

Taxonomic Studies on the Subgenus *Protocypus* Müller of the Genus *Ocypus* Leach (Coleoptera : Staphylinidae) of Japan, I

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Abstract The *scutiger* group of the subgenus *Protocypus* of the genus *Ocypus* from Japan is treated. Six new species, *Ocypus smetanai*, *O. hakusanus*, *O. yoroi*, *O. nemotoi* and *O. yuinus* from Honshu and *O. ohtsukaorum* from Kyushu are described. *Ocypus septentrionalis* Watanabe, 1984 is placed in synonymy with *O. scutiger* Sharp, 1889. A key to 8 species of the species group is given, and the apical part of 8th abdominal sternum in male and the male aedeagus are illustrated for comparison.

Key words : *scutiger* group, *Protocypus*, *Ocypus*, Staphylinidae, Japan.

Sharp (1889) described two new species, *Ocypus dorsalis* and *O. scutiger* from Honshu, Japan. These two species have no functional wings and then are characterized by the elytra which are more or less narrowed anteriorly, and also by the presence of the golden yellow spots on the 6th and 7th abdominal terga.

The *Protocypus* was established by G. Müller in 1923 as a subgenus of *Ocypus* Leach, in which many subgenera are uncritically recognized at the present stage. The subgenus *Protocypus* was first based on one species, *Ocypus fulvotomentosus* (Eppelsheim) in China. Müller (1924) included *O. dorsalis* Sharp in *Protocypus*, and, similarly, Scheerpeltz (1933) included *O. scutiger* in the same subgenus. After that, Watanabe (1984) described *Ocypus septentrionalis* from Tohoku district and Watanabe (1987) added another new species, *O. hidanus* to the subgenus *Protocypus* from Chubu district, Honshu. But, *O. septentrionalis* is placed in synonymy with *O. scutiger* in this paper. Thus, the three species of the subgenus *Protocypus* are recorded from Japan up to the present.

I intend to study the Japanese species of the subgenus *Protocypus* in the three papers of this series. I classified the member of the subgenus into four species groups on the basis of the structure of male aedeagus, elytral color, etc. This is the first part of the study and I treated the *scutiger* group in this paper, and described 6 new species, *Ocypus smetanai*, *O. hakusanus*, *O. yoroi*, *O. nemotoi* and *O. yuinus* from Honshu and *O. ohtsukaorum* from kyushu.

Materials and methods

This series of papers are based on the dried specimens of my own collection in addition to Haga's and Nemoto's collections.

The species in each species group of the subgenus *Protocypus* are very similar in general appearance and color to one another. Then, the structures of male aedeagus (median lobe and fused paramere) are selected as key characters to establish species. In the median lobe, the structures of the apicoventral part are important for taxonomy because of their difference between species. The apicoventral part of the median lobe is, however, concealed by the fused paramere which is closely attached to the former, so that, the separation of the paramere from the median lobe is needed for observing and illustrating the apicoventral part.

The structures of dorsal surface of the paramere are also important for species-level taxonomy in addition to distribution of black sensory tubercles on the dorsal surface. As the dorsal surface of paramere is attached to the ventroapical part of median lobe, so I called the dorsal surface of paramere as "inner surface" and the ventral surface of paramere as "outer surface" for convenience.

The general shape of the aedeagus and the emargination of the 8th abdominal sternum in male are sometimes useful to characterize species and species group, but not decisive. The shape of internal armatures in the median lobe may be able

to be added as a taxonomic character, but I did not use this character in this series of the papers. So the further study is needed for this structure in order particularly to acknowledge the phylogenetic relationships among species.

It is very difficult for me to settle the criteria by which to judge the species because of the amount of morphological diversity in male aedeagi, attributing to their allopatric distribution in the Japanese Archipelago in association with loss of functional wings and low ability of dispersal. However, the morphological stabilities in the apicoventral part of median lobe and the inner surface of paramere are tentatively considered as the principal criteria of the species in the taxonomy of the subgenus *Protocypus*.

Species groups should be established from the viewpoint of monophyly in general. However, as is often the case with the group, whose classification is utterly incomplete for the world-wide level, such monophyletic groups are difficult to recognize. So, the species group should actually be understood for the sake of convenience in the series of papers.

The parameres are twisted to left (but to right in ventral view of my figures) to various degrees. Consequently, the figures of different angles seem to bring different illustrations even for a same species. This point should be kept in mind when one compares carefully the figures of aedeagi drawn by different authors.

The measurement for proportion was made basically on the basis of holotype specimen. If it was done on the specimens but holotype, the specific specimens measured are put clearly down in the "Remarks" for this series of studies.

Genus *Ocypus* Leach, 1819
Subgenus *Protocypus* Müller

Protocypus Müller, 1923, Boll. Soc. ent. Ital., 55 : 136 ; Müller, 1943, Atti Mus. Civ. stor. Nat. Trieste, 15(5) : 97 ; Blackwelder, 1943, U. S. Nat. Mus. Bull., 182 : 444 ; Blackwelder, 1952, U. S. Nat. Mus. Bull., 200 : 323 ; Shibata, 1984, Ann. Bull. Nichidai Sanko, (22) : 89.

Type-species: *Ocypus fulvotomentosus* (Eppelsheim) (*Staphylinus*), fixed by Müller, 1923, by monotypy.

Remarks. The macrochaetotaxy of head in the subgenus *Protocypus* is same as that of the

subtribe Xanthopygina I studied in Naomi (1982). Namely, it consists of 7 setae : anteromarginal, basiantennal, laterofrontal, genal, lateral, temporal and occipital setae, which have almost the same length, but the genal seta is a little shorter than the others. The occipital setae are situated behind the line connecting temporal setae. The macrosetae on pronotum are five in one side : one on anterior margin, three on anterolateral margin, and one on posterolateral corner. The macrosetae on elytron are four : one near the middle of anterior third, one near the middle of posterior third, and two on lateral margin.

I. The *scutiger* group

This species group is characterized by the combination of the following features : body medium to large in size (12.4–21.8 mm) ; elytra black ; 8th sternum with emargination shallow or moderate in depth at the middle ; median lobe of male aedeagus broad, round or obtusely pointed at apex in lateral view ; parameres various in shape, usually more or less constricted near the middle and weakly spatulate at the posterior half, but sometimes well-stalked and obtusely pointed at apex.

Key to species of the *scutiger* group

- | | |
|-------|---|
| 1(2) | Paramere subparallel-sided in posterior half and obtusely pointed at apex.....
..... <i>O. hakusanus</i> sp. nov. |
| 2(1) | Paramere more or less spatulate at apical part. |
| 3(8) | Inner surface of paramere with friction plate at apical part. |
| 4(5) | Friction plate of paramere very large and somewhat concave, sometimes with longitudinal sulci near the middle.....
..... <i>O. yuinus</i> sp. nov. |
| 5(4) | Friction plate of paramere small, flat and smooth. |
| 6(7) | Paramere moderately constricted near the middle and obtusely angulate at apex...
..... <i>O. hidanus</i> Watanabe |
| 7(6) | Paramere very weakly constricted near the middle and gently rounded at apex...
..... <i>O. ohtsukaorum</i> sp. nov. |
| 8(3) | Inner surface of paramere without friction plate at apical part. |
| 9(12) | Median lobe and paramere broader in |

ventral view.

- 10(11) Paramere angulate near the middle of apical margin, with smaller sensory tubercles.....*O. smetanai* sp. nov.
 11(10) Paramere obliquely subtruncate, with larger sensory tubercles...*O. yoroi* sp. nov.
 12(9) Median lobe and paramere narrower in ventral view.
 13(14) Median lobe with V-shaped protuberance on the apicoventral part; legs dark brown*O. scutiger* Sharp
 14(13) Median lobe with W-shaped protuberance on the apicoventral part; legs yellowish*O. nemotoi* sp. nov.

***Ocypus smetanai* Naomi sp. nov.**

Male. Black to dark brown, moderately shining; mouth parts reddish brown to reddish yellow; antennae with 1st to 7th segments blackish, luster becoming weaker toward tip, 8th to 11th yellowish to yellowish white, opaque; legs dark brown to reddish brown.

Body length: 18.6 mm.

Head suborbicular, with anterior and posterior margins almost straight, broader than long (1.29:1), broader than pronotum (1.18:1); surface covered with small, round and regular punctures and with short and fine pubescence, pubescence on anterior part turned posteriorly and pubescence on lateral parts turned postero-internally. Eyes small, weakly convex, 0.54 times as long as temporal regions. Antennae reaching the middle of pronotum, each segment constricted at base, 1st segment stout, broader than 2nd, 2nd to 11th similar in breadth to one another, with proportion in length from base to apex as 31:16:20:12:12:11:10:9:9:9:12.

Pronotum longer than broad (1.13:1), longer than elytra (1.28:1), gently convex above, side margins subparallel, posterior margin uniformly rounded; surface covered with fine, regular and dense punctures and pubescence. Mesoscutellum similarly punctured and pubescent as on pronotum.

Elytra broader than long (1.28:1), a little broadened posteriorly, side margins almost straight, hind margins together forming a large V-shaped emargination, fringed with golden reddish hairs; surface covered with very indistinct punctures and with dense and regular pubes-

cence turned posteriorly.

Legs developed, anterior tibiae thickened toward tips, anterior tarsi with 1st to 4th segments much dilated, all the tibiae setosus.

Abdomen broad, broadest at 5th segment, dorsal surface minutely coriaceous and densely pubescent; each segment with posterior margin fringed with relatively long and golden reddish hairs; 6th and 7th segments each with a central marking composed of golden yellow hairs; paratergites developed and raised almost vertically; 8th sternum (Fig. 1, E) with wide and moderately deep emargination at posterior margin.

Aedeagus (Fig. 1, A, B) robust, median lobe obtusely pointed at apex in ventral view (Fig. 1, C), apicoventral part with a small W-shaped protuberance; paramere broad, almost spatulate, gently constricted near the middle, with 8 short setae at apical and apicolateral margins, outer surface with an indistinct longitudinal keel, inner surface without friction plate, and with small sensory tubercles of two areas which are separated each other (Fig. 1, D).

Female. Unknown to me.

Holotype, male (Type No., CBM-ZI 24377), Mt. Hayachine, Iwate Pref., 17. vii. 1985, S. Nomura coll. Paratype, 1 male, Zaimokuzawa, Mt. Hayachine, Kawai, Iwate Pref., 15. viii. 1991, A. Smetana coll.

Distribution. Japan (Honshu: Tohoku district).

Remarks. This species is similar in shape of aedeagus to *O. yuinus* and *O. scutiger*, but the aedeagus is broader, and the sensory tubercles on inner surface are sparser and smaller.

This species is named after Dr. A. Smetana (Biosystematics Research Center, Ottawa) for his kind loan of the *Protocypus* specimens.

***Ocypus scutiger* Sharp**

Ocypus scutiger Sharp, 1889, Ann. Mag. nat. Hist., 6, 3: 110; Sakaguchi and Sawada, 1955, Coloured Ill. Ins. Jap. Coleopt., p. 57; Adachi, 1957, J. Toyo Univ., (11): 181; Nakane, 1963, Icon. Ins. Japon. Col. nat. ed., 2: 93; Shibata, 1984, Ann. Bull. Nichidai Sanko, (22): 90; Shibata, 1985, Coleopt. Jpn. Col., 2: 302.

Staphylinus scutiger (Sharp): Bernhauer and Schubert, 1914, Coleopt. Cat., (57): 390; Scheerpeltz, 1933, Coleopt. Cat. (129): 1401; Müller, 1943, Atti Mus. Civ. Stor. nat. Trieste, 15: 97;

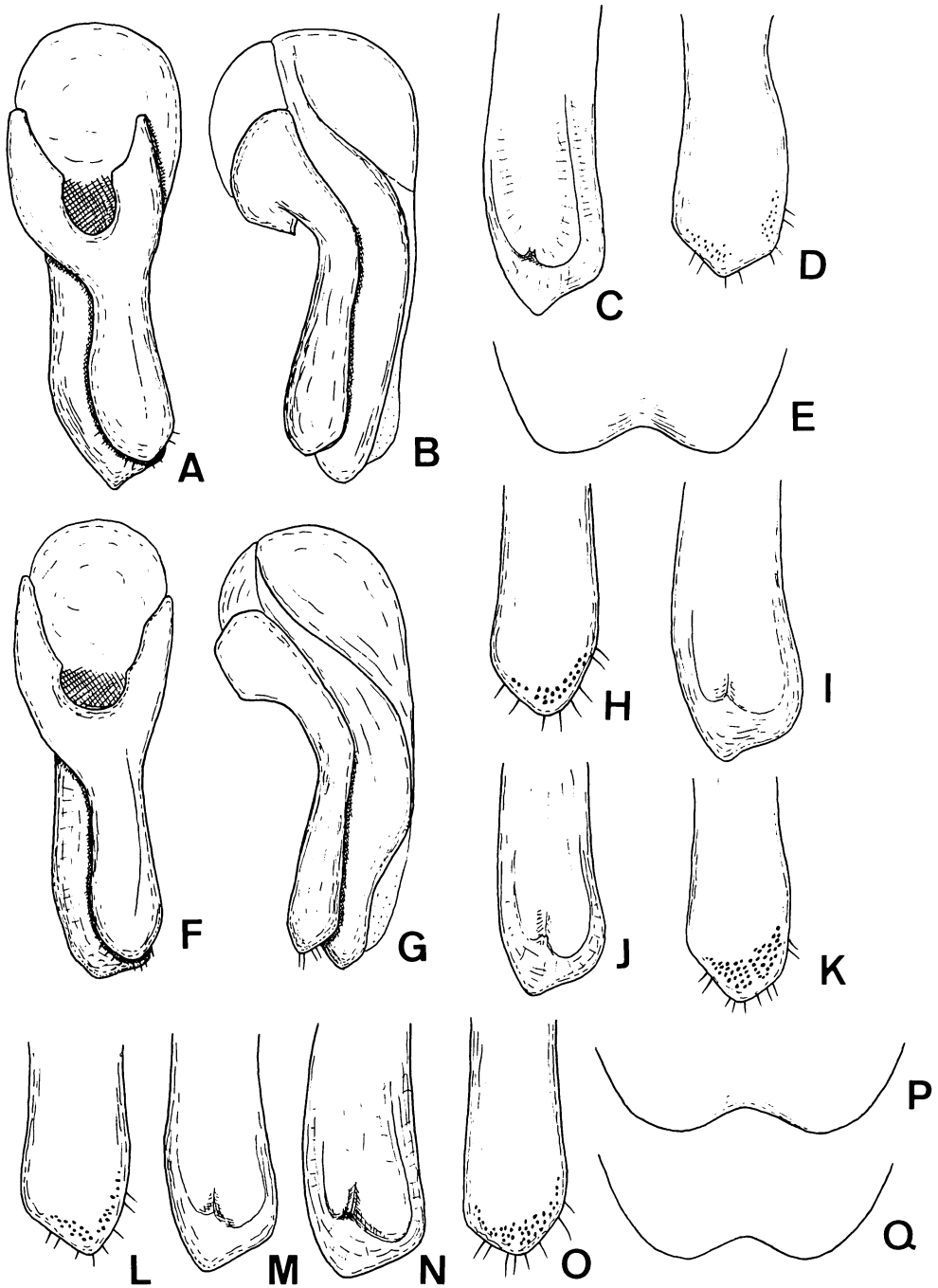


Fig. 1. A-E, *Ocybus smetanai* sp. nov. (Hayachine, Iwate); F-Q, *O. scutiger* Sharp (F, G, N, O, Q, Mt. Azuma, Yamagata; H, I, Nishikawa, Yamagata; J, K, P, Mt. Tsuboiri, Fukushima; L, M, Hinoemata, Fukushima). A, F, Male aedeagus in ventral view; B, G, male aedeagus in lateral view; C, I, J, M, N, apicoventral part of median lobe; D, H, K, L, O, apical inner surface of paramere; E, P, Q, 8th sternum in male.

Yokoyama and Adachi, 1951, Icon. Ins. Japon. (2nd ed.), p. 1011.

Ocypus septentrionalis Watanabe, 1984, Mem. natn. Sci. Mus., Tokyo, (17): 139 (**syn. nov.**).

Specimens examined. 1 male and 3 females, Nishikawa-cho, Nishimurayama-gun, Yamagata Pref., 8. viii. 1981, K. Haga coll.; 1 female, same locality, 23. vii. 1981, K. Haga coll.; 1 female, same locality, 29. vii. 1981, K. Haga coll.; 1 male, Shirafu Spa., Mt. Azuma, Yamagata Pref., 7. vi. 1980, S. Ohmomo coll.; 1 male and 3 females, Miike, Hinoemata-mura, Fukushima Pref., 5. viii. 1984, K. Haga coll.; 1 male, Mt. Tsuboiri, Minamiaizu, Fukushima Pref., 20. vii. 1981, K. Nemoto coll.; 1 female, forest above Nikkosawa (1960 m), Kuriyama, Tochigi Pref., 21. viii. 1991, A. Smetana coll.; 1 female, forest between Meotobuchi and Kaniyu (1402 m), Kuriyama, Tochigi Pref., 20. viii. 1991, A. Smetana coll.; 1 male and 1 female, same locality (1420 m), 20-23. viii. 1991, A. Smetana coll.; 1 female, Nikkosawa (1465 m), Kuriyama, Tochigi Pref., 20-22. viii. 1991, A. Smetana coll.

Distribution. Japan (Honshu: Tohoku and northern Kanto districts).

Remarks. *Ocypus scutiger* was originally described on the basis of specimens from Chuzenji, Nikko. This species has been long considered to be the larger one of two species which are distributed in Honshu by Japanese coleopterologists. However, it is clarified that the large species should be divided into 3 new species. I will describe them in the 3rd paper of this series on the study of *Protocypus*.

On the other hand, *Ocypus septentrionalis* was described on the basis of two males and two females from Mts. Iide which locates at the boundary between Yamagata and Niigata Prefs., and is placed in synonymy with *O. scutiger* Sharp in this paper. It became clear that *O. scutiger* is distributed from northern Kanto mountainous area (Tochigi Pref.) to Honshu district (Niigata Pref.) and Tohoku district (Fukushima and Yamagata Prefs.) and the type-locality of *O. scutiger* is located southernmost in its distributional range. (Fig. 4).

The 8th sternum in male has a moderately deep emargination at the posterior margin (Fig. 1, P, Q). The median lobe of male aedeagus (Fig. 1, F, G) is almost constant in the shape of apicoventral

part (Fig. 1, I, J, M, N), namely, it is obtusely pointed on right side, and the apicoventral part is provided with V-shaped protuberance. However, in a specimen from Mt. Tsuboiri (Fig. 1, J), the protuberance is W-shaped. The general shapes of parameral apices are various (Fig. 1, H, K, L, O), namely, pointed at right side or near central part, and different in the degree of the pointed condition. The sensory tubercles gather in one place, although the areas are different from one specimen to another.

This species is similar in general shape of aedeagus to *O. yuinus* and *O. nemotoi*, but it is separable from the former by the absence of friction plate on the inner surface of paramere, and from the latter by the brownish femora and the V-shaped protuberance on the apicoventral part of median lobe.

Ocypus hakusanus Naomi sp. nov.

Male. Similar in color to *O. smetanai*, but the body a little more opaque and brighter in color in general; mouth parts reddish brown, but the apical parts of mandibles black and opaque; legs reddish brown to brown.

Body length: 16.0-16.5 mm.

General structure similar to that of *O. smetanai*, head suborbicular, dull, broader than long (1.29: 1), broader than pronotum (1.13: 1); surface covered with fine, dense and regular punctures and pubescence, each hair black with reddish apical part. Eyes small, weakly convex above, 0.50 times as long as temporal regions. Antennae with proportions in length from base to apex as 30:15: 18: 12: 11: 10: 10: 9: 9: 9: 12.

Pronotum longer than broad (1.04: 1), longer than elytra (1.19: 1); surface covered with fine and regular punctures and pubescence, an impunctate longitudinal line very narrow and indistinct at the posteromedian part, or almost invisible.

Elytra broader than long (1.28: 1), hind margins together forming a wide V-shaped emargination; surface covered with dense, fine and indistinct punctures, and golden reddish dense pubescence.

Abdomen distinctly broader than elytra; surface covered with very fine, dense and regular punctures, and with golden reddish dense pubescence; markings on 6th and 7th terga similar to those of *O. smetanai*; 8th sternum with a medium-sized V-shaped emargination at the

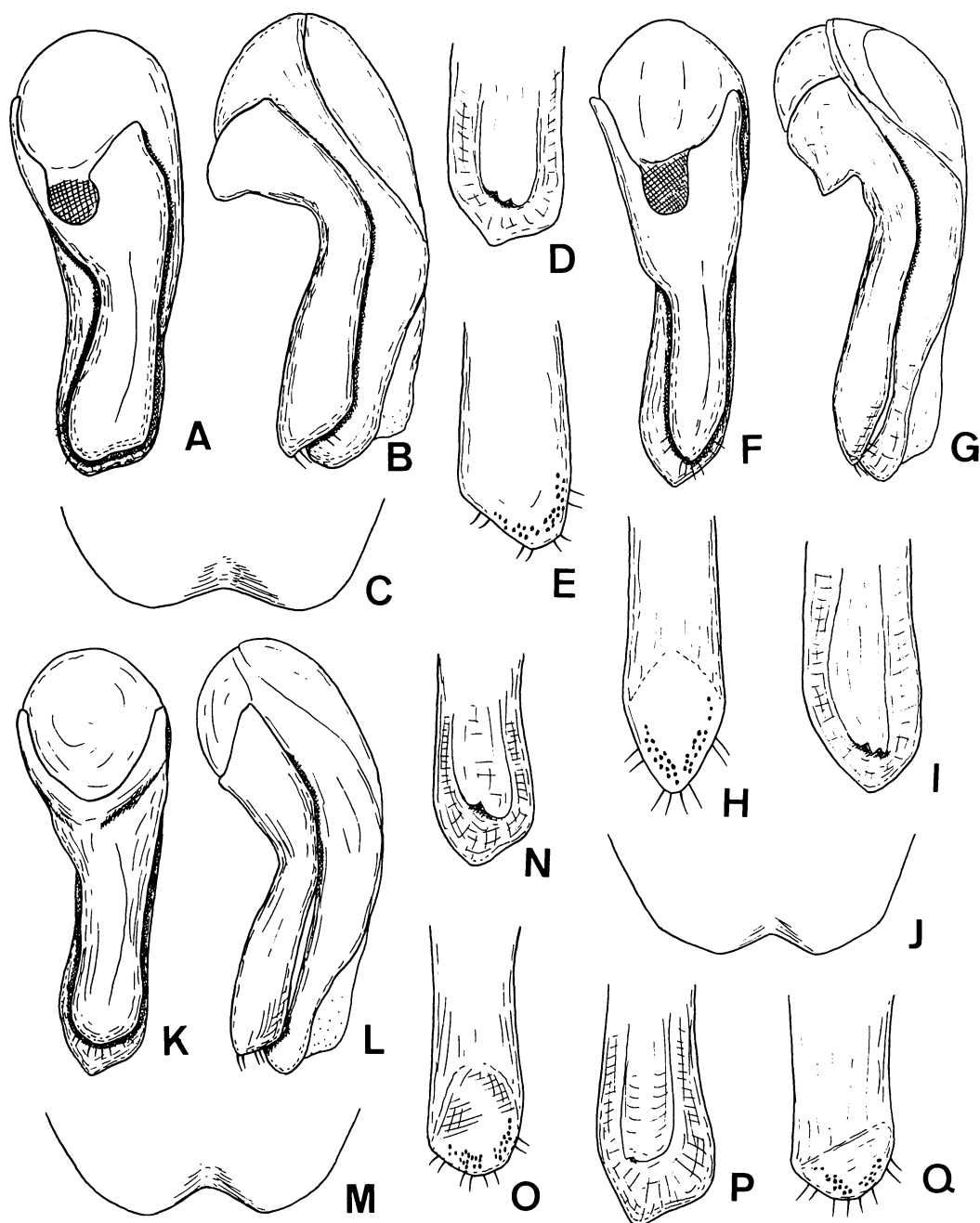


Fig. 2. A-E, *Ocyptus yoroi* sp. nov. (Sasagamine, Niigata); F-J, *O. hakusanus* sp. nov. (Kanmuri, Fukui); K-Q, *O. ohtsukaorum* sp. nov. (K-M, P, Q, Mt. Shiratori, Kumamoto; N, O, Mt. Kurodake, Ohita). A, F, K, Male aedeagus in ventral view; B, G, L, male aedeagus in lateral view; D, I, N, P, apicoventral part of median lobe; E, H, O, Q, apical inner surface of paramere; C, J, M, 8th sternum in male.

middle of posterior margin (Fig. 2, J).

Aedeagus (Fig. 2, F, G) slender in posterior half, median lobe obtusely and asymmetrically pointed near the middle of apical margin, apicoventral part with W-shaped protuberance (Fig. 2, I); paramere constricted near the middle, then gradually narrowed toward apex which is bluntly pointed at the middle, 4 setae at the middle of apical margin, and two pairs of setae situated separately from the apical ones at the apicolateral margins, inner surface with almost symmetrical friction plate, with sensory tubercles arranged along the apicolateral margins. (Fig. 2, H).

Female. Unknown to me.

Holotype, male (Type No., CBM-ZI 24378), Mt. Akasagi, Fukui Pref., 17. vi. 1979, H. Sasaji coll. Paratypes, 1 male, Mt. Kanmuri, Fukui Pref., 6-7. viii. 1973, H. Sasaji coll.; 1 male, Mt. Hakusan, Fukui Pref., 4. viii. 1962, H. Kamiya coll.

Distribution. Japan (Honshu: Chubu district).

Remarks. This species is unique in having the paramere which tapers apically, then it can be easily separable from the other species of *scutiger* group by this point.

Ocypus yoroi Naomi sp. nov.

Male. Body black to dark brown, opaque; mouth parts reddish except for the median part of labrum and apices of mandibles which are blackish; legs with coxae, trochanters and femora dark brown to reddish brown, tibiae and tarsi reddish to reddish yellow.

Body length: 13.1-13.8 mm.

Head broader than long (1.27 : 1), broader than pronotum (1.06 : 1); surface covered with fine and regular punctures and pubescence. Eyes orbicular, 0.55 times as long as temporal regions. Antennae with proportions in length from base to apex as 30 : 16 : 18 : 12 : 11 : 11 : 10 : 9 : 9 : 9 : 12.

Pronotum longer than broad (1.02 : 1), longer than elytra (1.24 : 1); surface covered with dense and fine punctures and pubescence, and with a median longitudinal impunctate line very thin and situated behind the middle, but this line not reaching to the posterior margin.

Elytra broader than long (1.30 : 1), hind margins together forming a wide V-shaped emargination; surface covered with dense and regular punctures, and reddish brown and fine pubescence.

Abdomen robust and broad, broadest at poste-

rior part of 5th segment; surface finely coriaceous, covered with indistinct and fine punctures, and dense and regular pubescence; 6th and 7th terga each with a golden yellow spots at anteromedian part; 8th sternum with a wide and shallow emargination at hind margin (Fig. 2, C).

Aedeagus (Fig. 2, A, B) robust, median lobe broad, obliquely pointed at apex in ventral view (Fig. 2, A), apicoventral part with a W-shaped protuberance (Fig. 2, D); paramere broad in ventral view, gently constricted at the middle, then broadened toward apex, apex obliquely truncate, with short setae of 4 groups, each of which is composed of two setae at apical and apicolateral margins, sensory tubercles gathering in one place along apical and apicolateral margins (Fig. 2, E).

Female. Unknown to me.

Holotype, male (Type No., CBM-ZI 24379), Sasagamine, Mt. Myoko, Niigata Pref., 14-15. vi. 1980, S. Naomi coll. Paratype, 1 male, same data as holotype.

Distribution. Japan (Honshu: Chubu district).

Remarks. This species is similar to *O. smetanaei* sp. nov., but the paramere is obliquely truncate at the apex and the sensory tubercles are larger and gather in one place along apical and apicolateral margins.

Ocypus hidanus Watanabe

Ocypus hidanus Watanabe, 1987, Bull. Gifu Pref. Mus., (8): 43.

Specimens examined. 1 male and 3 females, Mt. Ontake, Nagano Pref., 7-8. viii. 1985, K. Kubota coll.; 2 males and 2 females, Shimajima, Nagano Pref., 16. vii. 1982, Y. Abe coll.

Distribution. Japan (Honshu: Chubu district).

Remarks. This species was described on the basis of 2 males and 1 female from the Northern Japan Alps. This species is medium-sized (14.8-16.8 mm according to Watanabe, 1987) and the body is narrow, especially in male.

The 8th sternum in male has a medium-sized V-shaped emargination at the posterior margin (Fig. 3, R). The male aedeagus from Shimajima (Fig. 3, O-Q) almost fits to that drawn by Watanabe (1987). The difference of the general shape between Fig. 3, O of this paper and fig. 2 of Watanabe (1987) is probably due to the difference of the angle from which the authors drew the

aedeagi. The paramere has a distinct friction plate at the apical part of inner surface (Fig. 3, P).

***Ocypus nemotoi* Naomi sp. nov.**

Male and female. Black to dark brown, weakly shining to dull; mouth parts reddish brown and shining except for apices of mandibles and center of labrum which are dark brown; antennae with 1st to 4th segments reddish and shining, 5th to 11th reddish to reddish yellow; legs reddish yellow to clear yellow.

Body length: 14.6-17.1 mm.

Head suborbicular, broader than long (1.29 : 1), broader than pronotum (1.08 : 1); surface covered with fine and regular punctures and pubescence. Eyes weakly convex above, 0.64 times as long as temporal regions. Antennae with 2nd segment similar in size and shape to 3rd, with proportions in length from base to apex as 30 : 16 : 16 : 12 : 11 : 11 : 10 : 9 : 8 : 8 : 11.

Pronotum longer than broad (1.06 : 1), longer than elytra (1.27 : 1); surface covered with very dense and fine punctures, and black and short pubescence, a median longitudinal impunctate line present at posterior half of pronotum, but its length being variable from one specimen to another.

Elytra broader than long (1.29 : 1), almost flat, with side margins weakly rounded, hind margins together forming a wide emargination; surface covered with fine and dense punctures and pubescence.

Abdomen broad, broadest at hind corner of 5th segment; surface covered with fine and dense punctures and pubescence, interstices between punctures finely coriaceous; 6th and 7th terga each with a golden yellow marking.

Male. Eighth sternum with a moderate V-shaped emargination at the middle of 8th sternum (Fig. 3, L); aedeagus moderate in breadth (Fig. 3, H, M), median lobe with apical part asymmetrical in shape and obtusely pointed (Fig. 3, H, M), apicoventral part with an asymmetrical W-shaped protuberance (Fig. 3, J); paramere constricted near the middle, then broadened toward apex, apex rounded in ventral view (Fig. 3, H) and pointed in lateral view (Fig. 3, I) in a specimen from Hirogawara, or almost truncate in ventral and lateral views (Fig. 3, M, N) in a specimen from Namesawa, inner surface without friction

plate, with 8 setae at apical margin, sensory tubercles arranged almost along the apical margin (Fig. 3, K).

Female. Body similar in shape and length to male.

Holotype, male (Type No., CBM-ZI 24380), Hirogawara, Mt. Shiranekita, Yamanashi Pref., 9-13. vii. 1982, S. Naomi coll. Paratypes, 2 males, same data as holotype; 1 male and 1 female, same locality, 11-12. vi. 1988, K. Nemoto coll.; 1 male and 2 females, Ookabazawa (left side), Mt. Shiranekita, Yamanashi Pref., 30. vi. 1991, K. Haga coll.; 2 females, Ogurogawa, Nagatani-mura, Nagano Pref., 26. vii. 1985, K. Nemoto coll.; 2 males and 1 female, same locality, 26. vii. 1985, K. Nemoto and N. Nagahata coll.; 1 male, Mt. Nyugasa, Nagano Pref., 12. v. 1979, M. Tao coll.; 1 male and 4 females, Namesawa, Ootaki-mura, Saitama Pref., 13. vii. 1988, K. Sasaki coll.; 3 males, Kaminikkawa Pass, Mts. Daibosatsu, Yamanashi Pref., 15-18. vii. 1982, S. Naomi coll.; 1 male, same locality, 23. vi. 1985, M. Tao coll.

Distribution. Japan (Honshu: Chubu district).

Remarks. This species is easily separable from the other species of the *scutigera* group by the reddish yellow to yellow antennae and legs. Concerning the shape of male aedeagus, this species is very similar to *Ocypus scutigera* Sharp, but the median lobe is more asymmetrical in shape at the apical part, and the protuberance is W-shaped, large and asymmetrical on the apicoventral part.

***Ocypus yuinus* Naomi sp. nov.**

Male and female. Black to dark brown, moderately shining; mouth parts brownish except for dark apices of mandibles; antennae with 1st to 8th segments black to dark brown, shining, but sometimes opaque, 9th to 11th reddish brown and opaque; legs reddish brown, sometimes femora dark brown.

Body length: 16.9-21.8 mm.

Head suborbicular, broader than long (1.29 : 1), broader than pronotum (1.11 : 1); surface covered with fine and regular punctures and pubescence. Eyes moderately convex, 0.59 times as long as temporal regions. Antennae long, reaching a little beyond the middle of pronotum, with proportions in length from base to apex as 30 : 18 : 20 : 14 : 13 : 12 : 12 : 11 : 10 : 9 : 12.

Pronotum longer than broad (1.02 : 1) to as long

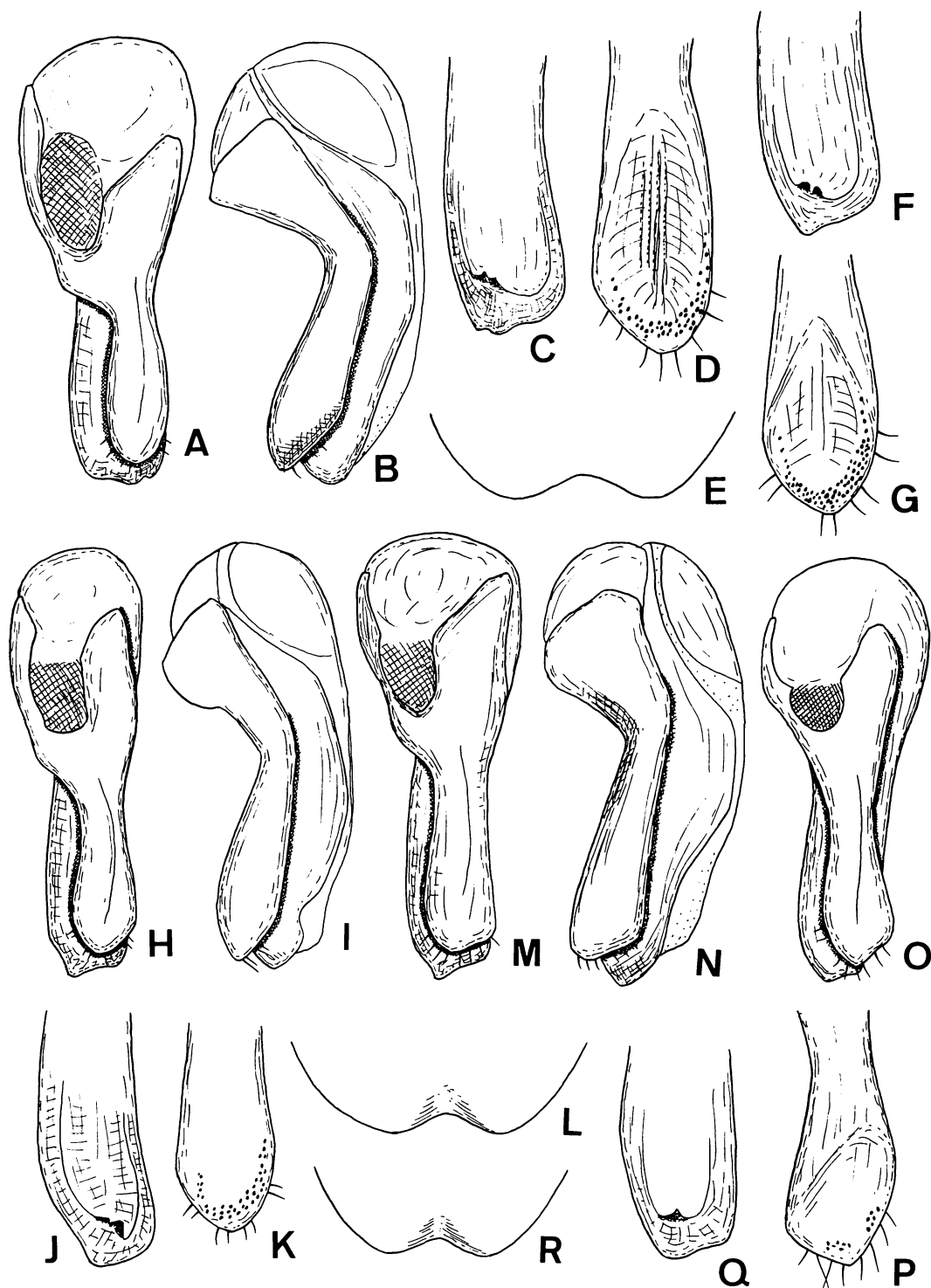


Fig. 3. A-G, *Ocypus yuius* sp. nov. (A-E, Yui, Shizuoka ; F, G, Abe Pass, Shizuoka) ; H-N, *O. nemotoi* sp. nov. (H-L, Hirogawara, Yamanashi ; M, N, Namesawa, Saitama) ; O-R, *O. hidanus* Watanabe (Shimajima, Nagano). A, H, M, O, Male aedeagus in ventral view ; B, I, N, male aedeagus in lateral view ; C, F, J, Q, apicoventral part of median lobe ; D, G, K, P, apical inner surface of paramere ; E, L, R, 8th sternum in male.

as broad, longer than elytra (1.19 : 1), subparallel-sided or weakly rounded at anterolateral part; surface covered with fine and regular punctures and pubescence, a median longitudinal impunctate line narrow and running from near the middle to near posterior margin. Mesoscutellum covered with dense and golden reddish pubescence.

Elytra broader than long (1.24 : 1), side margins weakly rounded, hind margins together forming a wide and shallow emargination; surface very weakly and regularly convex or sometimes a little uneven, covered with dense and fine punctures, and dense and golden reddish pubescence.

Abdomen robust, broadest at posterior margin of 5th segment; surface covered with dense and regular punctures, and moderately long and golden reddish hairs; 6th and 7th terga each with a golden yellowish marking at anteromedian part.

Male. Eighth sternum with a wide and shallow emargination at the middle of posterior margin (Fig. 3, E); aedeagus (Fig. 3, A, B) robust, with

basal orifice large, median lobe with apical margin sinuate in a specimen from Yui (Fig. 3, C), asymmetrically pointed in a specimen from Abe Pass (Fig. 3, F), apicoventral parts with a W-shaped protuberance; paramere strongly and asymmetrically constricted near the middle, apex almost rounded, with 8 setae, inner surface with large friction plate (Fig. 3, D, G), friction plate weakly concave, sometimes with irregular, rough and longitudinal sulci at the middle, and with a large number of sensory tubercles along apical and apicolateral margins.

Female. Eighth sternum rounded at the posterior margin.

Holotype, male (Type No. CBM-ZI 24381), Yui, Shizuoka Pref., ix. 1984, S. Ochiai coll.; 3 males and 4 females, Abe Pass, Shizuoka Pref., 7-8. vii. 1990, K. Nemoto coll.

Distribution. Japan (Honshu : Chubu district).

Remarks. This species has the unicolor legs (reddish brown) in general instead of bicolor legs.

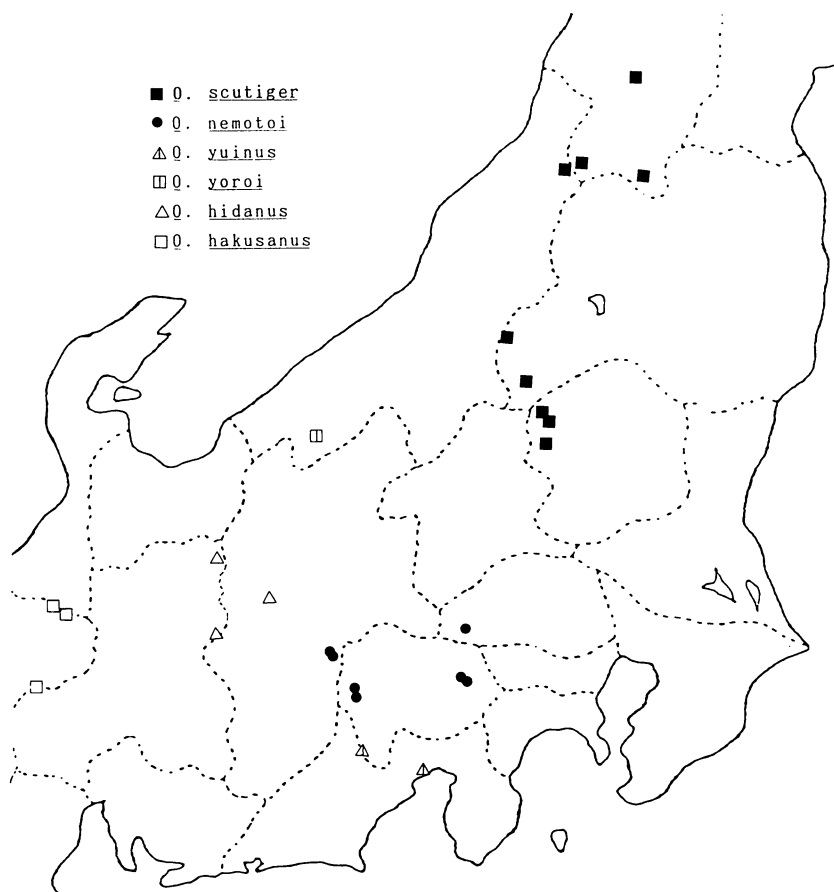


Fig. 4. Distribution map of 6 species in the *scutigera* species group.

In this point it is similar to *O. nemotoi* sp. nov., but the male aedeagus is different. *O. yuinus* sp. nov. is clearly separable from the other member of *scutigera* species group by the large friction plate of paramere which has longitudinal and rough sulci in the middle.

***Ocypus ohtsukaorum* Naomi sp. nov.**

Male and female. Black to dark brown, moderately shining, elytra and abdomen sometimes dark red; mouth parts reddish brown, but the basal part of each segment in maxillary palpus and apices of mandibles black to dark brown; antennae with 1st to 4th segments black and shining, 5th to 9th dark brown to reddish brown and opaque, 10th to 11th reddish brown to reddish and opaque; legs dark brown in general, but dorsal parts of tibiae and tarsi reddish to reddish brown.

Body length: 12.4-15.3 mm.

Head orbicular to suborbicular, broader than long (1.21 : 1), as long as to longer than pronotum (1.04 : 1); surface covered with dense, round, umbilicate and regular punctures, and short and fine pubescence. Eyes weakly convex, 0.64 times as long as temporal regions. Antennae reaching the middle of pronotum, with proportions in length from base to apex as 30 : 15 : 18 : 13 : 12 : 11 : 11 : 11 : 10 : 9 : 13.

Pronotum robust, longer than broad (1.08 : 1), longer than elytra (1.24 : 1), side margins a little sinuate or weakly rounded, hind margin rounded; surface covered with very dense, regular and feebly umbilicate punctures, and fine and dense pubescence, a median longitudinal impunctate line very narrow and found in the posterior half.

Elytra broader than long (1.27 : 1), side margins weakly rounded, hind margins together forming a wide and V-shaped emargination; surface almost flat to weakly convex, covered with dense, round and regular punctures and fine pubescence.

Abdomen broad, broader than elytra; surface covered with fine and dense punctures and pubescence; 5th tergum sometimes with a pair of very indistinct yellowish spots near center; 6th and 7th terga each with golden yellowish marking, the marking on 6th very large.

Male. Eighth sternum (Fig. 2, M) with a moderately deep emargination at the middle of posterior margin. Aedeagus (Fig. 2, K, L) medium in

breadth, median lobe with apical part weakly spatulate and asymmetrical (Fig. 2, N, P), apicoventral part with or without V-shaped protuberance; paramere broad, a little narrower than median lobe, very weakly swollen at the apical part, apical part rounded in ventral view, with 8 setae, outer surface with a curved carina, inner surface with a small and distinct friction plate, friction plates flat, but various in shape (Fig. 2, O, Q), sensory tubercles not so large in number, situated in two different areas.

Female. Eighth sternum with posterior margin almost truncate or rounded.

Holotype, male (Type No. CBM-ZI 24382), Mt. Sobo, Ohita Pref., 16. vii. 1976, H. Ohishi coll. Paratypes, 1 male and 1 female, same data as holotype; 1 female, same locality, 23. viii. 1980, K. Konishi coll.; 1 male, Mt. Daisen, Mts. Kujuu, Ohita Pref., 24. vii. 1984, M. Nishida coll.; 1 male, same locality, 18. vii. 1982, T. Ogata coll.; 1 male, same locality, 5. vi. 1983, S. Nomura coll.; 1 male, Mt. Kurodake, Mts. Kujuu, Ohita Pref., 28. iv. 1985, R. Noda coll.; 1 female, same locality, 10. vii. 1982, K. Konishi coll.; 1 male and 1 female, Mts. Kujuu, Ohita Pref., 5. vi. 1983, S. Nomura coll.; 1 female, same locality, 3. vi. 1983, S. Nomura coll.; 1 male, same locality, ix. 1969, S. Naomi coll.; 1 male and 2 females, Mt. Shiratori, Kumamoto Pref., 7. viii. 1983, S. Imasaka coll.; 2 males, same locality, 20. v. 1979, I. Ohtsuka coll.; 1 male, Mt. Ichifusa, Kumamoto Pref., 13. v. 1985, S. Nomura coll.

Distribution. Japan (Kyushu).

Remarks. This new species is similar to *O. hidanus* Watanabe in having the small friction plate of paramere, but the paramere is broader. *O. ohtsukaorum* sp. nov. is separable from the other member in *scutigera* species group by the umbilicate punctures on the head and pronotum.

The specimens from Mt. Sobo in paratypes in addition to holotype are used for measurement.

This species is named after an amateur entomologist, Mr. Isao Ohtsuka (head of Entomological Society of Kumamoto Prefecture) and his wife, Emi Ohtsuka. Mr. Ohtsuka was my teacher for entomology when I was a high school student in Kumamoto.

(References will be presented in *Protocypus* study III.)

日本産 *Ocypus* 属 *Protocypus* 亜属
(甲虫目, ハネカクシ科) の分類学的研究. I

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Protocypus 亜属ハネカクシはハネカクシ科 (Staphylinidae), ハネカクシ亜科 (Staphylininae), ハネカクシ族 (Staphylinini) の *Ocypus* 属に属している. 日本からは, これまでに, *Ocypus dorsalis* Sharp, *O. scutiger* Sharp, *O. septentrionalis* Watanabe,

および *O. hidanus* Watanabe の 4 種が知られていたが, *O. septentrionalis* は, *O. scutiger* のシノニムであることが判った. 今回, 体の色彩, 雄第 8 節腹板形態, 雄交尾器などについて調べたところ, 本亜属は 15 新種を含む 18 種に分類することができた. これらの 18 種は 4 種群に分類できるが, 本論文では, *scutiger* 種群に属する 8 種について論じた. 本論文では, 本種群から以下の 6 新種を記載した: *O. smetanai* (東北地方), *O. hakusanus* (中部地方), *O. yoroi* (中部地方), *O. nemotoi* (中部地方), *O. yuinus* (中部地方) および *O. ohtsukaorum* (九州) である. また, *scutiger* 種群に含まれる 8 種について検索表を作成して, さらに, 雄交尾器および雄第 8 腹板について図示した.