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SPHECOIDEA FROM THE RYUKYUS AND FORMOSA (Hymenoptera)[1]

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The material was collected by the Japanese members of Japan-U. S. Co-operative Science Program (Section Zoogeography and Ecology of Pacific Area Insects) and sent to me for study.

A. Sphecidae

I. Sphecinae

1. **Sphex (Sphex) argentatus** Fabricius, 1787

* *Sphex (Sphex) umbrosus* : Yasumatsu, Tenthredo 2 (1) : 54, 1938.
Sphex argentatus : Van der Vecht, Zool. Verh. 48 : 28, 1961.
Sphex (Sphex) argentatus : Tsuneki, Life Study (Fukui) 6 (1) : 6, 1962 ; Bull. Osaka Mus. Nat. Hist. 19 : 21, 1966 (Ryukyus).
Sphex argentatus : Yasumatsu, Spec. Bull. Lep. Soc. Jap. 1 : 176, 1965 (Formosa).
Specimens examined : 1♀, Yakushima Is. (Anbo), 30. VII. 1963, T. Okada ; 1♀ 2 ♂♂, Amami-Ohshima Is. (Sumiyo), 9. VIII. 1963, T. Okada ; 1♂, Okinoerabu Is., 8. VIII. 1963, K. Yasumatsu et K. Yano ; 1♀, Ishigaki Is. (Omotodake), 10. X. 1963, Y. Hirashima ; 1♀, Iriomote Is. (Ohara), 1. X. 1963, Y. Hirashima.
Remarks. The specimens of Yakushima Is. and some of Amami-Oshima Is. have the wings slightly more clouded than in the remainder, approaching subsp. *fumosus* Mocsáry that occurs commonly in Japan.

2. **Sphex (Sphex) flammitrichus** Strand, 1913

* *Sphex (Sphex) flammitrichus* : Yasumatsu, Tenthredo 2 (1) : 61, 1938.
Sphex (Sphex) flammitrichus : Tsuneki, Life Study (Fukui) 6 (1) : 6, 1962 (Amami-Ohshima).
Specimens examined : 1♂, Yakushima Is. (Anbo), 27. VII. 1963, T. Okada ; 6 ♂♂, Taiwan : Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu.

3. **Sphex (Sphex) haemorrhoidalis** Fabricius, 1781

* *Sphex (Sphex) haemorrhoidalis* : Yasumatsu, Tenthredo 2 (1) : 64, 1938.
Specimens examined : 2♀♀, Taiwan, Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirozu ; 1♂, Taiwan, Nantou Hsien (Nanshanchi), 21. V. 1965, T. Shirozu.
Remarks. Several varieties, sometimes dealt with as subspecies as in Baltazar (1966), have been described. Most of these colour forms, however, have not been paid consideration as to their geographic relation and especially as to their sexual differences. Detailed further investigation, therefore, will be needed before they can be assigned to a certain taxonomic rank. The Formosan specimens have the wings much more brightly coloured with yellow than in the Korean examples.

1 Contribution No. 105 from the Biological Laboratory, Fukui University, Japan.
* With the detailed list of literature up to that time.

4. **Sphex sericeus lineolus** Lepeletier, 1845

* *Sphex (Sphex) aurulentus* : Yasumatsu, Tenthredo 2 (1) : 69, 1938
Sphex sericeus lineolus : Van der Vecht and Krombein, Idea 10 (3) : 37, 1955.
Specimens examined : 2♀♀ 6♂♂, Taiwan : 2♀♀ 4♂♂, Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu ; 2 ♂♂, Pingtung Hsien (Szuchunghsi), 4. IV. 1965, Y. Hirashima.

5. **Sphex (Prionyx) viduatus** Christ, 1791

* *Sphex (Parasphex) viduatus* : Yasumatsu, Tenthredo 2 (1), 87, 1938.
Sphex (Parasphex) viduatus : Tsuneki, Life Study (Fukui) 6 (1) : 6, 1962 (Amami-Ohshima).
Specimen examined : 1♂, Iriomote Is. (Ohara), 1. X. 1963, Y. Hirashima.

6. **Sphex (Isodontia) nigellus** Smith, 1856

* *Sphex (Isodontia) nigellus* : Yasumatsu, Tenthredo 2 (1) : 99, 1938.
Sphex (Isodontia) nigellus : Tsuneki, Life Study (Fukui) 6, (1) : 6, 1962 (Amami-Ohshima).
Specimens examined : 1♀ 4♂♂, Yakushima Is., 30. VII. 1963, T. Okada ; 1♀ 2 ♂♂, Amami-Ohshima Is., 5. VIII. 1963, T. Okada ; 1♀ 3 ♂♂, Tokunoshima Is., 27. VII. 1963, Y. Hirashima ; 1 ♀ 1♂, Okinoerabu Is., 7. VIII. 1963, K. Yasumatsu et K. Yano ; 2 ♀♀ 1♂, Iriomote Is., 1, 6. X. 1963, Y. Hirashima.

7. **Ammophila subassimilis** Strand, 1913

Ammophila subassimilis Strand, Arch. Naturg., Abt. A. (3) : 86, 1913 (Formosa).
Ammophila vagabunda : Sonan (nec Smith, 1856), Trans. Nat. Hist. Soc. Formosa 32 (222) : 132, 1942 (Formosa).
Specimens examined : 2♂♂, Taiwan : 1 ♂, Nantou Hsien (Sungkang), 3. V. 1965 ; 1 ♂, Nantou-Hsien) (Wushe-Chienching), 19. V. 1965, T. Shirôzu.
Remarks. *A. subassimilis* Strand is not conspecific with *A. sabulosa infesta* Smith occurring in Japan.

8. **Ammopila clavus** (Fabricius, 1775)

Ammophila basalis : Matsumura, Thous. Ins. Jap., Suppl. 3 : 119, 1911.
Ammophila atripes : Strand, Arch. Naturg. A (3) : 85, 1913 (Formosa).
Ammophila clavus : Sonan, Trans. Nat. Hist. Soc. Formosa 17 (89) : 132, 1927 (Formosa).
Ammophila clavus : Sonan, Ibid. 32 (222) : 134, 1942 (Formosa).
Ammophila atripes : Matsumura, Thous. Ins. Jap., Rev. Ed. 2 : 20, 1930.
* *Ammophia clavus* : Yasumatsu, Ins. Jehol, VIII, Hym. 2 : 7, 22, 1935 ; Icon. Ins. Jap., Ed. II : 1473, 1950 ; Icon. Ins. Jap. Col. Nat. 3 : 299, 1965.
Ammophila clavus : Van der Vecht, Zool. Verh. 48 : 39, 1961

Ammophila clavus : Tsuneki, Life Study (Fukui) 6 (2) : 25, 1962.

Specimens examined : 5 ♀♀ 3 ♂♂, the Ryukyus : 3 ♀♀, Ishigaki Is. (Omoto-dake), 10. X. 1963, Y. Hirashima ; 2 ♂♂, ditto (Banna-dake), 15. X. 1963, Y. Hirashima ; 2 ♂♂, ditto (Kabira), 13. X. 1963, Y. Hirashima. 2 ♀♀ 1♂, Taiwan : 1♂, Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu ; 1♀, Nantou Hsien (Nanshanchi), 21. V. 1965, T. Shirôzu ; 1♀, Pingtung Hsien (Kenting), 2. IV. 1965, T. Shirôzu.

9. **Ammophila (Hoplammophila) aemulans** Kohl, 1901

Ammophila aemulans Kohl, Ann. k. k. naturh. Hofmus. Wien 16 : 144, 1901 ; Ibid. 21 : 314, 1906 (♀♂) (Southeast Siberia and Korea).
Ammophila rhinoceros Strand, Arch. Naturg., Abt. A 3 : 85, 1913 (♂) (Formosa) (SYN. NOV.).
Ammophila aemulans : Iwata, Mushi 11 (1) : 70, 1938 (biol.).
Ammophila aemulans : Yasumatsu, Hym. in Ins. Jap. Ill. Icon. p. 367, 1939 ; Icon. Ins. Jap., Ed. II : 1473, 1950 ; Icon. Ins. Jap. Col. Nat. 3 : 299, 1965.
Ammophila rhinoceros : Sonan, Trans. Nat. Hist. Soc. Formosa 32 (222) : 136, 1942 (♀♂) (Formosa).
Ammophila aemulans : Tsuneki, Jap. Hunt. Wasps p. 63, 1946.
Ammophila (Micadophila) aemulans : Tsuneki, Life Study (Fukui) 6 (1) : 28, 1962.
Ammophila (Hoplammophila) aemulans : Tsuneki, Life Study 7 (3-4) : 44, 1963 (biol.).
Ammophila (Hoplammophila) aemulans : Menke, Canad. Ent. 98 (2) : 150, 1966.

Specimen examined : 1♂, Taiwan : Nantou Hsien (Nashanchi), 29. V. 1965, T. Shirôzu leg.

Remarks. *Ammophila rhinoceros* Strand, 1913, described from Formosa is nothing but a male of this species. As to the biological studies of this species see Iwata, 1938, and Tsuneki, 1946 and especially 1963.

10. **Sceliphron (Chalybion) inflexum** Sickmann, 1895

Chalybion curvatum Ritsema (nec Smith, 1870), Notes Leyden Mus. 2 : 266, 1880 (Japan).
Sceliphron (Chalybion) inflexum Sickmann, Zool. Jahrb., System. 8 (2) ; 220, 1895 (N. China).
Sceliphron ritsemae Dalla Torre, Cat. Hym. etc. 8 : 389, 1897 ;
Sceliphron ritsemae : Strand, Arch. Naturg., Abt. A (7) : 165, 1913 (Formosa).
Sceliphron violaceum : Sonan, Zool. Mag. (Tokyo) 37 (440) : 226, 1925 (Formosa-Taipei) ; Trans. Nat. Hist. Soc. Formosa 17 (89) : 121, 1927.
Chalybion violaceum : Matsumura et Uchida, Ins. Mats. 1 (1) : 41, 1926 (Okinawa).
Sceliphron inflexum : Sonan, Trans. Nat. Hist. Soc. Formosa 17 (93) : 374, 1927.
Sceliphron inflexum : Yasumatsu, Mushi 7 (2) : 63, 1934 (Yakushima) ; Annot. Zool. Jap. 15 (1) : 34, 37, 1935 (Ishigaki and Iriomote).
Sceliphron inflexum : Tsuneki, Life Study (Fukui) 6 (1) : 6, 1962 (Amami-Ohshima).

Specimens examined : 1♀ 2 ♂♂, Taiwan : 1♀1♂, Nantou Hsien (Penpuchi), 4. VI. 1965, T. Shirôzu ; 1♂, Nantou Hsien (Nanshanchi), 26. VI. 1965, T. Shirôzu leg.

Remarks. According to my study in Formosa this species occurs in the middle and northern regions, while the following species, *bengalense*, occurs only in the southern region.

11. **Sceliphron (Chalybion) bengalense** (Dahlbom, 1845)

Sphex violacea Fabricius, Syst. Ent. p. 346, 1775 (nec Scopoli, 1763).
Sceliphron bengalense : Yasumatsu, Mushi 9 (2) : 127, 1937 (Botel Tobago).
? *Sceliphron inflexum* : Iwata, Trans. Nat. Hist. Soc. Formosa 29 (189) : 169, 1939 (Formosa-Chihpenchi) (biol.).
Sceliphron bengalense : Yasumatsu, Spec. Bull. Lep. Soc. Jap. 1 : 176 (Taiwan-Wulai).

Specimens examined : 5 ♂♂, Taiwan : Pingtung Hsien (Szuchunghsi), 4. IV. 1965, T. Shirôzu.

12. **Sceliphron (Sceliphron) madraspatanum** (Fabricius, 1781)

Sceliphron madraspatanum : Sonan, Zool. Mag (Tokyo) 37 (440) : 226, 1925 ; Trans. Nat. Hist. Soc. Formosa 19 (105) : 533, 1929 ; —— : Matsumura et Uchida, Ins. Mats. 1 (1) : 40, 1926 ; —— : Yano, Icon. Ins. Jap., Ed. I : 286, 1932 ; —— : Yasumatsu, Annot. Zool. Jap. 15 (1) : 35, 36, 1935 ; Mushi 9 (2) : 127, 1937 ; Icon. Ins. Jap. Col. Nat. 3 : 299, 1965 ; —— : Iwata, Trans. Nat. Hist. Soc. Formosa, 29 (189) : 169, 1939 ; —— : Tsuneki, Life Study (Fukui) 6 (1) : 7, 1962.
Sceliphron tubifex : Yano, Icon. Ins. Jap. Ed. I : 286, 1932 ; Ibid., Ed. II : 1474, 1950 ; —— : Yasumatsu, Jour. Fukuoka Nat. Hist. Soc. 2 (1) : 35, 1936.

Specimens examined : 10 ♀♀ 2 ♂♂, Ryukyus : 3 ♀♀ 2 ♂♂, Amami-Ohshima Is., 29. VII-5. VIII. 1963, Y. Hirashima, T. Okada ; 3 ♀♀, Okinoerabu Is., 7-8. VIII. 1963, Yasumatsu et Yano ; 3 ♀♀, Yoron Is., 4. VIII. 1963, Yasumatsu et Yano.

II. Philanthinae

13. **Cerceris sinensis** Smith, 1856

Cerceris sinensis Smith, Cat. Hym. Ins. Brit. Mus. 4 : 456, 1856 (♀, N. China).
Cerceris sinensis : Strand, Arch. Naturg., Abt. A 79 (7) : 161, 1913 (♂, partim, Formosa).
Cerceris sinensis : Giner Mari, Arb. morphol. taxon. Berlin-Dahlem 10 (4) : 212, 1943 (♀♂, Formosa).

Specimens examined : 4 ♂♂, Formosa : Nantou Pref. (Wushe-Chenching), 3. V. 1965, T. Shirôzu.

III. Nyssoninae

14. **Bembecinus hungaricus** (Frivaldzky, 1876)

* *Benbecinus hungaricus* : Tsuneki, Etizenia (Occ. Publ. Biol. Lab. Fukui Univ.) 8 : 14, 1965. (=*Stizus formosanus, posterus, kotoshonus, hirsutus, japonicus*)

Specimens examined : 1♀, Yoron Is. (Chahana), 4. VIII. 1963, K. Yasumatsu et K. Yano. (1♀, from other source : Okinawa Is., VI. 1945, G. E. Bohart).

Remarks. Characters of the maculation and the 2nd cubital cell of the fore wing of the two specimens above listed are as given in Table 1. The maculation on

Table 1. *Variation of maculation in* Bembecinus hungaricus *(Nos. 1 and 2) and* Bembecinus tridens *(Nos. 3–9) occurring in the Ryukyus.*

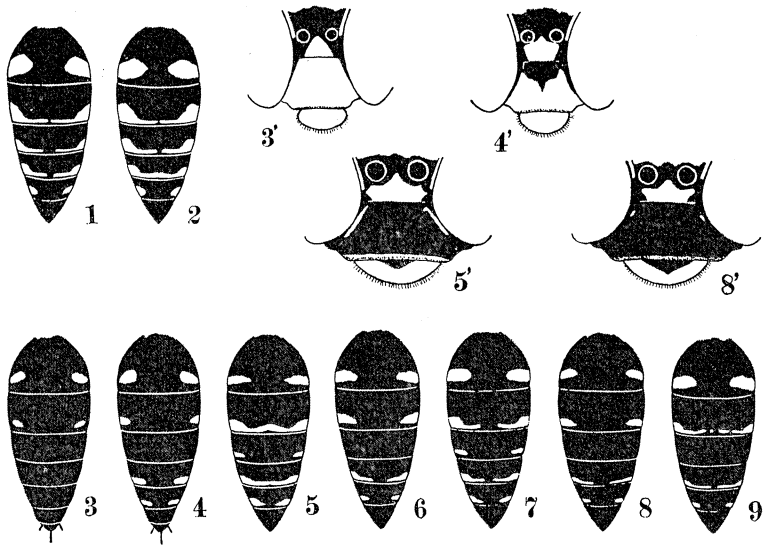
No.	Locality	Sex	Black on labrum L M S N	Black on clypeus A L S N	Supraclypeal area: Cent. M. L S N	Supraclypeal area: Lat. M. L S N
1	Yoron	♀	○	○	○	○
2	Okinawa	♀	○	○	○	○
3	Yoron	♂♀	○	○	○	○
4	Ishigaki	♂♀	○	○	○	○
5	Ishigaki	♀	○	○	○	○
6	Ishigaki	♀	○	○	○	○
7	Iriomote	♀	○	○	○	○
8	Iriomote	♀	○	○	○	○
9	Iriomote	♀	○	○	○	○

No.	Pronotum B IB Sp N	Hum. ang. L S N	Axilla L S N	Tegula L S N	Scut. Pr Ab
1	○	○	○	○	
2	○	○	○	○	○
3	○	○	○		○
4	○	○	○	○	○
5	○	○	○	○	
6	○	○	○	○	○
7	○	○	○	○	○
8	○	○	○	○	○
9	○	○	○	○	○

No.	P. sc. Pr Ab	Propod. Pr. Ab	H. tib. L S N	Tergite 1 L M S	Tergite 2 B IB Sp N
1	○	○	○	○	○
2	○	○	○	○	○
3	○	○	○	○	
4	○	○	○	○	○
5	○	○	○	○	○
6	○	○	○	○	○
7	○	○	○	○	○
8	○	○	○	○	○
9	○	○	○	○	○

No.	Tergite 3 B IB Sp N	Tergite 4 B IB Sp N	Tergite 5 B IB Sp N	2nd cub. c. Pet T-a Q-a
1	○	○	○	○
2	○	○	○	○
3	○	○	○	
4	○	○	○	○
5	○	○	○	○
6	○	○	○	○
7	○	○	○	○
8	○	○	○	○
9	○	○	○	○

Abbreviation. Cent. M : Central macula, Lat. M : Lateral macula, Hum. ang : Humeral angle, Scut. : Scutellum, P. sc. : Postscutellum, Propod : Propodeum, H. tib. : Hind tibia, L. : Large, M. : Medium-sized, S. : Small, N. : None, A : All, B. : Band, IB. : Interrupted band, Sp. : Spot, Pr. : Present, Ab. : Absent, Pet. : Petiolated, T-a. : Triangle, Q-a. : Quadrangle, cub. c. : cubital cell.



Figs. 1–2. *Bembecinus hungaricus* Friv. Maculation of the abdomen.
Figs. 3–9. *Bembecinus tridens* Fabr. Variation in maculation of the abdomen. 3′, 4′, 5′ and 8′ are respectively the clypeal maculation of 3, 4, 5 and 8. 3 and 4, ♂. Others ♀.

the abdomen of the Okinawa specimen (Fig. 2) is close to the brightest coloured form of Formosa and Korea, and that of the Yoron female (Fig. 1) represents a state between this form and *B. h. amamiensis* Tsuneki. There is no taxonomic problem with the specimens, since they are typical in the form of the 2nd cubital cell as well as the maculation of the clypeus.

15. **Bembecinus tridens** (Fabricius, 1781)

Bembecinus tridens : Beaumont, Mitt. Schweiz. Ent. Ges. 27 (3) : 247, 1954.
Bembecinus tridens : Tsuneki, Etizenia 8 : 14, 1965. (=*Stizus bimaculatus, nigriclypeus, satsumanus, okinawanus*).

(A) The population of the Yaeyama Group.

Specimens examined : 2♀♀ 1♂, Ishigaki Is. : 2 ♀♀, Maesatoyama, 11. X. 1963 ; 1♂, Kabira-Yoshiwara, 13. X. 1963, Y. Hirashima ; 3 ♀♀, Iriomote Is. (Sonai, Ushikumori, Sonai), 6, 11, 12. X. 1963, S. Uéno et S. Kuniyoshi.

In the typical *tridens* the 2nd cubital cell of the fore wing is distinctly opened on the radius and the clypeus and labrum wholly black (abdominal maculation fairly varied).

In the specimens from the Yaeyama Group (Table 1) the venation coincides with that of the typical form, but the labrum is fairly broadly yellow on the marginal area and the clypeus is always not completely black as shown in Figs. 4′ (♂), 5′(♀) and 8′(♀). The abdominal maculation is fairly variable (Figs. 4-9),

but generally less developed than in the typical race. The tendency of increase in the facial maculation and of decrease in the abdominal maculation may be a character of the Yaeyama population of *Bembecinus tridens*.

Among the names hitherto superficially given we may readopt *bimaculatus* (Matsumura et Uchida, 1926) as the subspecific name of this population.

(B) The population of the Okinawa Group

Specimen examined : 1♂, Yoron Is. (Furusato-Asato), 4. VIII. 1963, K. Yasumatsu et K. Yano.

This specimen, as compared with the population of the Yaeyama Group, shows much more development in maculation on the head and much more retrogression on the abdomen :

Black, yellow : Palpi, labrum wholly, clypeus wholly except apical pale brownish margin, a large triangular macula on supra-clypeal area, inner orbits medianly (Fig. 3'), antennal joint 1 beneath at base and at apex, join 2 beneath, a small transverse spot on each side of pronotum, humeral angles laterally, a small spot on each side of abdominal tergites 1 and 2 (Fig. 3). Antennal flagella beneath more or less brownish. Yellow on the legs : Front legs : Trochanters beneath at apex, femora beneath narrowly and at apex, tibiae except inside and tarsi. Mid legs : Apex of femora, tibiae except inside more broadly, tarsi except outer side of joints 1 and 5. Hind legs : A small fleck on tibia.

The maculation well agrees with that of *Stizus okinawanus* Sonan described with a male (?) from Okinawa Is. Probably this is a character of the population of *Bembecinus tridens* occurring over the Islands of the Okinawa Group. To settle the problem, however, a study with the ample material, especially of the female, will be needed. At the time of my investigation upon the Japanese specimens of *B. hungaricus* I placed *okinawanus* with the question mark under that species. Now, it comes to be used with certainty as a subspecies name of *B. tridens* : *Bembecinus tridens okinawanus* (Sonan, 1928).

IV. Larrinae

16. **Larra amplipennis** (Smith, 1873)

Larra amplipennis : Tsuneki, Kontyû 32 : 221, 1964 ; Etizenia 20 : 18, 1967.
Larra amplipennis sanguinea : Tsuneki, Etizenia 17 : 8, 1966.
Specimen examined : 1♂, Iriomote Is., 1. X. 1963, Y. Hirashima leg.

17. **Larra carbonaria** (Smith, 1858)

Larra carbonaria : Tsuneki, Etizenia 17 : 9, 1966 : Ibid. 20 : 20, 1967.
Specimen examined : 1♂, Formosa (Taipei), 15. IV. 1965, M. Sasakawa leg.

18. **Liris (Liris) aurulenta** (Fabricius, 1787)

Liris (Liris) aurulenta : Tsuneki, Etizenia 17 : 1, 1966 ; Ibid. 20 : 27, 1967.
Specimens examined : 1♀, Formosa : Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirozu. 6 ♀♀, Okinoerabu Is., 8. VIII. 1963, K. Yasumatsu et K. Yano.

19. **Liris (Dociliris) surusumi** Tsuneki, 1967

Liris (Notogonidea) surusumi Tsuneki, Etizenia 17 : 4, 1966 (♀, Ishigaki Is.).
Liris (Notogonidea) shirozui Tsuneki, Ibid. 17 : 5, 1966 (♂, Formosa).
Liris (Dociliris) surusumi Tsuneki, Ibid. 20 : 28, 1967 (♀♂, Formosa).
Specimen examined : 1♂, Formosa : Nantou Hsien (Sungkang), 5. V. 1965, T. Shirôzu.

20. **Liris (Dociliris) rohweri** (Williams, 1928)

Liris (Notogonidea) rohweri : Tsuneki, Etizenia 17 : 2, 1966.
Liris (Dociliris) rohweri : Tsuneki, Ibid. 20 : 31, 1967.
Specimens examined : 1♀1♂, Formosa : 1♀, Pingtung Hsien (Kenting), 4. IV. 1965, T. Shirôzu ; 1♂, Tainan Hsien (Kuantzuling), 6. IV. 1965, T. Shirôzu leg. 1♀1♂, Iriomote Is. : 1♀, Sonai, 10. III. 1964, T. Shirôzu ; 1♂, Ohara, 1. X. 1963, K. Morimoto.

21. **Liris (Dociliris) subtessellata** (Smith, 1856)

Liris (Notogonidea) subtessellata : Tsuneki, Etizenia 17 : 2, 1966.
Liris (Dociliris) subtessellata : Tsuneki, Ibid. 20 : 32, 1967.
Specimen examined : 1♀, Formosa : Ping Hsien (Kenting), 4. IV. 1965, T. Shirôzu.

22. **Liris (Dociliris) docilis** (Smith, 1873)

Liris (Notogonidea) docilis : Tsuneki, Etizenia 17 : 1, 1966.
Liris (Notogonidea) voltex Tsuneki, Ibid. p. 7, 1966.
Liris (Dociliris) docilis : Tsuneki, Ibid. 20 : 33, 1967.
Specimens examined : 1♀, 1♂, Formosa : Nantou Hsien (Nanshanchi), 21. V. 1965, T. Shirôzu. 2 ♀♀ 2 ♂♂, Iriomote Is. : 1♀ 2 ♂♂, Sonai, 1, 6. X. 1963, K. Morimoto 1♀, Sonai, 10. III. 1964, T. Shirôzu. 1♂, Okinoerabu Is., 7. VIII. 1963, K. Yasumatsu. 1♀ 1♂, Tokunoshima Is., 27. VII. 1963, Y. Hirashima.

23. **Liris (Dociliris) larriformis** (Williams, 1928)

Liris (Notogonidea) larriformis : Tsuneki, Etizenia 17 : 4, 1966.
Liris (Dociliris) larriformis : Tsuneki, Ibid. 20 : 34, 1967.
Specimen examined : 1♀, Formosa : Pingtung Hsien (Kenting), 2. IV. 1965, T. Shirôzu.

24. **Liris (Nigliris) japonica** (Kohl, 1883)

Liris (Notogonidea) japonica : Tsuneki, Etizenia 17 : 8, 1966.
Liris (Nigliris) japonica : Tsuneki, Ibid. 20 : 34, 1967.
Specimens examined : 2♀♀, Formosa : 1♀, Pingtung Hsien (Kenting), 4. IV. 1965 ; 1♀, Chiayi Hsien (Chuchi), 13. IV. 1965, T. Shirozu leg. 1♀, Iriomote Is., 6. X. 1963, K. Morimoto ; 1♀, Yoron Is., 4. VIII. 1963, K. Yasumatsu et K. Yano ; 1♀ 1♂, Tokunoshima Is., 27. VII. 1963, Y. Hirashima.

25. **Tachytes sinensis fundatus** Rohwer, 1911

Tachytes sinensis fundatus : Tsuneki. Etizenia. 20 : 42, 1967.

Specimens examined : 2♀♀ 2♂♂, Formosa : Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu.

26. **Tachytes shirozui** Tsuneki, 1966

Tachytes shirozui Tsuneki, Etizenia 17 : 11, 1966.
Tachytes shirozui : Tsuneki, Ibid. 20 : 43, 1967.
Specimen examined : 1♀, Formosa : Nantou Hsien (Nanshanchi), 8. VI. 1965, T. Shirôzu.

27. **Tachytes formosanus** Tsuneki, 1966

Tachytes formosanus Tsuneki, Etizenia 17 : 12, 1966.
Tachytes formosanus : Tsuneki, Ibid. 20 : 44, 1967.
Specimens examined : 1♀1♂, Formosa : Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu.

28. **Tachytes modestus** Smith, 1856

Tachytes modestus : Tsuneki, Etizenia 17 : 14, 1966.
Tachytes modestus : Tsuneki, Ibid. 20 : 46, 1967.
Specimens examined : 3♂♂, Formosa : 2♂♂, Taipei Hsien (Yangmingshan), 1. VII. 1965 ; 1♂, Nantou Hsien (Puli), 25. VI. 1965, T. Shirôzu.

29. **Tachytes fruticis** Tsuneki, 1964

Tachytes fruticis : Tsuneki, Etizenia 17 : 14, 1966.
Tachytes fruticis : Tsuneki, Ibid. 20 : 46, 1967.
Specimen examined : 1♂, Formosa : Taipei Hsien (Yangmingshan), 1. VII. 1965, T. Shirôzu.

(To be continued)

新　著　紹　介

土生昶申　1967. Fauna Japonica, Carabidae—Truncatipennes Group (Insecta : Coleoptera). XIV+338 pp., 527 text-figs., 27 pls. Biogeographical Society of Japan.

本書は翅鞘の先端が切断された形のゴミムシ類で，日本に産する種109種（1亜科7族）についての綜説である．各種について詳細な記載，分布，生態的知見の記録が要領よく与えられ，重要な形態的特徴は洩れなく著者の描いた解剖図で示してあり，32種については見事な着色全形図で，76種については凸版図で27枚の図版に収められているので，種の同定には極めて便利である．また，18頁に亘る文献目録と6頁に亘る索引も利用者に大きな助けとなる．著者は本書をまとめ始めてから実に4年の月日を費したというが，1967年における日本の昆虫学界への大きな貢献で，ここに著者の労作に対して心から慶祝の意を捧げたい．昆虫学研究機関，昆虫学者，甲虫同好者は是非とも具えねばならぬ貴重な文献である．希望者は，東京都千代田区神田錦町 2-2，東京電機大学出版局宛に申込まれたい．1冊の定価は 4,400円．（安松京三）

Kontyû, 35 (4) : 391-397. 1967

オオヨツアナアトキリゴミムシ *Parena* (*Parena*) *perforata* (Bates) の幼虫の記載ならびに生活史に関する若干の観察

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Description of the larva of *Parena* (*Parena*) *perforata* (Bates), with some notes on its life history (Carabidae)

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オオヨツアナアトキリゴミムシ* は古くは向川 (1911)**，近くは内田 (1957) によつて報告されたように，クワゴマダラヒトリ *Spilosoma imparilis* Butler の捕食虫として知られている．向川，内田とも幼虫の簡単な図は示しているが，くわしい記載はされていないので，本報において，野外で採集した標本ならびに飼育によつて得た標本にもとづいて，各齢の幼虫の記載を行なつた．末尾には本種の採集・飼育によつて知り得た生活史に関する観察を付記した．

本文を草するにあたり，著者の一人貞永が採集の際いろいろとお世話になつた呉羽好三（長野県農業試験場），中村文男（長野県更級病虫害防除所），斉藤敬（長野県北佐久病虫害防除所）のかたがたに，厚く御礼を申し述べる．

3　齢　幼　虫

体長 13.5～16.0 mm．頭幅 1.70～1.92 mm（10頭の標本による測定値で，平均 1.81 mm）．尾状突起の長さ 0.7～0.8 mm（10頭の標本による測定値で，平均 0.7 mm）．

頭部は赤かつ色または暗黄かつ色で，背面には額板の後半および頭蓋の後半に暗色のはん紋があるが，頭蓋後縁に沿つて左右に2個の黄かつ色の部分があり，腹面には L_2 の前方から頭蓋後縁に達する暗色の縦帯と，V群を走る暗かつ色の縦帯があるが，後者は頭蓋後縁には達せず，時として不めいりようである；大腮は赤かつ色または暗赤かつ色であるが，基部寄りの約1/3は色が薄い；触角・小腮鬚・下唇鬚はかつ色で，時としてやや暗色をおびる．胸部背板は赤味をおびた黒色または黒かつ色で，左右に（中央線と側縁のほぼ中間に）淡かつ色または暗黄色のやや斜めの縦紋があるが，前胸背板の紋は人形または入形で，中

* 従来はオオミツアナアトキリゴミムシと呼ばれていたが，翅鞘の第3間室の点孔は4個なので，この和名を用いることにした．本種に酷似しているが，翅鞘の第3間室の点孔が3個の種は，クロサヒラタアトキリゴミムシ *P. kurosai* Habu で，個体数は少ない (cf. Habu, 1967, Fauna Japonica, Carabidae, Truncatipennes-group).

** 向川はオオヒラタアトキリゴミムシ *Crossoglossa* (=*Parena*) *laesipennis* Bates として紹介しているが，*P. perforata* の間違いと思う．したがつて，安松・渡辺編日本産害虫の天敵目録，第1篇，p. 20 の 55. *Parena laesipennis* は削除していただきたい．