

## A Taxonomic Study on the Japanese Species of the Genus *Coryphium* (Coleoptera, Staphylinidae)

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**Abstract** The Japanese species of the genus *Coryphium* are dealt with. *Boreaphilus nikkoensis* K. SAWADA is transferred to this genus. All the Japanese species, including five new species, are either described or redescribed and a key to them is given. The new species are: *C. miyamorii* from Hokkaido and Kantô to Tôhoku Districts, *C. tateoi* from Kinki District, *C. fuscum* from Chûgoku District, *C. iwakisanense* from Tôhoku District, and *C. yasutoshii* from Kantô and Shin'etsu Districts.

The genus *Coryphium* is one of the relatively small groups of the subfamily Omaliinae, which are characterized by the presence of a pair of ocelli on the vertexal region of head. *Coryphium* is characterized by the shape of maxillary palpi, of which the penultimate segment is strongly dilated and the apicalmost extremely small.

The members of this genus are widely distributed in the Holarctic Region and mainly dwell in moss or under dead leaves in mountain forests. Up to the present, two species, *C. japonicum* YOSHIDA et NOMURA and *C. coriaceoides* (Y. SHIBATA), have been reported from Japan. However, the former should belong to the genus *Philydrodes* as already pointed out by UÉNO and WATANABE (1966, p. 321). Thus, *C. coriaceoides* is the only species of the genus recorded with certainty from the Japanese Islands.

Pursuing the taxonomic revision of the subfamily Omaliinae from Japan, the author has found five new species of *Coryphium* which will be described in this paper. On the other hand, the peculiar species, *Boreaphilus nikkoensis* K. SAWADA, does not agree with the generic characteristics of *Boreaphilus*, but has all the diagnostic features of *Coryphium*. It is therefore transferred to the latter genus.

Bofore going further, the author wishes to express his hearty thanks to Dr. Shun-ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kind advice on the present study, and to Dr. J. M. CAMBELL of the Biosystematics Research Institute Agriculture Canada, Ottawa, and Dr. L. ZERCHE of the Institut für Pflanzenschutzforschung der Akademie der Landwirtschafts-Wissenschaften der DDR, for their kindness in giving the author useful specimens distributed in the Holarctic Region. Deep gratitude is also due to Messrs. T. ITO, T. KIKUCHI, K. MIYAMORI, K. TANAKA and Y. SHIBATA, for their kind assistance in providing with materials used in the present study.

Genus *Coryphium* STEPHENS

*Coryphium* STEPHENS, 1834, *Illustr. Brit. Ent.*, **5**: 344.

*Harpognathus* WASMAEL, 1834, *Rec. Enc. Belg.*, **1**: 119.

*Macropalpus* CUSSAE, 1852, *Annls. Soc. ent. Fr.*, (2), **10**: 613.

*Polychelus* LUZE, 1904, *Hor. Soc. ent. ross.*, **37**: 74.

*Occiophelinus* HATCH, 1957, *Beetl. Pacif. Northwest*, **2**: 75.

*Planeboreaphilus* SHIBATA, 1970, *Ent. Rev. Japan*, **22**: 58.

Other references are omitted.

Body parallel-sided and somewhat depressed above, closely covered with pale-yellowish pubescence. Head suborbicular or subquadrate, depressed in anterior half and gently convex in posterior half; postocular area arcuate and a little shorter than the longitudinal diameter of each eye, which is rather prominent; ocelli distinct, the distance between them being larger than that from the outside of ocellus to the inner margin of each eye; median part behind smooth frontal area provided on each side with a fovea or impression; gular sutures narrowly separated and divergent posteriad. Antennae moderately elongate, not reaching the middle of elytra, slightly thickened towards the apical segment, which is the longest. Labrum strongly transverse and slightly narrowed anteriorly, anterior margin shallowly emarginate at the middle, provided with a number of short setae throughout its width, and also with two long setae at each latero-anterior side. Mandibles slender and strongly curved inwards in apical half, molar area obscure; each mandible armed with a remarkable tooth near the middle of inner margin. Maxillae relatively narrow; galea slightly narrowed

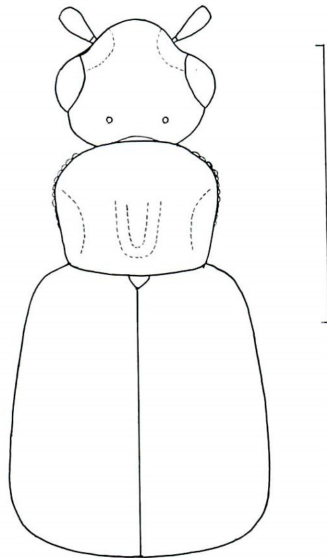
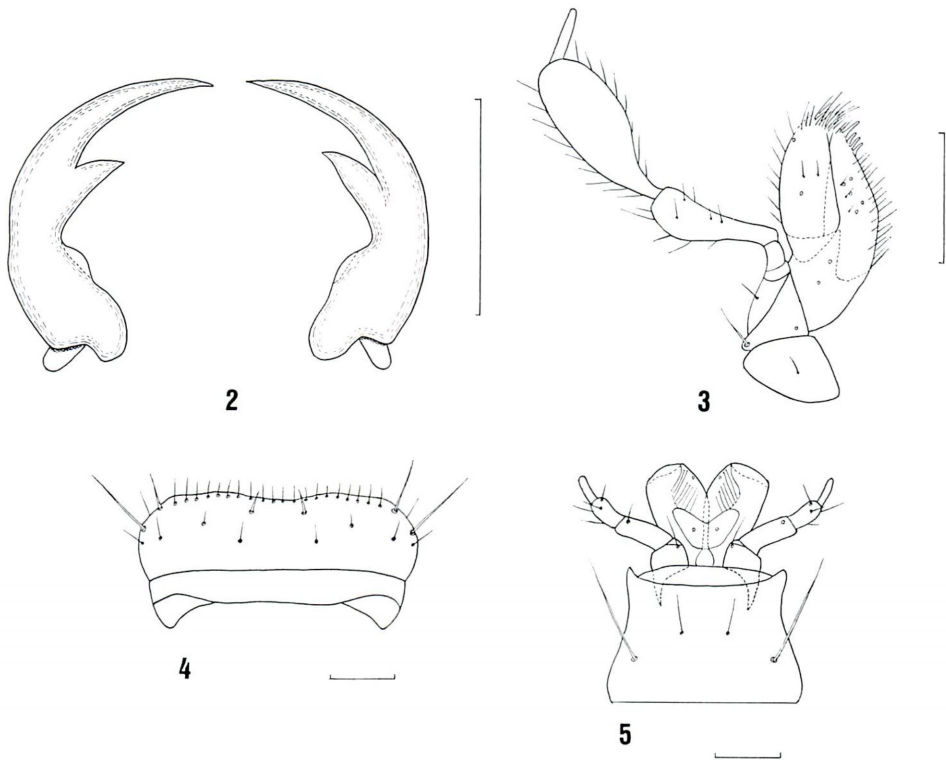


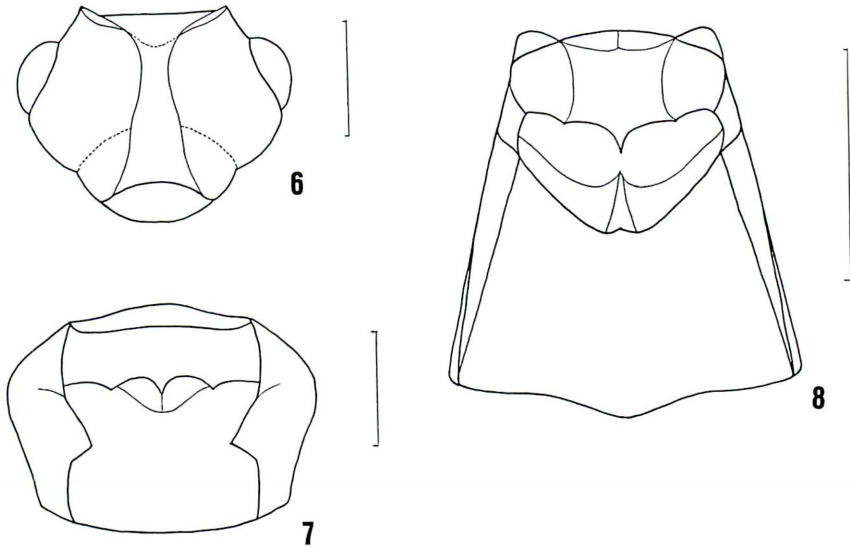
Fig. 1. Head, pronotum and elytra of *Coryphium angusticolle* STEPHENS.  
Scale: 1.0 mm



Figs. 2-5. Mouthparts of *Coryphium angusticolle* STEPHENS. — 2, Mandibles; 3, maxilla; 4, labrum; 5, labium. Scale: 0.25 mm (2), 0.2 mm (3), 0.1 mm (4 & 5).

towards the apex, which is closely fringed with short bristles, and also sparsely with similar bristles on outer margin; lacinia convergent apicad, inner margin rather densely fringed with fine bristles and with four or so spines on apical part; maxillary palpi four-segmented, basal segment short, 2nd evidently dilated apicad and slightly incurved, more than 2.5 times as long as width, 3rd conspicuously widened towards the apex, nearly 2.5 times as long as broad and about 1.5 times as long as 2nd, apicalmost subulate, much shorter and slenderer than 3rd. Mentum transverse and narrowed anteriad, lateral sides distinctly constricted at anterior third, and divergent both anteriad and posteriad; ligula membranous, deeply notched at the middle of anterior margin and forming two lobes; labial palpi three-segmented, 1st segment the longest and twice as long as broad, 2nd a little longer than broad though evidently shorter than 1st, apicalmost elongate, more than twice as long as broad but slightly shorter and much narrower than 2nd.

Pronotum moderately convex and transverse; lateral margins obsolete crenulate in anterior half, though the crenulation is obscure in some species; prosternal plate strongly transverse, prosternal process short and subtriangular, acutely pointed at



Figs. 6-8. Ventral aspects of head and thorax of *Coryphium angusticolle* STEPHENS. — 6, Head, 7, prothorax; 8, meso- and methathoraces. Scale: 0.25 mm (6 & 7), 0.5 mm (8).

the apex, procoxal cavities open behind. Mesosternal plate transverse and provided with a longitudinal carina at each side of the middle; mesosternal process longer than prosternal process and sharply pointed at the apex, mesocoxal cavities contiguous. Metasternal plate large, gently produced backwards at the middle of posterior margin, metacoxal cavities contiguous. Scutellum subtriangular and relatively small, surface almost glabrous. Elytra somewhat flattened and dilated posteriad. Abdomen parallel-sided except for apical three visible segments which are abruptly convergent towards apical end, basal visible sternite distinctly carinate at the middle of base. Legs moderately long; procoxae prolonged and subcylindrical, meso- and metacoxae subtriangular, profemur more or less stout, mesofemur somewhat longer than profemur; metafemur longer than mesofemur; all the tibiae slender and somewhat thickened apicad; tarsi five-segmented and relatively long, nearly two-thirds as long as respective tibia, apical segment of metatarsus long, but slightly shorter than three preceding segments together.

Male genital organ trilobed and moderately sclerotized.

Type species: *Coryphium angusticolle* STEPHENS.

#### Key to the Japanese Species of *Coryphium*

- 1(12) Pronotum distinctly punctured and not coriaceous.
- 2(11) Antennae and legs yellowish brown.
- 3 (8) Head subquadrate, postocular area broadly angulate before neck; median



- lobe of male genital organ as long as parameres.
- 4 (7) Head not coriaceous in frontal area; postocular area shorter than the longitudinal diameter of each eye.
- 5 (6) Pronotum rather densely and coarsely punctured, median lobe of male genital organ not upturned at the apex . . . . . *C. miyamorii* Y. WATANABE, sp. nov.
- 6 (5) Pronotum rather sparingly and moderately coarsely punctured; median lobe of male genital organ distinctly upturned at the apex . . . . .  
. . . . . *C. tateoi* Y. WATANABE, sp. nov.
- 7 (4) Head finely coriaceous in frontal area; postocular area equal in length to the longitudinal diameter of each eye . . . . . *C. fuscum* Y. WATANABE, sp. nov.
- 8 (3) Head suborbicular, postocular area evenly convergent towards neck; median lobe of male genital organ shorter than parameres.
- 9(10) Elytra twice as long as pronotum; median lobe of male genital organ symmetrical . . . . . *C. iwakisanense* Y. WATANABE, sp. nov.
- 10(9) Elytra less than twice as long as pronotum; median lobe of male genital organ slightly asymmetrical . . . . . *C. nikkoense* (K. SAWADA).
- 11(2) Antennae dark reddish brown; legs blackish except for reddish tarsi . . . . .  
. . . . . *C. yasutoshii* Y. WATANABE, sp. nov.
- 12(1) Pronotum impunctate but distinctly coriaceous . . . . .  
. . . . . *C. coriaceoides* (Y. SHIBATA).

*Coryphium miyamorii* Y. WATANABE, sp. nov.

(Figs. 9–12)

Body length: 2.6–3.2 mm (from front margin of head to anal end).

Body nearly parallel-sided and somewhat depressed above, closely covered with pale-yellowish pubescence. Colour reddish black to dark reddish brown and moderately shining, with antennae reddish brown, mouth parts and legs yellowish brown.

Head subquadrate and somewhat depressed in anterior half and elevated in posterior half, a little broader across compound eyes than long (width/length=1.15); postocular area broadly angulate before neck and a little shorter than the longitudinal diameter of each eye, which is somewhat prominent; frontal area between antennal tubercles almost impunctate and smooth, with a distinct depression on each side of the middle just behind the smooth portion; surface moderately closely covered with rather strong punctures; ocelli distinct, the distance between them being much larger than that from the outside of ocellus to the inner margin of each eye. Antennae relatively short and slightly thickened towards apical segment, not reaching the middle of elytra, 1st segment robust and about 1.5 times as long as broad, 2nd longer than broad (length/width=1.40) but shorter (2nd/1st=0.77) and narrower (2nd/1st=0.83) than 1st, 3rd somewhat dilated apicad, nearly twice as long as broad and a little longer than 2nd (3rd/2nd=1.15), 4th to 10th subequal in length to one another, each seg-

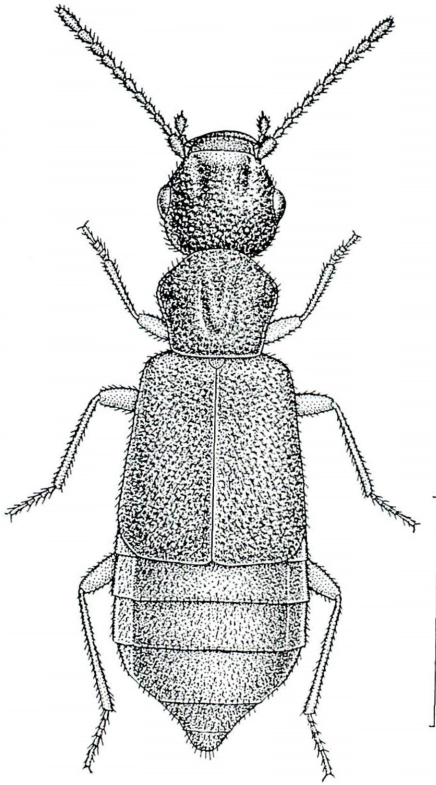
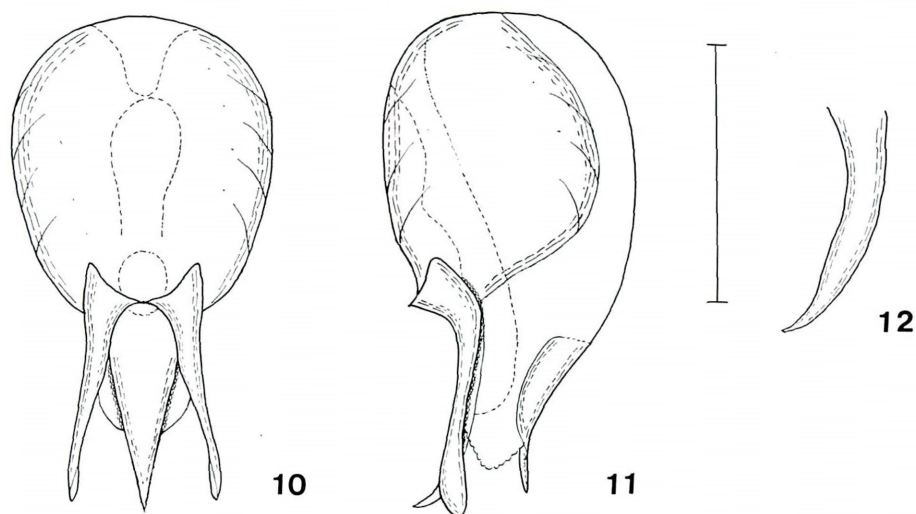


Fig. 9. *Coryphium miyamorii* Y.  
WATANABE, sp. nov., from Kita-  
yuzawa in southern Hokkaido.  
Scale: 1.0 mm.

ment a little longer than broad, apicalmost elongate, much longer than broad (length/width=2.26) and twice as long as 10th, narrowly rounded at the tip.

Pronotum convex and subhexagonal, slightly transverse (width/length=1.03), a little narrower than head (pronotum/head=0.87), widest at anterior third and markedly narrowed both anteriorly and posteriorly; lateral margins finely bordered, anterior half arcuate and very obsolete crenulate, posterior half somewhat emarginate and not crenulate, posterior margin slightly rounded and finely bordered like lateral margins; anterior angles rounded though not visible from above, posterior ones bluntly angulate; surface more densely and much more coarsely punctured than on head, and provided with a shallow depression at the internal side of each lateral margin in posterior half and also with a U-shaped depression at the middle in posterior half. Scutellum small and subtriangular, surface almost glabrous. Elytra somewhat dilated posteriorly and rather flattened above, a little longer than broad (length/width=1.07), much longer than (elytra/pronotum=1.75), and more than 1.5 times as broad as pronotum; lateral sides almost straight, posterior margin truncate, posterior angles broadly rounded; surface densely covered with coarse punctures.

Abdomen nearly parallel-sided in three basal visible segments and abruptly



Figs. 10–12. Male genital organ of *Coryphium miyamorii* Y. WATANABE, sp. nov. — 10, Ventral view; 11, lateral view; 12, oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (10 & 11), 0.2 mm (12).

convergent posteriad in three apical ones; surface of each tergite superficially and rather sparingly punctured, and covered with extremely fine coriaceous ground sculpture; preapical sternite in male shallowly and semicircularly emarginate at the middle of posterior margin. Legs relatively slender, protarsi slightly widened in male, last segment of metatarsus slightly shorter than three preceding segments together.

Male genital organ trilobed and symmetrical. Median lobe, viewed ventrally, strongly convergent towards acutely pointed apex, and apical part distinctly curving ventrally in profile, ventral surface smooth; parameres elongate, slightly shorter than median lobe and a little thickened at apical part as seen from lateral side.

*Type series.* Holotype: ♂, Horobetsu-kôzan, Iburi, Hokkaido, Japan, 4. VII. 1985, K. MIYAMORI leg.; allotype: ♀, Kita-yuzawa, Iburi, Hokkaido, Japan, 19. VI. 1983, Y. WATANABE leg. Paratypes: 2 ♂♂, 1 ♀, same data as the holotype; 1 ♂, 1 ♀, Tonkeshi Riv., Iburi, Hokkaido, Japan, 15. VI. 1985, K. MIYAMORI leg.; 1 ♂, 2 ♀♀, Mt. Muroran-dake, Iburi, Hokkaido, Japan, 23. VI. 1985, K. MIYAMORI leg.; 1 ♂, 2 ♀♀, Lake Kuttara-ko, Iburi, Hokkaido, Japan, 22. VI. 1969, K. MIYAMORI leg.; 2 ♀♀, Funami-chô, Muroran, Hokkaido, Japan, 4. XI. 1987, K. MIYAMORI leg.; 13 ♂♂, 5 ♀♀, same data as the allotype; 1 ♂, Sarobetsu-gawa, Yakumo, Hokkaido, Japan, 16. VI. 1974, K. MIYAMORI leg.; 3 ♂♂, 2 ♀♀, near Miike-goya, Hinoemata, Fukushima Pref., Honshu, Japan, 27. VIII. 1966, Y. WATANABE leg.; 1 ♂, 3 ♀♀, Kirizumi, Gunma Pref., Honshu, Japan, 25. V. 1962, Y. SHIBATA leg.; 1 ♂, Kami-kôchi, Nagano Pref., Honshu, Japan, 14. VIII. 1981, Y. WATANABE leg.

The type specimens are deposited in the collection of the Laboratory of Entomol-



ogy, Tokyo University of Agriculture, except for some paratypes to be preserved in the British Museum (Natural History) (two pairs from Kita-yuzawa) and in SHIBATA's private collection (1 ♂, 3 ♀♀ from Kirizumi).

*Distribution.* Japan (Hokkaido, Honshu).

The specific name is dedicated to Mr. Ken'ichi MIYAMORI, who collected many specimens of the type series and kindly collaborated with the author in searching for this new species at Kita-yuzawa.

*Coryphium tateoi* Y. WATANABE, sp. nov.

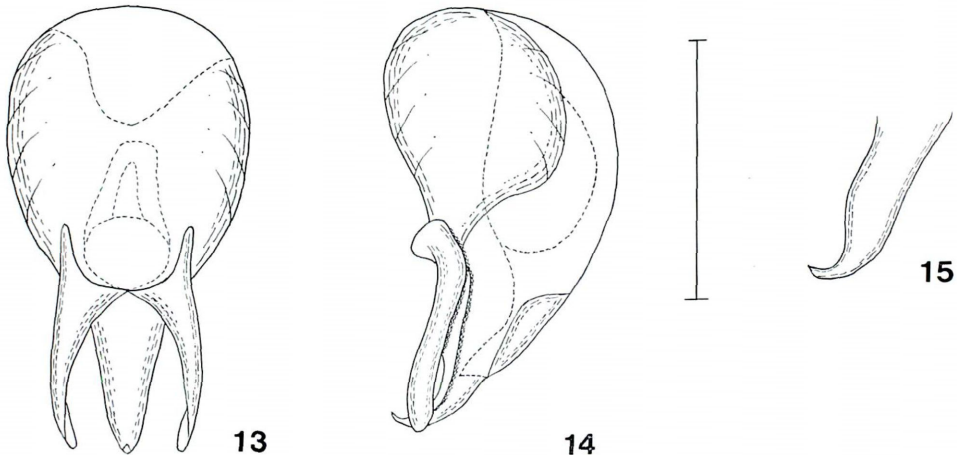
(Figs. 13–15)

Body length: 3.1 mm (from front margin of head to anal end).

Similar to *C. miyamorii* in general appearance and body size, but can be distinguished from it by the following points:

Body narrower and more darkened in colour; head more strongly convergent posteriad and more coarsely punctured on the surface than in *C. miyamorii*; pronotum relatively short, nearly as long as head and more distinctly transverse (width/length=1.21), more strongly narrowed posteriad, lateral sides not crenulate for its whole length, surface more sparingly and less coarsely punctured; elytra less dilated posteriad, distinctly longer than broad (length/width=1.12) and much longer than pronotum (elytra/pronotum=1.90), surface less densely and more coarsely punctured.

Male genital organ also generally similar to that of *C. miyamorii*, but different from it in the following details: median lobe broader and less strongly convergent



Figs. 13–15. Male genital organ of *Coryphium tateoi* Y. WATANABE, sp. nov. — 13, Ventral view; 14, lateral view; 15, oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (13 & 14), 0.2 mm (15).



towards the apex, which is distinctly upturned; parameres as long as median lobe and stouter than those of *C. miyamorii*.

Holotype: ♂, Tōnomine, Yamato, Nara Pref., Honshu, Japan, 15. VI. 1986, T. ITO leg. Preserved in the collection of the Laboratory of Tokyo University of Agriculture.

*Distribution.* Japan (Honshu).

This new species is named after Mr. Tateo ITO, who collected this interesting specimen.

*Coryphium fuscum* Y. WATANABE, sp. nov.

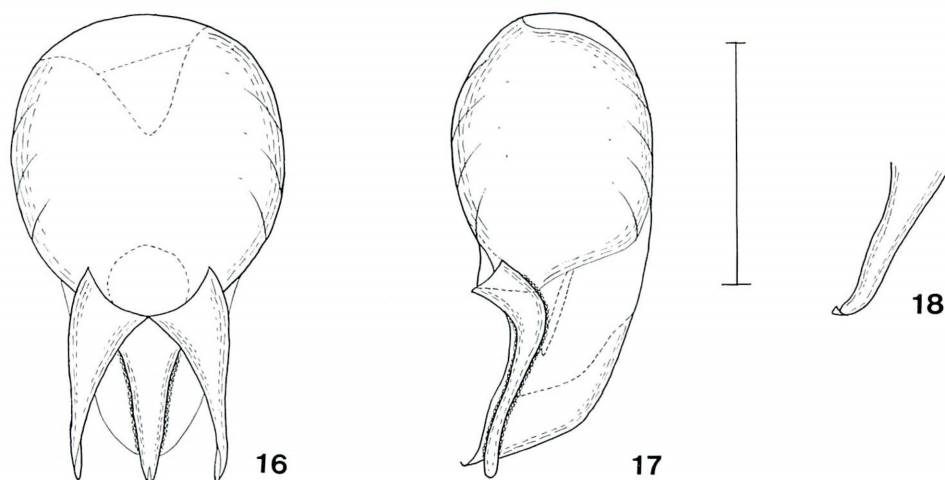
(Figs. 16–18)

Body length: 3.3 mm (from front margin of head to anal end).

Allied to the two preceding species, but can be distinguished from them by the following points:

Head covered with fine coriaceous ground sculpture in frontal area, postocular area relatively long and almost as long as the longitudinal diameter of each eye; pronotum similar in shape to that of *C. miyamorii*, though the lateral margins are not crenulate as in *C. tateoi*, surface coarsely but not rugosely punctured; elytra more densely and more coarsely punctured than in *C. miyamorii*.

Male genital organ similar to that of *C. tateoi* in the shape of median lobe, but differing from it in the following points: median lobe, viewed ventrally, much narrower and more strongly convergent towards apex, which is acutely pointed and more strongly upturned.



Figs. 16–18. Male genital organ of *Coryphium fuscum* Y. WATANABE, sp. nov. — 16, Ventral view; 17, lateral view; 18, oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (16 & 17), 0.2 mm (18).

Holotype: ♂, Azami-ga-take, Kanochô, Yamaguchi Pref., Honshu, Japan, 25. V. 1975, K. TANAKA leg. Deposited in the Laboratory of Entomology, Tokyo University of Agriculture.

*Distribution.* Japan (western Honshu).

*Coryphium iwakisanense* Y. WATANABE, sp. nov.

(Figs. 19–21)

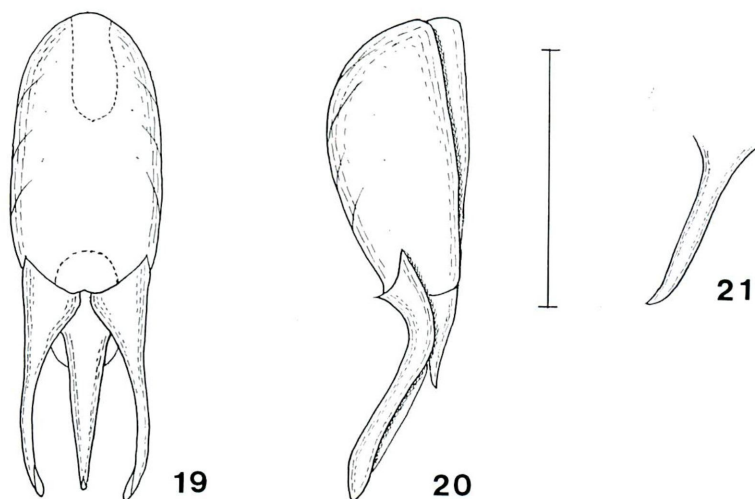
Body length: 2.9 mm (from front margin of head to anal end).

The present new species resembles the three preceding ones, but differs from them in the shape of head and in the structure of male genital organ.

Body nearly parallel-sided and somewhat depressed above, closely covered with pale-yellowish pubescence. Colour blackish brown and moderately shining, with antennae, mouth parts and legs yellowish brown, elytra somewhat lighter in the sutural areas.

Head suborbicular, somewhat depressed in anterior half and gently convex in posterior half, a little broader across compound eyes than long (width/length=1.29); postocular area almost evenly convergent towards neck and slightly shorter than the longitudinal diameter of each eye, which is somewhat prominent; frontal area almost impunctate and rather deeply depressed just inside each antennal tubercle; surface rather sparingly covered with somewhat coarse punctures, and provided with a large depression on each side of the middle just behind the smooth frontal area; ocelli distinct, the distance between them being much larger than that from the outside of ocellus to the inner margin of each eye. Antennae slightly thickened towards the extremities, relatively short and not reaching the middle of elytra, 1st segment robust and about 1.5 times as long as broad, 2nd a little longer than broad (length/width=1.22) but much shorter (2nd/1st=0.61) and somewhat narrower (2nd/1st=0.75) than 1st, 3rd nearly 1.5 times as long as broad and a little longer than 2nd (3rd/2nd=1.12), 4th to 10th subequal in length to one another, each segment somewhat longer than broad, apicalmost elongate, about 2.5 times as long as broad and more than twice as long as 10th, narrowly rounded at the tip.

Pronotum subhexagonal and convex, slightly transverse (width/length=1.03) and somewhat narrower than head (pronotum/head=0.89), widest at anterior third and markedly narrowed both anteriorly and posteriorly; each lateral margin finely bordered, the border continuing onto slightly arcuate posterior margin, distinctly arcuate in anterior half but gently emarginate in posterior half; anterior angles rounded though not visible from above, posterior ones narrowly rounded; surface more closely and more coarsely punctured than on head, and provided with a shallow depression at the inner side of each lateral margin in posterior half and with a U-shaped shallow depression surrounding a short longitudinal median elevation. Scutellum small and subtriangular, glabrous on surface. Elytra somewhat dilated posteriorly and flattened



Figs. 19–21. Male genital organ of *Coryphium iwakisanense* Y. WATANABE, sp. nov. — 19, Ventral view; 20, lateral view; 21, oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (19 & 20), 0.2 mm (21).

above, a little longer than broad (length/width=1.13) and twice as long as, and more than 1.5 times as broad as, pronotum; lateral sides almost straight, posterior angles broadly rounded; surface densely covered with somewhat coarse punctures.

Abdomen nearly parallel-sided, except for three apical visible segments which are abruptly convergent towards the apical end; surface of each tergite sparingly, superficially and finely punctured, and covered with extremely fine coriaceous ground sculpture; preapical sternite in male shallowly and semicircularly emarginate at the middle of posterior margin, the preceding sternite shallowly and semicircularly depressed at the middle in front of posterior margin, surface of the depression more closely pubescent than on other parts. Legs moderately elongate, protarsi slightly widened in male, last segment of metatarsus a little shorter than three preceding segments together.

Male genital organ trilobed and moderately sclerotized. Median lobe, viewed ventrally, almost symmetrical and relatively narrow, distinctly convergent towards acutely pointed and upturned apex; parameres elongate, almost as long as median lobe and somewhat thickened at apical part.

Holotype: ♂, Mt. Iwakisan, Aomori Pref., Honshu, Japan, 18. VIII. 1960, T. KIKUCHI leg. Preserved in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

*Distribution.* Japan (northeastern Honshu).



*Coryphium nikkoense* (K. SAWADA), comb. nov.

(Figs. 22–24)

*Boreaphilus nikkoensis* K. SAWADA, 1964, Ent. Rev. Japan, 16: 36. — SHIBATA, 1974, Annual Bull. Nichidai Sanko, (17): 8; 1976, *ibid.*, (19): 126.

Body length: 2.9–3.3 mm (from front margin of head to anal end).

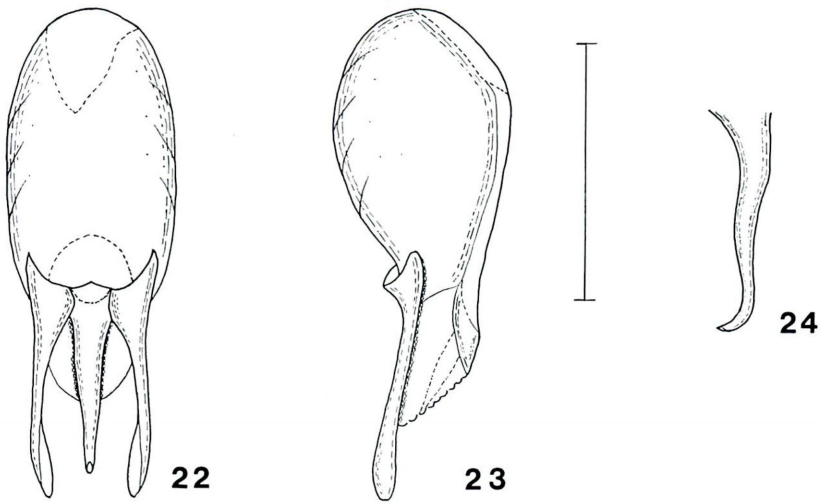
Somewhat resembles *C. iwakisanense*, but can be distinguished from it by the more robust body, shorter elytra and the different male genital organ.

Body nearly parallel-sided and rather depressed above, closely covered with pale-yellowish pubescence. Colour reddish black to dark reddish brown and moderately shining, with antennae reddish brown, mouth parts and legs yellowish brown.

Head suborbicular, somewhat depressed in anterior half and gently elevated in posterior half, clearly broader across compound eyes than long (width/length=1.23); postocular area arcuate and a little shorter than the longitudinal diameter of each eye, which is somewhat prominent; frons between antennal tubercles almost impunctate and smooth; surface rather densely covered with coarse punctures, and provided with a depression on each side of the middle in anterior third; ocelli distinct, the distance between them being much larger than that from the outside of each ocellus to the inner margin of each eye. Antennae relatively short and not reaching the middle of elytra, 1st segment robust and more than 1.5 times as long as broad, 2nd a little longer than broad (length/width=1.33) but much shorter (2nd/1st=0.57) and a little narrower (2nd/1st=0.75) than 1st, 3rd somewhat dilated apicad, twice as long as broad and 1.5 times as long as 2nd, 4th to 10th subequal in length to one another, each segment twice as long as broad, apicalmost the longest, much longer than broad (length/width=2.75) and about 2.5 times as long as 10th, narrowly rounded at the tip.

Pronotum subhexagonal and moderately convex above, somewhat transverse (width/length=1.10) and slightly narrower than head (pronotum/head=0.92), widest at anterior third and strongly narrowed both anteriorly and posteriorly; lateral margins finely bordered, arcuate and obsolete crenulate in anterior half, gently emarginate and not crenulate in posterior half, posterior margin slightly rounded and finely bordered like lateral margins; anterior angles rounded though not visible from above, posterior ones bluntly angulate; surface rather uneven, provided with a shallow lateral depression at the inner side of each lateral margin in posterior two-thirds, a short longitudinal ante-median depression in anterior half and a U-shaped postmedian depression surrounding a small smooth shining plaque, and moderately densely covered with somewhat rugose punctures. Scutellum relatively small and subtriangular, with surface almost impunctate. Elytra somewhat dilated posteriorly and rather flattened above, a little longer than broad (length/width=1.06) and much longer (elytra/pronotum=1.81) and much broader (elytra/pronotum=1.56) than pronotum; lateral sides almost straight, posterior angles broadly rounded; surface closely covered with coarse punctures.





Figs. 22–24. Male genital organ of *Coryphium nikkoense* (K. SAWADA). — 22, Ventral view; 23, lateral view; 24; oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (22 & 23), 0.2 mm (24).

Abdomen nearly parallel-sided in four basal visible segments and abruptly convergent posteriad in three apical ones; surface of each tergite covered with extremely fine coriaceous ground sculpture, and sparsely scattered with fine superficial punctures; preapical sternite in male semicircularly emarginate at the middle of posterior margin, the preceding sternite subtriangularly depressed at the middle in front of posterior margin, surface of the depression being impunctate and glabrous, and each side of the glabrous area somewhat elevated and provided with a small tuft of fine pubescence. Legs relatively slender, protarsi slightly widened in male, last segment of metatarsus a little shorter than three preceding segments together.

Male genital organ closely similar in general appearance to that of *C. iwakisanense*, but slightly differing from it in the following points: median lobe slightly asymmetrical and more slender; parameres distinctly longer than median lobe.

*Specimens examined.* 2 ♂♂, Mt. Gassan, Yamagata Pref., Honshu, Japan, 30. VIII. 1963, Y. SHIBATA leg.; 5 ♂♂, 2 ♀♀, near Marunuma, Oku-Nikkô, Gunma Pref., Honshu, Japan, 2. VII. 1962, Y. WATANABE leg.; 1 ♂, Mt. Sampuku-tôge, S. Jpn. Alps, Honshu, Japan, 10. VII. 1979, Y. WATANABE leg.; 6 ♂♂, Shimashima Valley, Nagano Pref., Honshu, Japan, 10. VI. 1966, Y. WATANABE leg.; 1 ♂, Hirakura, Mie Pref., Honshu, Japan, 21. VI. 1961, Y. WATANABE leg.

*Distribution.* Japan (Honshu).

*Coryphium yasutoshii* Y. WATANABE, sp. nov.

(Figs. 25–28)

Body length: 3.5–3.7 mm (from front margin of head to anal end).

The present new species can be easily distinguished from the other Japanese species by the following combination of characters: body and legs really blackish, except for yellowish brown tarsi, pronotum distinctly punctured and median lobe of male genital organ remarkably elongate.

Body subparallel-sided and somewhat depressed above, closely covered with pale-yellowish pubescence. Colour blackish, with mouth parts and antennae dark reddish brown, all the tarsi yellowish brown.

Head suborbicular and convex behind, a little broader across compound eyes than long (width/length=1.20); postocular area arcuate and a little shorter than the longitudinal diameter of each eye, which is somewhat prominent; frontal area between antennal tubercles subtriangularly elevated, surface of the elevation im-

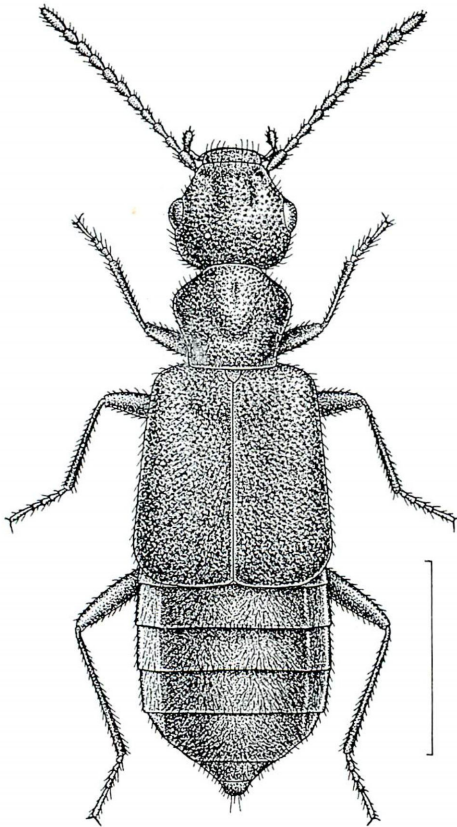


Fig. 25. *Coryphium yasutoshii* Y. WATANABE, sp. nov., from Mt. Jōshū-Hotaka in central Honshu. Scale: 1.0 mm.

punctate in anterior half and provided with a few setiferous punctures in posterior half; surface moderately closely, rather coarsely punctured and covered with coriaceous ground sculpture in anterior half, and provided with a large depression on each side of the middle in anterior half; ocelli distinct, the distance between them being much larger than that from the outside of ocellus to the inner margin of each eye. Antennae elongate but not reaching the middle of elytra, 1st segment robust and a little longer than broad (length/width=1.36), 2nd about 1.5 times as long as broad though distinctly shorter than 1st (2nd/1st=0.79), 3rd elongate, more than twice as long as broad and a little longer than 2nd (3rd/2nd=1.27), 4th to 6th subequal in length to one another, each segment about 1.4 times as long as broad, 7th to 10th subequal in length to one another, each a little longer than 6th and more than 1.5 times as long as broad, apicalmost the longest, much longer than broad (length/width=2.91) and more than 1.5 times as long as 10th.

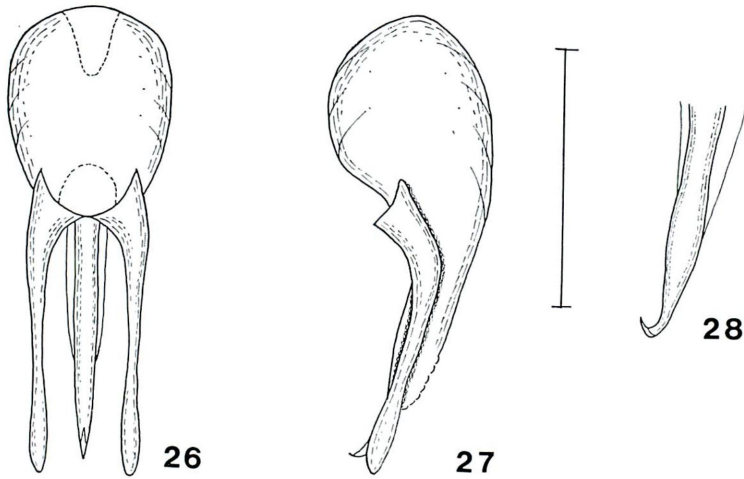
Pronotum subhexagonal and convex, somewhat broader than long (width/length=1.08) but slightly narrower than head (pronotum/head=0.93), widest just before the middle and more strongly narrowed anteriorly than posteriorly; lateral margins finely bordered, arcuate in anterior two-thirds and feebly emarginate in posterior third, posterior margin slightly rounded and bordered like lateral margins; anterior angles rounded though not visible from above, posterior ones bluntly angulate; surface more closely and more coarsely punctured than on head, and provided with a short longitudinal depression at the middle in anterior third, a shallow depression at the inner side of each lateral margin in posterior half and a U-shaped depression at the middle in posterior half. Scutellum subtriangular, glabrous on surface. Elytra somewhat dilated posteriorly and rather flattened above, a little longer than broad (length/width=1.13), twice as long as and much broader than pronotum (elytra/pronotum=1.72); lateral sides almost straight, posterior margin truncate, posterior angles broadly rounded; surface subopaque, densely covered with coarse punctures.

Abdomen nearly parallel-sided, except for apical three visible segments which are abruptly convergent towards the apical end; surface of each tergite sparingly, finely and superficially punctured, and covered with extremely fine coriaceous ground sculpture; preapical sternite in male shallowly and semicircularly emarginate at the middle of posterior margin, the preceding sternite subtriangularly flattened at the middle in front of posterior margin. Legs moderately slender, protarsi slightly widened in male.

Male genital organ trilobed and symmetrical. Median lobe elongate, almost parallel-sided in basal half and slightly narrowed in posterior half towards apex, which is sharply pointed and strongly upturned. Parameres somewhat longer than median lobe, each paramere rather thickened in apical fourth.

*Type series.* Holotype: ♂, near Edozawa, Mt. Jōshū-Hotaka, Gunma Pref., Honshu, Japan, 14. VIII. 1980, Y. SHIBATA leg. Allotype: ♀, Shimashima Valley, Nagano Pref., Honshu, Japan, 10. VII. 1966, Y. WATANABE leg. Paratype: 1 ♀, Hakuba Village, Nagano Pref., Honshu, Japan, 5. VII. 1966, Y. WATANABE leg. All





Figs. 26–28. Male genital organ of *Coryphium yasutoshii* Y. WATANABE, sp. nov. — 26, Ventral view; 27, lateral view; 28, oblique ventral view of the apical part of median lobe. Scale: 0.4 mm (26 & 27), 0.2 mm (28).

the type specimens are preserved in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

*Distribution.* Japan (central Honshu).

The specific name of this new species is dedicated to Mr. Yasutoshi SHIBATA, who collected the holotype.

### *Coryphium coriaceoides* (Y. SHIBATA)

(Figs. 29–31)

*Planeboreaphilus coriaceoides* SHIBATA, 1970, Ent. Rev. Japan, 22: 59, figs. 1–2, pl. 5, figs. A–F.; 1974, Annual Bull. Nichidai Sanko, (17): 23.

*Coryphium coriaceoides*: CAMBELL, 1978, Mem. ent. Soc. Canada, (106): 27.

Body length: 2.7–2.8 mm (from front margin of head to anal end).

This species remarkably differs from the other Japanese species in the configuration of pronotum, which is subtrapezoidal and impunctate on the surface, though covered with strong coriaceous ground sculpture.

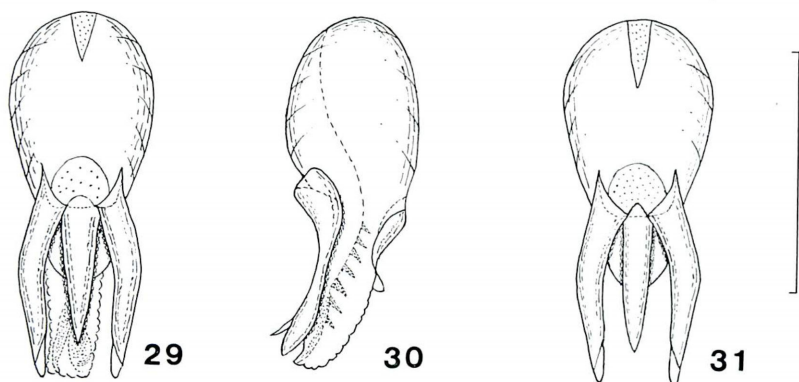
Body parallel-sided and somewhat depressed above, closely covered with pale-yellowish pubescence. Colour blackish and subopaque, with mouth parts, antennae and legs, except for yellowish brown tarsi, reddish black.

Head subtrapezoidal, narrowed anteriorly, somewhat depressed above in anterior half, though gently elevated in posterior half, remarkably broader across compound eyes than long (width/length=1.50); postocular area short, about one-fourth as long as the longitudinal diameter of each eye and rather abruptly constricted posterior-



ly; frontal area between antennal tubercles transversely flattened, the flat area being impunctate and shining; surface rather sparingly, minutely, superficially punctured and covered with distinct coriaceous ground sculpture, and provided with a feveoid depression on each side of the middle in anterior third; ocelli distinct, the distance between them more than 2.5 times as long as that from the outside of ocellus to the inner margin of each eye. Antennae relatively short, not reaching the middle of elytra and hardly thickened towards the extremities, 1st segment robust and evidently longer than broad (length/breadth=1.6), 2nd about 1.5 times as long as broad but a little shorter than 1st (2nd/1st=0.75), 3rd elongate, about twice as long as broad and a little longer than 2nd (3rd/2nd=1.17), 4th to 6th subequal in length to one another, each segment somewhat longer than broad, 7th to 10th subequal in length to one another, each segment slightly longer than broad, apicalmost the longest, more than twice as long as broad and nearly twice as long as 10th, subacuminately pointed at apex.

Pronotum subtrapezoidal, narrowed posteriad and gently convex, widest at about anterior third and gently rounded and contracted anteriorly, though abruptly narrowed posteriad; lateral margins finely bordered, arcuate in anterior half and slightly emarginate or straight in posterior half, posterior margin finely bordered like lateral margins and slightly rounded; anterior angles broadly rounded and visible from above, posterior angles narrowly rounded; surface impunctate, though strongly coriaceous all over, and provided with a U-shaped obsolete depression at the middle in posterior half, and sometimes with a small depression in front of the U-shaped depression and also with a shallow depression at the inner side of each lateral margin in posterior half. Scutellum subtriangular, with glabrous surface. Elytra dilated posteriad and somewhat flattened above, as long as or slightly longer than broad, much longer (elytra/pronotum=1.70) and much broader (elytra/pronotum=1.55) than pronotum,



Figs. 29–31. Male genital organ of *Coryphium coriaceoides* (Y. SHIBATA), from central Honshu (29 & 30) and southern Hokkaido (31). — 29, 31, Ventral views; 30, lateral view. Scale: 0.4 mm.

lateral margins straight, posterior margin truncate; surface densely covered with coarse punctures.

Abdomen flat and nearly parallel-sided, except for two apical visible segments which are abruptly convergent towards the apical end; surface of each tergite rather sparingly, superficially, finely punctured and covered with coriaceous ground sculpture. Legs moderately elongate, protarsi slightly widened in male.

Male genital organ trilobed and almost symmetrical. Median lobe elongate, gradually convergent towards apex, which is acutely pointed and not upturned; parameres rather stout and considerably longer than median lobe, each paramere curving inwardly in apical half.

*Specimens examined.* 7 ♂♂, 8 ♀♀, Mareppu Riv., Iburi, Hokkaido, Japan, 29. VI. 1965, K. MIYAMORI leg.; 4 ♂♂, 6 ♀♀, same locality and collector as above, 13. VI. 1985; 5 ♂♂, 3 ♀♀, Horobetsu-kôzan, Iburi, Hokkaido, Japan, 4. VII. 1985, K. MIYAMORI leg.; 1 ♂, 3 ♀♀, Tonkeshi Riv., Iburi, Hokkaido, Japan, 4. VII. 1985, K. MIYAMORI leg.; 6 ♂♂, 1 ♀, Mt. Senjô-ga-take, S. Jpn. Alps, Honshu, Japan, 13. VII. 1979, Y. WATANABE leg.; 1 ♂, 1 ♀, Hirogawara, S. Jpn. Alps, Honshu, Japan, 26. VIII. 1969, Y. SHIBATA leg.

*Distribution.* Japan (Hokkaido, central Honshu).

*Notes.* The specimens obtained in Hokkaido slightly differs from southern ones in the shape of the median lobe of male genital organ, but the difference can be regarded as infraspecific variation.

## 摘 要

渡辺泰明：日本産 *Coryphium* 属の分類学的研究。——日本産 *Coryphium* 属の分類学的検討を行ない、*Boreaphilus nikkoensis* K. SAWADA を本属に含めると同時に、既知種の *C. coriaceoides* (Y. SHIBATA) および今回記載した下記の5新種を含めた日本産種の検索表を与え、それら各種の雄交尾器を図示した。

*C. miyamorii* は *C. nikkoense* (K. SAWADA) に似ているが、頭部はより角ばって四角形を呈し、前胸背板の点刻は皺状にならず、雄交尾器中葉は幅広く、末端に向かって顕著に狭まる、などの点で区別できる。

*C. tateoi* は *C. miyamorii* に似ているが、頭部はより強く後方に狭まり、より粗く点刻され、前胸背板はより幅広く、側縁は平滑で、より疎に点刻される。また、雄交尾器の形状も異なる、などの点で区別できる。

*C. fuscum* は上記2新種に似ているが、前頭域は明らかな微細構造におおわれ、側頭部が複眼の長径とほぼ等しく、雄交尾器中葉がやや細く、末端が強く上反する、などの点で区別できる。

*C. iwakisanense* は外観が上記3新種に似ているが、頭部はほぼ円形を呈し、側頭部は頭部に向かって一様に狭まり、雄交尾器中葉は幅狭く、側葉よりわずかに短かい、などの点で区別できる。

*C. yasutoshii* は、体と付節を除いた脚が黒色を呈し、雄交尾器中葉がいちじるしく細長い点において、他の日本産種とは際だって異なり、きわめて容易に区別することができる。

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