateral parts; dorsal aspect very acutely carinate, with distinct median cicatrix. Anal sternite 1.37 times as long as basal width, roundedly or widely triangularly projected at apex, flat at apical 1/2 of ventral aspect. Eighth abdominal sternite about as long as wide, with apical median projection parabolical, with apical angles appendiculately projected. Fore tibiae straight. Parameres slender; left one distinctly excavated at the left margin behind middle; ventral sclerotized branch of right one bent before middle.

Female. Body somewhat stouter. Antenna 1.05 times as long as width of head, 2.23 times as long as wide in 5th segment, 2.25 times in 10th, 2.8 times in terminal one which is 1.29 times as long as the penultimate. Pygidium shorter, 0.51 times as long as elytra, 1.2 times so elytral width, about 2.96 times so anal sternite. Anal sternite about 1.1 times as long

as wide, slightly convex at ventral aspect, nearly truncate at apex.

Length: 7.8-11.6mm.

Type series. Holotype, ♂, Wau, 1200m in alt., Morobe Prov., E. Papua New Guinea, 5-I-1982, Y. Komiya leg. Paratypes: E. Papua New Guinea: same locality and collector as the holotype: 3 ♂♂, 2-I-1982; 2 ♂♂, 5-I-1982; 2 ♂♂, 6-I-1982; 2 ♂♂ 1 ♀, 14-I-1982; Popondetta: 1 ♂, 1-I-1979, M. Takakuwa leg.; 1 ♀, 19-II-1990, H. Matsuka leg.; 1 ♀, 7-IX-1991, H. Matsuka leg.; 1 ♀, Sogeri, 20-XII-1981, A. Yagishita leg.; 1 ♂, Posheka, nr. Lae, Morobe Prov., 19-I-1983, Y. Komiya leg.; 4 ♂♂, Afore, 700m in alt., Oro Prov., 18-III-1994, H. Matsuka leg.; 1 ♀, Regina Creek, 900m in alt., Morobe Prov., 21-XII-1981, Y. Komiya leg.

Additional specimen examined. 1 ♂, Bokondini, W. Irian, New Guinea, 30-VIII-1974, S. Takizawa leg. (HPC)

Distribution. New Guinea (Papua New Guinea, Irian Jaya).

This beautiful new species may be somewhat allied to *G. (S.) australis* in the coloration, but apparently differs from that mainly in having the characters of a pair of distorted X-maculations on elytral bases, slenderer pygidium, straight tarsi of male, parabolical median projection and appendiculate lateral ones of the apex of the 8th abdominal male sternite and deeply excavated left margin of left paramere.

Glipa (Stenoglipa) sp.

(Fig. 13A-C)

Male. Unknown.

Female. Head rather strongly convex, about 1.26

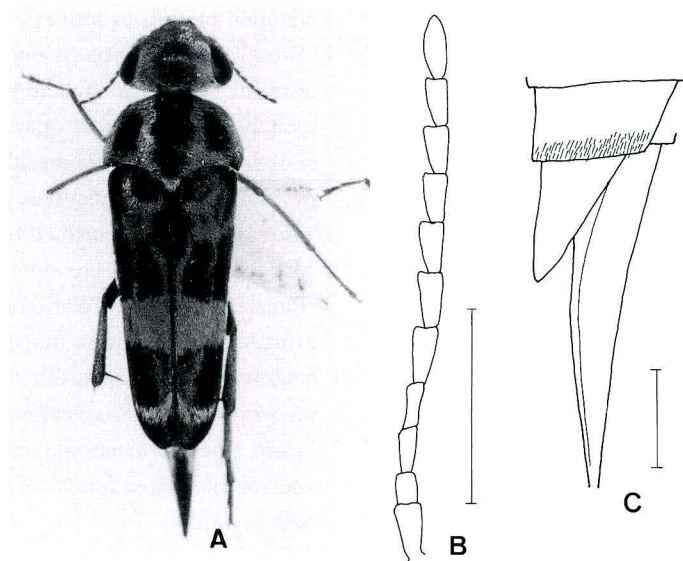


Fig. 13. *G.(S.)* sp., ♀. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view. (Scales: 1mm.)

times as wide as long, clothed with silvery white pubescence; gena narrow, roundly projected at the middle; eyes broadly oval, about 1.17 times as long as wide, widely reaching hind margins of genae. Antenna shorter than width of head (0.94: 1), 2.36 times as long as wide in 5th segment, 2.13 times in 10th; terminal segment acute at apex, 2.89 times as long as wide, 1.3 times as long as the penultimate. Pronotum 1.23 times as wide as head, decorated with the same pubescence as on head and golden one at the surroundings of the former one, with a pair of lateral black spots very large. Elytra 2.26 times as long as wide, rather strongly and straightly attenuate behind the middle; basal golden yellow maculation as combined W-line and V-line, the later of which reaches sutures at basal 1/3 and is also prolonged to the middle fascia along sutures; middle fascia vivid golden yellow, 0.19 times as long as elytra, weakly waved at front and hind margins. Pygidium rather slender, straightly and strongly narrowed to apex which is broken in the single specimen examined, clothed with whitish pubescence in basal part; dorsal aspect very acutely carinate, with distinct median cicatrix. Anal sternite slightly longer than basal width, transversely truncate at apex, convex at ventral aspect.

Length: 11.7mm.

Specimen examined. 1 ♀, Obi Is., Moluccas Isls., Indonesia, 15-V-1974, T. Mizunuma leg. (HPC)

Distribution. Obi Is. of the Moluccas Isls. (Indonesia).

This undetermined beetle is closely related to the preceding new species in general appearance, but readily distinguishable from it by the following points: head and pronotum decorated with silvery pubescence; antenna shorter than the width of head; basal maculation of elytra connected with middle fascia

which is distinctly thicker.

Group of *G. azumai*

Body robust or rather flattened; gena roundly projected at the middle, visible from above; eyes oval, often clearly haired though sometimes not hairy; antenna more or less relatively short, broad or at least not so slender, serrate in segments 5-10, with 5th about as long as 6th and usually slightly shorter than the terminal one; mesosternal process moderately arcuate or rather triangular at the apical part; anal sternite more or less short for a species-group of the supergroup; pygidium short for the supergroup, very narrowly rounded or dully or acutely pointed at apex in dorsal view, often narrowly truncate or dully pointed at apex in lateral view; 8th abdominal sternite variable in shape; parameres stout in the subgenus; left paramere usually thickened at base, with sclerotized branch divergent from the middle of base of dorsal membranous branch; right paramere usually excavated at inner side of dorsal membranous branch.

This species-group can be classified into 3 subgroups which comprise 8 species distributed in East and Southeast Asia, the Sundalands and their adjacent areas.

Key to Subgroups and Species

1. Body clothed with rather fine purplish fuscous or whitish pubescence almost on all parts; pronotum immaculate; scutellum clothed with fine fuscous pubescence; fore tibiae curved downwards; (*kurosawai* subgroup) *G. kurosawai* Takakuwa.
— Body clothed with blackish fuscous or whitish pubescence almost on all parts; pronotum clearly

- maculate; scutellum clothed with whitish pubescence; fore tibiae almost straight 2.
2. Eyes usually hairy at least on the postero-lateral parts; female antenna longer, slightly shorter or longer than the width of head; middle annular maculations of elytra gently zigzag or not just near suture at the posterior lines; pygidium shorter, not acutely pointed at apex; 8th abdominal sternite of male slightly or not projected at apical angles; (*azumai* subgroup) 3.
- Eyes not hairy though sometimes with a few minute hairs on the postero-lateral parts; female antenna shorter, distinctly so than the width of head; middle annular maculations of elytra acutely zigzag just near suture at the hind lines; pygidium slenderer; 8th abdominal sternite of male distinctly thin, remarkably projected at apical angles; (*acutimaculata* subgroup) 7.
3. Basal maculation of elytra without W-shaped part at the bottom; eyes densely haired all over or except for upper-posterior parts 4.
- Basal maculation of elytra with W-shaped part at the bottom; eyes barely or sparsely haired on lower parts 5.
4. Body smaller; antenna longer than pronotum; middle annular maculations of elytra not zigzag before and behind; pygidium slenderer; abdominal sternites 3-5 with fuscous hairs at apices; 8th abdominal sternite of male roundly projected at apical angles; left paramere slenderer *G. azumai* Nakane.
- Body larger; antenna shorter than pronotum; middle annular maculations of elytra more or less zigzag before and behind; pygidium thicker; abdominal sternites 3-5 almost lacking fuscous hairs; 8th abdominal sternite of male broadly rounded at apical angles; left paramere wider ... *G. watanabei* sp. nov.
5. Middle annular maculations of elytra acutely zigzag near suture at the posterior lines; pygidium stouter; parameres distinctly stouter; mandibles of female surprisingly stouter *G. maruyamai* sp. nov.
- Middle annular maculations of elytra moderately zigzag or not near suture at the hind lines; pygidium slenderer; parameres slenderer; mandibles of female moderate in shape 6.
6. Eyes haired on lower part, widely oval, shorter; 3rd antennal segment longer than 4th; elytral basal margin with or without a few hairs; basal maculation of elytra reduced, with the outer lines not reaching at base; pygidium shorter *G. ohmomoi* sp. nov.
- Eyes hardly haired, elliptical, longer; 3rd antennal segment almost equal in length to 4th; elytral basal margin commonly with yellowish hairs; basal maculation of elytra developed, XX-shaped, with the outer lines reaching bases inside

- humeri; pygidium longer *G. sachiyoae* sp. nov.
7. Basal maculations of elytra shortened; middle annular maculations moderate in length; pygidium rather dully pointed at apex; 8th abdominal sternite of male wider at medio-apical projection, claw-shaped in latero-apical projections; parameres stouter, with ventral sclerotized branch of right paramere gently curved inwards *G. inexpectata* sp. nov.
- Basal maculations of elytra moderate in length; middle annular maculations distinctly longer; pygidium acutely pointed at apex; 8th abdominal sternite of male narrower at medio-apical projection, semicircular in latero-apical projections; parameres slenderer, with ventral sclerotized branch of right paramere suddenly bent inwards *G. acutimaculata* sp. nov.

Subgroup of *G. kurosawai*

Body thick and robust, abruptly narrowed posteriad, clothed with rather fine purplish fuscous or whitish pubescence almost on all parts; eyes very densely haired all over; antenna distinctly short and broad, with segments 5-10 fully serrate and 5th as long as the terminal; pronotum immaculate; basal maculations obsolete; pygidium short, very narrowly rounded at apex in dorsal view, slightly reflexed upwards and obliquely truncate at apex in lateral view; abdomen clothed with rather fine dark pubescence at antero-lateral parts of 3th and 7th and apical parts of 4-6th; anal segment relatively short; fore tibia of male curved downwards; 8th abdominal sternite of male longer than wide, distinctly projected at the middle of apex; parameres stout, with basal tubercle of the right indistinct.

Glipa (*Stenoglipa*) *kurosawai* Takakuwa, 1985

(Fig. 14A-F)

Glipa kurosawai Takakuwa, 1985, Gekkan-Mushi, Tokyo, (176): 5,9, pl.2, no.4; Takakuwa, 1985, Coleopt. Japan Col. Osaka, 3: 379, pl.65, no.20.

Male. Head rather strongly convex, about 1.22 times as wide as long, clothed with yellowish pubescence on frons; gena somewhat rectangularly projected at the middle with widely rounded apex; eyes elliptical, about 1.2 times as long as wide, not reaching hind margins of genae. Antenna 1.08 times as long as width of head, a little shorter than pronotal width (0.96: 1), very wide for a member of the subgenus, about twice as long as wide in 5th segment, 1.8 times in 10th; terminal segment 2.4 times as long as wide, 1.4 times as long as the penultimate, with inner margin slightly excavated before. Pronotum 1.21 times as wide as head. Elytra 2.17 times as long as wide, strongly attenuate to the middle from behind bases with slightly excavated sides, then attenuate posteriad with slightly curving sides; basal maculation tending

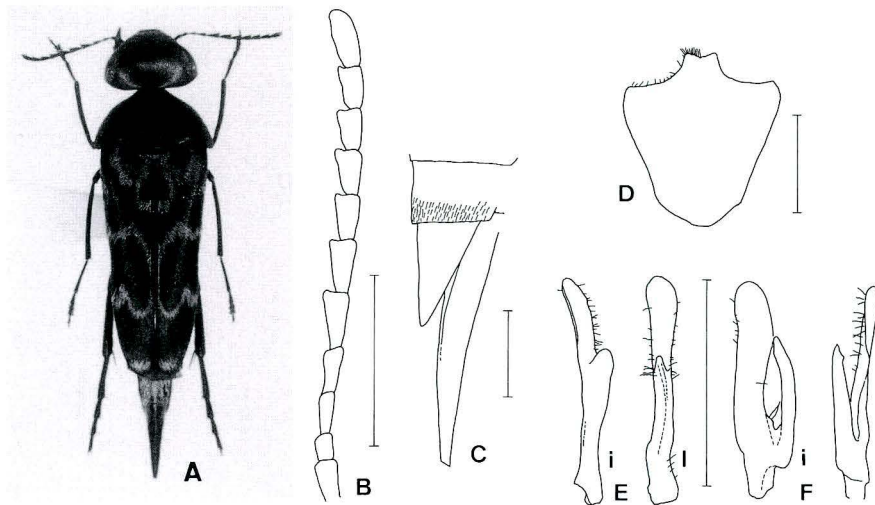


Fig. 14. *G.(S.) kurosawai* Takakuwa, ♂, paratype. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; D, 8th abdominal sternite; E, left paramere; F, right paramere. —i, inner view; l, lateral view. (Scales: 1mm.)

to obsolete, with a slender W-shape one at the bottom; middle annular maculations anteriorly zigzag somewhat apart from suture, moderately zigzag posteriorly though rounded near suture; apical fascia not reaching sides, barely reaching each apex. Pygidium 0.48 times as long as elytra, 1.04 times as long as elytral width, about 2.4 times as long as anal sternite, excavatedly narrowed to apex, clothed with whitish pubescence in about basal 1/2; dorsal aspect gently carinate, with median longitudinal cicatrix at apical 1/3. Anal sternite 1.27 times as long as basal width, slightly and angularly projected at apex. Eighth abdominal sternite 1.1 times as long as wide, with apical projection shallowly, angulately emarginate. Parameres as figured; right paramere very broad at the base of dorsal membranous branch, with thin ventral sclerotized branch.

Female. Unknown.

Length: 8.3-9.2mm.

Specimens examined. Holotype(♂, Hahajima Is., Ogasawara Isls., 26-VI-1976, M. Takakuwa leg.) (NSMT) and 3 paratypes (same locality, 26 ~ 27-VI-1976, same collector).

Distribution. Ogasawara Isls. (S. Japan).

This blackish species is very unique in having the peculiarities shown in the key and the obliquely, rather broadly truncate pygidium in lateral view.

Subgroup of *G. azumai*

Body often rather flattened in male, decorated with whitish to yellowish pubescence almost on all parts; mandible stout, dully shining; eyes densely hairy or partly so; antenna long for a member of this group, moderately serrate in segments 5-10, with 5th shorter than the terminal one, nearly equal in length to 6; pronotum decorated with 3-4 black spots; scutellum

clothed with whitish pubescence; elytra with basal whitish to yellowish maculations which are not so prolonged posteriorly, usually with middle ones almost annulate (not so waved); mesosternal process gently or strongly arcuate at apex; abdomen largely bearing whitish pubescence except in postero-lateral areas of 3rd and 4th; anal segment rather long; pygidium short, abruptly attenuate apicad, bluntly pointed or extremely narrowly rounded at apex in dorsal view, usually without dorsal cicatrix; 8th abdominal sternite of male wider than long or nearly as long as wide; parameres stout, with distinct basal tubercle in the right.

Glipa (Stenoglipa) maruyamai sp. nov.

(Fig. 15A-H)

Male. Head not so convex, about 1.21 times as wide as long, clothed with light yellow pubescence; gena projected at the middle with widely rounded apex; eyes moderately convex, scarcely haired, elliptical, about 1.28 times as long as wide, broadly reaching hind margin of gena. Antenna 1.13 times as long as width of head, a little shorter than pronotal width (0.95: 1), narrow for a member of the subgroup, 2.84 times as long as wide in 5th segment, 2.3 times in 10th; terminal segment somewhat elongate quadrate, 3.48 times as long as wide, 1.4 times as long as the penultimate. Pronotum 1.2 times as wide as head, decorated with light yellow pubescence, with 4 clear black spots. Elytra 2.39 times as long as wide, rather abruptly attenuate near the middle with slightly excavated sides; basal XX-shaped maculation (consisting of light yellow pubescence) with the outer lines not quite reaching base, reduced at basal margin; middle annular whitish maculations long, gentle before, acutely zigzag near suture behind; each apical maculation semi-elliptical, not reaching apex.

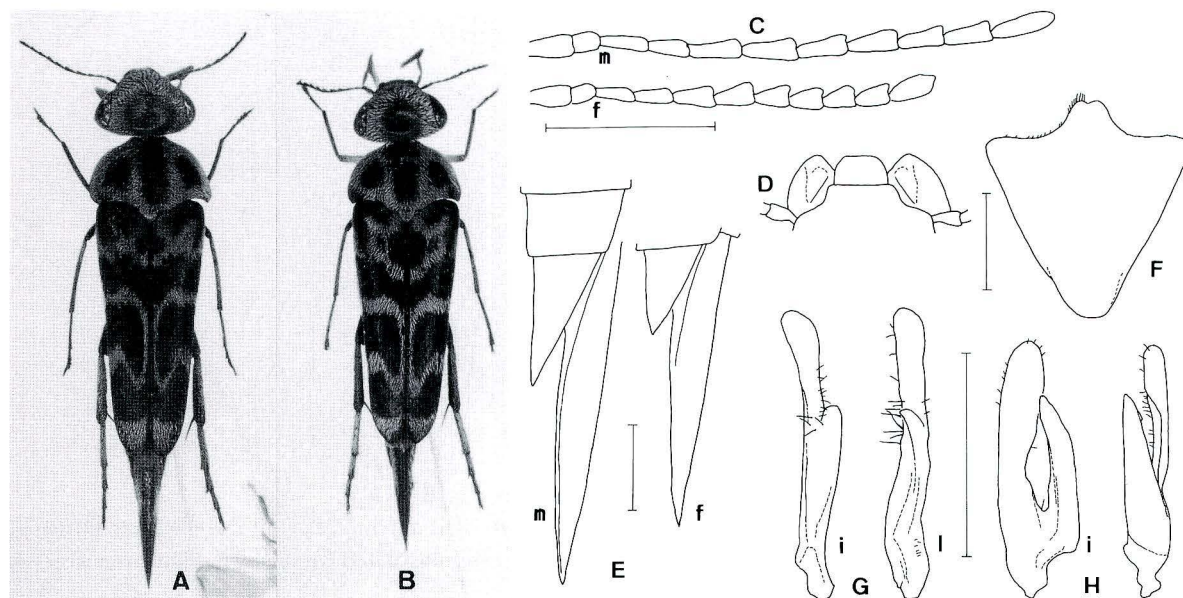


Fig. 15. *G.(S.) maruyamai* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, mandibles of female; E, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; F, 8th abdominal sternite of male; G, left paramere; H, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Pygidium stout, 0.58 times as long as elytra, 1.39 times as long as elytral width, about 2.5 times as long as anal sternite, almost straightly narrowed to apex which is rather thin and dully pointed in dorsal and lateral views, clothed with whitish pubescence in basal 1/2; dorsal aspect acutely carinate, with median cicatrix in apical 1/3. Abdomen just as in the Indochina and the Malay Peninsular species, *G. ohmomo* sp. nov. and *G. sachiyoae* sp. nov. Anal sternite longitudinally concave in ventral aspect, 1.42 times as long as basal width, broadly rounded at apex. Eighth abdominal sternite slightly longer than wide (1.06: 1), with apical median projection bilobed, with apical angles rounded, closely similar to those of *G. ohmomo* sp. nov. and *G. sachiyoae* sp. nov. Parameres as figured, similar to those of the following 4 species though distinctly stout.

Female. Body somewhat robust, with yellowish pubescence paler. Head clothed with whitish yellow pubescence; mandible surprisingly stout, with rounded apex. Antenna much shorter, a little shorter than width of head (0.95: 1), very similar to those of the following 2 species. Pygidium 0.53 times as long as elytra, 1.2 times as long as elytral width, about 3.35 times as long as anal sternite. Anal sternite 1.21 times as long as basal width, slightly emarginate at apex.

Length: 10.1–10.5mm.

Type series. Holotype, ♂, Poring, Sabah, N. Borneo, 22-II-1993, K. Maruyama leg. Paratype: 1 ♀, 800m in alt., nr. Ranau, Sabah, 9-VIII-1989, K. Maruyama leg.

Distribution. N. Borneo (E. Malaysia).

This is a strange species within the subgroup

because of the distinctly stout parameres, acutely zigzag maculation of elytra and surprisingly stout mandibles of female, but doubtless most closely related to the next 4 species, especially to *sachiyoae* sp. nov. from the Malay Peninsula in view of some important characters mentioned above. It also resembles *acutimaculata* sp. nov. from the Sundalands at first sight, especially in female, but is distinguished from that species by the characters of mandibles, middle annular maculations of elytra, pygidium, 8th abdominal sternite and parameres.

Glipa (Stenoglipa) azumai Nakane, 1950

(Fig. 16A–G)

Glipa azumai Nakane, 1950, Trans. Kansai ent. Soc., **15**: 21 (S. Kyushu); Nomura, 1963, Icon. Ins. japon. Col. nat. ed., **2**: 247, pl.124, no.3; Takakuwa, 1976, Coleopt. News, Tokyo, (34): 6 (Kumage Is.); Takakuwa, 1985, Coleopt. Japan Col. Osaka, **3**: 379, pl.65, no.19 (part: S. Kyushu, N. Ryukyus); Fan & Yang, 1993, Mem. Beijing nat. Hist. Mus., (53): 47, 59 (Hainan Is., Guangdong, S. China); Tanabe & Sugimura, 1996, Ins. of Shimanto, Shikoku, p.110, Fig. (SE Shikoku).

Glipa (Stenoglipa) azumai: Nakane, 1956, Ent. Rev. Japan, **8**: 51.

Neoglipa azumai: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52.

Neoglipa (Stenoglipa) azumai: Nakane, 1956, Ent. Rev. Japan, **7**: 17, pl.4, no.1.

Male. Head rather strongly convex, about 1.2 times as wide as long, clothed with golden yellow pubescence; gena somewhat rectangularly projected at the middle with widely rounded apex; eyes not so convex, broadly oval, about 1.25 times as long as wide, not reaching

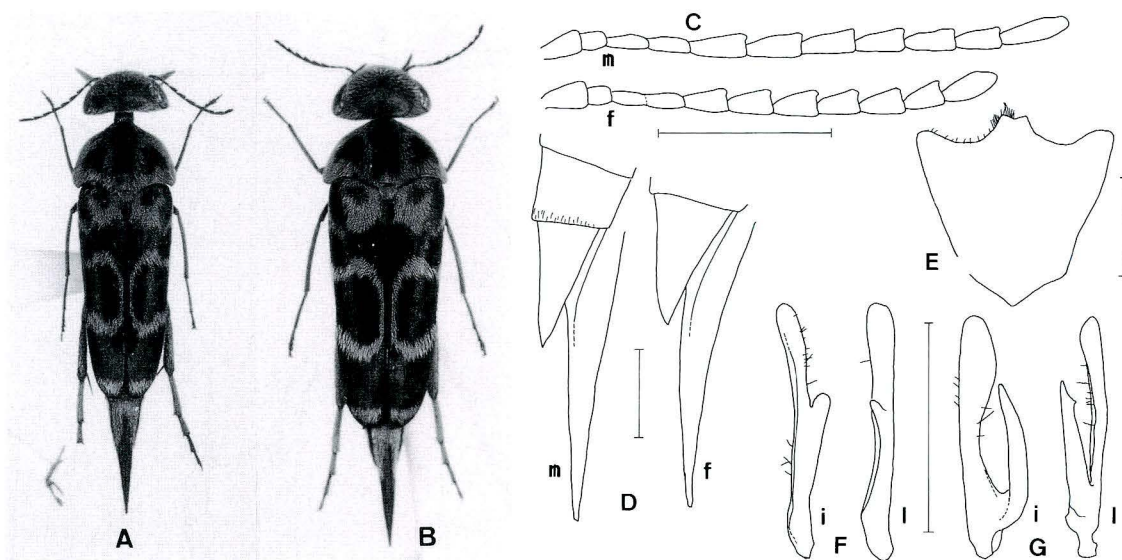


Fig. 16. *G. (S.) azumai* Nakane. —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

hind margin of gena. Antenna 1.27 times as long as width of head, longer than pronotal width (1.08: 1), rather wide for a member of the subgroup, 2.25 times as long as wide in 5th segment, about twice in 10th; terminal segment 3.35 times as long as wide, 1.6 times as long as the penultimate, with inner margin slightly excavated before. Pronotum 1.18 times as wide as head, clothed with yellowish pubescence, with 4 black maculations, the apical one being vague and small, and a pair of laterals each being obcordate. Elytra 2.25 times as long as wide, gently attenuate posteriad with sides faintly excavated before the middle, decorated with whitish pubescence; basal maculation lacking W-shaped one at the bottom; middle annular maculations gentle, hardly waved; apical fascia small, barely reaching apex. Pygidium 0.57 times as long as elytra, 1.2 times as long as elytral width, about 2.4 times as long as anal sternite, almost straightly narrowed to apex which is extremely narrowly rounded in dorsal view and obliquely, extremely narrowly truncate in lateral view, clothed with whitish pubescence in about basal 1/2 of lateral parts; dorsal aspect gently carinate, without median cicatrix. Abdomen with fine fuscous hairs on apical margins of 4-6th segments and on ventral disc of anal sternite except for the base, and with a pair of blackish spots on each apex near lateral margins of 3-5th segments. Anal segment 1.39 times as long as basal width, parabolically projected at apex. Eighth abdominal sternite slightly wider than long, with apical median projection same as in *G. kurosawai*, with apical angles obliquely parabolically projected. Parameres as figured, relatively slender.

Female. Body somewhat larger and robuster, with

evidently paler pubescence on head and pronotum. Head clothed with whitish pubescence except for vertex where is clothed with fine fuscous one. Antenna about as long as width of head, 1.61 times as long as wide in 10th segment, 2.38 times as long as wide in the terminal one, which is 1.4 times as long as the penultimate. Pygidium 0.49 times as long as elytra, 1.15 times as long as elytral width. Anal sternite about 1.23 times as long as wide, slightly emarginate at apex.

Length: 7.9-10.7mm.

Specimens examined. N. Ryukyus, SW Japan: 1 ♂, Nagata Cape, Yaku Is., 5-VIII-1982, T. Hatayama leg. (HPC); 1 ♀, Nagakubo, Yaku Is., 11-VII-1997, Y. Notsu leg.; 6 ♂♂ 1 ♀, Kurio, Yaku Is., 12-VII-1997, Y. Notsu leg.; 1 ♂, Kuroshima Is., 25-VII-1975, H. Makihara leg., N. Vietnam: 1 ♂, Cuc Phuong, Ninh Binh Prov., 10-IX-1998, H. Nakamura leg.; 1 ♂, Mt. Tam Dao, Vinh Phu Prov., 29-31. V. 1999, native collector.

Distribution. SW Shikoku, S. Kyushu & N. Ryukyus (SW Japan), Guangdong & Hainan Is. (S. China), N. Vietnam (Vietnam).

Glipa (Stenoglipa) watanabei sp. nov.

(Fig. 17A-G)

Glipa azumai: Takakuwa, 1976, Elytra, Tokyo, **3**: 16, pl.3, no.1 (Yaeyama Is.); Takakuwa, 1985, Coleopt. Japan Col. Osaka, **3**: 379 (part.: S. Ryukyus, Taiwan).

Male. Head rather strongly convex, about 1.34 times as wide as long, clothed with golden yellow pubescence; gena projected at the middle with widely rounded apex; eyes rather sparsely haired, not so convex, broadly oval, about 1.27 times as long as wide, not reaching hind margins of genae. Antenna 1.16 times as long as width of head, slightly shorter than pronotal width (0.96: 1), moderately wide for a member

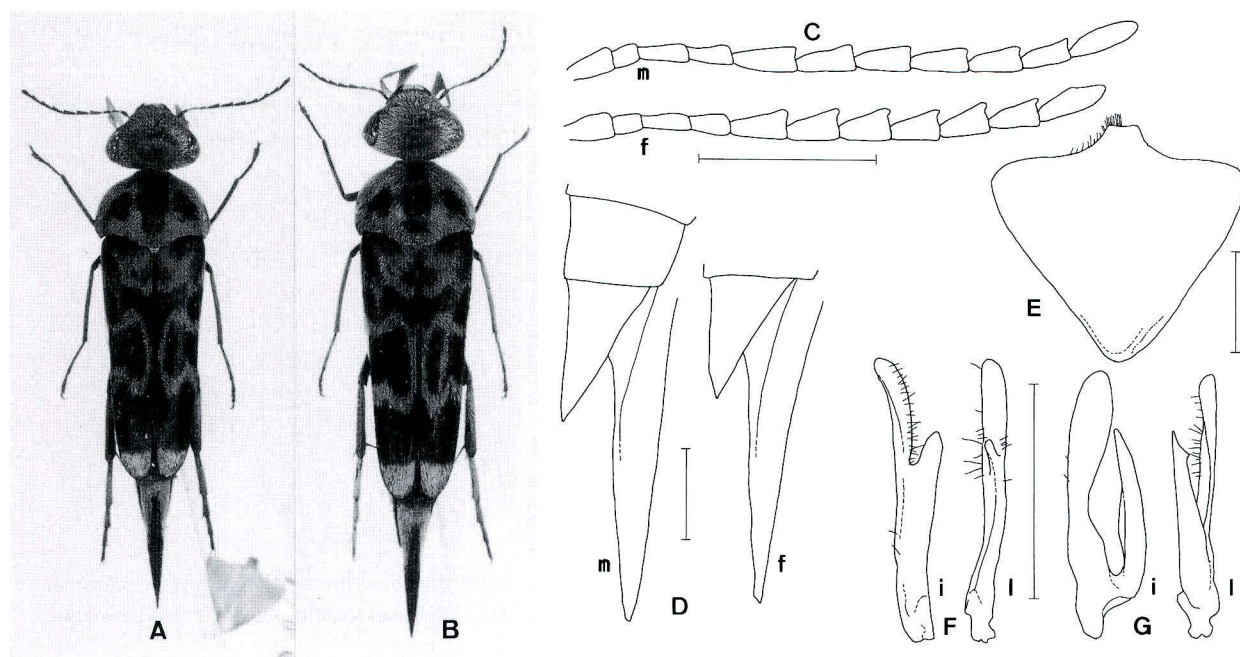


Fig. 17. *G. (S.) watanabei* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

of the subgroup, 2.9 times as long as wide in 5th segment, about 2.3 times in 10th; terminal segment somewhat elongate quadrate, 3.38 times as long as wide, 1.47 times as long as the penultimate. Pronotum 1.21 times as wide as head, decorated with yellowish pubescence, with 3-4 black spots, the apical one being vague and reduced, sometimes evanescent, and a pair of laterals almost triangular. Elytra 2.24 times as long as wide, straightly attenuate towards the middle from behind humeri, parallel-sided posteriad from there, roundly narrowed apicad, decorated with whitish to yellowish pubescence; basal maculation just as in the preceding species though partially bearing yellowish hairs; middle annular maculations more or less zigzag before and behind; each apical maculation semicircular, arrived at apex. Pygidium thick, 0.53-0.55 times as long as elytra, 1.25 times as long as elytral width, about 2.4 times as long as anal sternite, slightly excavatedly attenuate towards apex which is just as in the preceding species, clothed with whitish pubescence in about basal 1/2 or more than that of lateral parts; dorsal aspect gently carinate, without median cicatrix or with short one near apex. Abdomen with a few fine fuscous hairs on apical margin of 6th segment besides ventral disc of anal sternite, and with a pair of blackish spots on each apex near lateral margin of 3-5th segments though the pair on the 5th segment is reduced. Anal sternite 1.27 times as long as basal width, gently rounded at apex. Eighth abdominal sternite slightly wider than long (1.07: 1), with apical median projection weakly emarginate at apex, with apical angles broadly rounded. Parameres

as figured, similar to those of the preceding species though the left paramere is wider and the right one differs in basal part.

Female. Body somewhat larger and robust, with considerably paler pubescence on head and pronotum. Head clothed with whitish to light yellow pubescence except for vertex which is clothed with dark yellow one. Antenna shorter, slightly longer than width of head, 1.94 times as long as wide in 10th segment, about 3 times as long as wide in terminal one which is 1.38 times as long as the penultimate. Pygidium shorter, 0.46 times as long as elytra, 1.11 times as long as elytral width, about 2.7 times as long as anal sternite. Anal sternite 1.15 times as long as basal width, slightly emarginate at apex.

Length: 9.4-12.5mm.

Type series. Holotype, ♂, Kanbire, Iriomote Is., S. Ryukyus, 17 ~ 18-VI-1994, M. Takakuwa leg. Paratypes: Ishigaki Is., S. Ryukyus: 2 ♀ ♀, Mt. Omoto, 29 ~ 31-V-1997, M. Takakuwa leg., Iriomote Is., S. Ryukyus: 1 ♂, Hidori, 2-VI-1974, M. Takakuwa leg.; 2 ♂ ♂ 2 ♀ ♀, 6 ~ 7-VI-1974, M. Takakuwa leg.; 1 ♂, Urauchi, 24 ~ 25-V-1997, S. Nakamura leg.; 1 ♂, Shirahama, 1-VI-1974, M. Takakuwa leg.; 2 ♂ ♂, Shirahama-rindo, 25-V-1997, S. Nakamura leg.; Ohtomi, 1 ♂, 13 ~ 14-V-1973, S. Ueda leg.; Ohtomi-rindo: 1 ♂ 2 ♀ ♀, 9-VII-1990, H. Karube leg.; 2 ♂ ♂ 1 ♀, 17 ~ 18-V-1991, H. Karube leg.; 5 ♂ ♂ 2 ♀ ♀, 14-V-1992, H. Karube leg.; 14 ♂ ♂ 3 ♀ ♀, 6 ~ 7-VI-1993, M. Takakuwa leg.; 1 ♂, 3-VII-1993, R. Yakita leg.

Additional specimens examined. C. Taiwan: 1 ♂, Nanshanchi, Nantou Hsien, 31-V-1975, S. Imasaka

leg. (HPC); 2 ♂♂ 1 ♀, same loc., 3-VI-1995, M. Takakuwa leg.; 3 ♂♂, Shihtzutou, Nantou Hsien, 4-VI-1995, M. Takakuwa leg.; 1 ♂, Sun-moon Lake, Nantou Hsien, 19-VI-1976, M. Kubota leg.

Distribution. S. Ryukyus (SW Japan), C. Taiwan (Taiwan).

This new species is closely related to *G. azumai* Nakane from Southwest Japan, but apparently differs from it mainly in the following characteristics: antenna shorter, shorter than pronotal width; middle annular maculations of elytra more or less zigzag before and behind; pygidium thicker; abdominal sternites 3-5 almost lacking fuscous hairs; 8th abdominal sternite of male broadly rounded at apical angles; left paramere wider.

***Glipa (Stenoglipa) ohmomoi* sp. nov.**

(Figs. 18, 19)

Male. Head rather strongly convex, about 1.19 times as wide as long, clothed with golden yellow pubescence; gena projected at the middle with widely rounded apex; eyes rather sparsely haired on postero-lateral parts, moderately convex, broadly oval, about 1.27 times as long as wide, barely reaching hind margin of gena. Antenna 1.31 times as long as width of head, clearly longer than pronotal width (1.16: 1), moderately wide for a member of the subgroup, 2.95 times as long as wide in 5th segment, about 2.4 times in 10th; 4th apparently shorter than 3rd; terminal segment somewhat elongate quadrate, 3.27 times as long as wide, 1.33 times as long as the penultimate. Pronotum 1.2 times as wide as head, decorated with yellowish pale pubescence, with 3-4 clear black spots,

the apical one being often separated from median one, a pair of lateral ones being triangular or circular. Elytra 2.3 times as long as wide, gently attenuate near the middle with slightly excavated sides, decorated with whitish to yellowish pale pubescence; basal maculation (reduced at basal margin) XX-shaped with the outer lines not or barely reaching base, often composed of yellowish pale hairs; middle annular maculations more or less zigzag before and behind; each apical maculation semi-elliptical, entirely reaching apex. Pygidium thick, 0.55 times as long as elytra, 1.31 times as long as elytral width, about 2.58 times as long as anal sternite, almost straightly attenuate towards apex which is very thin and dully pointed in dorsal view and extremely narrowly, obliquely truncate in lateral view, clothed with whitish pubescence in more than basal 1/2 of lateral parts; dorsal aspect relatively gently carinate, with rather indistinct median cicatrix in apical half. Abdomen without fine fuscous hairs on 3-6th segments, with a pair of blackish spots on each apex near lateral margins of 3-4th. Anal sternite 1.35 times as long as basal width, parabolically rounded at apex. Eighth abdominal sternite slightly wider than long (1.06: 1), similar to that of the preceding species. Parameres as figured, similar to those of the preceding species though slenderer.

Female. Body somewhat larger, with considerably paler pubescence on head and pronotum. Head clothed with whitish to yellowish pale pubescence except for vertex which is clothed with dark yellow to fuscous one. Antenna shorter, a little longer than width of head (1.07: 1), 2.2 times as long as wide in 10th segment, about 3

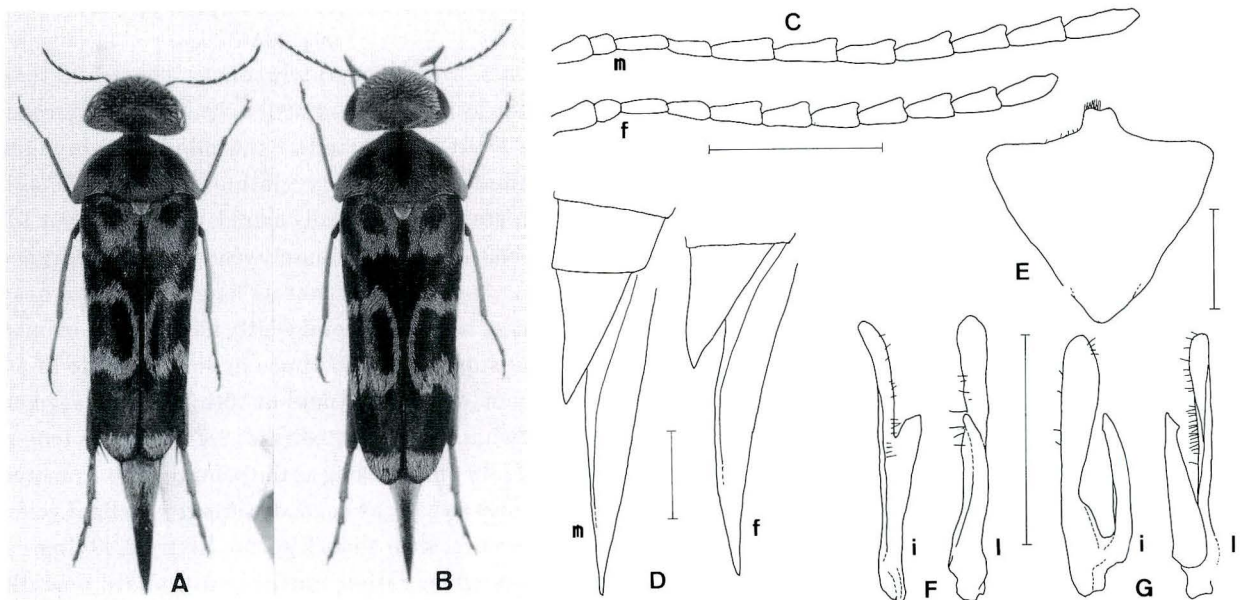


Fig. 18. *G. (S.) ohmomoi* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

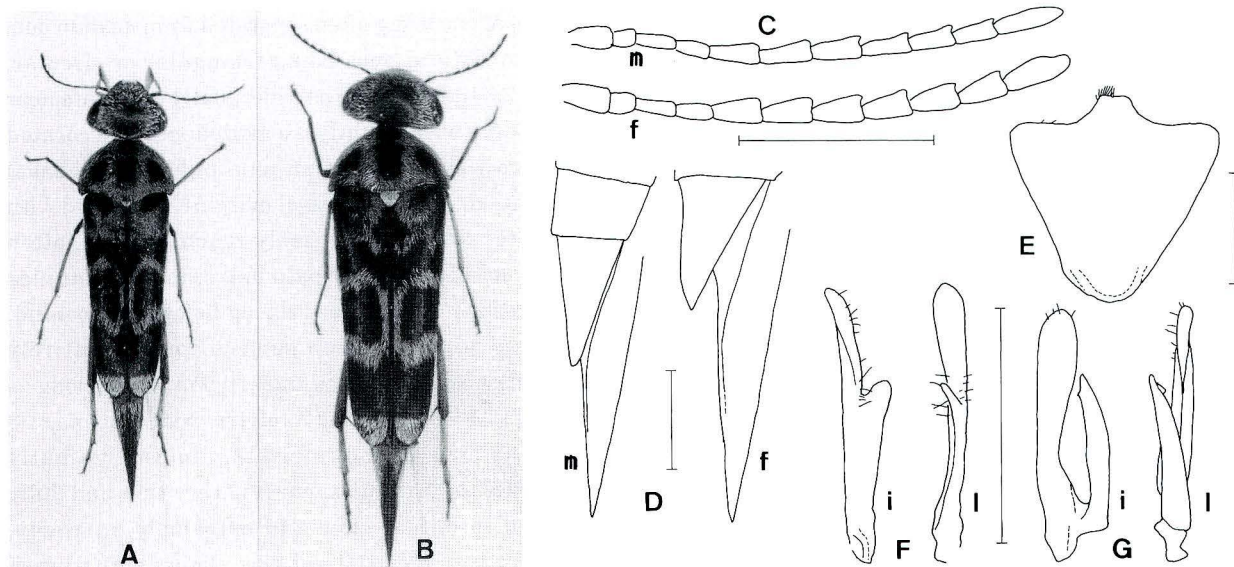


Fig. 19. *G. (S.) ohmomoi inemarginata* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

times in terminal one which is 1.36 times as long as the penultimate. Pygidium 0.52 times as long as elytra, 1.22 times as long as elytral width, about 2.7 times as long as anal sternite. Anal sternite 1.17 times as long as basal width, slightly bisinuate at apex.

Length: 9.1–11.4mm.

Type series. Holotype, ♂, Wang Chin, Phrae Pref., N. Thailand, 2-V-1997, M. Takakuwa leg. Paratypes: nr. Chiang Mai, N. Thailand: 1 ♂, Doi Suthep, 5-V-1980, Y. Komiya leg.; 1 ♀, same loc., 9-V-1980, T. Senoh leg.; 1 ♀, same loc., 27-V-1980, M. Tao leg. (HPC); 1 ♂ 1 ♀, Doi Pui, 25–28-V-1983, S. Ohmomo leg.; 1 ♀, Chiang Dao, 2–3-V-1980, Y. Komiya leg.; 1 ♂, same loc., 1-V-1984, M. Takakuwa leg.

Distribution. N. Thailand (Thailand), S. Vietnam (Vietnam).

This new species is very closely related to *G. watanabei* sp. nov. from the Ryukyus and Taiwan, but clearly differs from that species especially in the following characteristics: eyes more strongly convex, more sparsely haired; antenna longer, longer than pronotum; yellowish pubescence on dorsum paler; basal maculation of elytra reduced at basal margin, XX-shaped, the inner posterior lines connected with each other at suture; pygidium apparently thinner at apex; parameres slenderer.

Two subspecies are recognized.

***Glipa (Stenoglipa) ohmomoi ohmomoi* s. str.**

(Fig. 18A–G)

As described under the species.

Distribution. N. Thailand (Thailand).

Glipa (Stenoglipa) ohmomoi inemarginata

subsp. nov.

(Fig. 19A–G)

Middle annular maculations of elytra not zigzag in both anterior and posterior lines; 8th abdominal sternite of male as long as wide, with apical median projection larger.

Length: 8.4–10.4mm.

Type series. Holotype, ♂, Bao Loc, Lam Dong, S. Vietnam, 19-V-1992, T. Endo leg. Paratypes: 1 ♀, same data as the holotype; 1 ♂, 18km south from Bao Lok to Hochiminh, S. Vietnam, 6-V-1997, H. Karube leg.

Distribution. S. Vietnam (Vietnam).

***Glipa (Stenoglipa) sachiyoae* sp. nov.**

(Fig. 20A–F)

Male. Head moderately convex, about 1.23 times as wide as long, clothed with light yellow pubescence; gena a little projected at the middle with widely rounded apex, barely visible from above; eyes moderately convex, hardly haired, elliptical, about 1.31 times as long as wide, barely reaching hind margin of gena. Antenna 1.2 times as long as width of head, about as long as pronotal width, narrow for a member of the subgroup, 2.77 times as long as wide in 5th segment, about 2.33 times in 10th; terminal segment somewhat elongate quadrate, 3.44 times as long as wide, 1.48 times as long as the penultimate. Pronotum 1.2 times as wide as head, decorated with light yellow pubescence, with 4 black spots. Elytra 2.38 times as long as wide, rather abruptly attenuate near the middle with slightly excavated sides; basal maculation (consisting of light yellow pubescence) developed, XX-shaped with the outer lines reaching base; middle

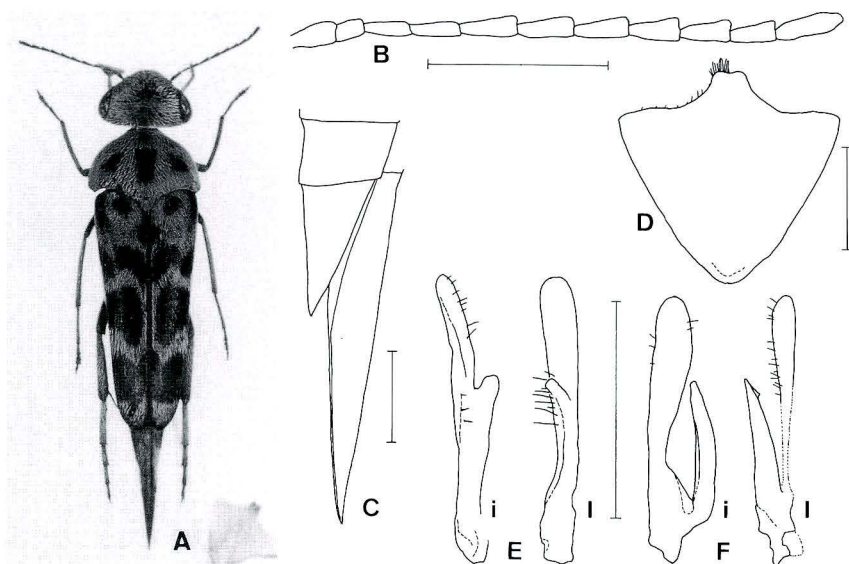


Fig. 20. *G. (S.) sachiyoae* sp. nov., ♂, holotype. —A, habitus; B, right antenna; C, sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; D, 8th abdominal sternite; E, left paramere; F, right paramere. —i, inner view; l, lateral view. (Scales: 1mm.)

annular whitish maculations more or less zigzag before and behind; each apical maculation semi-elliptical, entirely reaching apex. Pygidium 0.59 times as long as elytra, 1.4 times as long as elytral width, about 2.7 times as long as anal sternite, almost straightly attenuate towards apex which is very thin and dully pointed in dorsal and lateral views, clothed with whitish pubescence in more than basal 1/2 of lateral parts; dorsal aspect acutely carinate, with long median cicatrix. Abdomen just as in the preceding species. Anal sternite shallowly concave in ventral aspect, 1.4 times as long as basal width, moderately rounded at apex. Eighth abdominal sternite slightly wider than long (1.06: 1), similar to that of the preceding species. Parameres as figured, very similar to those of the preceding species.

Female. Unknown.

Length: 9.3-9.9mm.

Type series. Holotype, ♂, Cameron Highlands, 19 miles point from Tapah, Malay Peninsula, 25-IV-1993, S. Nirasawa leg. Paratypes: 1 ♂, same data as the holotype; 1 ♂, same locality as the holotype, IV-1990, native collector leg.

Distribution. Malay Peninsula (W. Malaysia).

This new species is very closely related to the preceding species especially in having very similar 8th abdominal sternite in male and parameres, but should be regarded as a good species because of having the following important differences: eyes moderately convex, hardly haired, elliptical, longer; 3rd antennal segment almost equal in length to 4th; elytra rather abruptly attenuate posteriad, with basal maculation (commonly emerged at basal margin) developed, XX-shaped with the outer lines reaching base, and

consisting of light yellow pubescence; pygidium longer, with dorsal aspect acutely carinate.

Subgroup of *G. acutimaculata*

Body rather flattened in male, strongly attenuate posteriad, clothed with blackish or whitish to light yellowish pubescence almost on all parts; gena moderately projected at the middle; mandible acute at apex, strongly shining; eyes moderately convex, widely oval, not hairy though sometimes with a very few minute hairs on the postero-lateral parts, broadly reaching hind margin of gena; male antenna rather short, not so slender, a little shorter than pronotal width, serrate in segments 5-10, with 5th slightly shorter than 6th, with last segment not so slender; female antenna short, distinctly shorter than the width of head; pronotum decorated with 4 large and clear black spots; scutellum clothed with whitish pubescence; elytra rather abruptly attenuate near the middle with slightly excavated sides; elytral maculations almost uniformly whitish to light yellowish, reduced at basal margin, with basal XX-shaped maculation with the outer lines not reaching base inside humeri, with middle annular ones gentle or weakly waved in front and acutely zigzag behind just near suture, with apical maculations crescent or semi-elliptical, barely reaching apex; pygidium slenderest in the species-group, almost straightly attenuate towards apex, acutely carinate in dorsal aspect, with indistinct median cicatrix in less than apical 1/2; mesosternal process moderately arcuate or rather triangular at each apex; abdomen largely clothed with whitish pubescence, with a blackish spot in each postero-lateral area of 3rd and 4th; anal

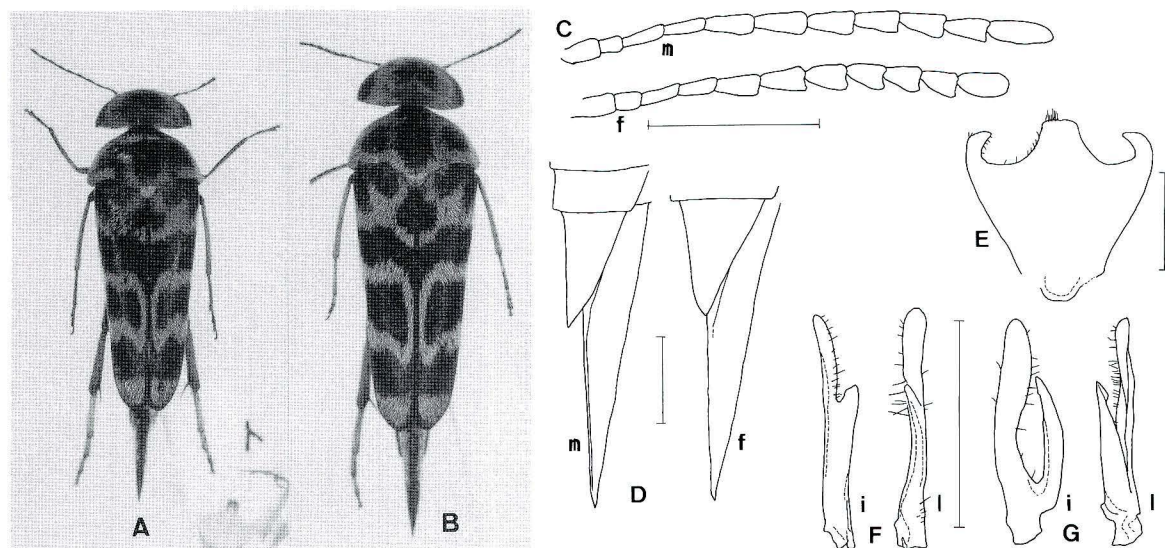


Fig. 21. *G. (S.) inexpectata* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, left antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

sternite rather long, flat in ventral aspect, broadly rounded in male and transversely truncate in female at apex; 8th abdominal sternite of male very thinly membranous, slightly wider than long, with apical angles conspicuously projecting; parameres somewhat slender; left paramere broadly emarginate at the left margin; right paramere with a distinct basal tubercle.

***Glipa (Stenoglipa) inexpectata* sp. nov.**

(Fig. 21A-G)

Male. Body decorated with whitish pubescence. Head somewhat strongly convex, about 1.31 times as wide as long; eye about 1.18 times as long as wide. Antenna 1.09 times as long as width of head, a little shorter than pronotal width (0.93: 1), 2.4 times as long as wide in 5th segment, 1.9 times in 10th; terminal segment 2.83 times as long as wide, 1.43 times as long as the penultimate, with apex widely rounded. Pronotum 1.18 times as wide as head, with apical black spot large and tending to fuse with basal median one, with a pair of laterals subquadrate. Elytra 2.28 times as long as wide; basal XX-shaped maculation considerably shortened; annular whitish maculations broad. Pygidium 0.55 times as long as elytra, 1.25 times as long as elytral width, about 2.67 times as long as anal sternite, dully pointed in dorsal and lateral views, clothed with whitish pubescence in basal 2/3. Anal sternite 1.4 times as long as basal width. Eighth abdominal sternite with median projection broad and hardly emarginate at apex, and with apico-lateral ones claw-shaped. Parameres as figured, stouter than in the next species; right paramere hardly emarginate at the right margin; sclerotized branch of left paramere gently curved inwards.

Female. Body considerably robuster. Antenna

shorter than width of head (0.87: 1), very wide; 10th segment 1.5 times as long as wide; terminal one truncate at apex, about twice as long as wide, 1.36 times as long as the penultimate. Pygidium about 2.76 times as long as anal sternite. Anal sternite 1.1 times as long as basal width.

Length: 9.1-10.7mm.

Type series. Holotype, ♂, Palolo, 700m in alt., Palu, C. Sulawesi, II-1989, native collector leg. Paratypes: 1 ♀, same data as the holotype; 1 ♂, same locality as the holotype, IX-1990, native collector leg.

Distribution. C. Sulawesi (Indonesia).

This new species resembles *G. albannulata* sp. nov. from Sulawesi in the maculate pattern, but doubtlessly belongs to a different group.

***Glipa (Stenoglipa) acutimaculata* sp. nov.**

(Fig. 22A-G)

Male. Head not so convex, about 1.18 times as wide as long, clothed with whitish to yellowish white pubescence except for vertex; eyes about 1.23 times as long as wide. Antenna 1.1 times as long as width of head, a little shorter than pronotal width (0.94: 1), 2.29 times as long as wide in 5th segment, 1.9 times in 10th; terminal segment 2.85 times as long as wide, 1.46 times as long as the penultimate, with apex narrowly rounded. Pronotum 1.2 times as wide as head, decorated with whitish to light yellow pubescence, with apical black spot usually large, with a pair of laterals quadrate or hemicircular. Elytra 2.35 times as long as wide; basal maculation consisting of whitish or light yellow pubescence; whitish annular maculations remarkably long, with hind acute reflections distinct. Pygidium 0.59 times as long as elytra, 1.38 times as long as elytral width, about 2.6 times as long as anal sternite, very

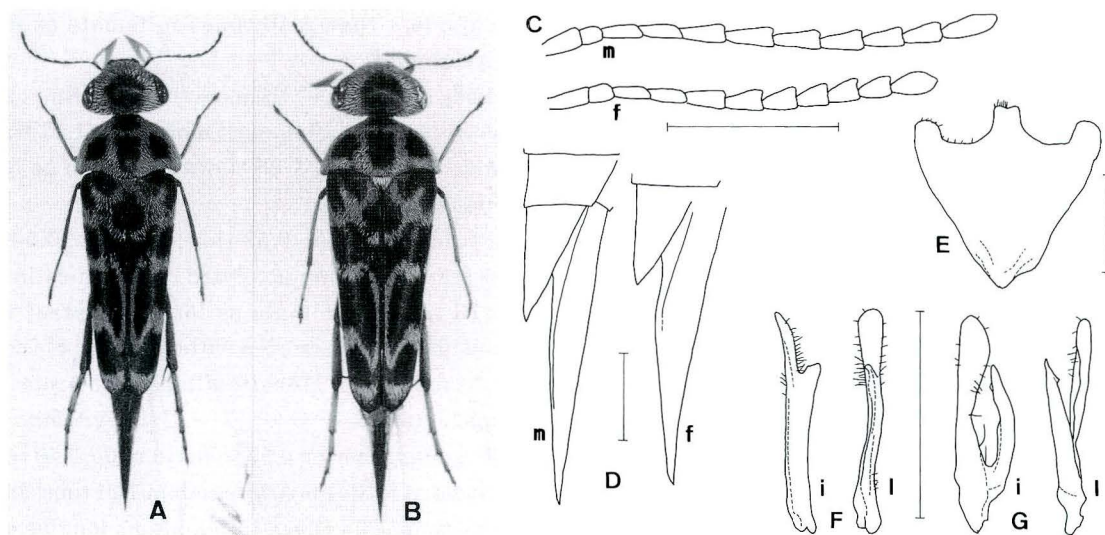


Fig. 22. *G. (S.) acutimaculata* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

thin and acutely pointed in dorsal view and obliquely, faintly truncate in lateral view at apex, clothed with whitish pubescence in more than basal 1/2. Anal sternite 1.53 times as long as basal width. Eighth abdominal sternite with median projection narrow and emarginate at apex, with apico-lateral ones semicircular. Parameres as figured, slenderer than in the preceding species; right paramere gently emarginate at the right margin; left paramere distinctly bent inwards near the middle of sclerotized branch.

Female. Body somewhat robust. Antenna shorter than width of head (0.86: 1), very similar in shape to the preceding species. Pygidium about 3.08 times as long as anal sternite. Anal sternite 1.15 times as long as basal width.

Length: 7.9-10.7mm.

Type series. Holotype, ♂, Matang, Sarawak, N. Borneo, 27-II-1993, A. Yagishita leg. Paratypes: 1 ♂, same locality and date as the holotype, K. Maruyama leg.; 2 ♂♂, same locality as the holotype, 4-VI-1994, K. Maruyama leg.; 2 ♂♂, 800m in alt., nr. Ranau, Sabah, 9-VIII-1989, K. Maruyama leg.; 4 ♂♂ 2 ♀♀, Poring, Sabah, 4 ~ 11-VI-1992, M. Takakuwa leg.; 1 ♀, Mt. Bawang, W. Kalimantan, VI-1991, N. Nishikawa leg.

Additional specimens examined. W. Malaysia: 1 ♂, Cameron Highlands, 19 miles point from Tapah, Malay Peninsula, 25-IV-1993, S. Nirasawa leg.; 4 ♂♂ 1 ♀, Templer Park, nr. Kuala Lumpur, 28-III-1977, T. Mizunuma leg. (HPC), Singapore: 1 ♂ 1 ♀, Macrichie Reservoir, 11-XII-1975, H. Yokoyama leg. (HPC), N. Sumatera: 1 ♂, Matang, 17-III-1995, K. Maruyama leg.; 1 ♂ 1 ♀, E. Ache, VI-1995, native collector leg.

Distribution. Borneo (E. Malaysia & Indonesia),

W. Malaysia, Singapore, N. Sumatera (Indonesia).

This new species is unique in the middle annular maculations which are very long and acutely reflexed near sutures at the hind lines, and is distinguishable at first sight from all the species of the subgenus. However, it is closely related to the preceding species especially in the characters of antenna, maculate pattern, 8th abdominal sternite of male and parameres.

Group of *G. annulata*

Body moderate in size, often robust; male antenna slender, rather indistinctly serrate in 5-10th segments, with segment 5 more or less longer than 4, slightly shorter than or nearly equal in length to 6, with last segment elongate-fusiform or elongate-quadrate; female antenna serrate in 5-10th segments; pronotum decorated with 4 black spots; scutellum clothed with whitish pubescence; elytral maculations with basal XX-shaped one reaching both basal margin and suture at basal 1/4 - 2/7, with a pair of middle annular ones usually white, gently waved in front and strongly zigzag behind in general, and with apical or preapical ones crescent to semi-elliptical with emarginate front margins, usually not reaching apices; pygidium strongly, straightly attenuate towards apex which is acutely pointed; mesosternal process arcuate at apex; abdominal sternites 3-4 each always with a pair of large blackish spots, sometimes 5 or 6 each with a pair of small or indistinct blackish spots in postero-lateral areas; 8th abdominal sternite fundamentally shovel-shaped or triangular, sometimes with apico-lateral projections; parameres slender; left paramere distinctly excavated at the left margin, with sclerotized branch divergent from the right margin of the base of

dorsal membranous branch.

This group is widely distributed in the Oriental Region west of Weber's Line. Two subgroups are recognized and 7 species are known as shown below.

Key to Subgroups and Species

1. Eyes with erect hairs on lower parts; pronotum always decorated with golden yellow pubescence, with black marks relatively small and usually indistinctly margined; pygidium long, usually with dorsal median cicatrix; parameres somewhat longer; right paramere excavated at base of dorsal membranous branch, with ventral sclerotized branch thin; (*hatayamai* subgroup) 2.
- Eyes without erect hairs though sometimes with a few minute ones near lateral margins; pronotum often decorated with whitish to light yellow pubescence though rarely with golden yellow pubescence, with black spots large and distinctly margined; pygidium shorter, often with dorsal cicatrix in less than apical 1/2; parameres somewhat shorter; right paramere not so excavated at base of dorsal membranous branch, with ventral sclerotized branch thickened; (*annulata* subgroup) 3.
2. Body gently attenuate apicad; elytra with basal maculation more reduced, golden yellow at lateral parts and whitish inside, with middle annular ones strongly waved, widely rounded at apex; pygidium not so slender; right paramere strongly excavated at base of dorsal membranous branch, with ventral sclerotized branch gently attenuate apicad in lateral view *G. hatayamai* sp. nov.
- Body strongly attenuate apicad; elytra with basal maculation enlarged, golden yellow, with middle annular ones gently waved especially in female, very narrowly rounded at apex; pygidium distinctly slender; right paramere slightly excavated at base of dorsal membranous branch, with ventral sclerotized branch strongly thinned apicad in lateral view *G. basiaurea* sp. nov.
3. Head, pronotum and basal maculation of elytra decorated with deep golden yellow pubescence in male, which is deeper on pronotum than on head; antenna very slender, distinctly excavated at inner margins of 5-10 segments; black apical spot of pronotum very small and indistinct *G. kashiwaii* sp. nov.
- Head, pronotum and basal maculation of elytra decorated with yellowish to whitish pubescence in male, which is equal in color on pronotum to or lighter than that on head; antenna slender, slightly or not excavated at inner margins of 5-10 segments; black apical spot of pronotum usually large and distinct 4.
4. Body stouter; elytra less than 2.24 times as long as wide; pygidium shorter, less than 1.3 times in

- male, less than 1.16 times in female as long as elytral width 5.
- Body slenderer; elytra more than 2.27 times as long as wide; pygidium longer, more than 1.43 times in male, more than 1.25 times in female as long as elytral width 6.
5. Pygidium longer, 0.59 times in male, 0.54 times in female as long as elytra, 1.29 times in male, 1.16 times in female as long as elytral width; abdominal sternites 5-6 without apical black band; 8th abdominal sternite almost not projected at apical angles *G. ishigakiana* Kôno.
- Pygidium shorter, 0.55 times in male, 0.49 times in female as long as elytra, less than 1.24 times in male, less than 1.08 times in female as long as elytral width; abdominal sternites 5-6 with apical black bands; 8th abdominal sternite with distinct apico-lateral projections *G. matsukai* sp. nov.
6. Elytral maculations thicker, with middle annular one longer, 0.42-0.45 times as long as elytra, with apical one usually semi-elliptical, prolonged anteriad along suture *G. annulata* (Redtenbacher).
- Elytral maculations distinctly thinner, with each basal one often divided into two, anterior U-shaped mark and posterior transverse waved line, though connected with two longitudinal lines, with middle annular one shorter, 0.34 times as long as elytra, with apical one crescent *G. gracilis* (Chûjô).

Subgroup of *G. hatayamai*

Body more or less slender especially in male, always decorated with golden yellow pubescence on head, pronotum and basal portion of elytra; head moderately convex; eyes widely oval, rather sparsely haired on lower parts; pronotal black spots relatively small, usually indistinctly margined; elytra with basal maculations golden yellow though often whitish in middle, with a pair of middle annular ones usually small and usually, rather strongly waved posteriad, with apical ones usually developed; epipleuron rather wide posteriorly; pygidium long, usually with dorsal median cicatrix; 8th abdominal sternite campanulate, with apico-median projection bilobed or emarginate at apex, without apico-lateral projections; parameres relatively long; right paramere excavated at base of dorsal membranous branch, with thin ventral sclerotized branch.

This subgroup is widely distributed in India via Indochina to Japan and the Sundalands, and may show the allopatric or parapatric distribution to next subgroup though sympatrically distributed in Thailand, the Malay Peninsula, Sumatera and Java.

***Glipa (Stenoglipa) hatayamai* sp. nov.**

(Figs. 23-26)

Glipa malaccana: Chûjô, 1935, *Sylvia*, **6**: 77 (partim: Formosa); Kôno, 1936, *Fauna Nipponica*, **10**(8-1): 16, Fig. 8 (partim: Taiwan); Nakane & Nomura, 1950, *Trans. Kansai ent. Soc.*, **15**: 4 (ditto); Ermisch, 1940, *Ent. Bl.*, **36**: 168 (partim: Formosa); Nakane, 1950, *Trans. Kansai ent. Soc.*, **15**: 22 (ditto); Nakane, 1956, *Ent. Rev. Japan*, **7**: 17 (partim); Nomura, 1957, *Ent. Rev. Japan*, **8**: 40 (partim: Izu Is.); Nakane, 1957, *Shin-Konchû*, Tokyo, **10**(1): 52 (partim: Taiwan); Nomura, 1963, *Icon. ins. japon. Col. nat. ed.*, **2**: 247, pl. 124, no. 2 (partim: Izu Is., Yaku Is.); Nomura, 1966, *Ent. Rev. Japan*, **18**: 47 (partim: Izu Is., N. Ryukyus); Nomura, 1967, *Ent. Rev. Japan*, **19**: 7 (partim: Formosa); Takakuwa, 1985, *Coleopt. Japan Col. Osaka*, **3**: 379 (partim: Izu Is., N. & C. Ryukyus, Taiwan, Yunnan, Indochina); Fan & Yang, 1993, *Mem. Beijing nat. Hist. Mus.*, (53): 47, 59 (Hainan Is., Guangxi Zhuangzu Zizhiqu, S. China).

Male. Head about 1.12 times as wide as long; eyes about 1.3 times as long as wide. Antenna 1.23 times as long as width of head, a little shorter than pronotal width (0.97-0.94: 1), 1.96 times as long as wide in 5th segment, 2.37 times in 10th; terminal segment emarginate before apex at inner margin, 3.3 times as long as wide, 1.55 times as long as the penultimate. Pronotum 1.26 times as wide as head; apical black spot usually small; a pair of laterals usually obcordate. Elytra 2.33 times as long as wide, widely rounded at apex; each basal whitish X-mark almost rectangularly connected with each other on suture at basal 1/4; each middle whitish mark about 0.38-0.41 times as long as elytra, with the front reflection lying just the middle of elytron in dorsal view and outside of the hind reflection; each apical whitish mark semicircular with anterior margin more or less emarginate, somewhat prolonged anteriorly along suture. Pygidium 0.54 times as long as elytra, 1.26 times as long as elytral width, about 2.59 times as long as anal sternite, clothed with whitish pubescence except only for apex. Abdominal sternite 6 with neither black lateral spots nor fuscous apical hairs. Anal sternite about 1.25 times as long as basal width, longitudinally concave in ventral aspect. Eighth abdominal sternite slightly longer than wide (1.06: 1), very broadly rounded at apical angles. Right paramere strongly excavated at base of dorsal membranous branch, with ventral sclerotized branch gently attenuate apicad in lateral view.

Female. Body considerably robust, with yellowish pubescence faintly paler. Antenna as long as or slightly longer than width of head, wider, 1.72 times as long as wide in 5th segment, 1.84 times in 10th; terminal segment 2.33 times as long as wide, 1.33 times as long as the penultimate. Pygidium 0.52 times as long as elytra, 1.21 times as long as elytral width, about 3.36 times as long as anal sternite, clothed with whitish

pubescence all over. Anal sternite 1.24 times as long as basal width, flat, faintly bisinuate at apex.

Length: 9.1-12.8mm.

Type series. Holotype, ♂, Hijigawa, N. Okinawa Is., C. Ryukyus, 26-V-1997, M. Takakuwa leg. Paratypes: 2 ♂♂, same data as the holotype; Yona, N. Okinawa Is.: 1 ♀, 23-VI-1996, R. Yakita leg.; 2 ♀♀, 26-VI-1996, R. Yakita leg.; 18 ♂♂ 8 ♀♀, 24~27-V-1997, M. Takakuwa leg.; 4 ♂♂, 15-VI-1997, R. Yakita leg.; 3 ♂♂ 7 ♀♀, 28~29-VI-1997, R. Yakita leg.; 4 ♀♀, Mt. Yonaha, N. Okinawa Is., 26-VI-1996, R. Yakita leg.; 1 ♂ 1 ♀, Makiyagawa, Nago-shi, C. Okinawa Is., 28-VI-1997, R. Yakita leg.; 1 ♀, Oku, N. Okinawa Is., 23-VI-1975, N. Kanie leg.

Distribution. Izu Is., Ryukyus, Taiwan, S. China, Vietnam, Thailand, Laos, NE & S. India.

This new species has hitherto been regarded as *G. malaccana* Pic (= *annulata* (Redtenbacher)) or *G. ishigakiana* Kôno, both of which are included in the next subgroup, but is clearly different from them as shown in the above key. This beautiful species is widely distributed from India to Japan, and shows allopatric or parapatric distribution to the species of the next subgroup. Four subspecies are recognized.

Key to Subspecies

1. Body stouter; golden yellow pubescence deep; basal X-mark of elytron almost rectangularly connected with each other on suture; each front reflection of elytral middle mark situated just at the middle of elytron in dorsal view and outside of the hind reflection; abdominal sternite 6 decorated with neither black lateral bands (occasionally with spots) nor fuscous apical hairs; anal sternite concave in ventral aspect in male, flat in female; 8th abdominal sternite of male broadly rounded at apical angles 2.
- Body slenderer; golden yellow pubescence relatively light; basal X-mark of elytron connected with each other as a broad U-shape on suture; each front reflection of elytral middle mark situated at inside of elytron in dorsal view and on same line or faint outside of hind reflection; abdominal sternites 5-6 each decorated with a pair of black lateral bands and fuscous apical hairs in general; anal sternite flat in ventral aspect in male, rather convex in female; 8th abdominal sternite of male somewhat angulate at apical angles 3.
2. Antenna 1.23 times as long as width of head in male, a little shorter than pronotal width; pygidium clothed with whitish pubescence except only for apex (male) or all over (female); abdominal sternite 6 without black lateral spots *G. hatayamai hatayamai*.
- Antenna 1.45 times as long as width of head in male, a little longer than pronotal width; pygidium clothed

with whitish pubescence in about basal 1/2 of lateral parts and only at base (male) or in more than basal 4/7 (female) on dorsum; abdominal sternites 5-6 decorated with black lateral spots

..... *G. hatayamai izuinsulana* subsp. nov.

3. Body slenderer; elytral middle *X*-mark shorter, not so waved before; pygidium clothed with whitish pubescence in basal 1/2 of lateral parts (male) or more than basal 1/2 of lateral parts (female)

..... *G. hatayamai tamdaoensis* subsp. nov.

— Body stouter; elytral middle *X*-mark longer, strongly waved before and behind; pygidium clothed with whitish pubescence in less than basal 1/2 of lateral parts *G. hatayamai sejuncta* subsp. nov.

***Glipa (Stenoglipa) hatayamai hatayamai* s. str.**

(Fig. 23A-G)

Glipa malaccana nipponica: Takakuwa, 1976, Coleopt. News, Tokyo, (34): 7 (Tokara Isls.).

Glipa malaccana: Takakuwa, 1985, Coleopt. Japan Col. Osaka, 3: 379 (partim: Tokara Isls., C. Ryukyus).

Additional specimens examined. Nakano-shima Is., Tokara Isls., N. Ryukyus: 1 ♂, 27-VI-1973, H. Irie leg.; 1 ♂ 2 ♀, 30-VI-1973, H. Irie leg.; 5 ♂ 2 ♀, 12 ~ 15-VI-1974, T. Seino leg.; 1 ♂ 1 ♀, 12 ~ 26-VII-1997, T. Hattori leg.

Distribution. Okinawa Is. & Nakano-shima Is. of the Ryukyus (SW Japan).

***Glipa (Stenoglipa) hatayamai izuinsulana* subsp. nov.**

(Fig. 24A-G)

Glipa malaccana: Chûjô, 1935, Sylvia, 6: 77 (partim: Formosa); Kôno, 1936, Fauna Nipponica, 10(8-1): 16, Fig. 8 (partim: Taiwan); Nakane & Nomura, 1950, Trans. Kansai ent. Soc., 15: 4 (partim: Formosa); Ermisch, 1940, Ent. Bl., 36: 168 (ditto); Nakane, 1950, Trans. Kansai ent. Soc., 15: 22 (ditto); Takakuwa, 1985, Coleopt. Japan Col. Osaka, 3: 379 (partim: Izu Isls., N. & C. Ryukyus, Taiwan); Fan & Yang, 1993, Mem. Beijing nat. Hist. Mus., (53): 47, 59 (Hainan Is., Guangxi Zhuangzu Zizhiqu, S. China).

Glipa malaccana nipponica: Nomura, 1957, Ent. Rev. Japan, 8: 40 (partim: Izu Isls.); Nomura, 1963, Icon. ins. japon. Col. nat. ed., 2: 247, pl. 124, no. 2 (partim: Izu Isls., Yaku Is.); Nomura, 1966, Ent. Rev. Japan, 18: 47 (partim: Izu Isls., N. Ryukyus); Takakuwa, 1976, Coleopt. News, Tokyo, (34): 6 (Kumage Isls.).

Glipa (Stenoglipa) malaccana malaccana: Nomura, 1967, Ent. Rev. Japan, 19: 7 (partim: Formosa).

Neoglipa malaccana: Nakane, 1957, Shin-Konchû, Tokyo, 10(1): 52 (partim: Taiwan).

Neoglipa (Stenoglipa) malaccana: Nakane, 1956, Ent. Rev. Japan, 7: 17 (partim).

Male. Head about 1.14 times as wide as long; eyes about 1.27 times as long as wide. Antenna 1.45 times as long as width of head, a little longer than pronotal width (1.07: 1), 2.29 times as long as wide in 5th segment, 2.39 times in 10th; terminal segment somewhat parallel-sided with inner margin emarginate before apex, 3.47 times as long as wide, 1.45 times as long as the penultimate. Pronotum 1.35 times as wide as head. Elytra 2.28 times as long as wide; each middle whitish mark about 0.38 times as

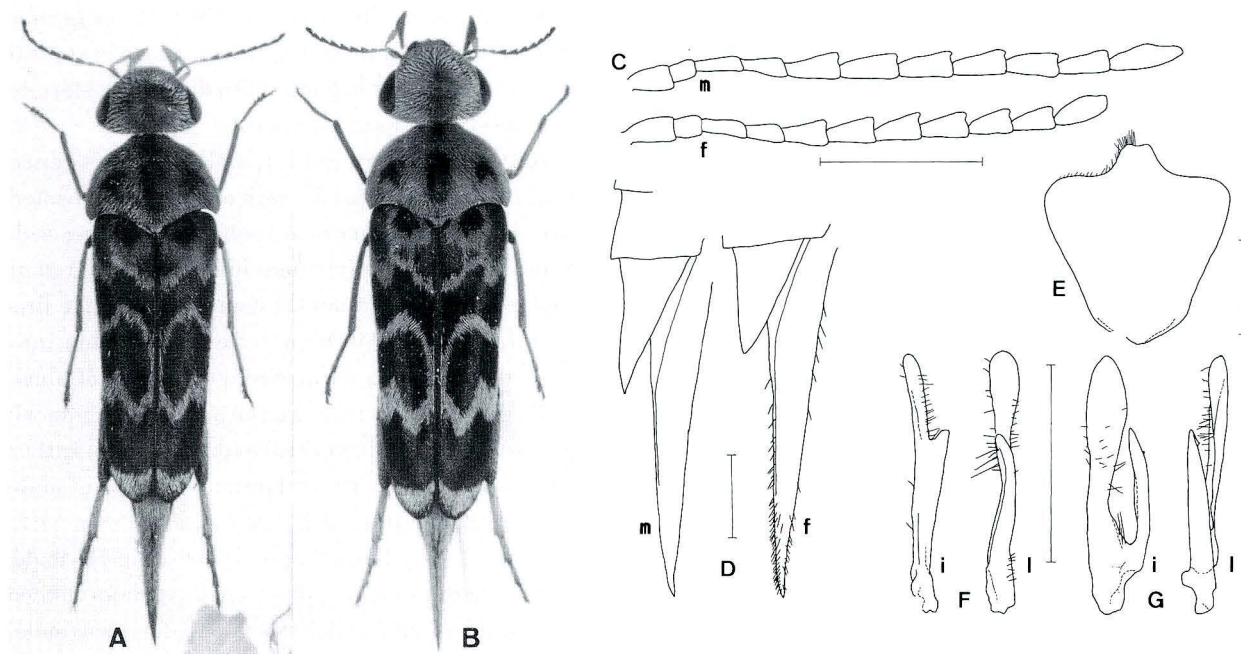


Fig. 23. *G. (S.) hatayamai* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite with condition of black setae and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

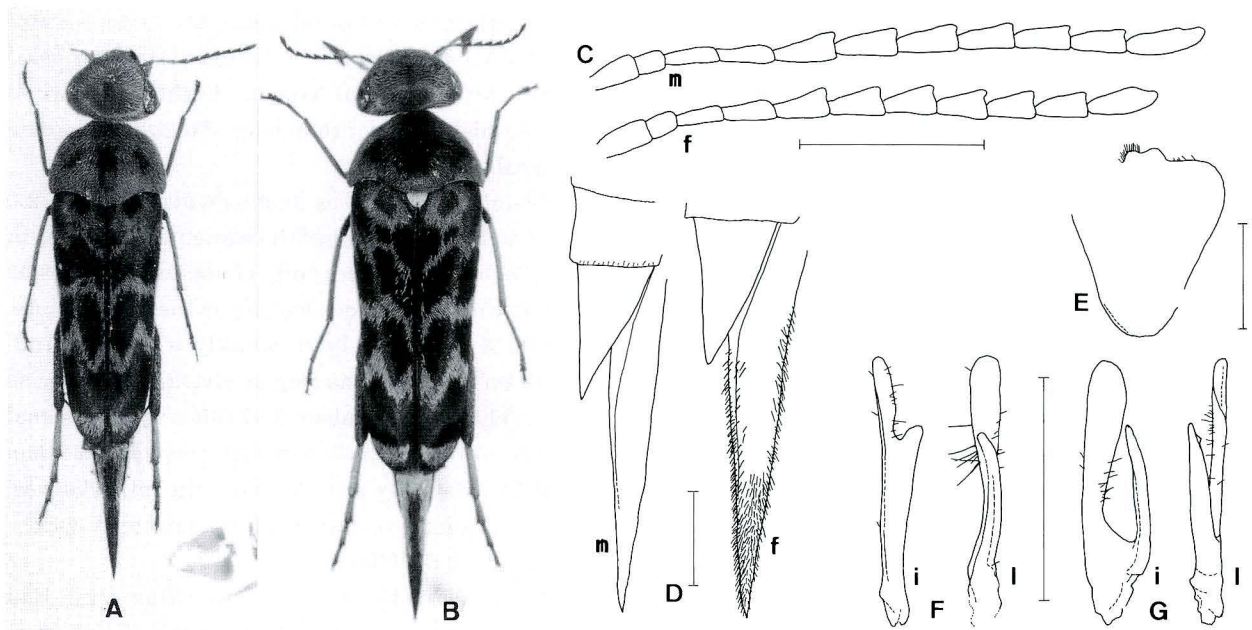


Fig. 24. *G. (S.) hatayamai izuinsulana* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite with condition of black setae and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

long as elytra. Pygidium 0.57 times as long as elytra, 1.31 times as long as elytral width, about 2.58 times as long as anal sternite, clothed with whitish pubescence in about basal 1/2 of lateral parts and only at base on dorsum. Abdominal sternites 5-6 each decorated with a pair of black transverse lateral spots. Eighth abdominal sternite longer than wide (1.1: 1).

Female. Antenna as long as or slightly shorter than width of head, 1.9 times as long as wide in 5th segment, 2.27 times in 10th; terminal segment 2.87 times as long as wide, 1.26 times as long as the penultimate. Pygidium 0.54 times as long as elytra, 1.24 times as long as elytral width, about 2.77 times as long as anal sternite, clothed with whitish pubescence in more than basal 4/7.

Length: 9.1-13.6mm.

Type series. Holotype, ♂, Tairo-ike, Miyake Is., C. Izu Is., C. Japan, 21-VII-1974, M. Takakuwa leg. Paratypes: same locality as the holotype: 1 ♀, 20-VII-1977, M. Takakuwa leg.; 3 ♀ ♀, 24-VII-1982, M. Takakuwa leg. (HPC); 1 ♀, 26-VII-1982, M. Takakuwa leg.; 1 ♂, Sato, Mikura Is., C. Izu Is., 18-VII-1974, W. Suzuki leg.

Additional specimens examined. 1 ♂, Mikura Is., C. Izu Is., 26-VIII-1950, Is. Fujiyama leg. (NSMT) (allotype of *Glipa malaccana nipponica* Nomura); Ohsumi Is., N. Ryukyus: 1 ♀, Kuro-shima Is., 24-VII-1975, H. Makihara leg.; Yaku-shima Is., N. Ryukyus: 1 ♀, Shiratani, 18-VII-1974, H. Irie leg.; 1 ♀, same loc., 22-VII-1986, H. Kamezawa leg.; 1 ♂ 2 ♀ ♀, Ohkawa, 18-VII-1992, H. Karube leg.; 2 ♂ ♂, same loc., 7-VII-

1994, S. Nirasawa leg.; 1 ♂ 1 ♀, Cape Nagata, 5-VIII-1982, T. Hatayama leg. (HPC); Amami-oshima Is., C. Ryukyus: 1 ♂, Hatsuno, 20-VI-1969, S. Moriya leg.; 5 ♂ ♂ 1 ♀, Kamiya, 1 ~ 3-VII-1999, M. Takakuwa leg.; 1 ♂, Mt. Yuwan, 3-VII-1999, N. Kobayashi leg.; Taiwan: 1 ♂, Wulai, Taipei Hsien, 16-VII-1969, T. Okadome leg.; 1 ♀, Mt. Lalashan, Taoyuan Hsien, 9-VIII-1985, K. La leg.; 1 ♀, Lushan, 24-VI-1976, M. Kubota leg.; 1 ♂, Lushan Spa, Nantou Hsien, 21-V-1976, T. Shimomura leg.; 1 ♂, Nanshanchi, Nantou Hsien, 31-V-1975, S. Imasaka leg.; 1 ♂, same loc., 4-VI-1979, M. Ito leg.; 6 ♂ ♂ 1 ♀, same loc., 28-VIII-1988, K. La leg.; 2 ♂ ♂ 6 ♀ ♀, same loc., 3-VI-1995, M. Takakuwa leg.; 1 ♂, Mt. Kuwantou, Nantou Hsien, 14-VII-1988, Y. Ueda leg.; 2 ♂ ♂ 1 ♀, SE foot of Mt. Kuwantou, Nantou Hsien, 2-VI-1995, M. Takakuwa leg.; 3 ♂ ♂ 1 ♀, Shihtzutou, Nantou Hsien, 4-VI-1995, M. Takakuwa leg.; 9 ♂ ♂ 2 ♀ ♀, Tokkasha, Nantou Hsien, 20-VI-1979, T. Mikage leg. (HPC); 1 ♂, nr. Liukuei, Kao Hsiung Hsien, 26-V-1981, H. Miura leg.; 1 ♀, Juisui, Hua Lien Hsien, 25-V-1975, S. Takeda leg. (HPC); 1 ♂, Mizuho, Hua Lien Hsien, 20-VI-1972; 1 ♂ 1 ♀, Kenting Park, Pingtung Hsien, 14 ~ 17-V-1978, T. Senoh leg.; SW China: 1 ♂, nr. Jinghong, SW Yunnan, 6-V-1982, M. Takakuwa leg.

Distribution. Miyake Is. & Mikura Is. of the Izu Is., Ohsumi Is., Amami Is. of the C. Ryukyus (C. & SW Japan), Taiwan, Yunnan, Guangxi Zhuangzu Zizhiqu, Hainan Is. (S. China).

Variation. The Taiwanese specimens are provided with the following characters of elytral maculations:

each basal X-mark connected with each other at an angle of more than 120 degrees; middle mark about 0.35 times as long as elytra. The Chinese specimen has longer middle maculation of elytra, which is 0.37 times as long as elytra and approaches to basal maculation, though only one male is available for this study.

Glipa (Stenoglipa) hatayamai tamdaoensis
subsp. nov.

(Fig. 25A-G)

Male. Head about 1.12 times as wide as long; eyes about 1.27 times as long as wide. Antenna 1.31 times as long as width of head, a little longer than pronotal width (1.08: 1), 2.26 times as long as wide in 5th segment, 2.47 times in 10th; terminal segment 3.4 times as long as wide, 1.35 times as long as the penultimate. Pronotum 1.22 times as wide as head. Elytra 2.35 times as long as wide; each basal whitish X-mark connected with each other as a broad U-shape on suture at basal 1/4; each middle whitish mark about 0.35 times as long as elytra, not so waved in front, with the front reflection situated at the inside of elytron in dorsal view and on the same line as or faintly outside of hind reflection; each apical whitish mark semicircular with anterior margin slightly emarginate, hardly prolonged anteriad along suture. Pygidium 0.57 times as long as elytra, 1.46 times as long as elytral width, about 3.04 times as long as anal sternite, clothed with whitish pubescence in basal 1/2 of lateral parts. Abdominal sternites 5-6 each usually decorated

with a pair of black lateral bands and fuscous apical hairs. Anal sternite about 1.34 times as long as basal width, flat in ventral aspect. Eighth abdominal sternite slightly wider than long, somewhat angulate at apical angles.

Female. Antenna as long as width of head, 2.0 times as long as wide in 5th segment, 2.12 times in 10th; terminal segment fully elongate, 3.2 times as long as wide, 1.45 times as long as the penultimate. Middle X-mark of elytra weakly waved behind. Pygidium 0.54 times as long as elytra, 1.24 times as long as elytral width, about 2.97 times as long as anal sternite, clothed with whitish pubescence in more than basal 1/2 of lateral parts. Anal sternite rather convex, slightly bisinuate or transversely truncate at apex.

Length: 9.6-12.5mm.

Type series. Holotype, ♂, Tam Dao, Vinh Phu Prov., N. Vietnam, 29-V ~ 4-VI-1993, M. Kubota leg. Paratypes: 1 ♀, same data as the holotype; 1 ♀, same locality as the holotype, 3-VIII-1997, T. Senoh leg.; 1 ♀, 1 ~ 3-VI-1997, Y. Arita leg.; Cuc Phuong, Ninh Binh Prov., N. Vietnam: 1 ♂ 2 ♀ ♀, 30-IV-1994, S. Nirasawa leg.; 1 ♀, 9-VIII-1997, T. Senoh leg.; 1 ♂ 2 ♀ ♀, 1-XI-1997, Y. Arita leg.

Distribution. N. Vietnam (Vietnam).

***Glipa (Stenoglipa) hatayamai sejuncta* subsp. nov.**

(Fig. 26A-G)

Glipa malaccana: Takakuwa, 1985, Coleopt. Japan Col. Osaka, 3: 379 (partim: Indochina).

Male. Head about 1.15 times as wide as long; eyes

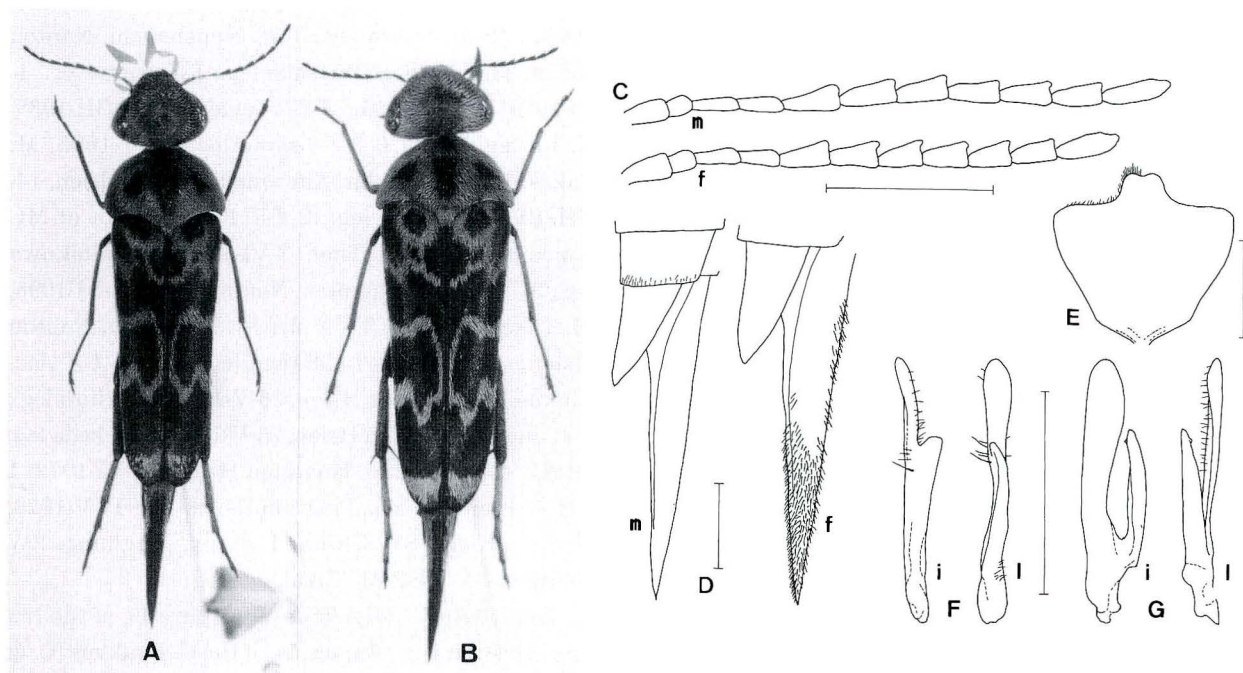


Fig. 25. *G. (S.) hatayamai tamdaoensis* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite with condition of black setae and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

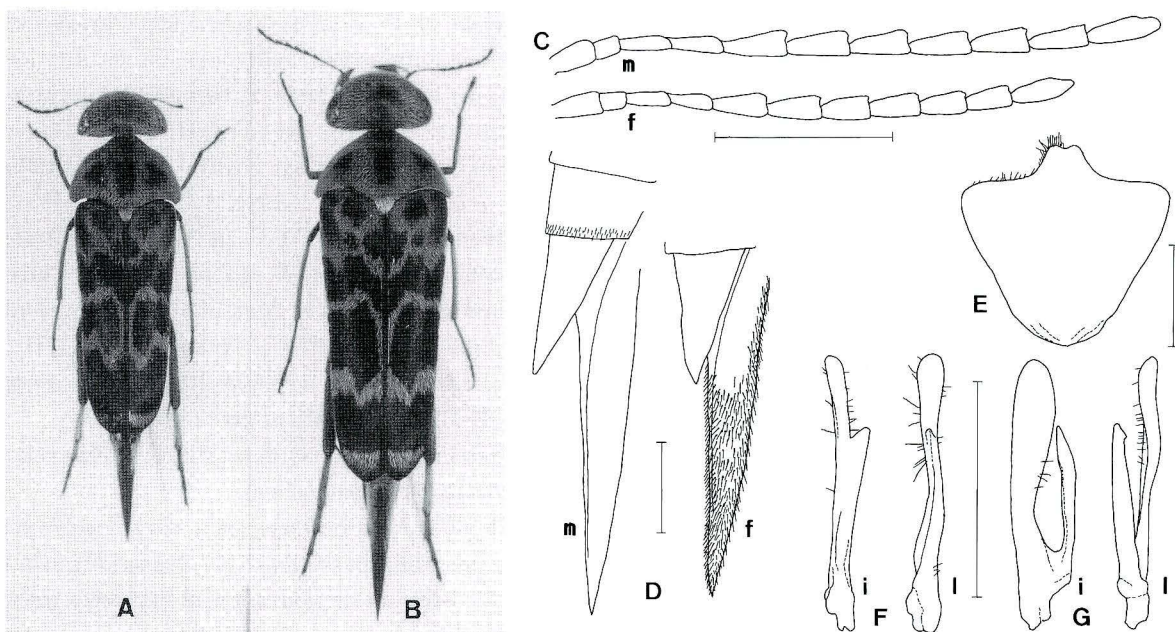


Fig. 26. *G. (S.) hatayamai sejuncta* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite with condition of black setae and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

about 1.2 times as long as wide. Antenna 1.33 times as long as width of head, a little longer than pronotal width (1.08: 1), 2.5 times as long as wide in 5th segment, 2.76 times in 10th; terminal segment 3.27 times as long as wide, 1.26 times as long as the penultimate. Pronotum 1.23 times as wide as head. Elytra 2.48 times as long as wide; each basal whitish X-mark connected with each other as a broad U-shape on suture at basal 1/4; each middle whitish mark about 0.39 times as long as elytra, strongly waved before and behind, with the front reflection situated at the inside of elytron in dorsal view and almost on the same line as hind reflection; each apical whitish mark semicircular with anterior margin slightly emarginate, hardly prolonged anteriad along suture. Pygidium 0.6 times as long as elytra, 1.48 times as long as elytral width, about 2.67 times as long as anal sternite, clothed with whitish pubescence in less than basal 1/2 of lateral parts. Abdominal sternites 5-8 just as in the preceding subspecies.

Female. Antenna slightly longer than width of head (1.05: 1), 2.5 times as long as wide in 5th segment, 2.1 times in 10th; terminal segment fully elongate, 2.9 times as long as wide, 1.38 times as long as the penultimate. Pygidium 0.56 times as long as elytra, 1.37 times as long as elytral width, about 2.7 times as long as anal sternite. Anal sternite rather convex, slightly bisinuate or transversely truncate at apex.

Length: 8.6-12.5mm.

Type series. Holotype, ♂, Wieng Papao, Chiang Rai Pref., N. Thailand, 1-V-1997, M. Takakuwa leg.

Paratypes: 6 ♂♂ 4 ♀♀, same data as the holotype, Thailand: 1 ♀, Khao Chamao, 400m in alt., nr. Chanta Buri, 28 ~ 29-IV-1997, M. Takakuwa leg.; 3 ♂♂ 1 ♀, Wang Chin, Phrae Pref., 2-V-1997, M. Takakuwa leg.; Chiang Dao, nr. Chiang Mai: 1 ♀, 9 ~ 12-VI-1979, W. Suzuki leg.; 6 ♂♂ 6 ♀♀, 2 ~ 3-V-1980, Y. Komiya leg.; 1 ♀, 2-V-1980, S. Tsuyuki leg.; 5 ♂♂, 1-V-1984, M. Takakuwa leg.; Doi Suthep, nr. Chiang Mai: 1 ♀, 2-VI-1978, K. & H. Akiyama leg.; 1 ♂, 30-IV-1980, Y. Komiya leg.; 2 ♂♂ 4 ♀♀, 29-IV-1980, S. Tsuyuki leg.; 1 ♂ 2 ♀♀, 3-V-1980, Y. Komiya leg.; 1 ♂ 3 ♀♀, V-1980, Y. Oda leg.; 1 ♀, 2-VI-1980, M. Tao leg. (HPC); 2 ♂♂, 6-VIII-1980, K. Sugino leg. (HPC); 1 ♀, Fang, N. Thailand, 1-V-1976, S. Takeda leg. (HPC).

Additional specimens examined. S. Vietnam: 5 ♂♂ 2 ♀♀, Bao Loc, Lam Dong, 19-V-1992, T. Endo leg.; 1 ♂ 1 ♀, Datanla Fall, Dalat, 26-V-1991, T. Endo leg.; 17 ♂♂ 21 ♀♀, 18km from Bao La, 7-VI-1991, T. Endo leg.; 2 ♂♂ 1 ♀, 18km south from Bao Lok to Hochiminh, 6-V-1997, H. Karube leg.; 1 ♂, 15km south from Bao Lok to Hochiminh, 5-V-1997, H. Karube leg., 1 ♀, Ranong, S. Thailand, 6-VIII-1980, K. Sugino leg. (HPC); Laos: 3 ♂♂ 2 ♀♀, 3-V-1995, S. Nakamura leg.; N. India: 1 ♂, Manjitar, nr. Derjeeling, 4-V-1981, M. Ito leg.; S. India: 1 ♂, Anamalai Hills, Cinchona, IX-1967, T. R. S. Nathan leg. (CAEU).

Distribution. S. Vietnam, Thailand, Laos, NE India, S. India.

***Glipa (Stenoglipa) basiaurea* sp. nov.**

(Figs. 27, 28)

Neoglipa (Stenoglipa) malaccana: Franciscolo, 1952, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 331, 344, figs. C, no. 17; D, no. 3 (New Guinea).

Glipa malaccana: Takakuwa, 1985, *Coleopt. Japan Col. Osaka*, **3**: 379 (partim: W. Malaysia).

Male. Body distinctly slender, attenuate posteriorly with excavated sides; dorsum decorated with golden yellow pubescence on head, pronotum and elytral base, with white one on scutellum, middle annular maculations and apical ones of elytra, and base and basal 1/2 of laterals of pygidium. Head about 1.14 times as wide as long; eye subcircular, about 1.14–1.23 times as long as wide. Antenna 1.25 times as long as width of head, as long as pronotal width, 2.56 times as long as wide in 5th segment, 2.44 times in 10th; terminal segment very slender, 3.7 times as long as wide, 1.48 times as long as the penultimate. Pronotum 1.24 times as wide as head; apical black spot usually small; a pair of lateral spots triangular or quadrate. Elytra 2.42 times as long as wide, very narrowly rounded at apex; each basal X-mark developed, varying in shape of postero-inner line which reaches suture near basal 1/4; each middle mark about 0.36 times as long as elytra, gently rounded or weakly waved in front and moderately zigzag behind, with the front reflection situated just outside of hind reflection; each apical mark semicircular with anterior margin emarginate, slightly prolonged anteriorly along suture. Pygidium 0.6 times as long as elytra, 1.46 times as long as elytral width, about 2.86 times as long as anal sternite. Abdominal sternites 5–6 each with a pair of black lateral fasciae at apex. Anal sternite about 1.42 times as long as basal width, almost flat in ventral aspect, and moderately rounded at apex. Eighth abdominal sternite slightly longer than wide (1.05: 1), broadly rounded at apical angles. Right paramere weakly excavated at base of dorsal membranous branch, with ventral sclerotized branch abruptly attenuate near apex in lateral view.

Female. Body considerably robust. Antenna as long as width of head, wider, 2.46 times as long as wide in 5th segment, 1.82 times in 10th; terminal segment 2.5 times as long as wide, 1.5 times as long as the penultimate. Elytra 2.4–2.45 times as long as basal width; apical marks crescent, far apart from apices. Pygidium 0.51 times as long as elytra, 1.25 times as long as elytral width, about 3.11 times as long as anal sternite. Anal sternite 1.21 times as long as basal width, somewhat convex, slightly bisinuate at apex.

Length: 8.9–11.8mm.

Type series. Holotype, ♂, Cameron Highlands, 19 miles Point from Tapah, Malay Peninsula, W.

Malaysia, 25-IV-1992, H. Karube leg. Paratypes: 2 ♂, same data as the holotype; same locality as the holotype: 1 ♂, 28-II-1974, T. Hatayama leg. (HPC); 1 ♂, 18-V-1979, S. Imasaka leg. (HPC); 1 ♂, 18 ~ 19-V-1979, T. Hatayama leg. (HPC); 1 ♂, 29-IV-1989, K. Matsumoto leg.; 1 ♀, V-1991; 6 ♂ 1 ♀, 25-IV-1993, S. Nirasawa leg.; 2 ♂ 1 ♀, 28-IV-1993, S. Nirasawa leg.; Malay Peninsula, W. Malaysia: 2 ♂, Cameron Lowlands, 9-X-1989, H. Matsuka leg.; 1 ♂, Genting Highlands, 22-XII-1975, H. Yokoyama leg. (HPC); 2 ♀, same loc., 9-IV-1979, M. Ito leg.; 1 ♀, Fraser's Hill, 30-III-1977, T. Mizunuma leg. (HPC).

Distribution. Malay Peninsula (W. Malaysia), N. Sumatra, Java (Indonesia).

This beautiful new species is very closely related to the preceding, but differs from it especially in having slender body and pygidium and narrowly rounded apices of elytra.

Two subspecies are recognized as follow:

1. Body stouter; elytra 2.42 times as long as basal width in male, 2.4–2.45 times in female; elytral annular maculations usually not so waved at the hind lines; pygidium 1.46 times as long as elytral basal width in male, 1.25 times in female
..... *G. basiaurea basiaurea*.
- Body slenderer; elytra 2.55–2.58 times as long as basal width in male, 2.53–2.57 times in female; elytral annular maculations distinctly zigzag at the hind lines; pygidium 1.56 times as long as elytral width in male, 1.39 times in female
..... *G. basiaurea sumateraensis* subsp. nov.

***Glipa (Stenoglipa) basiaurea basiaurea* s. str.**

(Fig. 27A–G)

Glipa malaccana: Takakuwa, 1985, *Coleopt. Japan Col. Osaka*, **3**: 379 (partim: W. Malaysia).

Distribution. Malay Peninsula (W. Malaysia).

Glipa (Stenoglipa) basiaurea sumateraensis**subsp. nov.**

(Fig. 28A–G)

Neoglipa (Stenoglipa) malaccana: Franciscolo, 1952, *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 331, 344, figs. C, no. 17; D, no. 3 (New Guinea).

Closely similar to the nominotypical subspecies, but distinguished with certainty from it by the key given above.

Length: 9.5–12.1mm.

Type series. Holotype, ♂, Bandar Baru, 800m in alt., Sibolangit, N. Sumatra, 5 ~ 6-V-1994, M. Takakuwa leg. Paratypes: 1 ♂ 1 ♀, same data as the holotype; same locality as the holotype: 1 ♂ 1 ♀, 30-IV-1989, K. Maruyama leg.; 2 ♂ 3 ♀, S. Nirasawa leg.; 4 ♂ 1 ♀, 19-IV-1993, S. Nirasawa leg.; 5 ♂ 2

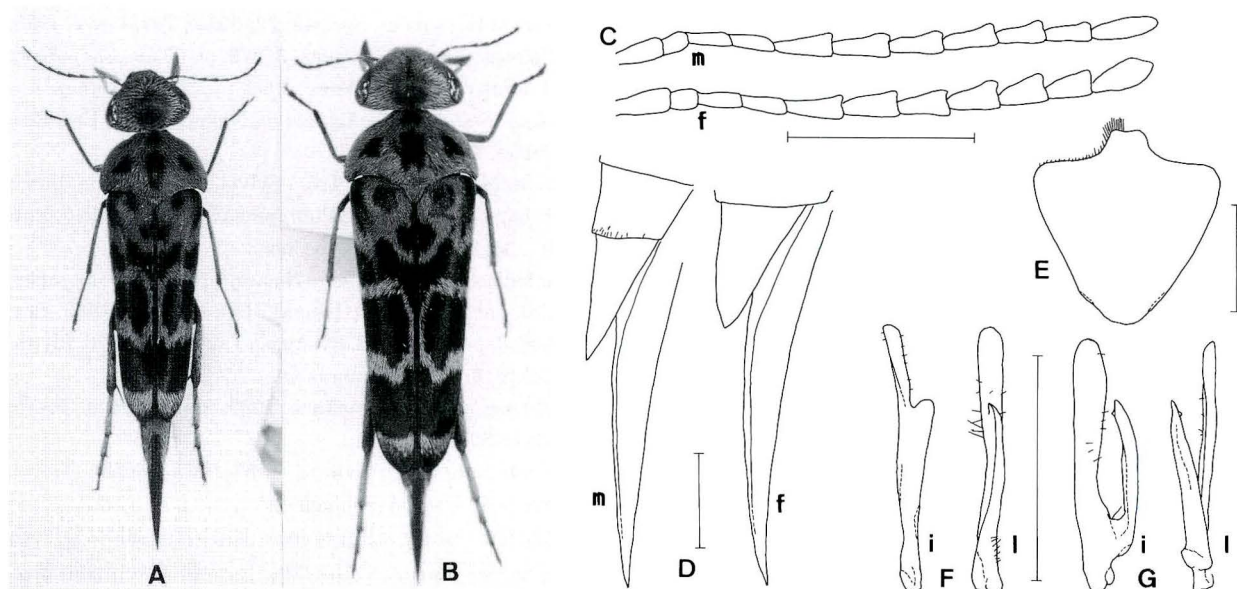


Fig. 27. *G. (S.) basiaurea* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

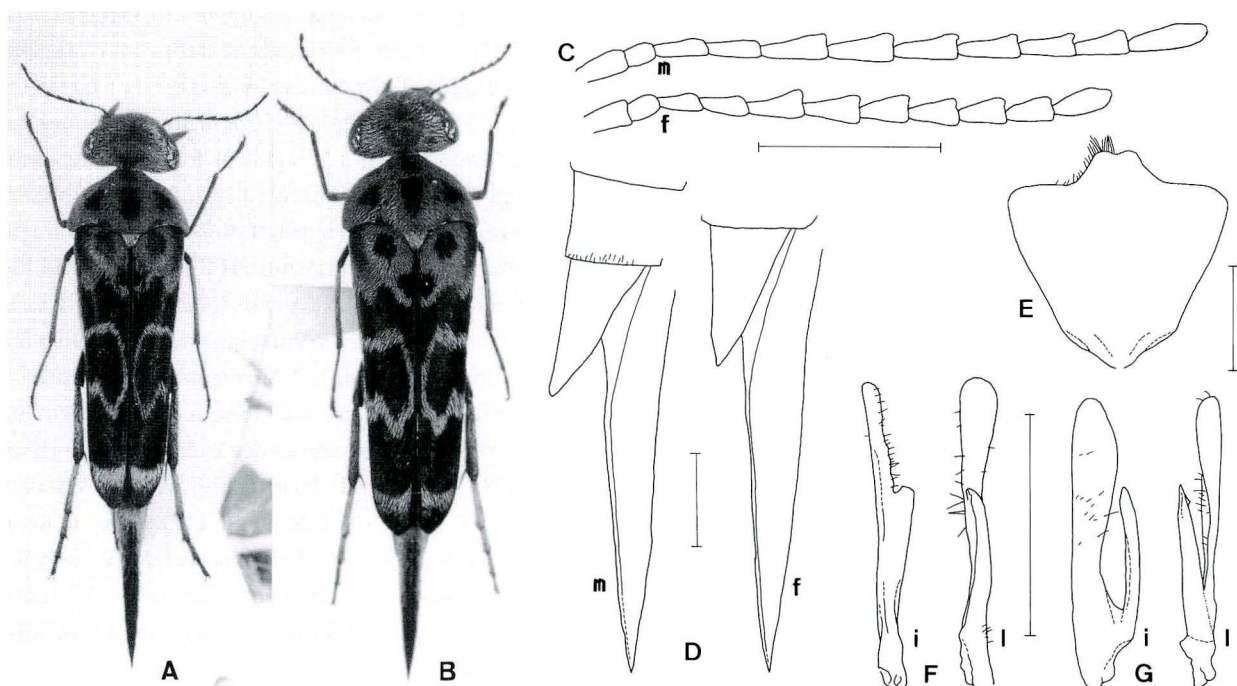


Fig. 28. *G. (S.) basiaurea sumateraensis* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

♀ ♀, 21-IV-1993, S. Nirasawa leg.; 4 ♂ ♂ 1 ♀, 22-IV-1993, S. Nirasawa leg.; 3 ♂ ♂ 3 ♀ ♀, VII-1993; 8 ♂ ♂ 4 ♀ ♀, 1-I-1995; N. Sumatera: 2 ♂ ♂, Sibolangit, IV-1993, K. Kume leg.; 7 ♂ ♂, same loc., 15-III-1995, K. Maruyama leg.; 2 ♀ ♀, Brastagi, 25-III-1990; 13 ♂ ♂ 5 ♀ ♀, nr. Brastagi, IV-1995; 4 ♂ ♂ 3 ♀ ♀, same loc., VI-1995; 1 ♀, 11-VII-1976, R. Fujimoto leg. (HPC); 1 ♂, Susuk, 750m in alt., 11-III-1995, K. Maruyama leg.; 2 ♂ ♂, same loc., 27-III-1996, K. Maruyama leg.; 1 ♂, Sibolga, 450~600m in alt., 29~30-IV-1994, M. Takakuwa leg.

Additional specimens examined. 1 ♀, Mt. Argo, Puro, E. Java, 1993; 1 ♂, Kapakapa, S. New Guinea, V~VI-1891, L. Loria leg. (MCSN) (Franciscolo, 1952).

Distribution. N. Sumatera, Java (Indonesia), New Guinea?

Notes. Franciscolo (1952) recorded this species from New Guinea as *malaccana* Pic, but it is most probably an error of locality data because no available differences are found between the specimen in question and the present subspecies.

Subgroup of *G. annulata*

Body more or less robust especially in female, usually clothed with whitish to light yellow, rarely golden yellow pubescence on head, pronotum and basal parts of elytra; gena narrow, roundedly projected at the middle, barely or not visible from above; eyes rather elliptical or broadly oval, very broadly reaching hind margin of gena, not hairy though often with a few hairs on postero-lateral parts; antennal last segment elongate-fusiform; female antenna short, usually slightly longer than the width of head, with segments 7-10 more or less projected apically at inner apex; 4 black spots on pronotum usually large, distinctly margined, with basal median one rather widely quadrate, with a pair of laterals usually subquadrate; elytra not slender, attenuate apicad with curving sides though slightly excavated before middle, moderately rounded at apices; basal maculations of elytra uniformly whitish to yellow in general and reduced at basal margins, rectangularly or arcuately connected with each other on suture at basal 1/4; each middle annular one moderate in size, indistinctly or weakly waved anteriorly, rather strongly so posteriorly, with the front reflection situated at the outside of hind reflection; each apical one usually semicircular or crescent with anterior margin considerably emarginate, barely or not reaching apex, more or less prolonged along suture; epipleuron rather narrow posteriorly; pygidium moderate in length, often with dorsal cicatrix in less than apical 1/2; abdominal sternites 3-4 with black spots at latero-apical portions; 8th abdominal sternite of male fairly thin, shovel-shaped, with apico-median projection bilobed or nearly truncate at apex, often with apico-lateral projections; parameres somewhat short; right paramere not so excavated at base of dorsal membranous branch, with ventral sclerotized branch thickened.

This subgroup is widely distributed in the Sundalands, Wallacea, the Philippines and their neighbourhoods, showing an allopatric or parapatric distributional pattern to the preceding subgroup though sympatrically occurring in Thailand, the Malay Peninsula, Sumatra and Java. Five species are known; two of them are widely distributed in the Sundalands and the Philippines, respectively, and the remainders have narrow distribution in their surroundings.

Glipa (Stenoglipa) ishigakiana Kôno, 1932

(Figs. 29, 30)

Glipa ishigakiana Kôno, 1932, Trans. Sapporo nat. Hist. Soc., **12**: 152, pl. 4, no. 1 (Ishigaki Is.); Kôno, 1936, Fauna Nipponica, **10**(8-1): 16, Fig. 7 (ditto); Nakane & Nomura, 1950, Trans. Kansai ent. Soc., **15**: 4 (ditto); Nakane, 1950,

Trans. Kansai ent. Soc., **15**: 22 (ditto); Takakuwa, 1985, Coleopt. Japan Col. Osaka, **3**: 379, pl. 65, no. 23 (partim: S. Ryukyus); Fan & Yang, 1993, pp. 47, 59 (Yunnan).

Neoglipa (Stenoglipa) ishigakiana: Nakane, 1956, Ent. Rev. Japan, **7**: 17.

Glipa malaccana: Chûjô, 1935, Sylvia, **6**: 77 (partim: Botel-Tobago Is., Loo-Choo, Philippines); Ermisch, 1940, Ent. Bl., **36**: 168 (partim: Loo-Choo).

Glipa malaccana ishigakiana: Nomura, 1963, Icon. ins. japon. Col. nat. ed., **2**: 247 (Ishigaki Is.); Nomura, 1966, Ent. Rev. Japan, **18**: 46 (S. Ryukyus); Takakuwa, 1976, Elytra, Tokyo, **3**: 15 (Yaeyama Is.).

Neoglipa ishigakiana: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52.

Neoglipa malaccana: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52 (partim: Iriomote Is.).

Male. Body above maculated with whitish pubescence, rarely yellowish instead of whitish one. Head about 1.22 times as wide as long; eyes about 1.3 times as long as wide. Antenna 1.21 times as long as width of head, slightly shorter than pronotal width (0.96: 1), 2.5 times as long as wide in 5th segment, 2.4 times in 10th; terminal segment with inner margin nearly straight, 3.37 times as long as wide, 1.24 times as long as the penultimate. Pronotum 1.26 times as wide as head. Elytra 2.17 times as long as wide; each basal maculation often divided into U-shaped mark at base and transverse zigzag line posteriorly though connected with two longitudinal lines; each middle whitish mark about 0.35 times as long as elytra; a pair of apical marks barely reaching apices. Pygidium 0.59 times as long as elytra, 1.29 times as long as width of elytra, about 2.73 times as long as anal sternite, clothed with whitish pubescence except for less than apical 1/3. Abdominal sternites 5-6 without fuscous apical hairs. Anal sternite about 1.26 times as long as basal width, flat in ventral aspect, transversely or slightly triangularly truncate at apex. Ventral sclerotized branch of right paramere reflexed upwards in apical half.

Female. Antenna slightly longer than width of head, a little wider, 2.19 times as long as wide in 5th segment, 2.1 times in 10th; terminal segment 2.73 times as long as wide, 1.19 times as long as the penultimate. Pygidium 0.54 times as long as elytra, 1.16 times as long as elytral width, about 3 times as long as anal sternite, clothed with whitish pubescence all over or with black hairs only at apex. Anal sternite about 1.07 times as long as basal width, convex, arcuately emarginate at apex.

Length: 8.8-13.3mm.

Distribution. Yaeyama Is. (S. Ryukyus), Lan Yu Is. (Taiwan), Philippines, Yunnan (SW China)?

This silver-maculate species is widely and commonly distributed in the Philippines to the

Ryukyus and divided into two subspecies, though one of them has some local variations in the Philippines. The record from Yunnan by Fan & Yang (1993) is probably based on a different species.

Key to Subspecies

1. Body stouter; pubescence of pronotum and basal maculation of elytra faintly yellowish; middle annular marks of elytra of female nearly similar to those of male; pygidium of female clothed with whitish hairs all over; 8th abdominal sternite of male rather angulate at apico-lateral angles; ventral sclerotized branch of right paramere slenderer
..... *G. ishigakiana ishigakiana* s. str.
- Body slenderer; pubescence of pronotum and basal maculation of elytra quite whitish; middle annular marks of elytra of female usually longer than in male; pygidium of female clothed with black hairs at apex; 8th abdominal sternite of male roundedly projecting at apico-lateral angles; ventral sclerotized branch of right paramere stouter
..... *G. ishigakiana kotoensis* Nomura.

Glipa (Stenoglipa) ishigakiana ishigakiana

Kôno, 1932

(Fig. 29A-G)

Glipa ishigakiana Kôno, 1932, Trans. Sapporo nat. Hist. Soc., **12**: 152, pl. 4, no. 1 (Ishigaki Is.); Kôno, 1936, Fauna Nipponica, **10**(8-1): 16, Fig. 7 (ditto); Nakane & Nomura, 1950, Trans. Kansai ent. Soc., **15**: 4 (ditto); Nakane, 1950, Trans. Kansai ent. Soc., **15**: 22 (ditto); Takakuwa, 1985, Coleopt. Japan Col. Osaka, **3**: 379, pl. 65, no. 23 (partim:

S. Ryukyus); Fan & Yang, 1993, pp.47, 59 (Yunnan).

Neoglipa (Stenoglipa) ishigakiana: Nakane, 1956, Ent. Rev. Japan, **7**: 17.

Glipa malaccana: Miwa, 1933, Trans. nat. Hist. Soc. Formosa, **23**: 4 (Iriomote Is.); Kôno, 1933, Trans. Sapporo nat. Hist. Soc., **13**: 29 (partim: Iriomote Is.); Chûjô, 1935, Sylvania, **6**: 77 (partim: Loo-Choo); Ermisch, 1940, Ent. Bl., **36**: 168 (same).

Glipa malaccana ishigakiana: Nomura, 1963, Icon. ins. japon. Col. nat. ed., **2**: 247, pl. 124, no. 2 (Ishigaki Is.); Nomura, 1966, Ent. Rev. Japan, **18**: 46 (S. Ryukyus); Takakuwa, 1976, Elytra, Tokyo, **3**: 15 (Yaeyama Is.).

Neoglipa ishigakiana: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52.

Neoglipa malaccana: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52 (partim: Iriomote Is.).

Specimens examined. Ishigaki Is., Yaeyama Is.: 2

♂♂ 1 ♀, Hirakubo, 30-V-1997, M. Takakuwa leg.; 1 ♀, Sakieda, 31-V-1997, S. Nakamura leg.; 1 ♂ 2 ♀♀, Yonehara, 4-VI-1973, K. Akiyama leg.; 1 ♂, same loc., 16-VI-1973, J. Komiya leg.; 1 ♂, same loc., 19-VI-1973, K. Akiyama leg.; 4 ♂♂ 2 ♀♀, Arakawa, 30-V-1997, M. Takakuwa leg.; 3 ♂♂, Yoshihara, 30-V-1997, M. Takakuwa leg.; 1 ♀, Omoto, 25-VI-1969, H. Fujita leg.; 1 ♀, Mt. Omoto, 1-VI-1972, H. Fujita leg.; 1 ♂, same loc., 4-VI-1972, S. Okajima leg.; 1 ♂, same loc., 9-VI-1974, T. Seino leg.; 1 ♂, Takeda-rindo, 15-V-1992, T. Hanatani leg.; 8 ♂♂ 10 ♀♀, Ohtake, 21-V-1994, T. Hanatani leg.; 5 ♂♂ 3 ♀♀, same loc., 4-VI-1994, T. Hanatani leg.; Iriomote Is., Yaeyama Is.: 1 ♂, Funaura, 25-V-1997, S. Nakamura leg.; 8 ♂♂ 2 ♀♀, Urauchi, 24 ~ 25-V-1997, S. Nakamura leg.; 1 ♂, Mt.

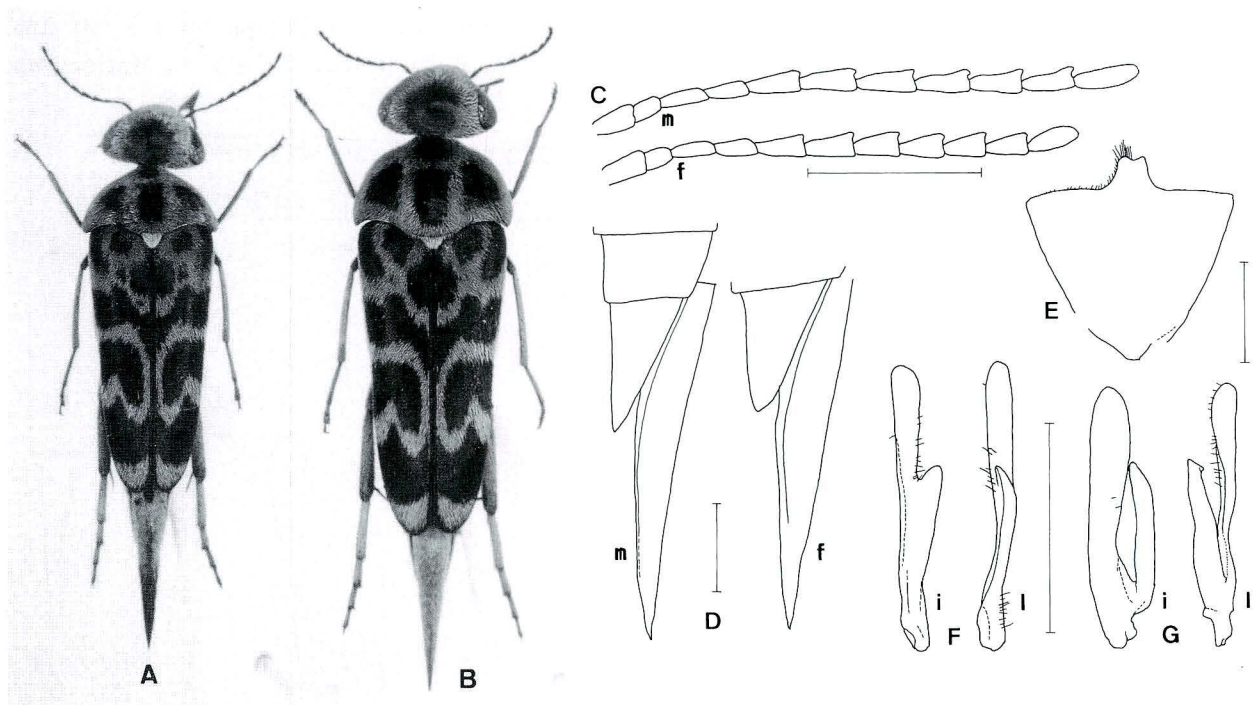


Fig. 29. *G. (S.) ishigakiana ishigakiana* Kôno. —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Sonai, 7-VI-1974, M. Takakuwa leg.; 1 ♀, Kanpira(= Kanbire), 17 ~ 18-VI-1994, M. Takakuwa leg.; 1 ♂, same loc., 27-V-1997, H. Karube leg.; 1 ♂ 1 ♀, Shirahama-rindo, 25-V-1997, S. Nakamura leg.; 1 ♀, same loc., 27-V-1997, H. Karube leg.; 1 ♂ 1 ♀, Hidori, 9-VI-1973, K. Akiyama leg.; 3 ♂ 3 ♀, same loc., 4-VI-1974, M. Takakuwa leg.; 1 ♀, Komi, 30-V-1973, N. Kashiwai leg.; 1 ♂, Ohara ~ Ohtomi, 30 ~ 31-V-1974, M. Satô leg.; 1 ♂, Ohtomi ~ Ohtomi-rindo, 9-VII-1990, H. Karube leg.; 2 ♂ 2 ♀, same loc., 17 ~ 18-V-1991, H. Karube leg.; 4 ♂ 3 ♀, same, 14-V-1992, H. Karube leg.; 1 ♀, same, 24-IX-1992, R. Yakita leg.; 1 ♂, same loc., 25-IX-1992, R. Yakita leg.; 15 ♂ 4 ♀, 6 ~ 7-VI-1993, M. Takakuwa leg.; Yonaguni Is., Yaeyama Is.: 3 ♂, Tokorono, 9-V-1974, H. Irie leg.; 1 ♂ 1 ♀, same loc., 13-V-1974, H. Irie leg.

Distribution. Ishigaki Is., Iriomote Is. & Yonaguni Is., Yaeyama Is. of S. Ryukyus (SW Japan).

Glipa (Stenoglipa) ishigakiana kotoensis

Nomura, 1967

(Fig. 30A-G)

Glipa malaccana kotoensis Nomura, 1967, Ent. Rev. Japan, **19**: 7 (Kotosho = Lan Yu Is.)

Glipa malaccana: Kano, 1930, Kontyû, Tokyo, **4**: 51, Fig. 1 (Lan Yu Is.); Ray, 1930, Coleopt. Contr., **1**: 147 (Luzon, Samar); Chûjô, 1935, Sylvania, **6**: 77 (partim: Lan Yu Is., Philippines); Kôno, 1936, Fauna Nipponica, **10**(8-1): 16, Fig. 8 (partim: Lan Yu Is.); Ermisch, 1940, Ent. Bl., **36**: 168 (partim: Botel-Tobago = Lan Yu Is., Philippines).

Glipa malaccana subsp.: Nomura, 1963, Icon. ins. japon. Col. nat. ed., **2**: 247 (Lan Yu Is., Philippines)

Neoglipa malaccana: Nakane, 1957, Shin-Konchû, Tokyo, **10**(1): 52 (partim: Lan Yu Is., Philippines).

Glipa ishigakiana: Takakuwa, 1985, Coleopt. Japan Col.

Osaka, **3**: 379 (partim: Lan Yu Is., Philippines).

Length: 8.5-12.0mm.

Specimens examined. Lan Yu Is., off S. Taiwan: 1 ♂ (holotype), 1-V-1934 (NSMT); 1 ♀, 9-V-1971, K. Sakai leg., Luzon Is., N. Philippines: 7 ♂ 2 ♀, Quezon National Park, Quezon, 17-IX-1976, N. Kashiwai leg.; 1 ♂ 1 ♀, Atimonan National Forest Park, Quezon, 18-III-1978, N. Kashiwai leg.; 1 ♂, Callao Cave, Cagayan, 23-VIII-1982, N. Kashiwai leg.; 1 ♂, Bicol National Park, 23km south of Daet, 12-VII-1980, T. Senoh leg.; 1 ♂, same loc., 25 ~ 30-V-1983, M. Tao leg. (HPC); 1 ♂, Los Banos, 10-VII-1970, T. Okadome leg.; Lubang Is., N. Philippines: 1 ♀, Ugatpajo, Tilik, 16-VIII-1980, N. Kashiwai leg.; Mindoro Is., N. Philippines: 1 ♂, nr. Puertogalera, 21-III-1980, N. Kashiwai leg.; Sibuyan Is., N. Philippines: 1 ♀, Saoyang, Espana, 20-VIII-1981, N. Kashiwai leg.; Panay Is., C. Philippines: 1 ♂ 2 ♀, Inca Lambunao, Iloilo, 25-III-1978, N. Kashiwai leg.; Negros Is., C. Philippines: 1 ♂, Amlan, 17 ~ 18-VII-1970, T. Okadome leg.; 1 ♀, VI ~ VII-1990, Bohol Is., C. Philippines: 1 ♀, Bilar, 22-VII-1970, T. Okadome leg.; 1 ♂, same loc., 23-VII-1970, T. Okadome leg.; 1 ♂, Duawngon, Zamora, 3-V-1980, N. Kashiwai leg.; Leyte Is., C. Philippines: 1 ♀, Lake Imelda, 8 ~ 10-VIII-1982, K. Sugino leg. (HPC); 2 ♂, Babatngon, 14-VIII-1982, S. Takeda leg. (HPC); Romblon Is., C. Philippines: 1 ♂, Casayogan, nr. Romblon, 24-VIII-1981, N. Kashiwai leg.; Samar Is., C. Philippines: 1 ♂, Bungko River, 200 ~ 300m in alt., 80km from Mondragon, 4-VIII-1981, N. Kashiwai leg.; 1 ♂, Lagging road, nr. Lawis, 6 ~ 7-VI-1983, M. Tao leg. (HPC); Mindanao Is., S. Philippines: 1 ♀, Mt. Apo, IX-1976, T. Endo leg.; 7 ♂ 1 ♀, Maligatong,

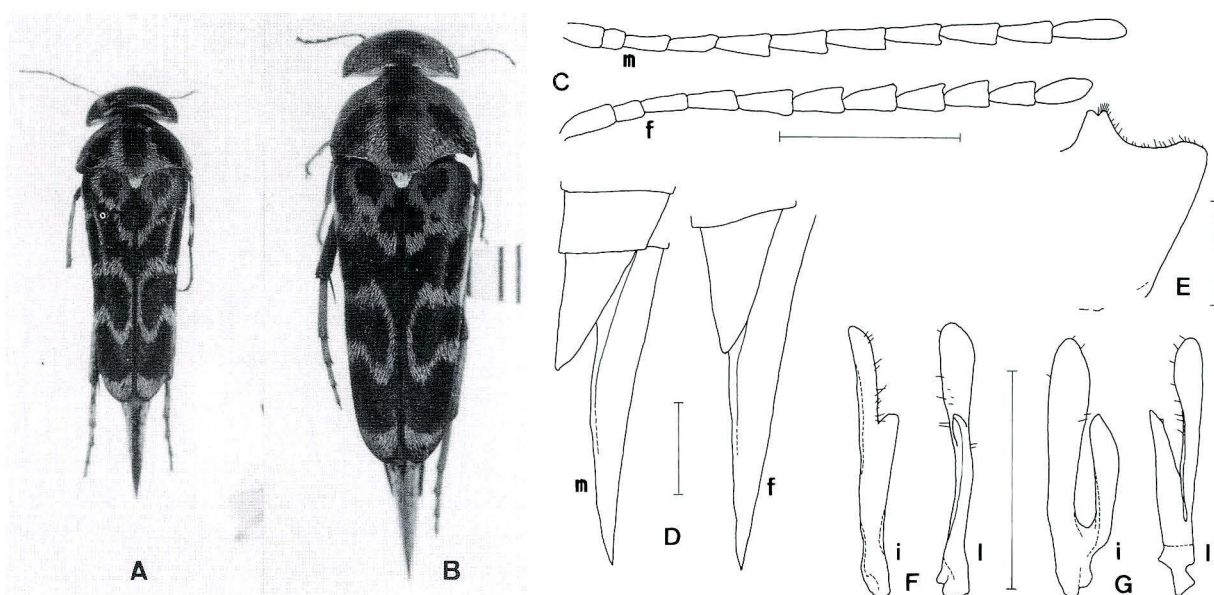


Fig. 30. *G. (S.) ishigakiana kotoensis* Nomura. —A, ♂, holotype; B, ♀; C, m: left antenna; f: right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Calinan, 12-II-1979, Y. Komiya leg.; 2 ♂♂, Kidapawan, N. Kotabato, 28-II-1978, N. Kashiwai leg.; 3 ♀♀, Ilumabis, Mt. Apo, 5-V-1983, T. Endo leg.

Distribution. Lan Yu Is. (Taiwan), Luzon Is., Lubang Is., Mindoro Is., Sibuyan Is., Panay Is., Negros Is., Bohol Is., Leyte Is., Romblon Is., Samar Is. & Mindanao Is. (Philippines).

This subspecies seems to be split up into some geographical races. For example, specimens of the Philippines may be distinguished from those of Lan Yu Is. by the more strongly bent ventral sclerotized branch of right paramere and longer middle annular marks of elytra in female, and also specimens of Mindanao Is. differ from those of Luzon Is. in the apical maculations of elytra fully prolonged anteriorly and pygidium with enlarged whitish area. However, it is not necessary to recognize subspecies for them since the differences are not always stable.

***Glipa (Stenoglipa) kashiwaii* sp. nov.**

(Fig. 31A-G)

Male. Body above maculated with golden yellow and whitish pubescence. Head about 1.18 times as wide as long, clothed with golden yellow pubescence; eyes about 1.3 times as long as wide. Antenna slender, distinctly excavated at inner margins of 5-11 segments, 1.22 times as long as width of head, slightly shorter than pronotal width (0.97: 1), 2.55 times as long as wide in 5th segment, 2.65 times in 10th; terminal segment with inner margin excavated behind middle, 3.7 times as long as wide, 1.26 times as long as the penultimate. Pronotum 1.26 times as wide as head, decorated with deeper pubescence than on head; black spots relatively small, especially indistinct in apical

one. Elytra 2.17 times as long as wide; basal maculation decorated with golden yellow pubescence and whitish yellow one at lateral portions and bottom, the latter of which is widely U-shaped; each middle whitish mark about 0.38 times as long as elytra; a pair of apical marks barely reaching apices. Pygidium 0.57 times as long as elytra, 1.23 times as long as width of elytra, about 2.83 times as long as anal sternite, clothed with whitish pubescence except for the tip. Abdominal sternites 5-6 without fuscous apical hairs. Anal sternite about 1.16 times as long as basal width, flat in ventral aspect, slightly, triangularly truncate at apex. Eighth abdominal sternite wider than long (1.18: 1), slightly projected at apico-lateral angles. Ventral sclerotized branch of right paramere stout, slightly reflexed in apical half, obliquely truncate at apex in inner view.

Female. Yellowish pubescence a little paler. Antenna slightly longer than width of head, a little wider, 2.11 times as long as wide in 5th segment, 2.39 times in 10th; terminal segment 3.02 times as long as wide, 1.24 times as long as the penultimate. Pygidium 0.52 times as long as elytra, 1.11 times as long as width of elytra, about 3 times as long as anal sternite. Anal sternite about 1.14 times as long as basal width, medially emarginate at apex.

Length: 9.0-11.1mm.

Type series. Holotype, ♂, Linturan, nr. Lirung, Salebanu Is., Talaud Is., 24-VII-1979, N. Kashiwai leg. Paratypes: 4 ♂♂ 2 ♀♀, same data as the holotype.

Distribution. Salebanu Is. of the Talaud Is. (Indonesia).

This beautiful new species is somewhat isolated

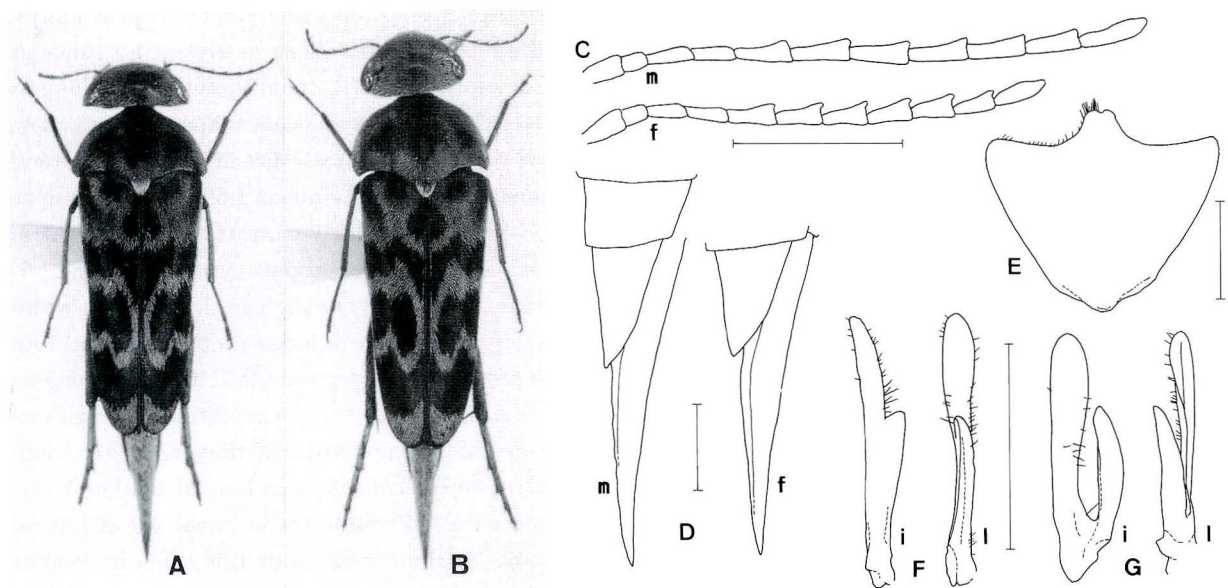


Fig. 31. *G. (S.) kashiwaii* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

in the subgroup in having the following characters; head, pronotum and basal maculation of elytra consisting of deep golden yellow pubescence in male, which is deeper on the pronotum than on the head; antenna very slender, distinctly excavated at inner margins of 5-10 segments; black apical spot of pronotum very small and indistinct.

***Glipa (Stenoglipa) matsukai* sp. nov.**

(Figs. 32, 33)

Male. Body above maculated with pale yellowish white and/or whitish pubescence. Head about 1.26 times as wide as long, clothed with whitish to pale yellowish white pubescence; eyes about 1.19 times as long as wide. Antenna slender, 1.24 times as long as width of head, slightly longer than pronotal width (1.02: 1), 2.75 times as long as wide in 5th segment, 2.6 times in 10th; terminal segment with inner margin excavated before apex and behind middle, 3.64 times as long as wide, 1.42 times as long as the penultimate. Pronotum 1.22 times as wide as head, decorated with faintly deeper pubescence than on head. Elytra 2.24 times as long as wide; basal maculation consisting of whitish or pale yellowish white pubescence; each middle whitish mark about 0.38 times as long as elytra; a pair of apical marks clearly not reaching apices, considerably prolonged anteriorly along suture. Pygidium 0.55 times as long as elytra, 1.24 times as long as width of elytra, about 2.53 times as long as anal sternite, dully pointed at apex in dorsal view, clothed with whitish pubescence in basal 3/5 of laterals. Abdominal sternites 5-6 each with blackish apex which is clothed with fuscous fine hairs. Anal sternite about 1.34 times as long as basal width, slightly longitudinally concave in ventral aspect, widely roundedly truncate at apex. Eighth abdominal sternite wider than long (1.11: 1), distinctly, roundedly projected at apico-lateral angles, with apico-median projection hardly emarginate at apex. Ventral sclerotized branch of right paramere stout, flat on inner surface, narrowly rounded at apex in inner view.

Female. Yellowish white pubescence paler. Antenna shorter than width of head (0.93: 1), fairly wide, 2.11 times as long as wide in 5th segment, 1.83 times in 10th; terminal segment 2.24 times as long as wide, 1.13 times as long as the penultimate. Pygidium 0.49 times as long as elytra, 1.08 times as long as width of elytra, about 2.82 times as long as anal sternite. Anal sternite about 1.06 times as long as basal width, convex in ventral aspect, slightly, medially emarginate at apex.

Length: 8.7-11.3mm.

Type series. Holotype, ♂, Kulawi, N. Sulawesi, 14-VIII-1979, H. Matsuka leg. Paratypes: C. Sulawesi: 1 ♂, Paredean, 11-VI-1974, T. Mizunuma leg. (HPC);

1 ♀, Parana, 4-II-1982, H. Matsuka leg.; 1 ♀, Toarco Jaya, Traja, 14-VI-1982, M. Tao leg. (HPC); 1 ♂, Karaenta, Maros~Camba, 4-VIII-1990, N. Kashiwai leg.; 1 ♀, Gantong, 700m in alt., Majannang, Kec, Tinggi Muncong, Gowa, 14-VIII-1990, N. Kashiwai leg.; 1 ♂, Bontopanno, Layah, Camba, 23-VIII-1990, N. Kashiwai leg.; 1 ♀, Tudera, Bontopanno, Layah, Camba, 24-VIII-1990, N. Kashiwai leg.; 5 ♂♂ 5 ♀♀, Palolo, 700m in alt., Palu, C. Sulawesi, IX-1990, native collector; 4 ♂♂ 1 ♀, same loc., XII-1990, native collector; S. Sulawesi: 4 ♂♂, Bantimurung, 4-V-1993, H. Matsuka leg.

Distribution. Sulawesi Is., Siau Is. of the Sangihe Isls. (Indonesia).

This new species is divided into two subspecies as follows:

1. Body above decorated with nearly whitish pubescence; pygidium moderate in length, acutely pointed at apex in lateral view; anal sternite of male shorter, widely roundedly truncate at apex *G. matsukai matsukai* s. str.
- Body above decorated with yellowish pubescence; pygidium very short, shorter than width of elytra in female, obliquely truncate at apex in lateral view; anal sternite of male longer, triangularly truncate at apex *G. matsukai siauensis* subsp. nov.

***Glipa (Stenoglipa) matsukai matsukai* s. str.**

(Fig. 32A-G)

Distribution. Sulawesi Is. (Indonesia).

***Glipa (Stenoglipa) matsukai siauensis* subsp. nov.**

(Fig. 33A-G)

Male. Body above maculated with yellowish to pale yellowish white pubescence. Elytra decorated with the pubescence of the same colour, paler towards apices. Pygidium 0.54 times as long as elytra, 1.2 times as long as width of elytra, about 2.69 times as long as anal sternite, obliquely truncate at apex in lateral view, clothed with whitish pubescence in basal 1/2 of lateral portions. Anal sternite about 1.59 times as long as basal width, triangularly truncate at apex. Ventral sclerotized branch of right paramere not so stout.

Female. Antenna very slightly shorter than width of head (0.99: 1), twice as long as wide in 5th and 10th segments; terminal segment 2.71 times as long as wide, 1.3 times as long as the penultimate. Pygidium 0.44 times as long as elytra, 0.96 times as long as width of elytra, about 2.55 times as long as anal sternite, clothed with whitish hairs in basal 2/3 of lateral portions. Anal sternite about 1.04 times as long as basal width, convex in ventral aspect, nearly straightly truncate at apex.

Length: 8.9-10.9mm.

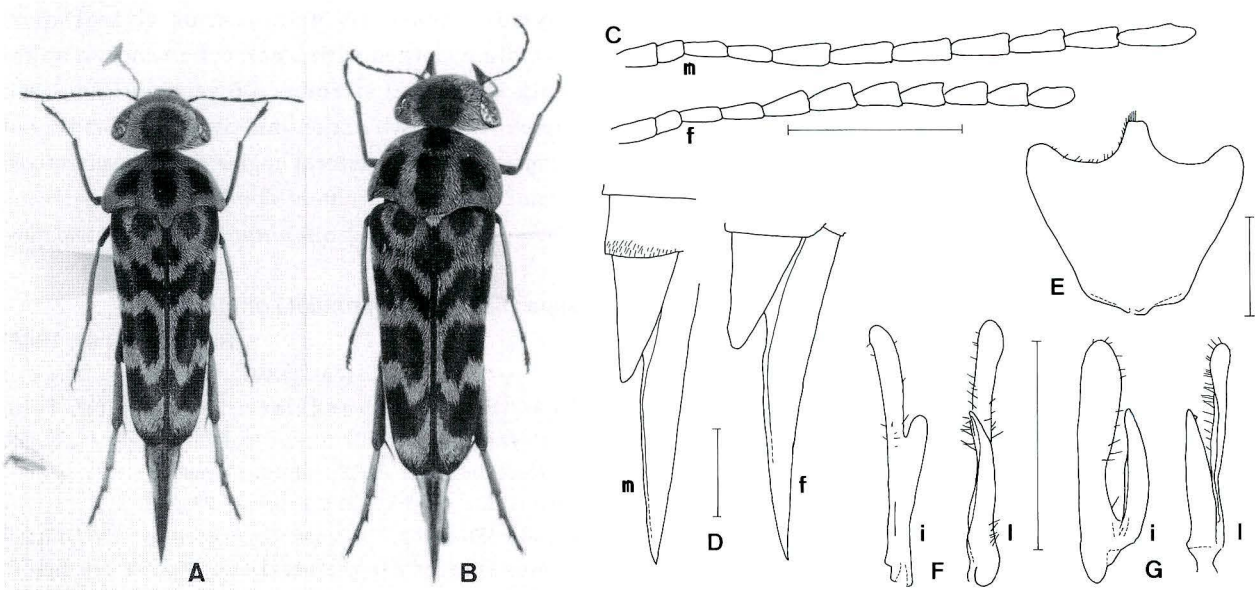


Fig. 32. *G. (S.) matsukai* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

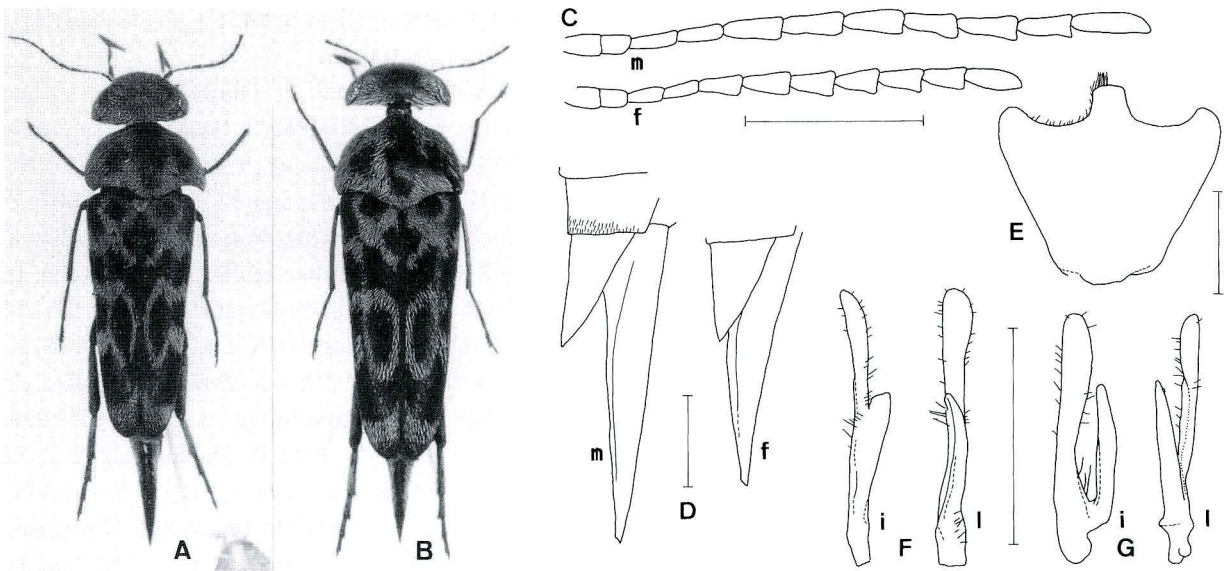


Fig. 33. *G. (S.) matsukai siauensis* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, left antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

Type series. Holotype, ♂, Akesimbeka, nr. Hulu, Siau Is., Sangihe Isls., 14-VIII-1979, N. Kashiwai leg. Paratypes: 1 ♂ 2 ♀ ♀, same data as the holotype; 1 ♂, same locality as the holotype, 10-VIII-1979, N. Kashiwai leg.

Distribution. Siau Is. of the Sangihe Isls. (Indonesia).

***Glipa (Stenoglipa) annulata* (Redtenbacher, 1868)**

(Fig. 34-36)

Mordella annulata Redtenbacher, 1868, Reise Fregatte Novara, Zool., 2, 1(A)1, p.140 (Novara= G. Nicobar Is.).

Glipa (Stenoglipa) annulata: Horák, 1994, Folia Heyrovskyana, 2: 101, figs.1-6 (Nicobar Is., Nepal, Thailand, Vietnam, Java, Sumatera, Borneo).

Glipa malaccana Pic, 1911, Échange, 27: 190.

Neoglipa (Stenoglipa) griseopubens Franciscolo, 1952, Annali Mus. civ. Stor. nat. Giacomo Doria, 65: 331, 345, figs. B, no. 4, C, nos .6, 8, D, no. 4 (New Guinea). *Syn. nov.*

Male (lowland of the Malay Peninsula). Body above maculated with yellowish to pale yellowish and/or whitish pubescence. Head about 1.2 times as wide as long, clothed with yellowish pubescence; eyes about 1.28 times as long as wide. Antenna slender, 1.28 times as long as width of head, slightly longer than pronotal width (1.06: 1), 2.56 times as long as wide in 5th segment, 3.24 times in 10th; terminal segment 4.25 times as long as wide, 1.42 times as long as the penultimate. Pronotum 1.21 times as wide as head,

decorated with faintly deeper pubescence than on head. Elytra 2.3 times as long as wide; basal maculation consisting of the pubescence of the same colour as on pronotum, U-shaped at the bottom which reaches near basal 3/10; each middle mark about 0.42-0.45 times as long as elytra, approximated to basal maculation, consisting of pale yellowish white pubescence; a pair of apical marks clearly not reaching apices, usually, fully prolonged anteriad along suture and approximated to middle maculation, consisting of the same pubescence as middle maculation. Pygidium 0.62 times as long as elytra, 1.43 times as long as width of elytra, about 2.69 times as long as anal sternite, acutely pointed at apex, clothed with whitish pubescence except for the tip. Abdominal sternites 5-6 without blackish apical band. Anal sternite about 1.3 times as long as basal width, slightly longitudinally concave in ventral aspect, widely roundedly truncate at apex. Eighth abdominal sternite wider than long (1.23: 1), distinctly, roundedly projected at apico-lateral angles, with apico-median projection bilobed at apex. Ventral sclerotized branch of right paramere stout, flat on inner surface, obliquely truncate at apex in inner view.

Female (ditto). Antenna shorter than width of head (0.92: 1), fairly wide, 2.11 times as long as wide in 5th segment, 2.07 times in 10th; terminal segment 2.62 times as long as wide, 1.29 times as long as the penultimate. Pygidium 0.56 times as long as elytra, 1.25 times as long as width of elytra, about 2.7 times as long as anal sternite. Anal sternite about 1.24 times as long as basal width, convex in ventral aspect, slightly bisinuate at apex.

Length: 6.6-11.3mm.

Distribution. Nicobar Isls. (India), S. Thailand, Vietnam?, W. Malaysia, Palawan Is. (Philippines), Borneo (E. Malaysia & Indonesia), Sumatera, Bali Is., Java Is., Lombok Is. (Indonesia), New Guinea?, Nepal?

It is most probable that the record from Nepal and Vietnam by Horák (1994) is based on other different species. Two subspecies are recognized as follows:

1. Last segment of male antenna slenderer; middle X-mark of elytra longer, about 0.42-0.45 times as long as elytra; apical whitish maculation of each elytron approximated to elytral apex; pygidium clothed with whitish pubescence except for the tip; abdominal sternites 5-6 without blackish apical band; 8th abdominal sternite of male more or less projected roundedly at apico-lateral angles; ventral sclerotized branch of right paramere thicker *G. annulata annulata* s. str.
- Last segment of male antenna shorter and broader; middle X-mark of elytra shorter, about 0.35 times as long as elytra; apical whitish maculation of each

elytron apparently distant from elytral apex; pygidium clothed with black pubescence in apical half; abdominal sternites 5-6 each with blackish apical band; 8th abdominal sternite of male not projected at apico-lateral angles; ventral sclerotized branch of right paramere slenderer

..... *G. annulata baliensis* subsp. nov.

Glipa (Stenoglipa) annulata annulata

(Redtenbacher, 1868)

(Fig. 34A-G)

Glipa (Stenoglipa) annulata: Horák, 1994, Folia Heyrovskyana, **2**: 101, figs. 1-6 (partim: Nicobar Is., Nepal, Thailand, Vietnam, Sumatera, Borneo).

Glipa malaccana Pic, 1911, Échange, **27**: 190.

Neoglipa (Stenoglipa) griseopubens Franciscolo, 1952, Annali Mus. civ. Stor. nat. Giacomo Doria, **65**: 331, 345, figs. B, no. 4, C, nos. 6, 8, D, no. 4.

Glipa malaccana: Ermisch, 1940, Ent. Bl., **36**: 168 (partim: Malacca).

Neoglipa (Stenoglipa) malaccana malaccana: Chûjô, 1964, Nat. Life SE Asia, Kyoto, **3**: 238, Fig. 30 (Thailand).

Length: 7.7-11.3mm.

Specimens examined. S. Thailand: 2 ♀♀, Khao Chong, nr. Trang, 15-VI-1980, T. Senoh leg.; 1 ♀, same loc., 17-VI-1980, T. Senoh leg.; 1 ♀, same loc., 6-VIII-1993, T. Senoh leg.; 1 ♀, same loc., 7-VIII-1993, T. Senoh leg.; 1 ♂ 1 ♀, Banlang National Park, nr. Than, 25 ~ 29-XII-1994, Y. Takanami leg., W. Malaysia: 19 miles Point from Tapah, Cameron Highlands: 1 ♂, 29-III-1979, S. Takeda leg. (HPC); 1 ♂, 1-IV-1979, K. Sugino leg. (HPC); 1 ♀, IX ~ X-1987, native coll.; 1 ♂, 14-III-1989, K. Matsumoto leg.; 1 ♂ 1 ♀, IV-1990, native coll.; 1 ♂, 25-IV-1992, H. Matsuka leg.; 5 ♂♂ 2 ♀♀, 25-IV-1993, S. Nirasawa leg.; 3 ♂♂ 1 ♀, 28-IV-1993, S. Nirasawa leg.; 1 ♂, 14-IV-1997, K. Matsumoto leg.; 10 miles Point from Tapah, Cameron Highlands: 1 ♂, 31-III-1979, K. Sugino leg. (HPC); 9 miles Point from Tapah, Cameron Highlands: 2 ♂♂ 1 ♀, 1-IV-1979, S. Takeda leg. (HPC); 1 ♂, Genting Highlands, 9-IV-1979, M. Ito leg.; Templer Park, nr. Kuala Lumpur: 1 ♀, 12-VII-1976, R. Fujimoto leg. (HPC); 1 ♂, 28-III-1977, T. Mizunuma leg. (HPC); 1 ♀, 14-V-1979, S. Imasaka leg. (HPC); 1 ♂ 1 ♀, 21-V-1979, T. Hatayama leg. (HPC); 1 ♀, 23-XII-1983, M. Takakuwa leg.; 21 ♂♂ 9 ♀♀, Tioman Is., 21 ~ 24-III-1997, K. Maruyama leg.; S. Palawan Is., Philippines: 1 ♂, nr. Bayok, 750m in alt., nr. Brook's Point, 13-IV-1980, N. Kashiwai leg.; 1 ♀, Anibong ~ Kuta, 900m in alt., Mt. Mantalingajan, 4-IV-1980, N. Kashiwai leg., Saba, N. Borneo: 1 ♀, Ranau, 16-V-1979, N. Nishikawa leg.; 1 ♂, 800m in alt., nr. Ranau, 9-VIII-1989, K. Maruyama leg.; 1 ♂, Moyog, 6-VIII-1989, K. Maruyama leg.; 2 ♂♂, Sandakan, 20-VI-1976, R. Fujimoto leg. (HPC); 2 ♂♂, Mamut, 800m in alt., 23-II-1993, K. Maruyama leg.; Poring: 6 ♂♂ 3

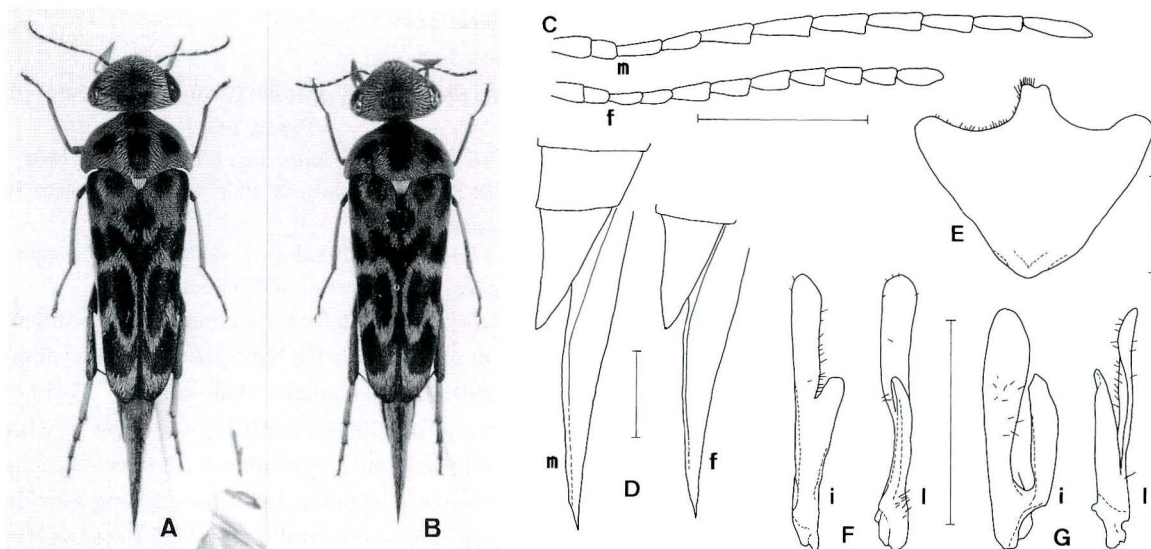


Fig. 34. *G. (S.) annulata* (Redtenbacher) in lowland of the Malay Peninsula. —A, ♂; B, ♀; C, left antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

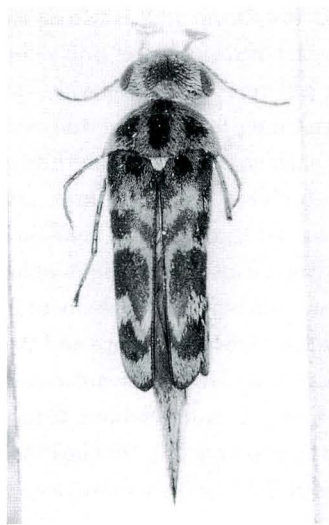


Fig. 35. Habitus of the holotype of *Neoglipa (Stenoglipa) griseopubens* Franciscolo. (Photographed by H. Karube.)

♀ ♀, 18-VIII-1981, H. Matsuka leg.; 9 ♂ ♂ 6 ♀ ♀, 4 ~11-VI-1992, M. Takakuwa leg.; 1 ♂, Sepilok, 7-VIII-1981, T. Yasuda leg.; 1 ♀, nr. Mt. Arab, 1200m in alt., 15-VIII-1987, K. Maruyama leg.; 1 ♂, Keningau, 21-VI-1973, T. Kobayashi leg.; 1 ♀, same loc., 22-V-1984, N. Kobayashi leg.; 2 ♂ ♂ 1 ♀, Liawan, Keningau, 1-III-1977, N. Kashiwai leg.; 1 ♂, Trus Madi, nr. Keningau, V-1994, local coll.; Sarawak, N. Borneo: 5 ♀ ♀, Tundong, 1-I-1987, K. Maruyama leg.; Teng Bukap: 1 ♂ 1 ♀, 30-XII-1987, K. Maruyama leg.; 2 ♂ ♂ 1 ♀, 11-IX-1988, K. Maruyama leg.; 1 ♂, 25-II-1993, K. Maruyama leg.; 4 ♂ ♂ 1 ♀, Matang, 27-II-1993, K. Maruyama leg.; 3 ♀ ♀, Kanpong Segu, nr. Kuching, 14-V-1983, M. Tao leg. (HPC); Mt. Bawang, W. Kalimantan, S. Borneo: 2 ♂ ♂, VI-1991, N. Nishikawa leg.; 1 ♀, VII-1991, N. Nishikawa leg.; 1 ♀, X-1991, N. Nishikawa leg.; N. Sumatera: 1 ♀, Kualas, Simpang,

E. Ache, VIII-1990, native coll.; 18 ♂ ♂ 11 ♀ ♀, E. Ache, VI-1995, native coll.; 2 ♂ ♂, Subulussalum, 50m in alt., S. Ache, 2-V-1994, M. Takakuwa leg.; 1 ♂, Kutacane, Ache, 27-IV-1997, K. Maruyama leg.; 1 ♂ 1 ♀, Siburagi, 9-VIII-1976, R. Fujimoto leg. (HPC); 3 ♂ ♂, Bandar Baru, 15-IV-1993, S. Nirasawa leg.; 1 ♂ 1 ♀, same loc., 21-IV-1993, S. Nirasawa leg.; 1 ♂, same loc., 22-IV-1993, S. Nirasawa leg.; 1 ♂, same loc., VII-1993; 1 ♂, same loc., 1-I-1995; 1 ♂ 1 ♀, nr. Brastagi, VII-1995, native coll.; 1 ♀, Sibolangit, 6-V-1990, K. Matsumoto leg.; 1 ♂, same loc., IV-1993, K. Kume leg.; 1 ♀, Sukamakmur, 4-V-1988, A. Saito leg.; 1 ♂, Pasar Baru, 28-III-1996, K. Maruyama leg.; 1 ♂, Matang, 17-III-1995, K. Maruyama leg.; 1 ♂, Susuk, Kalo Hills, 1-V-1997, K. Maruyama leg.; 1 ♀, Silalahi, 1600m in alt., nr. Toba Lake, 30-IV-1997, K. Maruyama leg.; Harau, W. Sumatera: 14 ♂ ♂ 8 ♀ ♀, 1995, native coll.; 1 ♂ 3 ♀ ♀, VIII-1996, native coll.; Ranau, S. Sumatera: 1 ♀, 22-IV-1979, M. Ito leg.; 1 ♂, 23-IV-1979, M. Ito leg.; 3 ♂ ♂ 3 ♀ ♀, 26-IV-1979, M. Ito leg.; 1 ♀, 27-IV-1979, M. Ito leg.

Distribution. G. Nicobar Is. of the Nicobar Isls. (India), S. Thailand, Vietnam?, W. Malaysia, Palawan Is. (Philippines), Borneo (E. Malaysia & Indonesia), Sumatera (Indonesia), New Guinea?, Nepal?

This subspecies is widely and commonly distributed in the Sundalands, and shows some individual and geographical variations. For example, specimens of Borneo usually have the following characters: yellowish dorsal pubescence paler; elytra decorated with nearly uniform-coloured maculations; 8th abdominal sternite slightly projected at apico-lateral angles; on the other hand, those of Sumatera are as follows: yellowish dorsal pubescence paler, with

elytral basal maculation deeper than in middle and apical ones; 8th abdominal sternite of male provided with more projected apico-lateral angles than in the specimens of Borneo. Individual variations are recognized in the body shape, coloration, elytral maculation, antennal shape and length, genitalic features, and so on.

Franciscolo (1952) described *Neoglipa (Stenoglipa) griseopubens* from New Guinea, but the original description and photographs of the holotype (Fig. 35) deposited in the Museo Civico di Storia Naturale "G. Doria", Genova perfectly agree with the present subspecies. It seems most probable that Franciscolo's holotype must bear a wrong locality label.

***Glipa (Stenoglipa) annulata baliensis* subsp. nov.**

(Fig. 36A-G)

Glipa (Stenoglipa) annulata: Horák, 1994, *Folia Heyrovskyana*, 2: 101, figs. 1-6 (partim: Java).

Length: 6.6-10.5mm.

Type series. Holotype, ♂, Negara, Bali Is., 27-VI-1988, K. Kishi leg. Paratypes: 1 ♂, same data as the holotype; 5 ♂♂ 1 ♀, Airsumbul, Bali Is., 1-VII-1988, K. Kishi leg.

Additional specimens examined. Pulau, Melah, Java Is.: 2 ♂♂, 19-V-1982, M. Tao leg. (HPC); 2 ♂♂ 1 ♀, 20-V-1982, M. Tao leg. (HPC); 1 ♂ 2 ♀♀, 29-V-1982, M. Tao leg. (HPC), Lombok Is.: 3 ♂♂, 1995, no further data.

Distribution. Bali Is., Java Is., Lombok Is. (Indonesia).

The present new subspecies may be closely similar to the specimens of the Malay Peninsula of the nominotypical subspecies because of the similar coloration, but has apparent differences as shown in

the above key.

***Glipa (Stenoglipa) gracilis* (Chûjô, 1964), stat. nov.**

(Fig. 37A-G)

Neoglipa (Stenoglipa) malaccana gracilis Chûjô, 1964, *Nat. Life SE Asia*, Kyoto, 3: 238, Fig. 31 (Chanta Buri, Thailand).

Glipa ishigakiana: Takakuwa, 1985, *Coleopt. Japan Col.* Osaka, 3: 379 (partim: N. Thailand).

Male. Body slender for a member of the subgroup; dorsum maculated with light yellow to pale yellowish and whitish pubescence. Head about 1.15 times as wide as long, clothed with light yellow to whitish yellow pubescence; eyes about 1.3 times as long as wide. Antenna slender, 1.22 times as long as width of head, as long as pronotal width, 2.35 times as long as wide in 5th segment, 2.39 times in 10th; terminal segment excavated behind apex of inner margin, 4 times as long as wide, 1.41 times as long as the penultimate. Pronotum 1.22 times as wide as head, decorated with faintly deeper pubescence than on head. Elytra 2.27 times as long as wide, rather rapidly, straightly attenuate from before middle, then gently so posteriad; each basal maculation thin, often divided into two, anterior U-shaped mark and posterior transverse waved line, though connected with two longitudinal lines, consisting of light yellow to whitish pubescence; middle whitish mark about 0.34 times as long as elytra, gently waved before and strongly zigzag behind; apical whitish marks not reaching apices, somewhat prolonged anteriad along suture. Pygidium 0.63 times as long as elytra, 1.46 times as long as width of elytra, about 2.95 times as long as anal sternite, acutely pointed at apex, clothed with whitish pubescence in basal 1/2 of lateral parts. Abdominal

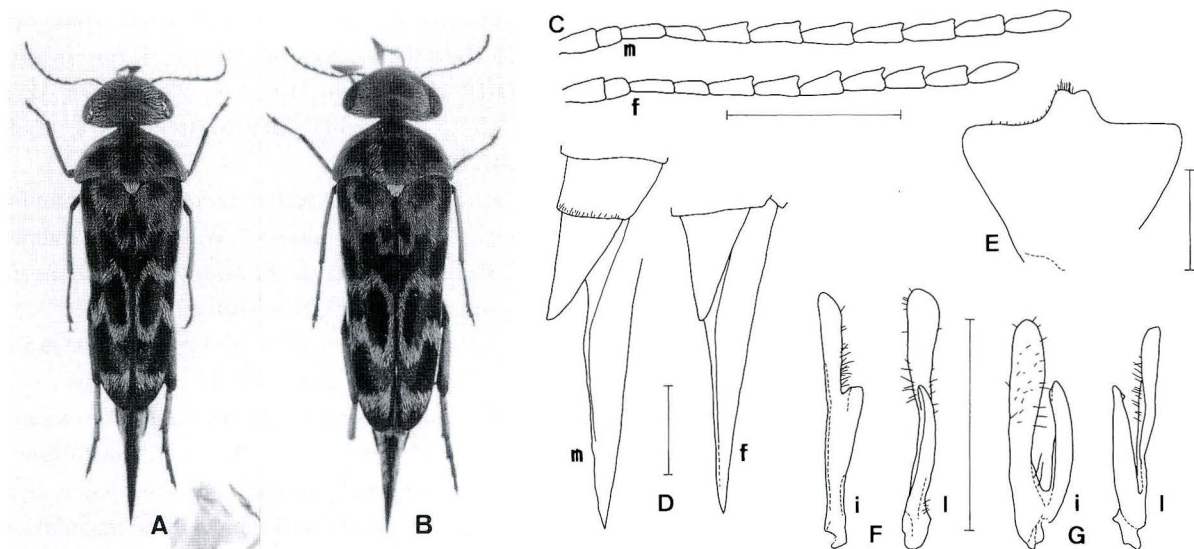


Fig. 36. *G. (S.) annulata baliensis* subsp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

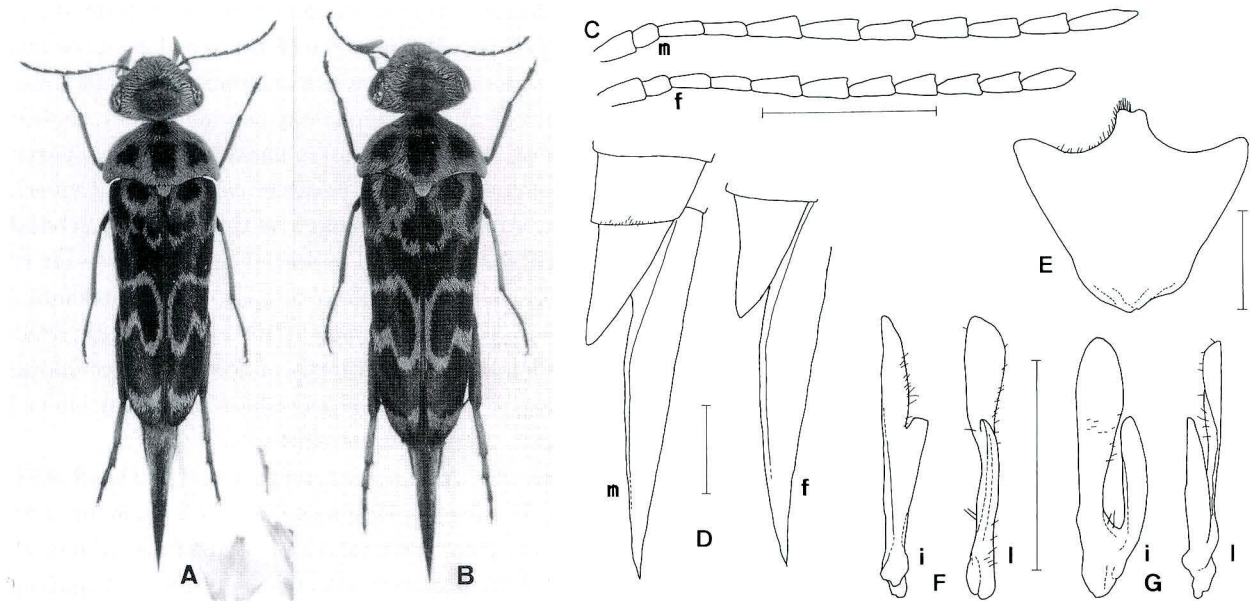


Fig. 37. *G. (S.) gracilis* (Chûjo). —A, ♂; B, ♀; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

sternites 5-6 almost lacking in blackish apical band. Anal sternite about 1.26 times as long as basal width, flat at ventral aspect, nearly transversely truncate at apex. Eighth abdominal sternite wider than long (1.14: 1), straightly broadened apicad, somewhat projected at apico-lateral angles, with apico-median projection bilobed at apex. Parameres just as in the preceding species though the left paramere is attenuate before the basal part.

Female. Antenna almost as long as width of head, slightly wide, 2.4 times as long as wide in 5th segment, 2.04 times in 10th; terminal segment 2.89 times as long as wide, 1.3 times as long as the penultimate. Pygidium 0.56 times as long as elytra, 1.29 times as long as width of elytra, about 3 times as long as anal sternite. Anal sternite slightly convex in ventral aspect, very slightly emarginate at apex.

Length: 7.8-11.1mm.

Specimens examined. N. Thailand: Chiang Dao, nr. Chiang Mai: 4 ♂♂, 2-V-1980, S. Tsuyuki leg.; 15 ♂♂ 11 ♀♀, 2 ~ 3-V-1980, Y. Komiya leg.; 1 ♂, 11-IV-1983, T. Shimomura leg.; 4 ♂♂ 1 ♀, 1-V-1984, M. Takakuwa leg.; 2 ♂♂ 2 ♀♀, Doi Suthep, nr. Chiang Mai, 2-V-1980, Y. Komiya leg.; 19 ♂♂ 7 ♀♀, Wang Chin, Phrae Pref., 2-V-1997, M. Takakuwa leg.; C. Thailand: 2 ♂♂, Khao Chamao, 400m in alt., nr. Chanthaburi, 28 ~ 29-IV-1997, M. Takakuwa leg.

Distribution. C. & N. Thailand.

This species is closely allied to *ishigakiana* Kôno from the Ryukyus and the Philippines in general feature, but is easily distinguished from it by the following points: body slenderer; elytral maculations distinctly thinner, with middle annular one strongly

zigzag behind; pygidium longer; 8th abdominal sternite of male more projected at apico-lateral angles.

Group of *G. longispinosa*

Body somewhat slender, moderate or large in size; male antenna not so slender, with segment 5 apparently longer than 4th and 6th, with last segment elongate-fusiform; female antenna serrate in 5-10th segments; pronotum decorated with 4 black spots; scutellum clothed with whitish pubescence; apical whitish semicircular band of each elytron emarginated at front margin and not arrived at apex; pygidium evidently long, straightly attenuate towards apex which is acutely pointed; mesosternal process arcuate at apex; abdominal sternites 5-6 each with a pair of blackish spots or fasciae at apex; anal sternite flat in male and convex in female in ventral aspect, slightly arcuate in male and slightly emarginate in female at apex; 8th abdominal sternite shovel-shaped with apico-lateral projections; left paramere with sclerotized branch divergent from the right margin of base of dorsal membranous branch; right paramere distinctly reflexed near the base of the left side of dorsal membranous branch, slightly excavated at right side of dorsal membranous branch, with ventral sclerotized branch slender and reflexed outwards at apex.

Two species of this group are distributed in the Sundalands and Sulawesi, respectively.

Key to Species

1. Body above maculated with white pubescence; each

basal maculation of elytra consisting of transversely waved fascia and oblique line running from scutellum to that fascia; middle annular marks of elytra gently waved behind; abdominal sternites 5-6 each with blackish apical band *G. albannulata* sp. nov.
 — Body above maculated with whitish and yellowish pubescence in male; each basal maculation of elytra X-shaped; middle annular marks of elytra distinctly zigzag behind; abdominal sternites 5-6 each with a pair of blackish spots in apico-lateral areas
 *G. longispinosa* sp. nov.

***Glipa (Stenoglipa) albannulata* sp. nov.**

(Fig. 38A-G)

Male. Body rather stout; dorsum decorated with entirely white pubescence. Head about 1.23 times as wide as long; eyes about 1.24 times as long as wide. Antenna slender, 1.2 times as long as width of head, as long as or slightly shorter than pronotal width, 3.04 times as long as wide in 5th segment, 2.54 times in 10th; terminal segment 3.43 times as long as wide, 1.38 times as long as the penultimate. Pronotum 1.22 times as wide as head. Elytra 2.36 times as long as wide, rather gently, straightly attenuate from before middle, then very gently so posteriad; each basal maculation consisting of transversely waved fascia and oblique line running from scutellum to that fascia which hardly reaches basal 1/4; middle X-mark about 0.36 times as long as elytra, gently waved before and behind; apical marks semicircular with excavated anterior parts, not reaching apices, somewhat

prolonged anteriad along suture. Pygidium stout, gently attenuate apicad, 0.68 times as long as elytra, 1.61 times as long as width of elytra, about 3.06 times as long as anal sternite, dully pointed at apex, clothed with whitish pubescence in basal 2/3 of lateral parts. Abdominal sternites 5-6 with broad black band at each apex. Anal sternite about 1.44 times as long as basal width, flat in ventral aspect, nearly transversely or widely roundedly truncate at apex. Eighth abdominal sternite wider than long (1.19: 1), rather arcuately broadened apicad, distinctly projected at apico-lateral angles, with apico-median projection slightly bilobed at apex. Right paramere broad.

Female. Antenna shorter than width of head (0.93: 1), 2.55 times as long as wide in 5th segment, 1.64 times in 10th; terminal segment 2.65 times as long as wide, 1.54 times as long as the penultimate. Pygidium 0.58 times as long as elytra, 1.3 times as long as width of elytra, about 3.52 times as long as anal sternite. Anal sternite 1.21 times as long as basal width.

Length: 10.2-12.5mm.

Type series. Holotype, ♂, Palolo, 700m in alt., Palu, C. Sulawesi, IX-1990, native collector. Paratypes: 6 ♂♂ 12 ♀♀, same data as the holotype; same locality as the holotype: 1 ♀, I-1988, native collector; 1 ♀, VIII-1990, native collector; 1 ♀, X-1990, native collector; 3 ♂♂ 2 ♀♀, XII-1990, native collector; C. Sulawesi: 1 ♂, Tohjambu, 400 ~ 1000m in alt., nr Palolo, 12-V-1985, N. Kobayashi leg.; 1 ♀, Palu, VIII-1990, native collector; 1 ♀, Puncak, Palopo,

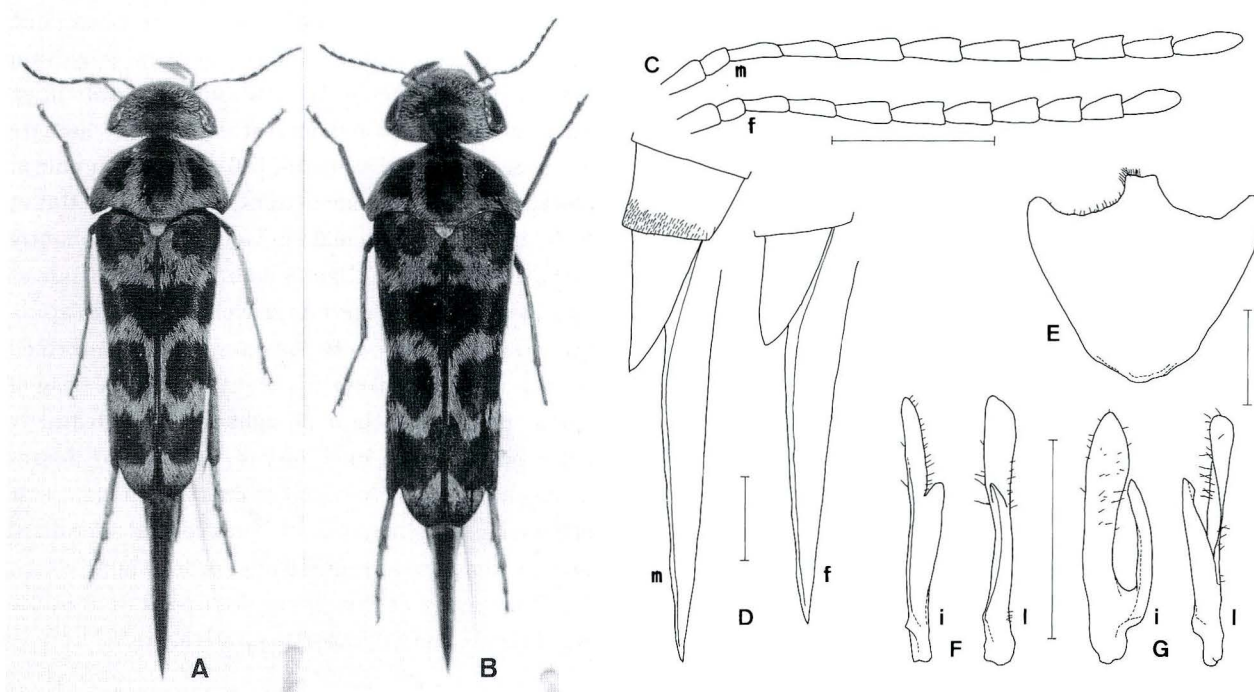


Fig. 38. *G. (S.) albannulata* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

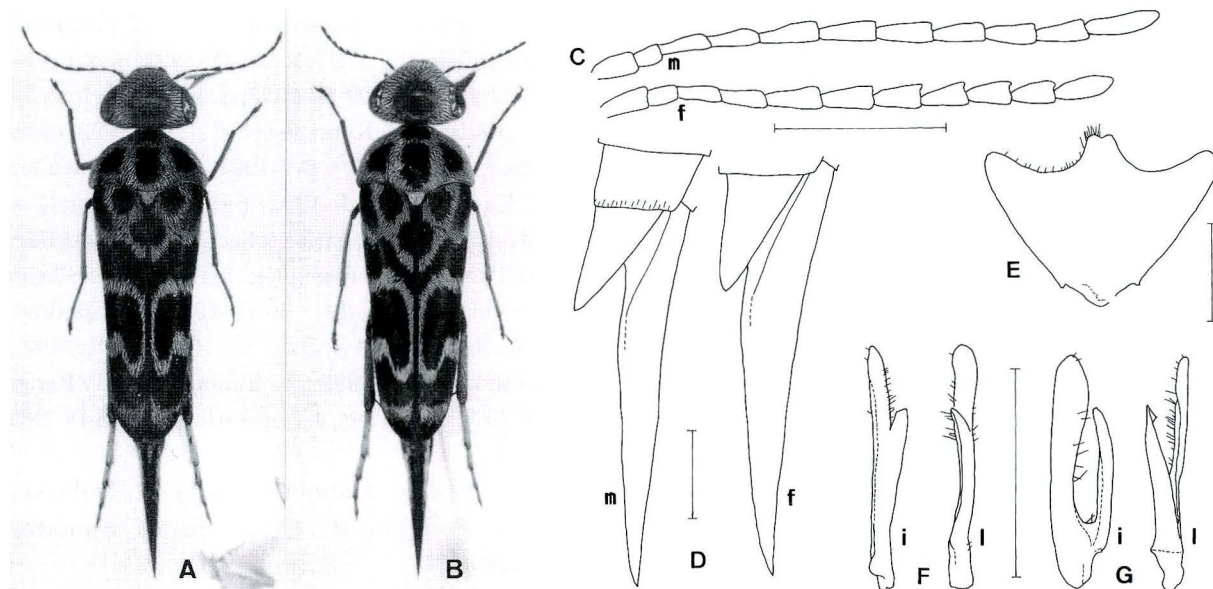


Fig. 39. *G. (S.) longispinosa* sp. nov. —A, ♂, holotype; B, ♀, paratype; C, right antenna; D, m: sternites 6 with condition of fuscous hairs on apex, 7 and pygidium, lateral view; f: anal sternite and pygidium, same; E, 8th abdominal sternite of male; F, left paramere; G, right paramere. —m, male; f, female; i, inner view; l, lateral view. (Scales: 1mm.)

VI-1990, native collector.

Additional specimens examined. Many ♂♂ ♀♀, same locality as the holotype, 1988-1991.

Distribution. C. Sulawesi (Indonesia).

This new species is distinguishable from the other species of this subgenus in having the characteristic elytral basal maculation which consists of transversely waved fascia and oblique line running from the scutellum to that fascia.

***Glipa (Stenoglipa) longispinosa* sp. nov.**

(Fig. 39A-G)

Male. Body slender; dorsum maculated with yellow to pale yellowish and whitish pubescence. Head about 1.21 times as wide as long, clothed with yellow to light yellow pubescence; eyes fully convex, about 1.22 times as long as wide. Antenna slender, 1.27 times as long as width of head, 1.05 times as long as pronotal width, 2.86 times as long as wide in 5th segment, 2.48 times in 10th; terminal segment with inner margin slightly waved, 3.75 times as long as wide, 1.45 times as long as the penultimate. Pronotum 1.22 times as wide as head, decorated with same colored or slightly deeper pubescence than on head. Elytra 2.31 times as long as wide, rather rapidly, straightly attenuate before middle, then gently so posteriad; each basal maculation thin, U-shaped at the bottom which extends beyond basal 1/4, consisting of similar pubescence on pronotum; middle X-mark about 0.37 times as long as elytra, hardly waved before and strongly zigzag behind, consisting of yellow to pale yellowish white pubescence; apical whitish marks rather crescent, not reaching apices, somewhat prolonged anteriad along sutures. Pygidium 0.65 times as long as

elytra, 1.5 times as long as width of elytra, about 3.2 times as long as anal sternite, acutely pointed at apex, clothed with whitish pubescence in basal 1/2 of lateral parts. Abdominal sternites 5-6 with black spots in apico-lateral areas, usually with fuscous hairs at apex of 6. Anal sternite about 1.44 times as long as basal width, flat in ventral aspect, nearly transversely or widely triangularly truncate at apex. Eighth abdominal sternite wider than long (1.33: 1), straightly broadened apicad, somewhat projected at apico-lateral angles, with apico-medial projection bilobed at apex. Parameres slender for a member of the group.

Female. Antenna slightly longer than width of head (1.06: 1), 2.36 times as long as wide in 5th segment, 1.82 times in 10th; terminal segment 2.9 times as long as wide, 1.45 times as long as the penultimate. Pygidium 0.6 times as long as elytra, 1.42 times as long as width of elytra, about 3.45 times as long as anal sternite. Anal sternite 1.3 times as long as basal width.

Length: 7.3-11.8mm.

Type series. Holotype, ♂, Poring, Sabah, N. Borneo, 16-VIII-1989, K. Maruyama leg. Paratypes: same locality as the holotype: 1 ♂ 3 ♀♀, 15-VI-1976, T. Mizunuma leg. (HPC); 1 ♂, 1-IV-1980, K. Sugino leg. (HPC); 1 ♀, 11-V-1981, M. Tao leg. (HPC); 1 ♂, 16-VIII-1981, Y. Joki leg.; 1 ♂ 2 ♀♀, 18-VIII-1981, H. Matsuka leg.; 2 ♀♀, 2-V-1988, K. Maruyama leg.; 11 ♂♂ 6 ♀♀, 4 ~ 11-VI-1992, M. Takakuwa leg.; 1 ♂ 1 ♀, 22-II-1993, K. Maruyama leg.; Sabah, N. Borneo: 1 ♂, Headquarters of Kinabalu National Park, 26-VI-1976, T. Mizunuma leg. (HPC); 1 ♂, Sayap, 900m in alt., Mt. Kinabalu, 11-II-1993, K.

Maruyama leg.; 1 ♀, same, 12-II-1993, K. Maruyama leg.; 2 ♀ ♀, Mamut, 800m in alt., Mt. Kinabalu, 23-II-1993, K. Maruyama leg.; 1 ♀, Kundasang, 25-III-1989, K. Matsumoto leg.; 3 ♂ ♂ 1 ♀, Moyog, 6-VIII-1989, K. Maruyama leg.; 3 ♂ ♂, 800m in alt., nr. Ranau, 9-VIII-1989, K. Maruyama leg.; 1 ♀, Kimanis Road, 4-V-1981, M. Tao leg. (HPC); 1 ♀, same, 11-V-1981, M. Tao leg. (HPC); 1 ♂ 1 ♀, same, 15 ~ 23-V-1983, M. Tao leg. (HPC); 1 ♂, Keningau, 21-IV-1973, T. Kobayashi leg.; 4 ♂ ♂ 1 ♀, Liawan, nr. Keningau, 1-VIII-1973, N. Kashiwai leg.; 1 ♂, Trus Madi, Sabah, N. Borneo, 1-IV-1992, H. Ohishi leg. (HPC).

Additional specimens examined. W. Malaysia: Cameron Highlands, 19 miles Point: 1 ♀, 28-II-1974, Y. Kiyoyama leg. (HPC); 1 ♂, 29-III-1979, S. Takeda leg. (HPC); 1 ♂ 1 ♀, 1-IV-1979, K. Sugino leg. (HPC); 1 ♀, 19-V-1979, S. Imasaka leg. (HPC); 1 ♂, IV-1987, native collector; 1 ♂, 29-IV-1990, K. Matsumoto leg.; 6 ♂ ♂ 2 ♀ ♀, 23-IV-1992, H. Karube leg.; 1 ♂, 25-IV-1992, H. Karube leg.; 11 ♂ ♂ 4 ♀ ♀, 25-IV-1993, S. Nirasawa leg.; 1 ♂, 28-IV-1993, S. Nirasawa leg.; Cameron Lowlands: 1 ♀, 9-X-1988, H. Matsuka leg.; Templer Park, nr. Kuala Lumpur: 1 ♂ 1 ♀, 12-VII-1976, R. Fujimoto leg. (HPC); 2 ♂ ♂, 28-III-1977, T. Mizunuma leg. (HPC); 1 ♂, IV-1997, K. Matsumoto leg.; Sarawak, N. Borneo: 1 ♀, Teng Bukap, 25-II-1993, K. Maruyama leg.; 2 ♂ ♂, Matang, 1-IV-1996, K. Maruyama leg.; Mt. Bawang, W. Kalimantan: 2 ♂ ♂, IV-1990, N. Nishikawa leg.; 1 ♂, III-1991, N. Nishikawa leg.; 1 ♀, V-1991, N. Nishikawa leg.; 5 ♂ ♂ 4 ♀ ♀, VI-1991, N. Nishikawa leg.; 2 ♂ ♂ 3 ♀ ♀, VII-1991, N. Nishikawa leg.; 8 ♂ ♂ 1 ♀, VIII ~ IX-1991, N. Nishikawa leg.; N. Sumatera: 16 ♂ ♂, E. Aceh, VI-1995, native collector; 4 ♂ ♂ 2 ♀ ♀, Subulussalum, 50m in alt., S. Aceh, 2-V-1994, M. Takakuwa leg.; 1 ♂, Sibolangit, IV-1993, K. Kume leg.; 1 ♂, same, 15-III-1995, K. Maruyama leg.; 1 ♂, same, 3-V-1997, K. Maruyama leg.; 7 ♂ ♂, nr. Brastagi, VI-1995, native collector; Bandar Baru: 3 ♂

♂, 15-IV-1993, S. Nirasawa leg.; 1 ♂, 19-IV-1993, S. Nirasawa leg.; 2 ♂ ♂ 2 ♀ ♀, 21-IV-1993, S. Nirasawa leg.; 3 ♂ ♂ 5 ♀ ♀, 22-IV-1993, S. Nirasawa leg.; 3 ♂ ♂ 1 ♀, IV-1993, K. Kume leg.; 3 ♂ ♂, VII-1993, native collector; 1 ♂ 1 ♀, 5 ~ 6-V-1994, M. Takakuwa leg.; 1 ♀, Katacane, 12-X-1992, native collector; 1 ♀, Bukittinggi, V-1992, native collector; 1 ♀, Pasar Baru, 23-III-1996, K. Maruyama leg.; 1 ♂ 2 ♀ ♀, nr. Sibolga, 450 ~ 600m in alt., 29 ~ 30-IV-1994, M. Takakuwa leg., W. Sumatera: 4 ♂ ♂ 2 ♀ ♀, Harau Vally, 400 ~ 500m in alt., VIII-1992, , S. Sumatera: 1 ♂, Ranau, 23-IV-1979, M. Ito leg.; 1 ♂, same locality, 26-IV-1979, M. Ito leg.

Distribution. Malay Peninsula (W. Malaysia), Borneo (E. Malaysia & Indonesia), Sumatera (Indonesia).

This new species is very closely similar to *G. annulata* (Redtenbacher) in general appearance, but is easily distinguished from it by the longer and blackish pygidium.

4) Phylogenetic relationships of groups and species in the subgenus *Stenoglipa*

Result of phylogenetic investigation on key characters in the subgenus *Stenoglipa* is shown in Table 1. They were fundamentally determined by relative investigation among the genera *Glipa* LeConte, *Ophthalmoglipa* Franciscolo, *Glipidiomorpha* Franciscolo and *Cephaloglipa* Franciscolo, which form a definite group as a rank of supergenus, and also among the other genera included in the tribe Mordellini. The primitive characters are not only common in the “supergenus” except in *Ophthalmoglipa* from Africa, but also are often or always recognized in the other genera, except for the character of shape of last segment of maxillary pulp which is quite peculiar in the tribe. The derivative characters are more or less peculiar,

Table 1. Phylogenetic investigation on the key characters in the subgenus *Stenoglipa*.

| | Primitive | Derivative |
|-------------------|---|--|
| eye | densely haired | nearly hairless |
| maxil. palpus* | moderately isosceles-triangular | very widely isosceles-triangular |
| male antenna | short, wide | slender, weakly serrate |
| elytra | broad; gradually attenuate posteriad | slender; abruptly attenuate posteriad |
| pygidium | short, stout; gently carinate; gradually attenuate posteriad; not pointed at apex | long; steeply carinate with dorsal cicatrix; abruptly attenuate; acutely pointed at apex |
| male protibia | curved with long setae at base | thinly straight without basal setae |
| male 8th sternite | small, thick; simple-shaped; longer than wide | large, thin; complex-shaped; wider than long |
| parameres | short, broad | slender |

*. Shape of last segment of maxillary palpus.

usually not found in the other subgenera of *Glipa*, the genera *Glipidiomorpha* and *Cephaloglipa*, and hardly or only sometimes found in the other genera. They evidently characterize the subgenus *Stenoglipa* and the genus *Ophthalmoglipa*, a close similarity of which is regarded as a parallelism. Fundamentally evolutionary specialization in the subgenus *Stenoglipa* among the group of *Glipa* and its related genera may have been advanced as shown in Table 1. It is commonly considered that the groups or species having more derivative characters are phylogenetically more derivative.

The subgenus *Stenoglipa* is divided into two supergroups.

The supergroup of *G. nipponica* is apparently more primitive than the supergroup of *G. annulata* in maintaining all the primitive characters, whereas the latter has almost all the derivative characters. *Glipa nipponica* Nomura from Southwest Japan is doubtless the most primitive in the supergroup by lacking almost all the distinct derivative characters. To the contrary, *G. gracillima* sp. nov. from Borneo may be the most derivative for the reason of having such derivative characters as the slender antennae and elytra, and long and rather steeply carinate pygidium.

The supergroup of *G. annulata* is divided into four groups.

Of these, the group of *G. australis* consisting of five species distributed to the east of Weber's Line, New Guinea and its related regions, is peculiar in having variable basal maculations on the elytra instead of nearly stable XX-shaped ones, and yellowish transverse band near the middle instead of whitish X-shaped annular maculation. This is considered clearly derivative in the supergroup. However, the group of *G. australis* is provided with certain primitive characters as follows, though they occur in only a part of species: male protibiae curved inwards with basal setae; pygidium stout, narrowly truncated at the apex in lateral view; 8th abdominal sternite of male rather thick, longer than wide; left paramere stout. Therefore, there is a possibility that the group of *G. australis* is the most primitive in the supergroup.

In species relationship, it is certain that *G. komiyai* sp. nov. from New Guinea is the most derivative except an unnamed species from the Molucca Islands, especially in having the slender antenna, straight protibia, fully broadened 8th abdominal sternite of male and slender left paramere. To the contrary, *G. franciscoloi* sp. nov. from New Guinea may be the most primitive, since it is characterized by the stout and dully pointed pygidium without dorsal cicatrix, though males are unknown. The remaining two similar species, *G. australis* (Franciscolo) from New Guinea

to Banuatu and *G. subflava* sp. nov. from the Palau Islands, which commonly have an important primitive character, the protibiae curved inwards with basal setae, may be situated between the previous two.

The group of *G. azumai* is so diverse in morphological characters as can be divided into three subgroups. Of these, the monotypical subgroup of *G. kurosawai* from the Ogasawara Islands is doubtless the most primitive, and provided with immaculate pronotum which is peculiar in the genus *Glipa* and its allies. The subgroup is provided with important primitive characters as follows: eyes densely haired; pygidium short, truncated at apex in lateral view; 8th abdominal sternite of male longer than wide. To the contrary, the subgroup of *G. acutimaculata*, which consists of two species from the Sundalands and Sulawesi, is doubtless the most derivative for the reason of having almost all the more derivative characters in the group, for example, almost hairless eyes, acutely pointed pygidium, and thin and complex-shaped 8th abdominal sternite of male, and *G. acutimaculata* sp. nov. from the former area is certainly more derivative than *G. inexpectata* sp. nov. from the latter, because of having slenderer antennae, elytra and male genitalia, and pointed apex of pygidium. The subgroup of *G. azumai*, which contains five species distributed from the Sundalands to Southwest Japan, more or less has both primitive and derivative characters. Of these, the phylogenetical situation of *G. maruyamai* sp. nov. from Borneo is not apparent, since it has such derivative characters as almost hairless eyes and slender antennae and pygidium as well as such primitive characters as the long 8th abdominal sternite of male and distinctly stout parameres. However, this species may be the most primitive in the subgroup, if the genital organ is considered to furnish the most significant character. Of the other members of this subgroup, *G. azumai* Nakane from Southwest Japan, South China and northern Vietnam is probably the most primitive because of the densely hairy eyes, the widest antennae of female, and the shortest pygidium which is narrowly rounded at apex. Of the remaining three members, which have close relationship with one another, *G. watanabei* sp. nov. from the southern Ryukyus and Taiwan is the most primitive because of having hairy eyes, relatively wide antennae, broad elytra, and truncate apex of pygidium, *G. sachiyoae* sp. nov. from the Malay Peninsula is the most derivative because of almost hairless eyes, slender antennae, and the slenderest elytra and pygidium, the latter of which is steeply carinate, and *G. ohmomoi* sp. nov. is intermediate in having the following combination of characters: eyes rather sparsely haired on postero-lateral parts, and slender antennae, elytra and pygidium, the last one of which is relatively gently

carinate.

It is very difficult to decide which is more primitive, the group of *G. australis* or that of *G. azumai*. The former has rather thick, fairly long and not broadened 8th abdominal sternite of male, and curved protibiae with basal setae. On the other hand, the latter has the primitive characters as in *G. kurosawai* Takakuwa, for example, densely hairy eyes, truncated pygidium at apex, and stouter right paramere. However, I consider the group of *G. australis* more primitive, because two primitive characters appear together with the most primitive supergroup of *G. nipponica*, whereas these characters never appear in the other derivative groups including the group of *G. azumai*. To the contrary, the primitive characters of the group of *G. azumai* are not always exclusive to this species-group and the supergroup of *G. nipponica*, for instance, the hairy eyes often occur on the postero-lateral parts in the groups of *G. australis* and of *G. annulata*, the dully pointed pygidium appears in the group of *G. australis*, and the stout right paramere is shared with the group of *G. annulata*.

The group of *G. annulata*, which is widely distributed in the Oriental Region, is apparently more derivative than the previous two groups, because of the usual absence of the distinct primitive characters. It is divided into two subgroups, that of *G. hatayamai* and that of *G. annulata*. The former consisting of two known species may be more primitive than the latter consisting of five species, because more primitive characters of eyes, antennae and 8th abdominal sternite of male are found in the former. Between the two species belonging to the subgroup of *G. hatayamai*, *G. hatayamai* sp. nov. from Southwest Japan, Taiwan and Southeast Asian Continent and *G. basiaurea* sp. nov. from the Sundalands, the latter is apparently more derivative for the reason of having evidently slender elytra and antennae. Among five species of the subgroup of *G. annulata*, *G. ishigakiana* Kôno from the southern Ryukyus, S. China? and the Philippines may be the most primitive in having the stout body, relatively broad antennae and simply shaped 8th abdominal sternite of male. To the contrary, either *G. gracilis* (Chûjô) from Thailand or *G. annulata* (Redtenbacher) from the Sundalands and its neighbourhood is probably the most derivative, because of having the slender body and antennae, fully broadened 8th abdominal sternite with distinct apico-lateral projections of male, and evidently excavated left paramere. The remaining two species, *G. kashiwaii* sp. nov. from Talaud Islands and *G. matsukai* sp. nov. from Sulawesi, are considered to occupy an intermediate situation between the two previous species, because of possessing intermediate

characters between them.

The group of *G. longispinosa*, which contains two species from the Sundalands and Sulawesi (just as in the distributional pattern of the subgroup of *G. acutimaculata* of the group of *G. azumai*), will be the most derivative in the supergroup of *G. annulata*. This group is unique in having very specialized long pygidium. In the species relationship, it is undoubtedly that *G. longispinosa* sp. nov. from the former locality is more derivative than *G. albannulata* sp. nov. from the latter, for example, in the fully broadened 8th abdominal sternite of male and slenderer parameres.

5) Notes on the distribution

Distributional informations

More primitive supergroup of *G. nipponica* is rather sporadically known from the Sundalands, northern Vietnam, Hainan Is. and Southwest Japan up to the present. The most primitive species in the supergroup, *G. nipponica* Nomura, is distributed in Southwest Japan and Hainan Is.?, and the most derivative species, *G. gracillima* sp. nov., is distributed in Borneo of the Sundalands. The remaining two species, phylogenetically intermediate between the preceding two, are distributed in northern Vietnam, and Sumatera and Java, respectively.

More derivative supergroup of *G. annulata* is widely distributed in the Oriento-Australian Regions, and divided into four groups. The most primitive group is known only from the Australian Region east of Weber's Line and the Palau Islands of Micronesia. Both of the most primitive and most derivative species occur in New Guinea. The distributional pattern of the secondary primitive group of *G. azumai* somewhat resembles that of the supergroup of *G. nipponica*. The most primitive species (= subgroup), *G. kurosawai* Takakuwa, occurs solely on the Ogasawara Islands. On the other hand, the most derivative subgroup of *G. actimaculata* occurs in the Sundalands and Sulawesi, the former of which harbours more derivative species than the latter. Of the subgroup of *G. azumai*, the most primitive species *G. maruyamai* sp. nov. is distributed in Borneo of the Sundalands or *G. azumai* Nakane occurs in Southwest Japan, South China and northern Vietnam. The other members are ranged in the following order from the primitive one: *G. watanabei* sp. nov. from the southern Ryukyus and Taiwan; *G. ohmomoii* sp. nov. from Indochina; *G. sachiyoae* sp. nov. from the Malay Peninsula. The group of *G. annulata* is the most widely distributed in the Oriental Region. The relatively primitive species, *G. hatayamai* sp. nov. and *G. ishigakiana* Kôno inhabit the northern part of the range, whereas more

derivative species inhabit the Sundalands and its neighborhood. The most derivative group of *G. longispinosa* is known only from the Sundalands and Sulawesi, the former of which harbours the more derivative species than the latter.

Viewed from the faunal diversity, the Sundalands maintain the largest number of species: 5 in West Malaysia, Sumatera, and Borneo, respectively, and 8 in total. Secondly, 4 species occur in South China. Next, 3 species occur in Java of the Sundalands, northern Thailand, northern Vietnam, Hainan Is., northern Ryukyus, Sulawesi and New Guinea, respectively, and 2 species in North India, southern Vietnam, Taiwan, the southern Ryukyus and the central Ryukyus, respectively. Only one species is known from South India, the Izu Islands, the Ogasawara Islands, the Palau Islands, the Philippines and their neighbours, the Lesser Sundas east of Lombok, and the Molucca Islands. It is clear that the *Stenoglipa* fauna except that of New Guinea is the most diverse in the Sundalands, second in South China, Indochina, the northern Ryukyus and Sulawesi, and least at the peripheries of the range, the Philippines, etc.

Barrier for dispersal

There is very conspicuous faunal difference between the Oriental and Australian Regions, that is, the latter is inhabited only by the group of *G. australis* but the former harbours all the groups except for the *australis* group. This means that Weber's Line running between Sulawesi and the Molucca Islands seems to be very important as serving a barrier against the dispersal of the subgenus *Stenoglipa*.

To the contrary, Wallace's Line running between Bali and Lombok and between Borneo and Sulawesi has not been so important, since the same species occurs on both Bali Island and Lombok Island, and since all the groups occurring in Sulawesi are common to the western area. It attracts our attention that only one subgroup occurs in the Philippines, but that 4 subgroups of the *annulata* supergroup and the *nipponica* supergroup occur in Borneo, and that the northern boundary of new Wallace's Line runs between the two areas. The well-known zoogeographical line is significant at the northern part, but not so at the southern part. This may reflect the direction of the ocean current that may have affected the dispersal of the wood boring subgenus *Stenoglipa*.

Distribution pattern

Some interesting patterns of distribution are recognized in the members of the subgenus *Stenoglipa*. First, there exists great difference in distributional

patterns between the *G. australis* group and others. Three species occur sympatrically in New Guinea in the former group, whereas the latter have a tendency to show allopatric speciation in each group.

At the level of supergroups and groups, occurrence of their species is entirely sympatric. At the subgroup level, however, the situation is somewhat different. Subgroups of the group of *G. azumai* generally show allopatric distribution, though the subgroups of *G. azumai* and of *G. acutimaculata* are sympatrically distributed in Borneo and the Malay Peninsula. Subgroups of the group of *G. annulata* are parapatrically distributed in the northern areas, but sympatrically so in Thailand and the Sundalands including the Malay Peninsula. These facts suggest that the more different groups can inhabit together, whereas it is difficult for the members of the more closely related groups to live sympatrically, and that the diversifying capacity is higher in the Sundalands and its adjacent areas than in the northern areas.

In each supergroup or group, species usually occur allopatrically or parapatrically except for two cases just described above, each of which belongs to different subgroups. This means that the species included in the same subgroup are always allopatric or parapatric, and that it may be difficult for the more closely related species to occur sympatrically in the same limited area.

Dispersal and Speciation

All the groups except for the group of *G. australis* are distributed in the Sundalands, where occur many species and the most derivative species in each group. On the other hand, a few species and the most primitive species (except *G. maruyamai* sp. nov. from Borneo) are distributed in Japan and its neighbourhood, that is, the northernmost area of the distributional range. Moreover, the remainders to be considered intermediate between the primitive and derivative species mainly occur in the area from Indochina to the southern Ryukyus, just between the Sundalands and northernmost areas, or in Wallacea, the easternmost part of the distributional range. These will present a very important distributional pattern, and will suggest that a centre of secondary speciation of the subgenus *Stenoglipa* was in the Sundalands, as described below.

An ancestral species of the subgenus *Stenoglipa*, which should be related to *G. nipponica* Nomura, may have arisen in South China or Indochina judging from the distribution of the most closely related group, *G. laosensis* Pic and its allies belonging to the subgenus *Macroglipa*, which are mainly distributed from Southeast to East Asia and are the most numerous in Indochina. The ancestral species should have first

speciated there, and spread towards Southwest Japan, where survives *G. nipponica* Nomura maintaining many primitive characters up to the present. A species of later speciation in South China or Indochina, now represented by *G. rectefasciata* Pic, dispersed towards the Sundalands. There is a possibility that an ancestral species invaded into the Sundalands made a secondary speciation there, leaving the more primitive species like *G. tricolor* (Wiedemann) on Sumatera and Java, and more derivative one like *G. gracillima* sp. nov. on Borneo.

It is considered that the ancestral species of the group of *G. azumai* emerged in Indochina or South China like as the supergroup of *G. nipponica*. A descendant of that species dispersed northeastwards to Southeast Japan, and has left *G. kurosawai* Takakuwa on the Ogasawara Islands. It must have reached there from the Ryukyus by the influence of the Kuroshio Current. A second ancestral species of the same group spread out from Indochina or South China to the direction of Southwest Japan and also to the Sundalands, and became differentiated into *G. azumai* Nakane in the northern Ryukyus and Kyushu of the former, and into *G. maruyamai* sp. nov. in Borneo of the latter, though the latter became acquired some distinct derivative characters. A third descendant species of the group also originating in Indochina or South China made dispersal towards the Ryukyus and Taiwan. This became differentiated into *G. watanabei* sp. nov. of the present, eliminated the former occupant *G. azumai* Nakane from there. A still later descendant represented by *G. ohmomoi* sp. nov. in the continent spread towards the Sundalands, where *G. sachiyoae* sp. nov. remains on the Malay Peninsula with some newly acquired derivative characters. Then a secondary speciation took place in the Sundalands, yielding the subgroup of *G. acutimaculata* which reached Sulawesi.

Of the group of *G. annulata*, an ancestral species of the subgroup of *G. hatayamai* also arose in Indochina or South China. The primitive type has remained at the eastern part of the Asian Continent as *G. hatayamai* sp. nov., and the derivative one in the Sundalands as *G. basiaurea* sp. nov. A high possibility is that the more derivative subgroup of *G. annulata* became differentiated in the Sundalands or the neighborhood. The most primitive species of the subgroup, *G. ishigakiana* Kôno, may have dispersed from there by influence of the Kuroshio Current, reached the southern Ryukyus via the Philippines, and drove away a former occupant of the same group, *G. hatayamai* sp. nov. It is probably for this reason that the present distribution of *G. hatayamai* sp. nov. from the continent to the Ryukyus has a blank in the Yaeyama Islands of the

southern Ryukyus. The most derivative species in the subgroup, *G. annulata* (Redtenbacher) or *G. gracilis* (Chûjô), seem to have originated in the Sundalands or the neighborhood, and also eliminated the former occupant species, *G. ishigakiana* Kôno, from there. The phylogenetically intermediate species of the subgroup, *G. kashiwaei* sp. nov. and *G. matsukai* sp. nov., may have become speciated from the ancestral type of *G. ishigakiana* Kôno.

The most derivative group of *G. longispinosa* doubtless first arose in the Sundalands or Sulawesi, because it is distributed only there. I infer that more derivative species, *G. longispinosa* sp. nov. of the Sundalands, may have driven more ancestral species, *G. inexpectata* sp. nov. which remains now in Sulawesi.

The primary centre of speciation of the subgenus *Stenoglipa* must have been in Indochina or South China, and a secondary speciation must have taken place in the Sundalands, as described above. The derivative forms occurring in each region must have dispersed one after another to the neighbouring areas. In this process, more descendant species always eliminated more ancestral species of the same groups or subgroups, since any two or more species belonging to the same group or subgroup could not coexist in the same habitat as delineated before. Species of ancestral type survive now in the areas into which the succeeding descendants could not invade. It is probably for this reason that the primitive species of *Stenoglipa* are mostly found in the northernmost areas of the ranges of each group. Of course, old forms have often specialized themselves, for example, *G. kurosawai* Takakuwa with immaculate pronotum.

The speciation of the group of *G. australis* was not taken place in the Asian Continent or the Sundalands. It must have occurred in New Guinea. It is most probable that an ancestral species arrived at New Guinea from the Sundalands via Wallacea and successfully radiated there.

References

- Blair, K. G., 1940. *Occ. Pap. Bernice P. Bishop Mus.*, **16**: 147. (Unread.)
- Chûjô, M., 1935. A systematic catalogue of Formosan Mordellidae (Coleoptera). *Sylvia, Taihoku*, **6**: 75-86.
- Chûjô, M., 1942. Coleoptera of Micronesia (1). *Mushi, Fukuoka*, **14**: 81-83.
- Chûjô, M., 1964. Family Mordellidae. *Nat. Life SE Asia, Kyoto*, **3**: 238-242.
- Csiki, E., 1915. In Schenckling, S. (ed.), *Coleopt. Cat.*, (63): 1-84.
- Ejima, M., et al., 1981. List of Insects from Goto Isls. In: *Natural History of the Goto Islands, Japan*. pp.247-332. Nagasaki Biological Society, Nagasaki. (In Japanese.)
- Ermisch, K., 1940. Revision der Ostasiatischen *Glipa*-Arten

- (Col. Mord.). *Ent. Bl.*, **36**: 161-173.
- Ermisch, K., 1962. Beitrag zur Kenntnis der Mordelliden Australiens (Coleopt. Heterom. Mordellidae). *Ent. Arb. Mus. Frey*, **13**: 338-370.
- Fan, X. & C.-K. Yang, 1993. Revision of the genus *Glipa* of China (Coleoptera: Mordellidae). *Mem. Beijing nat. Hist. Mus.*, (53): 45-68. (In Chinese with English description.)
- Franciscolo, M., 1952a. Sulla posizione sistematica delle *Glipa* Americane ed Africane. *Doriana, Genova*, **1**(23): 1-8.
- Franciscolo, M., 1952b. Le *Neoglipa* generi vicini della Nuova Guinea. *Annali Mus. civ. Stor. nat. Giacomo Doria*, **65**: 33.
- Franciscolo, M., 1982. Mordellidae (Coleoptera Heteromera) from Rennell and Bellona Islands (Solomons). In: *The Natural History of Rennell Island, British Solomon Islands*, pp.49-72. Copenhagen.
- Horák, J., 1994. Description of *Glipa* (*Macroglipa*) *thoracica* sp.n. and revision of some species of the genus *Glipa* Leconte from the Oriental Region (Coleoptera, Mordellidae). *Folia Heyrovskyana*, **2**: 101-110.
- Kano, T., 1930. Two unrecorded species of Mordellidae from the Japanese Empire. *Kontyû, Tokyo*, **4**: 51-52.
- Kiyoyama, 1974. Records of Mordellidae from Yaku-shima Is. *Beetles, Osaka*, **3**: 19-21. (In Japanese.)
- Kôno, H., 1932. Die Mordelliden Japans (Col.) (Dritter Nachtrag). *Trans. Sapporo nat. Hist. Soc.*, **12**: 152-160, pl.4.
- Kôno H., 1933. Die Mordelliden Japans (Col.) (Vierter Nachtrag). *Trans. Sapporo nat. Hist. Soc.*, **13**: 29-31.
- Kôno H., 1936. Family Mordellidae. In Okada, Y., et al.(eds.), *Fauna Nipponica*, **10**(8-1): i+1-4+1-79. Sanseido, Tokyo. (In Japanese.)
- Lea, A. M., 1902. List of the Australian and Tasmanian Mordellidae, with descriptions of new species. *Trans. ent. Soc. London*, **1902**: 1-9, pls.1,2.
- Miwa, Y., 1933. An enumeration of Coleoptera from the Island Iriomote in Loochoo, with descriptions of new species. *Trans. nat. Hist. Soc. Formosa*, **23**: 4-15.
- Nakane, T., 1950. New or little known Coleoptera from Japan and its adjacent regions, 5. *Trans. Kansai ent. Soc.*, **15**: 20-24.
- Nakane, T., 1956. Einige Bemerkungen über die japanischen Mordelliden(1). *Ent. Rev. Japan*, **7**: 16-18, pl.4. (In Japanese with German summary.)
- Nakane, T., 1957a. Einige Bemerkungen über die japanischen Mordelliden(2). *Ent. Rev. Japan*, **8**: 51-52, pl.8. (In Japanese with German title.)
- Nakane, T., 1957b. The Japanese Beetle(33): Mordellidae. *Shin-Konchû, Tokyo*, **10**(1): 50-55. (In Japanese.)
- Nakane, T. & S. Nomura, 1950. New or little known Coleoptera from Japan and its adjacent regions, 1. *Trans. Kansai ent. Soc.*, **15**: 1-17.
- Nomura, S., 1957. Mordellid- and elmid-beetles of Yakushima (Coleoptera). *Ent. Rev. Japan*, **8**: 40-44.
- Nomura, S., 1963. Family Mordellidae. In Nakane, T., et al.(eds.), *Icon. ins. japon. Col. nat. ed.*, **2**: 247-255, pls.124-128. (In Japanese.)
- Nomura, S., 1966. Mordellid-fauna of the Loocho Islands, with descriptions of some new forms. *Ent. Rev. Japan*, **18**: 41-53.
- Nomura, S., 1967. The Mordellidae from Formosa. *Ent. Rev. Japan*, **19**: 5-34.
- Pic, M., 1911. Coleopteres exotiques nouveaux ou peu connus. (Suite). *Échange*, **27**: 197.
- Pic, M., 1941. *Opus. mart.*, (3): 1-16.
- Redtenbacher, L., 1868. Coleopteren. *Reise Fregatta Novara, Zool.*, **2**, 1(A)1: 1-249.
- Takakuwa, M., 1976a. List of the tribe Mordellini from Yaeyama Islands(Japan). *Elytra, Tokyo*, **3**: 15-17, pl.3. (In Japanese with English summary.)
- Takakuwa, M., 1976b. Records of Mordellidae from the Kumage Isls. *Coleopt. News, Tokyo*, (34): 6. (In Japanese.)
- Takakuwa, M., 1976c. On the genus *Glipa* from the Tokara Isls. *Coleopt. News, Tokyo*, (34): 7. (In Japanese.)
- Takakuwa, M., 1985a. Notes on the tribe Mordellini from the Ogasawara Islands, with description of three new species. *Gekkan-Mushi, Tokyo*, (176): 4-11, pl.2. (In Japanese with English description.)
- Takakuwa, M., 1985b. Tribe Mordellini. In Kurosawa, Y., et al.(eds.), *Coleoptera of Japan in Color*, **3**: 376-388. Hoikusha, Osaka. (In Japanese.)
- Takakuwa, M., 1992a. Mordellid-beetles never visiting flowers. *Kanagawa-Chuhou, Yokohama*, (99): 22-31. (In Japanese.)
- Takakuwa, M., 1992b. *Glipa ishigakiana* collected in the autumn season. *Coleopt. News, Tokyo*, (100): 26. (In Japanese.)
- Tanabe, H. & M. Sugimura, 1996. Insects of Shimanto, Shikoku. i+215pp. Kochi-shinbunsha, Kochi. (In Japanese.)

摘 要

M. Takakuwa, 2000. A Taxonomic Study of the Mordellid Subgenus *Stenoglipa* (Coleoptera, Mordellidae). *Bull. Kanagawa prefect. Mus. (Nat. Sci.)*, (29): 53-105. (高桑正敏, 2000. ハナノミ科ハリオオビハナノミ亜属の分類学的研究. 神奈川県立博物館研究報告 (自然科学), (29): 53-105.)

オビハナノミ属 genus *Glipa* LeConte は世界の熱帯と亜熱帯、とくに東洋熱帯に多く分布し、これまでに約 105 種が知られてきた。本属のものは常緑広葉樹林に密接に関係し、多くの種類が自然林に限って生息するが、いくつかの種類はマツを加害する害虫として報告されている。一方、この属は形態的な収斂が著しく、これまでの分類学的な研究は不十分なままであった。本論文では、本属の中のハリオオビハナノミ亜属 (新称) subgenus *Stenoglipa* Franciscolo について、各地の多数の標本を基に分類学的な視点から再検討・再構築する

とともに、その系統や種分化について考察を加えたものである。

1. [亜属の再構築] ハリオオビハナノミ亜属を分類学的に新たに定義した。本亜属に生ずる顕著な特徴としては次が挙げられる。複眼に毛をほとんどもたない；小顎肢の末端節は非常に幅広い二等辺三角形；触角は細長く、雄では第5節以降10節までの各節が弱い鋸歯状、雌でも各節が幅より長い；鞘翅は長く、直線状に細まり、基部と中央、端に紋をもつ；尾節板は細長くて端は尖り、背面は急峻な竜骨状；雄の前脛節は直線状；雄第8腹板は大きく、横に広がり、しばしば両先端が前方に突出する；雄交尾器の側片は大きく、細くて長い。

2. [分類学的な研究結果] 東洋熱帯とオーストラリア区から2 supergroups (うち1つは4 groupsに分けられる)、26種8亜種を認めた。これらすべての分類単位について分類学的な記載を行うとともに、種と亜種を図示し、検索表を提示した。新種は16で、*G. gracillima*, *G. franciscoloi*, *G. subflava*, *G. komiyai*, *G. watanabei*, *G. ohmomoi*, *G. sachiyoae*, *G. maruyamai*, *G. inexpectata*, *G. acutimaculata*, *G. hatayamai*, *G. basiaurea*, *G. kashiwaii*, *G. matsukai*, *G. albannulata*, *G. longispinosa*、新亜種は7で *G. ohmomoi inemerginata*, *G. hatayamai izuinsulana*, *G. hatayamai tamdaoensis*, *G. hatayamai sejuncta*, *G. basiaurea sumateraensis*, *G. matsukai siauensis*, *G. annulata baliensis* の新名を与えた。また、*G. griseopubens* Franciscolo は *G. annulata* (Redtenbacher) の二次シノニムとして、*G. malaccana gracilis* Chûjô は独立種として扱った。さらに、*Ophthalmoglipa australis* Franciscolo を本亜属に移した。

3. [グループ・種間の系統関係] オビハナノミ属の他2亜属、ならびに本属とともに1つの単系統群を形成すると考えられる近縁3属、さらにこの群が所属するハナノミ族の他各属との間で形態を比較検討することによって、祖先形質と派生形質を決定した。祖先形質は次のとおりである。複眼に毛を密生する；小顎肢の末端節は適度な二等辺三角形；触角は太短く、第5節以降10節までの各節が鋸歯状；鞘翅は幅広く、後方にゆるやかに狭まる；尾節板は短くて端は尖らず、背面はゆるやかな竜骨状；雄の前脛節は内へ湾曲する；雄第8腹板は小さく厚く、鐘状で縦長；雄交尾器の側片は短くて幅広い。これに対し、派生形質は次のとおりである。複眼にほとんど毛をもたない；小顎肢の末端節は非常に幅広い二等辺三角形；触角は細長く、雄では第5節以降10節までの各節が弱い鋸歯状；鞘翅は長く、直線状に強く細まる；尾節板は細長くて端は尖り、背面は急峻な尾根状；雄の前脛節は直線状；雄第8腹板は薄くて大きく、横に広がり、両先端が前方に突出する；雄交尾器の側片は大きく、細くて長い。

以上の形質の有無に基づき、本亜属中の各グループならびに各種間の系統関係を論じた。なお、いくつかの派生形質はハナノミ族の中であって本亜属とアフリカ産 *Ophthalmoglipa* Franciscolo にほぼ固有（両者の形態的収斂は平行進化によると考えられる）であり、本亜属を顕著に特徴づけている。

(1) より原始的な *G. nipponica* supergroup は祖先形質のほとんどを備える。4種から成り、スンダランドから南西日本にかけて散発的に分布する。この中で、もっとも原始的な種は南西日本に分布し、派生形質の多くを欠く。また、もっとも派生的な種はボルネオに分布し、より細い触角と鞘翅、尾節板をもつなどのより派生的な形質を備える。

(2) より派生的と考えられる *G. annulata* supergroup は派生形質のほとんどを備え、4 groups から成る。このうち、厚くて縦長の雄第8腹板と、湾曲した雄前脛節を備える点でもっとも原始的と考えられる *G. australis* group は、ウェーバー線の東の地域に限って5種が分布する。ただし、鞘翅の基部紋は変化に富み、また中央紋は金色帯を呈するなど特異な斑紋パターンを示し、派生的な形質を併せ持つ。

(3) 次に原始的な *G. azumai* group は多様な形態を示し、3 subgroups に分けられる。この中で、小笠原諸島の1種から成る subgroup は、複眼に毛を密生し、尾節板は短くて先端が広く切断状などの顕著な祖先形質を備える点で、もっとも原始的である。また、もっとも派生的な subgroup は複眼にほとんど毛を欠き、尾節板は細長く、雄第8腹板は薄くて横に広がり、両先端が前方に突出するなどの派生形質をもち、スンダランドとスラウエシの各1種から成る。中間の subgroup は5種を含み、スンダランドから南西日本にかけて分布する。このうち、頑強で幅広い雄交尾器をもつ点でもっとも原始的と判断した種がボルネオに分布し、以下、複眼の毛の状態や尾節板の状態などから判断して、より原始的な順に南西日本と中国南部～北ベトナム、琉球列島南部と台湾、インドシナ、マレー半島に4種が分布する。

(4) その次に原始的と考えられる *G. annulata* group は顕著な祖先形質をほとんど欠き、広く東洋熱帯に2 subgroups をもつ。このうち、複眼、触角、雄第8腹板などの点でより原始的な subgroup は2種から成り、より原始的な種が東南アジアの大陸部から琉球列島、伊豆諸島にかけて、またより細い鞘翅と触角をもつ点でより派生的な種がスンダランド一帯に分布する。一方、より派生的な subgroup はインドシナ半島と、スンダランドからウォレシア、フィリピン、さらに八重山諸島にかけて5種が分布する。その中で、頑強な体、より幅広い触角、単純な形の雄第8腹板をもつ点などから、もっとも原始的と考えられる種はフィリピンと八重山諸島に、逆にもっとも派生的と考えられる種がインドシナ半島またはスンダランド周辺に分布する。

(5) もっとも派生的な *G. longispinosa* group は 2 種から成り、より原始的な種がスラウェシに、また雄第 8 腹板が横に広がり、雄交尾器の側片がより細長い点で、より派生的な種がスンダランドに分布する。この group は非常に長くて細い尾節板をもつ点で特異である。

4. [地域的な分布傾向] 地域における種数は、スンダランドで多く、ボルネオ、西マレーシア、スマトラでそれぞれ 5 種、合計 8 種が分布する。次いで中国南部で 4 種、琉球列島北部、北ベトナム、タイ北部、ジャワ、スラウェシ、ニューギニアで 3 種、琉球列島中部と南部、台湾、南ベトナムで 2 種が分布する。これに対し、分布の周辺部やフィリピン群島では 1 種程度しか知られていない。

5. [分布境界] モルッカ海峡を隔てて、共通して分布する group は 1 つもない。このことから、ウェーバー線はバリアとしての重要性が非常に高い。また、スラウェシに分布する groups はすべてスンダランドに分布する一方、ボルネオには 5 種が分布するのに、隣接するフィリピン群島には 1 種しか分布していない。このことから、ウォーレス線はその南部でバリアとしての重要性はそれほど高くない一方で、北部ではきわめて重要である。

6. [分布の同所・異所性] ウェーバー線より東に分布する *G. australis* group は、ニューギニアにおいて 3 種が同所的に分布する。しかし、東洋熱帯の種は同一 group 内にあっては通常異所的ないし側所的な分布傾向にあり、subgroup 内にあっては常に異所的ないし側所的である。

7. [種分化] 本亜属の分化の中心はインドシナ半島か中国南部にあったはずで、そこから主に南西日本方向とスンダランド方向に分布を拡散していったと考えられる。また、*G. longispinosa* group のようにスンダランドで二次的な分化を生じたものもあったと判断される。これらは周辺域に分布域を拡大していく中で、同一の group あるいは subgroup 内にあっては、先住のより原始的な種を駆逐していったらしい。より原始的な種が分布の周縁部に残っているのは、こうした理由からであろう。さらに、ウェーバー線より東に分布する *G. australis* group は、ニューギニアに到達した後で二次的な種分化を生じたものと考えられる。

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