DORYCTINAE (HYMENOPTERA: BRACONIDAE) OF OGASAWARA ISLANDS (JAPAN)

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Abstract.—The diversity of the braconide wasps of the subfamily Doryctinae from Ogasawara (Bonin) Islands, Japan, is studied. Twelve new species are described from these islands: *Doryctes (Doryctes) boninus* sp. nov., *D. (Neodoryctes) makiharai* sp. nov., *Heterospilus micronesianus* sp. nov., *H. nishijimus* sp. nov., *H. pacificola* sp. nov., *H. striatiscutum* sp. nov., *H. watanabei* sp. nov., *Ecphylus (Sactopus) hahajimus* sp. nov., *Spathius asanderoides* sp. nov., *S. chichijimus* sp. nov., *S. ogasawarus* sp. nov., and *S. sugirai* sp. nov. Three species, *Rhoptrocentrus piceus* Marshall, 1897, *Ontsira palliata* Cameron, 1881 and *Heterospilus rubrocinetus* (Ashmead, 1905), are firstly recorded for this territory. A key for determination of the all doryctine taxa of the Ogasawara Islands is given.

Key words.—Hymenoptera, Braconidae, Doryctinae, new taxa, new records, Ogasawara Islands, Japan

INTRODUCTION

The Ogasawara Islands are an archipelago of over 30 subtropical oceanic islands of volcanic origin in Pacific Micronesia. These islands are also known as the Bonin Islands, and the southernmost group is known as the Volcano Islands. Most of the islands have steep shorelines, but also have many beaches and are fringed with coral reefs. Two additional remote islands, Okino Torishima (700 km south) and Minami Torishima (1900 km east) geographically are not a part of Ogasawara but belong to it administratively. The total area of the islands is 84 km².

Study of the insects of these small islands, which are located very far from the large continental islands as well as from Asian mainland, started in the middle of 20th century (Ohbayashi et al., 2003). Detailed and more or less abundant information about insect fauna of Coleoptera, Lepidoptera, Hemiptera, Diptera and some small orders was published in various papers, all of which were summarised in Ohbayashi et al. (2003). However, data for hymenopteran insects of these islands is not so rich compared with other large groups and mainly focused on bees, ants and non-parasitic wasps. Moreover, the knowledge on the parasitoids of these islands is considerably limited and usually almost absent for many key families of these parasitoids (e.g. Ichneumonidae, Braconidae, Chalcidoidea, Proctotrupoidea, etc.).

The present paper represents the first taxonomic study that focuses on the fauna of the family Braconidae for these islands. This study is a part of the revision of the Doryctinae fauna of the whole Japan Archipelago. The material for this study belong to the three collections: part of the specimens were deposited in the Faculty of Agriculture, Hokkaido University...
(Sapporo) and National Institute of Agro-Environmental Sciences (Tsukuba), but the most part of the studied material was deposited in the large insect alcohol collection of the Forestry and Forest Product Research Institute (Tsukuba).

The nomenclature for wing venation is as defined by Belokobylskij and Tobias (1998). In the text the following abbreviations for morphological structures are used: POL – postocellar line; OOL – ocular-ocellar line; Od – maximum diameter of lateral ocellus. The following acronyms are used:

- CNCI – Canadian National Collection of Insects (Ottawa, Canada);
- EIHU – Entomological Museum, Hokkaido University (Sapporo, Japan);
- FFPRI – Forestry and Forest Product Research Institute, Tsukuba, Japan;
- MIZW – Museum and Institute of Zoology (Warsaw, Poland);
- NIAES – National Institute of Agro-Environmental Sciences (Tsukuba, Japan);
- NSMT – National Science Museum (Tokyo, Japan);
- ZISP – Zoological Institute Russian Academy of Sciences (St. Petersburg, Russia).

### TAXONOMIC PART

#### Tribe Doryctini

*Doryctes (Doryctes) bonitus* sp. nov.

*(Figs 1–11)*


**Description.** Female. Body length 3.0–3.9 mm; fore wing length 2.4–3.3 mm.

Head width 1.4–1.5 times its median length, 1.15–1.2 times width of mesoscutum. Frons without carina, with shallow and wide short oval pit between antennal sockets. Head behind eyes (dorsal view) distinctly roundly narrowed; transverse diameter of eye 1.8–2.0 times longer than temple. Ocellar triangle situated before middle of head (dorsal view), its anterior ocellus situated distinctly before median level of eyes. Ocelli small, in triangle with base 1.1–1.2 times its lateral sides. POL almost equal to Od, 0.4–0.6 times OOL. Eye with very sparse and short setae, with very shallow emargination opposite antennal socket, 1.2 times as high as broad. Malar space height 0.3–0.35 times height of eye, 0.7–0.85 times basal width of mandible. Face along eyes with very fine carinae, with shallow depressions above clypeus; width of face 0.9 times height of eye and 1.2–1.3 times height of face and clypeus combined. Diameter of antennal socket 1.4–1.6 times distance between sockets and 1.5–1.6 times distance between socket and eye. Malar suture almost indistinct. Clypeus with distinct lower flange. Clypeal suture distinct laterally and shallow or very shallow dorsally. Hypoclypeal depression round, its width almost equal to distance from edge of depression to eye, 0.45–0.5 times width of face. Occipital carina joined below with hypostomal carina upper base of mandible. Palpi long, length of maxillary palpi 1.2–1.4 times head height.

Antenna rather slender, slightly setiform, 29–segmented, 1.2 times longer than body. Scape 1.5–1.7 times longer than its maximum width. First flagellar segment about 5.0 times longer than its apical width, 1.2–1.3 times longer than second segment. Penultimate segment about 3.0 times longer than wide, 0.45 times as long as first segment, 0.9 times as long as apical segment; the latter distinctly pointed apically.

Mesosoma. Length about twice its height. Pronotum slightly convex dorsally, with fine pronotal carina in posterior 0.3, rarely with additional incomplete carina in anterior 0.3, sometimes with fine, subrounded median area delineated by fine carinae (dorsal view). Median lobe of mesoscutum rather highly and oblique-roundedly elevated above pronotum, distinctly protruding forwards, without or with shallow and narrow median furrow. Notauli deep and wide anteriorly, shallow and narrow posteriorly, distinctly crenulated. Prescutellar depression deep, with median carina, almost smooth or finely rugulose, 0.4–0.45 times as long as scutellum. Scutellum convex and with fine lateral carinae. Metanotum with 2 strongly and usually roundly convergent and fused posteriorly lateral carinae, without or with median carinae, with short and obtuse metanotal tooth (lateral view). Subalar depression rather shallow, wide, densely rugose- reticulate. Sternaulus shallow anteriorly and deep posteriorly, straight, slightly oblique, very finely crenulate or smooth, connected with prepectal carina anteriorly, running along anterior half of lower part of mesopleuron. Metapleural flange medium length, wide, rounded apically. Propodeum with short and thick lateral tubercles.

Wings. Fore wing 3.2–3.4 times longer than its maximum width. Radial vein arising behind middle of pterostigma, inner margin of pterostigma between paraestigma and radial vein 1.1–1.2 times its inner margin between radial vein and metacarpus. Radial cell not shortened; metacarpus 1.2 times longer than pterostigma. First radial abscissa 0.7–0.8 times as long as maximum width of pterostigma. Second radial abscissa 2.8–3.5 times longer than first abscissa, 0.5–0.6 times as long as the straight third abscissa, 1.0–1.1 times as long as first radiomedial vein. Second
Figures 1–11. *Doryctes (Doryctes) boninus* sp. nov. (1) Head, front view; (2) hind coxa; (3) head, dorsal view; (4) basal segments of antenna; (5) mesosoma, lateral view; (6) propodeum, dorsal view; (7) hind tibia; (8) hind femur; (9) metasoma, dorsal view; (10) fore wing; (11) hind wing.
radiomedial cell 2.3–2.7 times longer than its maximum width, 1.5–1.7 times longer than brachial cell. First medial abscissa and mediocubital vein slightly S-shaped. Recurrent vein antefurcal. Distance from nervulus to basal vein 0.5–1.0 times nervulus length. Parallel vein arising distinctly behind middle of distal margin of brachial cell. Hind wing 4.3–4.7 times longer than maximum width. First costal abscissa 0.55–0.6 times as long as second abscissa. First abscissa of mediocubital vein 1.3 times longer than second abscissa. Mediocubital cell large, widened toward apex, 6.4–6.8 times longer than wide, 0.45 times as long as wing. Recurrent vein almost straight, interstitial or antefurcal, unscerotised.

Legs. Fore tibia with rather numerous slender spines arranged in very narrow stripe or single row. Hind coxa without dorsal tooth, 1.5 times longer than wide. Hind femur 2.8–3.0 times longer than wide. Hind tarsus about as long as hind tibia. Hind basitarsus thickened, 0.5–0.55 times as long as second–fifth segments combined. Second segment of hind tarsus 0.5–0.6 times as long as basitarsus, almost as long as fifth segment (without pretarsus).

Metasoma 0.9–1.1 times as long as head and mesosoma combined. First tergite with large dorsope, with small spiracular tubercles in basal 0.3, distinctly and almost linearly widened from base to apex. Maximum width of first tergite 1.8–2.1 times its minimum width; length (1.0) 1.1–1.15 times its apical width. Second tergite rarely with indistinct baso-median area; length of tergite 0.5–0.7 times its basal width, 0.7–0.9 times length of third tergite. Second suture almost indistinct. Third tergite with very fine or without transverse furrow. Ovipositor sheath 0.55–0.75 times as long as metasoma, 0.65–0.85 times as long as mesosoma, 0.3–0.4 times as long as fore wing.

Sculpture and pubescence. Vertex, frons and temple smooth; face widely or narrowly and rather densely finely striate, more or less distinctly punctate laterally. Sides of pronotum densely rugose, coarsely and medially sparsely crenulate on wide oblique groove. Mesoscutum densely and finely or distinctly rugulose-punctate or rugulose-striate with fine or very fine granulation. Scutellum finely rugulose-striate entirely. Mesopleuron smooth and sometimes partly finely coriaceous, rugose in subalar depression and in posterior lower corner. Propodeum with areas distinctly delineated by carinae; basolateral areas large, often smooth in medio-anterior half and rugose in posterior half and along carinae, rarely entirely rugose-reticulate; areola short and very wide, 0.8–1.0 times as long as wide; dorsal carina rather long, about as long as areola fork. Hind coxae coarsely and densely striate dorsally, finely to very finely rugulose-coriaceous laterally, almost smooth in lower half. Hind femur sometimes finely coriaceous in dorsal half and almost smooth in ventral half, rarely entirely smooth. First tergite with distinct and slightly convergent dorsal carinae in basal 0.7–0.9 and additional complete and strongly curved lateral carinae, entirely distinctly striate and reticulate-striate medially. Second tergite finely striate basally at short distance or almost entirely smooth. Remaining tergites smooth. Vertex with rather sparse, short and semi-erect setae directed forwards; mesoscutum entirely with dense, rather short and semi-erect pale setae. Hind tibia dorsally with rather long, dense and semi-erect setae, length of these setae 0.4–0.8 times maximum width of hind tibia.

Colour. Head yellow or brownish yellow, often with brown spots dorsally and posteriorly; metasoma yellow-brown to light reddish brown, posterior half of metapleuron and propodeum darker or with wide dark spots; metasoma reddish brown, brownish yellow medially or behind first tergite and yellow laterally in median half. Antenna dark brown to black, two basal segments reddish brown with yellow margins, sometimes light reddish brown or yellowish brown partly. Palpi yellow or pale yellow. Legs yellow with fine brownish tint. Ovipositor sheath black, brown or at least paler basally or in basal half. Fore wing faintly infuscate. Pterostigma brown, paler basally and apically.

Male. Body length 2.7 mm; fore wing length 2.3 mm. Malar space height 0.25 times height of eye, 0.65 times basal width of mandible. Antenna 28-segmented. Penultimate segment 3.5 times longer than wide, 0.5 times as long as first segment, as long as apical segment. Hind femur 3.6 times longer than wide. Hind basitarsus 0.6 times as long as second–fifth segments combined. Second segment of hind tarsus 0.45 times as long as basitarsus, 0.9 times as long as fifth segment (without pretarsus). First tergite long and rather slender, dark reddish brown, its length 1.6 times its apical width. Second tergite length 0.8 times its basal width. Otherwise similar to female.

Diagnosis. New species is similar to the trans-Palaearctic D. striatellus (Nees), but distinctly differs in having the second tergite almost entirely smooth, the scutellum distinctly striate, the median lobe of mesoscutum with rather distinct striation, the antennal segments slender, the body with a pale colour, and the size small.

Doryctes (Neodoryctes) makhari sp. nov.
(Figs 12–21)

Figures 12–21. *Doryctes* (*Neodoryctes*) makiharai sp. nov. (12) Head, front view; (13) head, dorsal view; (14) basal and apical segments of antenna; (15) mesosoma, lateral view; (16) hind coxa; (17) hind femur; (18) hind tibia; (19) metasoma, dorsal view; (20) fore wing; (21) hind wing.

**Description.** Female. Body length 4.9–9.0 mm; fore wing length 3.8–6.3 mm.

Head width 1.4–1.6 times its median length, 1.2–1.3 times width of mesoscutum. Frons without carina, without or with shallow median longitudinal furrow. Head distinctly roundly narrowed behind eye, transverse diameter of eye 1.6–1.8 times longer than temple. Ocellar triangle situated before middle of head (dorsal view), its anterior ocellus situated distinctly before median level of eyes. Ocelli medium-sized, in triangle with base 1.3–1.4 times its sides. POL 1.1–1.3 times OD, 0.6–0.7 times OOL. Eye glabrous, slightly concave near antennal sockets, 1.2–1.3 times as high as broad. Diameter of antennal sockets 1.0–1.3 times distance between antennal sockets, 2.8–4.0 times distance between socket and eye. Face along eyes with rather fine carinae, with small shallow surrounded depression above clypeus; width of face 0.7–0.8 times height of eye and 1.1–1.2 times height of face and clypeus combined. Malar space height 0.2–0.3 times height of eye, 0.5–0.6 times basal width of mandible. Malar suture indistinct. Clypeus with distinct and almost perpendicular lower flange. Clypeal suture distinct and complete, with rather distinct carina along clypeus. Hypoclypeal depression round, its width 1.1–1.3 times distance from edge of depression to eye, 0.5–0.55 times width of face. Occipital carina complete dorsally, not joined ventrally with hypostomal carina being obliterated at rather long distance above mandible. Palpi long, length of maxillary palpi about 1.5 times head height.

Antenna slightly setiform, slender, 45–56-segmented, 1.1–1.2 times longer than body. Scape 1.5–1.7 times longer than its maximum width. First flagellar segment 4.8–5.6 times longer than its apical width, 1.0–1.15 times as long as second segment. Penultimate segment 3.0–4.0 times longer than wide, 0.75–0.8 times as long as apical segment; the latter with short spine apically. Mesosoma. Length 2.1–2.3 times its height. Pronotum (lateral view) distinctly convex dorsally and with high pronomal keel in anterior 0.3. Median lobe of mesoscutum distinctly convex, with fine or distinct median furrow. Notauli deep anteriorly, shallow posteriorly, complete, rather wide, entirely crenulate. Prescutellar depression long, deep, with more or less distinct median carina, finely reticulate to almost smooth partly or rather distinctly striate around median carina, 0.4–0.5 times as long as scutellum. Scutellum slightly convex, with more or less distinct and complete lateral carinae. Metanotum dorso-medially with 3 more or less distinct carinae and with median tubercle in posterior half (dorsal view), without pointed tooth (lateral view). Subalar depression rather shallow, wide, more or less densely striate with rugulosity. Sternalus rather shallow, but submedially deep, smooth, almost straight, connected with prepectal carina anteriorly, running along almost entire length of below part of mesopleuron. Metapleural flange rather short, wide, rounded apically. Propodeum without lateral tubercles.

Wings. Fore wing 4.0–4.3 times longer than its maximum width. Radial vein arising almost from middle of pterostigma. Radial cell not shortened; metacarpus 1.3–1.5 times longer than pterostigma. First radial abscissa 0.9–1.3 times as long as maximum width of pterostigma. Second radial abscissa 1.8–2.3 times first abscissa, 0.35–0.4 times the straight third abscissa, 1.4–1.8 times first radiomedia vein. Second radiomedia cell 2.4–2.8 times longer than its maximum width, 0.8–1.0 times as long as brachial cell. Mediocubital and first abscissa of medial veins slightly S-curved. Recurrent vein 2.4–3.3 times second abscissa of medial vein. Distance from nervulus to basal vein 1.0–1.5 times nervulus length. Parallel vein arising from posterior 0.25 of distal margin of brachial cell. Hind wing 5.2–5.8 times longer than wide. First abscissa of costal vein 0.5–0.6 times as long as second abscissa. First abscissa of mediocubital vein 0.7 times as long as second abscissa. Radial cell almost parallel-sided. Mediocubital cell large, rather slightly widened toward apex, 9.5–10.0 times longer than wide, 0.45–0.5 times as long as wing. Recurrent vein entirely straight, oblique, slightly antefurcal, unsclerotised, but pigmented.

Legs. Fore tibia with 7–8 strong spines arranged in almost single straight or slightly S-curved row. Hind coxa with more or less distinct obtuse and wide submedian dorsal tooth, 1.5–1.6 times longer than wide. Hind femur 3.0–3.5 times longer than wide. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind tibia with very small 1–2 apical spines on outer side. Basitarsus 0.8–0.85 times as long as second-fifth segments combined. Second segment of hind tarsus about 0.4 times as long as basitarsus, 1.2–1.4 times longer than fifth segment (without pretarsus).
Metasoma 1.2–1.4 times longer than head and mesosoma combined. First tergite with large dorsopore, with very small spiracular tubercles in basal 0.25, distinctly and almost linearly widened from base to apex. Maximum width of first tergite 1.5–1.8 times its minimum width; length 1.5–1.65 times its apical width. Second tergite with shallow or very shallow and more or less oblique lateral depressions; median length of tergite 0.6–0.7 times its basal width, almost equal to length of third tergite. Second suture fine, with distinct lateral bends, curved medially. Third tergite without transverse furrow. Hypopygium small, rather distinctly and almost linearly narrowed apically. Ovipositor sheath 0.6–0.7 times as long as body, 1.1–1.3 times longer than metasoma, 1.8–2.0 times longer than mesosoma, 0.75–1.0 times as long as fore wing.

Sculpture and pubescence. Vertex and temple smooth; frons rather finely or distinctly, densely, more or less irregularly, curvedly transversely striate, often narrowly smooth posteriorly; face densely rugulose-striate, upper sometimes finely rugulose-striate. Side of pronotum almost entirely densely rugose-granulate, coarsely and curvedly crenulate in wide median area. Mesoscutum densely and finely or sometimes very finely and more or less entirely granulate, rarely median lobe with 2 narrow and lateral lobes widely medially finely coriaceous or almost smooth; mesoscutum rugulose on rather narrow or wide area in medioposterior 0.5–0.7. Scutellum very finely coriaceous, with fine striation posteriorly and laterally, almost smooth medially or anteriorly. Mesopleuron mostly smooth, finely rugulose posteriorly. Propodeum without or with delineated by fine carinae large basolateral areas, more or less distinctly reticulate-punctate in basal 0.4–0.5, sometimes almost smooth basally, with fine or distinct median carina in basal half, very densely and not strongly rugulose-reticulate in posterior half. Hind coxae rugose-striate on dorsal half, almost smooth on ventral half. Hind femur smooth, sometimes finely reticulate-coriaceous dorsally. First and second metasomal tergites entirely densely rugulose-striate with dense reticulate microsculpture; third tergite in basal 0.6–0.7 densely rugulose-reticulate; fourth-seventh in basal halves (or seventh sometimes almost entirely) rather finely and very densely punctate-reticulate; apical halves of these tergites smooth. Vertex with sparse long erect setae in posterior half and laterally, glabrous medio-anteriorly. Mesoscutum with rather short and semi-erect setae rather widely arranged along notauli and marginally. Hind tibia with rather long, more or less dense and semi-erect setae dorsally, length of these setae 0.5–1.0 times maximum width of hind tibia.

Colour. Head yellowish brown, rather widely yellow along eyes and ventrally. Mesosoma and metasoma reddish brown or partly dark reddish brown with yellowish brown areas on pronotum and mesonotum or with brown spots on all mesosoma; wide lateral spots or stripes on second-fifth or second-sixth metasomal tergites yellow. Scape and pedicel brownish yellow, flagellum brown. Palpi yellow or pale yellow. Legs yellow, with distinctly infuscate or brownish: fore and middle femora apically and rarely dorsally and ventrally, hind femur in apical 0.8, all tibiae widely mediially or in apical 0.8, all tarsi, and hind coxa in apical half or almost entirely; all tibiae apically yellow or pale yellow. Ovipositor sheath dark brown, with rather long light reddish brown or reddish brown subapical area. Fore wings entirely faintly infuscate. Pterostigma brown, yellow basally and apically at short distances; parastigma yellow.

**Male.** Body length 3.9–5.5 mm; fore wing length 2.7–3.6 mm. Antenna 36-segmented; its penultimate segment 3.4–3.6 times longer than wide. Mesosoma 2.4–2.5 times longer than height. Metasoma narrow. First tergite 1.8–2.1 times longer than its apical width; its maximum width 1.4–1.6 times minimum width. Median length of second tergite 1.0–1.2 times its basal width, 1.2–1.5 times length of third tergite. Second suture slightly and regularly curved, without lateral bends. Fourth-seventh tergites densely punctate-reticulate in basal 0.7–0.8, sometimes with additional irregular striation in basal halves. Body brownish yellow, sometimes with wide reddish spots on mesonotum. First tergite of metasoma entirely, wide median parts of second-fifth tergites and apex of metasoma reddish brown. Sometimes body entirely light reddish brown. Otherwise similar to female.

**Diagnosis.** This species is very similar to East Asian *Doryctes denticoxa* Belokobylskij, but differs in having the mesoscutum and the basal areas of the propodeum granulate, the setae on dorsal surface of the hind tibia short and semi-erect, and the hind coxa widely rugose-striate. A new species is also similar to *D. slavyanka* Belokobylskij (south of the Russian Far East), but differs in having the hind coxa with distinct dorsal tooth, the mesoscutum without striation, the basolateral areas of propodeum not delineated by carinae and densely punctate-granulate in basal 0.3, and the first tergite narrow. *D. makiharai* sp. nov. differs from Indonesian *D. merinotides* Enderlein in having the hind coxa with distinct dorsal tooth, the subalar depression entirely and more or less densely striate with rugulosity, the sides of pronotum entirely rugose, the sternaulus posteriorly without depression, the first abscessa of mediocubital vein distinctly shorter than second abscessa, the mesoscutum finely but distinctly granulate, and the hind coxae on dorsal half rugose-striate.

**Etymology.** This species is named in honour Dr H. Makihara (Forest and Forestry Product Research Institute, Tsukuba, Japan), the investigator of the insect fauna of Ogasawara Island and the collector of the types specimens of this new species.
Figures 22–31. *Rhoptrocentrus piceus* Marshall. (22) Head, front view; (23) head, dorsal view; (24) basalmost segments of antenna; (25) hind tibia; (26) hind femur; (27) hind coxa; (28) mesosoma, lateral view; (29) metasoma, dorsal view; (30) fore wing; (31) hind wing.
Monolexis palliatus (Cameron, 1881)

Ipodoryctes palliatus: Granger 1949: 106.

Doryctes picticeps Kieffer, 1921: 135; Nixon 1939: 488.


Rhoptrocentrus piceus Marshall, 1897


Doryctes imperator var. reinhardi Fahringer, 1931: 159; Belokobylskij 1998a: 69.

Doryctomorpha chlorophori Watanabe, 1951: 47; Belokobylskij 1998a: 69.


Distribution. Japan (Ogasawara Is.).

Parallorhogas pacificus micronesianus Belokobylskij and Maeto, 2006

Parallorhogas pacificus micronesianus Belokobylskij and Maeto, 2006: 733.


Distribution. Japan (Ogasawara Is.).

Tribe Heterospilini

Heterospilus micrinesianus sp. nov.


Description. Female. Body length 3.1–4.2 mm; fore wing length 2.5–3.0 mm.

Head not depressed, its width 1.4–1.5 times median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) regularly roundly narrowed. Transverse diameter of eye 1.8–2.1 times longer than temple (dorsal view). Ocelli medium size, in triangle with base 1.1–1.5 times its sides. POL 0.8–1.0 times OD, 0.4–0.5 times OOL. Diameter of antennal socket 1.2–1.4 times distance between sockets, 2.0–2.7 times distance between socket and eye. Eye glabrous, with shallow emargination opposite antennal sockets, 1.2–1.3 times as high as broad. Malar space height 0.35–0.4 times...
Figures 32–42. *Heterospilus micronesianus* sp. nov. (32) Head, front view; (33) head, dorsal view; (34) basal and apical segments of antenna; (35) hind femur; (36) hind coxa; (37) hind tibia; (38) mesosoma, lateral view; (39) metasoma, dorsal view; (40) hind wing of male; (41) fore wing of female; (42) hind wing of female.
height of eye, 0.8–0.9 times basal width of mandible. Face convex, its width 0.9 times height of eye and 1.1–1.2 times height of face and clypeus combined. Malar suture absent. Clypeus with distinct and rather wide lower flange. Hypoclypeal depression rather small and round, its width almost equal to distance from edge of depression to eye, about half width of face. Occipital carina complete dorsally, ventrally joined with hypostomial carina by additional rugue distinctly above base of mandible. Head below eyes (frontal view) distinctly and roundly narrowed. Hypostomal flange rather narrow.

Antenna slender, almost filiform, 28–31-segmented, 1.3 times longer than body. Scape rather short and thick, 1.4–1.5 times longer than its maximum width. First flagellar segment slender, almost straight, subcylindrical, 4.8–5.3 times longer than apical width, 1.1 times longer than second segment. Penultimate segment 4.0–4.5 times as long as wide, 0.55–0.6 times as long as first segment, 0.9 times as long as apical segment; the latter pointed apically and without spine.

Mesosoma not depressed, its length 2.0–2.1 times its height. Pronotum rather short, dorsally slightly convex, with distinct submedial pronotal carina; side of pronotum with rather deep, wide, distinctly curved up in posterior half, densely crenulate submedian furrow. Mesoscutum highly and almost perpendicularly elevated above pronotum, maximum width of mesoscutum (dorsal view) 1.0–1.1 times its median length. Median lobe of mesoscutum slightly protruding forwards, with indistinct and obtuse anterolateral shoulders, slightly convex anteriorly (dorsal view). Notauli wide and deep anteriorly, more narrow and shallow posteriorly, sparsely and distinctly crenulate. Prescutellar depression deep, wide, with coarse median and 2 incomplete lateral carinæ, mostly smooth, but sometimes partly with fine rugulosity, 0.3–0.4 times as long as wide, 0.3–0.4 times as long as scutellum. Scutellum slightly convex, with fine lateral carinæ, its basal width almost equal to median length. Subalar depression rather deep, more or less narrow, coarsely rugose-striate. Sternaulus rather deep, straight, slightly oblique, very finely or more or less distinctly and densely crenulate or rugulose, sometimes mostly smooth, running along anterior 0.5–0.6 of lower part of mesopleuron. Metanotal tooth very short and pointed. Metapleural lobe large, wide, rounded apically. Propodeum (dorsal view) more or less regularly rounded slanted from base to apex, without lateral tubercles; propodeal spiracle small.

Wings. Fore wing 3.5–3.8 times longer than its maximum width, 0.75–0.8 times as long as body. Pterostigma 4.0–4.6 times longer than wide. Radial vein arising almost from middle of pterostigma. Radial cell not shortened. Metacarpus 1.2–1.3 times longer than pterostigma. First radial abscissa 0.9–1.0 times as long as maximum width of pterostigma. Second radial abscissa 1.8–2.2 times longer than first abscissa and forming with it obtuse angle, 0.3–0.35 times as long as the straight third abscissa, 0.6–0.7 times as long as the trace of first radiomedial vein. Trace of first radiomedial vein 2.0–3.0 times longer than second radiomedial vein, 2.5–2.8 times longer than recurrent vein. Recurrent vein postfurcal. First medial abscissa straight. Discoidal cell almost twice longer than wide. Posterior abscissa of basal vein 2.2–2.5 times longer than recurrent vein. Distance from nervulus to basal vein about half nervulus length; nervulus straight and almost perpendicular. Mediocubital vein almost straight. Parallel vein rather distinctly curved subbasally. Brachial cell widely open distally. Hind wing 4.9–5.5 times longer than wide. First abscissa of costal vein 1.0–1.2 times as long as second abscissa; second abscissa strongly sclerotised. Last costal abscissa almost as long as first and second abscissae combined. Radial vein very strongly desclerotised. Medial cell narrow, almost parallel-sided in apical half, its length 10.0–12.0 times maximum width, about 0.3 times length of wing. First abscissa of mediocubital vein 0.55–0.65 times as long as second abscissa. Recurrent vein unsclerotised, almost straight, oblique towards base of wing, slightly or distinctly antefurcal.

Legs. Fore tibia with several slender spines arranged in very narrow stripe or single row. Hind coxa with distinct basoventral tubercle, 1.5–1.6 times longer than maximum width. Hind femur narrow, without distinct dorsal protuberance, 4.0–4.5 times longer than wide. Hind tarsus almost as long as hind tibia. Basitarsus slightly thickened, without ventral keel, 0.4–0.45 times as long as second-fifth segments combined. Second segment of hind tarsus 0.8–0.9 times as long as basitarsus, 1.7–2.0 times longer than fifth segment (without pretarsus).

Metasoma 3.0–3.4 times longer than its maximum width, 1.1–1.15 times longer than head and mesosoma combined. First tergite with short acrosternite, with rather high, more or less narrow and rather distinct median area, with distinct and large dorsopore, with very small spiracular tubercles in basal 0.3; tergite distinctly and almost linearly widened from base to apex. Maximum width of first tergite 1.8–2.0 times its minimum width; length 1.4–1.6 times its apical width, 1.4–1.6 times length of propodeum. Second tergite without lateral furrows. Median length of second tergite 0.6–0.7 times basal width of second tergite, equal to length of third tergite. Combined length of second and third tergites 1.3–1.4 times basal width of second tergite, 1.0–1.2 times their maximum width. Second suture rather deep, narrow, slightly curved lateraly. Third tergite with very shallow and rather narrow finely crenulate transverse furrow in basal 0.2–0.25. Ovipositor sheath (measured its entire length in lateral view).
slender, 1.5–1.7 times longer than metasoma, 2.3–2.5 times longer than mesosoma, 0.7–0.9 times as long as body, 1.0–1.2 times as long as fore wing.

Sculpture and pubescence. Vertex distinctly and densely transversely striate, partly with very fine or unclear microsculpture, smooth narrow or very narrow medially or medio-posteriorly; frons entirely transversely striate. Face mostly smooth, sometimes very finely sculptured mediolaterally, usually with fine or distinct rugosity around clypeus; temple smooth. scape distinctly densely and small granulate. Sides of pronotum rather finely and densely rugulose-reticulate, coarsely rugose posteriorly. Mesoscutum finely granulate, mostly with very dense and fine transverse incomplete striation, with 2 convergent posteriorly distinct undulate carinae and coarsely rugose area between carinae in medioposterial half. Scutellum smooth medially, very finely sculptured laterally. Mesopleuron coarsely rugose-striate in upper half, distinctly or sometimes finely to very finely rugulose-striate, sometimes with smooth areas in lower half. Metapleuron coarsely rugose-reticulate. Propodeum with rather distinctly delineated and narrowed posteriorly basolateral areas, areola more or less delineated and wide, entirely coarsely reticulate; basal carina short, about 0.3 times as long as propodeum; basolateral areas coarsely rugulose-reticulate, sometimes almost smooth anteriorly, remaining propodeum coarsely rugose-striate. Hind coxae coarsely striate or rugose-striate dorsally, finely reticulate-coriaceous dorso-laterally, smooth on rest part. Hind femur finely or very finely and densely striate-reticulate in dorsal half and smooth in ventral half. First tergite with distinct and slightly convergent posteriorly dorsal carinae, densely coarsely and more or less linearly striate and with distinct or fine microsculpture, rugose-reticulate mediobasally. Second tergite entirely distinctly longitudinaly striate, with very fine microsculpture. Third tergite sometimes in subbasal depression short or long and finely or distinct striate. Remaining tergites smooth. Vertex entirely with sparse, long and semi-erect or erect yellow setae. Mesoscutum with rather dense, more or less long and almost erect yellow setae arranged rather narrowly along notauli and almost in one row marginally; all lobes medially widely glabrous. Metapleuron widely glabrous. Hind tibia dorsally with short, rather dense, semi-erect setae; length of these setae 0.6–1.0 times maximum width of hind tibia.

Colour. Head almost entirely black, dark reddish brown partly. Prothorax (usually ventrally), mesoscutum or mesonotum, mesopleuron in lower half and sometimes metanotum mostly light reddish brown, but sometimes partly infuscate; rest part of mesosoma dark reddish brown to black. Metasoma black in basal half and brownish yellow in apical half, rarely brownish yellow in apical 0.7. Antenna dark brown to black, 2–3 basal segments brownish yellow. Palpi pale yellow. Legs yellow or pale yellow, all tarsi brownish yellow. Ovipositor sheaths black apically, mostly brown. Fore wing faintly infuscate. Pterostigma entirely pale brown.

Male. Body length 2.8 mm; fore wing length 2.1 mm. Malar space height 0.3 times height of eye, 0.7 times basal width of mandible. Antenna 26-segmented. First flagellar segment about 5.0 times longer than apical width. Penultimate segment 3.8 times longer than wide. Mesosoma length 2.2 times its height. Mesopleuron widely smooth. Metacarpus 1.1 times longer than pterostigma. Second radial abscissa 2.5 times longer than first abscissa. Hind wing 5.7 times longer than wide. Stigma-like enlargement of hind wing rather large, dark brown, its length about twice distance from enlargement to base of wing. Basitarsus 0.35 times as long as second-fifth segments combined. Second segment of hind tarsus as long as basitarsus. Length of first tergite 1.75 times its maximum width. Median length of second tergite 0.9 times its basal width, 1.2 times length of third tergite. Combined length of second and third tergites 1.6 times basal width of second tergite. Otherwise similar to female.

Diagnosis. The taxonomic position of this species is quite separated from the other known East Asian species because the ovipositor and the first tergite long, the vertex distinctly striate, the mesoscutum densely granulate-striate, and the mesopleuron mostly sculptured. This new species differs from trans-Palaeartic H. separatus Fischer in having the mesoscutum sculptured, the vertex densely transversely striate, the first and the second tergites and ovipositor long, and the hind femur slender. H. micronesianus sp. nov. also differs from H. orientalis Belokobylskij (south of the Russian Far East) in having the ovipositor, first and second tergites long, the head behind eyes roundly narrowed, the malar space short, the vertex densely transversely striate, and the second radial abscissa long.

Heterosipilus nishijimus sp. nov.
(Figs 43–51)


Paratype. 1 female, with same label as holotype (ZISP).

Description. Female. Body length 3.0–3.5 mm; fore wing length 2.3–2.7 mm.

Head not depressed, its width 1.45–1.5 times median length, 1.2–1.25 times width of mesoscutum. Head behind eyes (dorsal view) convex-roundly narrowed. Transverse diameter of eye 1.8 times longer than
Figures 43–51. *Heterospilus nishijimus* sp. nov. (43) Head, front view; (44) head, dorsal view; (45) basal and apical segments of antenna; (46) hind tibia; (47) hind coxa; (48) hind femur; (49) metasoma, dorsal view; (50) fore wing; (51) hind wing.
temple (dorsal view). Ocelli medium size, in triangle with base 1.2–1.3 times its sides. POL 1.2–1.3 times Od, 0.45–0.55 times OOL. Diameter of antennal socket almost equal to distance between sockets, 2.0–3.0 times distance between socket and eye. Eye glabrous, with very shallow emargination opposite antennal sockets, 1.25–1.3 times as high as broad. Malar space height 0.35–0.4 times height of eye, almost equal to basal width of mandible. Face convex, its width 0.9–1.0 times height of eye and 1.2–1.25 times height of face and clypeus combined. Malar suture absent. Clypeus with distinct and rather narrow lower flange. Hypoclypeal depression rather small and round, its width 0.8–0.9 times distance from edge of depression to eye, 0.45 times width of face. Occipital carina complete dorsally, obliterated ventrally and at short distance not joined with hypostomal carina. Head below eyes (frontal view) distinctly and roundly narrowed. Hypostomal flange rather narrow.

Antenna slender, slightly setiform, 27–28-segmented, 1.1–1.2 times longer than body. Scape rather long and thick, 1.7 times longer than its maximum width. First flagellar segment slender, almost straight, sub-cylindrical, 4.5–5.0 times longer than apical width, 1.1 times longer than second segment. Penultimate segment 3.5–4.0 times longer than wide, 0.55–0.6 times as long as first segment, 0.9–1.0 times as long as apical segment; the latter pointed apically and without spine.

Mesosoma not depressed, length 2.1 times its height. Pronotum rather short, dorsally slightly convex, with distinct submedian pronotal carina; side of pronotum with rather deep, wide, almost straight and densely crenulate submedian furrow. Mesoscutum highly and almost perpendicularly elevated above pronotum, maximum width of mesoscutum (dorsal view) 1.1–1.15 times its length. Median lobe of mesoscutum protruding forwards, with rather distinct and obtuse anterolateral shoulders, slightly convex anteriorly (dorsal view). Notauli wide and deep anteriorly, more narrow and shallow posteriorly, sparsely and distinctly crenulate. Prescutellar depression rather deep, wide, with distinct median carina, mostly smooth, 0.35–0.4 times as long as wide, 0.4 times as long as scutellum. Scutellum slightly convex, without lateral carinae, its basal width almost equal to median length. Subalar depression shallow, more or less wide, coarsely rugose-striate. Spernonal rather deep, straight, slightly oblique, mostly almost smooth, running along anterior 0.6 of lower part of mesopleuron. Metanotal tooth small and angulated. Metapleural lobe large, wide, rounded apically. Propodeum (lateral view) more or less regularly and slightly-roundly slanted from base to apex, without lateral tubercles; propodeal spiracle small.

Wings. Fore wing 3.4–3.6 times longer than its maximum width, about 0.8 times as long as body. Pterostigma 3.8–4.3 times longer than wide. Radial vein arising almost from middle of pterostigma. Radial cell not shortened. Metacarpus 1.3–1.4 times longer than pterostigma. First radial abscissa 0.8–0.9 times as long as maximum width of pterostigma. Second radial abscissa 1.8–2.0 times longer than first abscissa and forming with it obtuse angle, 0.36–0.4 times as long as the straight third abscissa, 0.7–0.8 times as long as the trace of first radio medial vein. Trace of first radiomedial vein 2.0–2.4 times longer than second radio medial vein, 2.8–3.1 times longer than recurrent vein. Recurrent vein postfurcal. First medial abscissa slightly curved. Discoidal cell 1.7–1.9 times longer than wide. Posterior abscissa of basal vein 2.6–2.7 times longer than recurrent vein. Distance from nervulus to basal vein 0.6–0.7 times nervulus length; nervulus straight and almost perpendicular. Mediocubital vein almost straight. Parallel vein rather distinctly curved subbasally. Brachial cell widely open distally. Hind wing 4.8–5.0 times longer than wide. First abscissa of costal vein 1.3–1.4 times longer than second abscissa; second abscissa strongly sclerotised. Last costal abscissa slightly shorter than first and second abscissa combined. Radial vein very strongly desclerotised. Medial cell rather narrow, almost parallel-sided in apical half, its length 9.0–10.0 times maximum width, about 0.3 times length of wing. First abscissa of mediocubital vein 0.85–1.0 times as long as second abscissa. Recurrent vein unsclerotised, almost straight, oblique towards base of wing, interstitial.

Legs. Fore tibia with several slender spines arranged in single row. Hind coxa with distinct basoventral tubercle, about 1.5 times longer than maximum width. Hind femur rather wide, with weak dorsal protuberance, 3.5 times longer than wide. Hind tarsus 0.85–0.9 times as long as hind tibia. Basitarsus slightly thickened, without ventral keel, 0.5–0.55 times as long as second-fifth segments combined. Second segment of hind tarsus 0.5–0.6 times as long as basitarsus, 0.8–1.0 times as long as fifth segment (without pretarsus). Metasoma 3.3–3.5 times longer than its maximum width, 1.1–1.2 times longer than head and mesosoma combined. First tergite with short acrosternite, with not high, more or less narrow and rather distinct median area, with distinct and large dorsore, with very small spiracular tubercles in basal 0.3; tergite distinctly and linearly widened from base to apex. Maximum width of first tergite about twice its minimum width; length 1.15–1.3 times its apical width, 1.25–1.3 times length of propodeum. Second tergite without lateral furrows. Median length of second tergite about 0.5 times basal width of second tergite, 0.8–0.9 times length of third tergite. Combined length of second and third tergites almost equal to basal width of second tergite, 0.8–0.9 times their maximum width. Second suture rather distinct, narrow, slightly curved laterally. Third tergite medially with very shallow, rather narrow and
finely crenulate transverse furrow in basal 0.3. Ovipositor sheath (measured its entire length in lateral view) slender, 1.15–1.2 times longer than metasoma, 1.6–1.8 times longer than mesosoma, 0.6–0.65 times as long as body, 0.75–0.85 times as long as fore wing.

Sculpture and pubescence. Vertex finely or very finely and densely transversely striate, without additional microsculpture, narrowly or widely smooth medially and posteriorly; frons entirely densely transversely striate. Face mostly smooth, sometimes finely sculptured in upper lateral 0.3; temple smooth. Scape finely and densely granulate. Sides of pronotum rather coarsely and densely rugulose-recticate with dense granulation. Mesoscutum distinctly and densely granulate, sometimes with very fine transverse striation on lateral lobes, with 2 convergent posteriorly distinct carinae and wide coarsely rugose area in medio-posterior half. Seutellum finely coriaceous. Mesopleuron distinctly rugose-recticate in upper 0.6–0.7, smooth in lower 0.3–0.4. Metapleuron entirely coarsely rugose-recticate. Propodeum with more or less distinctly delineated and narrowed posteriorly basolateral areas, areola more or less delineated and wide, entirely coarsely reticate; basal carina more or less short, 0.2–0.3 times as long as propodeum; basolateral areas coarsely rugulose-recticate along carinae, finely coriaceous to smooth on remaining part, rest part of propodeum coarsely rugose-recticate. Hind coxae coarsely or distinctly rugose-recticate or rugose-granulate in dorsal half, smooth in lower half. Hind femur finely and densely reticulate-coriaceous, lower almost smooth. First tergite with distinct and posteriorly slightly convergent dorsal carinae; densely, coarsely and more or less straight striate and with more or less distinct microsculpture, transverse striate basally. Second tergite entirely distinctly longitudinally striate, striate convergent posteriorly, with very fine microsculpture. Remaining tergites smooth. Vertex entirely with rather dense, more or less long and semi-erect pale setae. Mesoscutum with more or less dense, rather long and almost erect pale setae arranged widely along notauli and almost in single row marginally, all lobes more or less widely glabrous medially. Metapleuron widely glabrous medially. Hind tibia dorsally with more or less long, rather dense, semi-erect setae; length of these setae 0.8–1.0 times maximum width of hind tibia.

Colour. Head almost entirely black or dark reddish brown, with paler reddish tint. Mesosoma black, mesoscutal lobes, prothorax in lower half, mesopleuron in lower 0.3 and mesosternum reddish brown or partly light reddish brown. Metasoma dark reddish brown to black on first tergite and laterally, light reddish brown to reddish brown widely mediately. Antenna black, dark reddish brown basally. Palpi yellow. Fore and middle coxae and all femora yellow, but femora dorsally or in protuberances infuscate; all tibiae and tarsi and hind coxa reddish brown, dark reddish brown or dark brown. Ovipositor sheaths evenly black. Fore wing faintly infuscate. Pterostigma entirely pale brown.

Male unknown.

**Diagnosis.** This new species is very similar to *H. micronesianus* sp. nov., but differs in having the first abscissa of mediocubital vein of hind wing almost equal to the second abscissa, the hind femur thick, the tarsal segments of the hind tarsus long, the first metasomal tergite and the ovipositor short, the mesopleuron smooth in lower 0.3–0.4, the antenna basally, hind coxa and all tibiae and tarsi dark.

**Heterospilus pacificola** sp. nov.

(Figs 52–62)


**Description.** Female. Body length 2.1–3.0 mm; fore wing length 1.8–2.3 mm.

Head not depressed, its width 1.4–1.6 times median length, 1.1–1.2 times width of mesoscutum. Head behind eyes (dorsal view) distinctively regularly rounded narrowed. Transverse diameter of eye 2.0–2.3 times longer than temple (dorsal view). Ocelli medium size, in triangle with base 1.15–1.2 times its sides. POL 1.0–1.5 times Od, 0.5–0.65 times OOL. Diameter of antennal socket 1.2–1.6 times distance between sockets, 3.0–3.2 times distance between socket and eye. Eye glabrous, with very shallow emargination opposite antennal sockets, 1.2–1.25 times as high as broad. Malar space height 0.35 times height of eye, 0.8–0.9 times basal width of mandible. Face slightly convex, its width 0.8–0.9 times height of eye and 1.2 times height of face and clypeus combined. Malar suture absent. Clypeus with distinct and rather wide lower flange. Hypoclypeal depression medium size and round, its width 0.5–1.0 times distance from edge of depression to eye, 0.45–0.5 times width of face. Occipital carina complete dorsally, obliterated ventrally at short distance and not joined with hypostomal carina above base of mandible. Head
Figures 52–62. *Heterospilus pacificola* sp. nov. (52) Head, front view; (53) head, dorsal view; (54) basal and apical segments of antenna; (55) mesosoma, lateral view; (56) metasoma, dorsal view; (57) hind femur; (58) hind tibia; (59) propodeum, dorsal view; (60) fore wing of female; (61) hind wing of female; (62) hind wing of male.
below eyes (frontal view) distinctly and roundly narrowed. Hypostomal flange narrow.

Antenna slender, almost filiform, 21–27-segmented, 1.1–1.2 times longer than body. Scape rather short and thick, 1.3–1.4 times longer than its maximum width. First flagellar segment slender, slightly curved, subcylindrical, 4.0–4.5 times as long as apical width, 0.9–1.05 times as long as second segment. Penultimate segment 3.0 times longer than wide, 0.6 times as long as first segment, 0.8–0.85 times as long as apical segment; the latter pointed apically and without spine.

Mesosoma not depressed, its length 1.85–1.9 times its height. Pronotum rather short, dorsally slightly convex, with distinct submedial pronotal carina; side of pronotum with rather deep, wide, distinctly curved down in posterior half and densely crenulate submedian furrow. Mesoscutum highly and almost perpendicularly elevated above pronotum, maximum width of mesoscutum (dorsal view) 1.1–1.15 times its length. Median lobe of mesoscutum slightly protruding forwards, with small and obtuse anterolateral shoulders, slightly convex anteriorly (dorsal view). Notauli rather wide and more or less deep anteriorly, shallow posteriorly, sparsely and distinctly crenulate. Prescutellar depression deep, wide, with coarsely median and often incomplete 2 lateral carinae, mostly smooth, but partly very finely rugulose, 0.3 times as long as wide, 0.3 times as long as scutellum. Scutellum slightly convex, with rather distinct lateral carinae, its basal width equal to median length. Subalar depression rather deep, more or less narrow, coarsely rugosostriate. Sternalus rather shallow, straight, slightly oblique, very finely crenulate-coriaceous or only coriaceous, running along anterior 0.45–0.5 of lower part of mesopleuron. Metanotal tooth very short and subpointed. Metapleural lobe rather large, wide, rounded apically. Propodeum (lateral view) regularly roundly slanted from base to apex, without lateral tubercles; propodeal spiracle small.

Wings. Fore wing 3.0–3.3 times longer than its maximum width, 0.75–0.8 times as long as body. Pterostigma 3.5–4.0 times longer than wide. Radial vein arising from middle of pterostigma. Radial cell not shortened. Metacarpus about 1.2 times longer than pterostigma. First radial abscissa 0.9–1.2 times as long as maximum width of pterostigma. Second radial abscissa 1.1–1.5 times longer than first abscissa and forming with it obtuse angle, 0.25–0.3 times as long as the straight third abscissa, 0.55–0.7 times as long as the trace of first radiomedial vein. Trace of first radiomedial vein 2.0–2.3 times longer than second radiomedial vein, 2.5–2.8 times longer than recurrent vein. Recurrent vein postfurcal. First medial abscissa slightly curved. Discoidal cell 1.7–2.0 times longer than wide. Posterior abscissa of basal vein 2.2–2.5 times longer than recurrent vein. Distance from nervulus to basal vein 0.6–1.0 times nervulus length; nervulus straight and almost perpendicular. Mediocubital vein slightly S-shaped. Parallel vein slightly curved subbasally. Brachial cell widely open distally. Hind wing 4.5–5.2 times longer than wide. First abscissa of costal vein 1.15–1.25 times longer than second abscissa; second abscissa strongly sclerotised. Last costal abscissa slightly shorter than first and second abscissa combined. Radial vein very strongly desclerotised. Medial cell narrow, almost parallel-sided in apical half, its length 9.0–9.5 times maximum width, about 0.3 times length of wing. First abscissa of mediocubital vein 0.7–0.85 times as long as second abscissa. Recurrent vein unsclerotised, distinctly and regularly curved towards apex, slightly antefurcal.

Legs. Fore tibia with several slender spines arranged in a single row. Hind coxa with distinct basoventral tubercle. 1.2–1.4 times longer than maximum width. Hind femur wide, with indistinct dorsal protuberance, 3.1–3.5 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Basitarsus slightly thickened, without ventral keel, 0.35–0.4 times as long as second-fifth segments combined. Second segment of hind tarsus 0.8–0.85 times as long as basitarsus, 1.25 times longer than fifth segment (without pretarsus).

Metasoma 2.0–2.5 times longer than its maximum width, 0.9–1.1 times as long as head and mesosoma combined. First tergite with short acrosternite, with rather high, more or less wide and distinct median area, with distinct and large dorsope, with small spiracular tubercles in basal 0.3; tergite distinctly and almost linearly widened from base to apex. Maximum width of first tergite 2.1–2.4 times its minimum width; length 0.9–1.0 times its apical width, 1.1 times length of propodeum. Second tergite without lateral furrows. Median length of second tergite 0.45–0.5 times apical width of first tergite, 0.4–0.45 times basal width of second tergite, 0.75–0.8 times length of third tergite. Combined length of second and third tergites 0.85–1.0 times basal width of second tergite, 0.6–0.7 times their maximum width. Second suture very shallow, narrow, rather distinctly curved laterally. Third tergite with very shallow smooth transverse furrow in basal 0.3. Ovipositor sheath (measured its entire length in lateral view) slender, 0.55–0.7 times as long as metasoma, 0.75–0.9 times as long as mesosoma, 0.35–0.45 times as long as fore wing.

Sculpture and pubescence. Vertex distinctly and densely transversely striate, but finer in small specimens, without microsculpture; frons entirely densely distinctly transversely striate. Face mostly smooth, sometimes very finely sculptured below; temple smooth. Scape distinctly densely and small granulate in dorsal half. Sides of pronotum rather distinctly and densely rugulose-reticulate with granulation, coarsely rugose below and posteriorly. Mesoscutum distinctly and densely granulate, without striation or rugulosity
on lobes, with 2 convergent posteriorly distinct carinae and small coarsely or finely rugose area between carinae in medioposterior 0.3. Scutellum finely granulate-coriaceous or coriaceous. Mesopleuron in lower 0.7 entirely and rather distinctly rugose-recticulate to coriaceous with fine striation posteriorly. Metapleuron entirely densely and coarsely rugose-recticulate with granulation anteriorly. Propodeum with rather distinctly delineated and entirely densely granulate-coriaceous to almost smooth basally basolateral areas, areola distinctly delineated and wide, entirely coarsely reticulate, 1.4–1.6 times longer than maximum width, connected or almost connected with basal margin of propodeum, rarely with short basal carina; rest part of propodeum coarsely rugose-striate. Hind coxae coarsely rugose-striate dorsally, finely reticulate-coriaceous to smooth in lower half. Hind femur distinctly and densely striate with reticulate in dorsal 0.5–0.7 and (almost) smooth below. First tergite with distinct and posteriorly slightly convergent dorsal carinae, densely coarsely and more or less straight striate and with fine or distinct microsculpture. Second tergite almost entirely distinctly longitudinally striate with fine microsculpture, finely sculptured posteriorly and laterally, rarely almost smooth posteriorly. Third and following tergites smooth. Vertex entirely with sparse, long and semi-erect pale setae. Mesoscutum widely glabrous, with more or less dense, long and almost erect yellow setae arranged rather narrow along notauli and almost in one row marginally. Metapleuron widely glabrous medially. Hind tibia dorsally with short, rather dense, semi-erect setae; length of these setae 0.5–0.7 times maximum width of hind tibia.

Colour. Head, mesosoma in dorsal half and first tergite dark reddish brown, mesosoma in lower 0.4–0.5 light reddish brown or brownish yellow, sometimes head dorsally and behind eyes reddish; metasoma behind first tergite reddish brown or (rarely) brownish yellow. Antenna reddish brown, pale basally and dark apically. Palpi yellow. Legs brownish yellow to yellow. Ovipositor sheaths black. Fore wing almost hyaline. Pterostigma entirely pale brown.

**Heterospilus rubrocinclus** (Ashmead, 1905)

_Hecabolus rubrocinclus_ Ashmead, 1905: 8.


**Distribution.** Japan (Ogasawara Is.), Philippines, Vietnam.

**Heterospilus striatiscutum** sp. nov. (Figs 63–72)


**Description.** Female. Body length 2.8 mm; fore wing length 2.2 mm.

Head not depressed, its width 1.7 times median length, 1.25 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and convex-roundly narrowed. Transverse diameter of eye 3.3 times longer than temple (dorsal view). Ocelli medium-sized, in almost equilateral triangle. POL 0.9 times Od, 0.45 times OOL. Diameter of antennal socket 1.4 times distance between sockets, 2.8 times distance between socket and eye. Eye glabrous, with very shallow emargination opposite antennal sockets, 1.1 times as high as times basal width of second tergite, almost equal to length of third tergite. Combined length of second and third tergites 1.4–1.6 times basal width of second tergite, 0.9–1.0 times their maximum width. Second suture distinct, slightly curved laterally. Propodeal areola 1.3–1.8 times longer than maximum width. Second tergite undulately longitudinally striate. Otherwise similar to female.

**Diagnosis.** This new species is similar to West Palaearctic _H. corsicus_ (Marshall), but differs in having the temple and the malar space short, the scutellum finely sculptured, the recurrent vein of the hind wing distinctly and regularly curved toward apex of wing, the areola of propodeum connected directly with the base of propodeum, the hind femur wide, the first abscissa of mediocubital vein of the hind wing short, the hind wing of male without stigma-like enlargement, the metanotal tooth very short, the first tergite very densely striate, and the ovipositor sheath long.
Figures 63–72. *Heterospilus striatiscutum* sp. nov. (63) Head, front view; (64) head, dorsal view; (65) basal segments of antenna; (66) mesosoma, lateral view; (67) hind femur; (68) hind tibia; (69) metasoma, dorsal view; (70) hind wing of male; (71) fore wing of female; (72) hind wing of female.
broad. Malar space height 0.4 times height of eye, 0.9 times basal width of mandible. Face convex, its width 0.85 times height of eye and almost equal to height of face and clypeus combined. Malar suture absent. Clypeus with distinct and rather wide lower flange. Hypoclypeal depression rather small and round, its width 0.7 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina complete dorsally, joined ventrally with hypostomal carina upper base of mandible. Head below eyes distinctly and roundly narrowed. Hypostomal flange narrow.

Antenna slender, filiform, more than 18-segmented (apical segments missing). Scape rather short and thick, 1.5 times longer than its maximum width. First flagellar segment slender, slightly curved, subcylindrical, 6.0 times longer than apical width, 1.1 times longer than second segment. Subapical segments 4.3 times longer than their width.

Mesosoma not depressed, its length 1.8 times maximum height. Pronotum rather short, dorsally slightly convex, with distinct pronotal carina in posterior 0.4; side of pronotum with rather deep, wide, slightly curved, crenulate submedian oblique furrow. Mesoscutum highly and almost perpendicularly (but roundly subdorsally) elevated above pronotum, maximum width of mesoscutum (dorsal view) 1.15 times its length. Median lobe of mesoscutum slightly protruding forwards, with distinct obtuse anterolateral shoulders, almost straight anteriorly (dorsal view). Notauli wide and deep anteriorly, more narrow and shallow posteriorly, sparsely (anteriorly) or densely (posteriorly) and coarsely crenulate. Prescutellar depression rather deep, wide, with distinct median and 2 fine lateral carinae, finely rugulose almost entirely, 0.4 times as long as wide, 0.45 times as long as scutellum. Scutellum slightly convex, with rather distinct lateral carinae, its basal width almost equal to median length. Subalar depression shallow, rather wide, coarsely striate-rugose. Sternaulus rather shallow, straight, oblique, finely rugulose-crenulate, running along anterior 0.5 of lower part of mesopleuron. Metanotal tooth low, wide, pointed. Metapleural lobe rather large, wide, rounded apically. Propodeum (lateral view) regularly roundly slanted from base to apex, without lateral tubercles; propodeal spiracle small.

Wings. Fore wing 3.2 times longer than its maximum width, 0.75 times as long as body. Pterostigma 3.2 times longer than wide. Radial vein arising before middle of pterostigma, inner margin of pterostigma between para stigma and radial vein 0.75 times its inner margin between radial vein and metacarpus. Radial cell not shortened. Metacarpus 1.5 times longer than pterostigma. First radial abscissa 0.9 times as long as maximum width of pterostigma. Second radial abscissa 1.5 times longer than first abscissa and forming with it very obtuse angle (situated almost on single line), 0.3 times as long as the straight third abscissa, 0.7 times as long as the trace of first radiomedial vein. Trace of first radiomedial vein 2.5 times longer than oblique second radiomedial vein, 2.5 times longer than recurrent vein. Recurrent vein postfurcal. First medial abscissa slightly S-shaped. Discoidal cell about twice longer than wide. Posterior abscissa of basal vein 2.4 times longer than recurrent vein. Distance from nervulus to basal vein equal to nervulus length; nervulus straight and almost perpendicular. Mediocubital vein straight in distal half. Parallel vein slightly curved subbasally. Brachial cell widely open distally. Hind wing 5.0 times longer than wide. First abscissa of costal vein 1.1 times longer than second abscissa; second abscissa strongly sclerotised. Last costal abscissa 0.9 times as long as first and second abscissae combined. Radial vein very strongly desclerotised. Medial cell narrow, almost parallel-sided in apical half, its length 0.5 times maximum width, about 0.3 times length of wing. First abscissa of mediocubital vein 0.8 times as long as second abscissa. Recurrent vein strongly desclerotised, almost straight and perpendicular to mediocubital vein, slightly antefurcal.

Legs. Fore tibia with numerous slender spines arranged in rather narrow stripe. Hind coxa with distinct basoventral tubercle, 1.3 times longer than maximum width. Hind femur wide, without dorsal protuberance, 3.2 times longer than wide. Hind tarsus as long as hind tibia. Basitarsus slightly thickened, 0.4 times as long as second-fifth segments combined. Second segment of hind tarsus 0.9 times as long as basitarsus, 1.5 times longer than fifth segment (without pretarsus).

Metasoma 2.6 times longer than its maximum width, as long as head and mesosoma combined. First tergite with short acrosternite, with rather high and more or less distinct median area, with distinct dorsosope, without spiracular tubercles; tergite rather slightly and almost linearly widened from base to apex. Maximum width of first tergite 1.8 times its minimum width; length almost equal to its apical width, 1.2 times length of propodeum. Second tergite with very fine lateral furrows. Median length of second tergite 0.3 times its basal width 0.5 times length of third tergite. Combined length of second and third tergites 0.8 times basal width of second tergite, 0.65 times their maximum width. Second suture distinct, slightly curved medially, with rather distinct sublateral bends. Third tergite with very shallow, narrow, distinctly and widely crenulate transverse furrow in basal 0.25.

Sculpture and pubescence. Vertex distinctly and densely transversely striate and without microsculpture, narrow smooth posteriorly and laterally; frons rather densely and distinctly transversely striate, widely smooth medially. Face distinctly undulately striate with dense and fine rugulose microsculpture, narrowly almost smooth medially; temple smooth. Sides of
pronotum almost entirely rather finely and densely rugulose-reticulate, with distinct and sparse crenulae on oblique and delineated depression. Mesoscutum entirely distinctly, densely and semi-circularly striate, with fine and dense granulate microsculpture between striae, coarsely rugose-reticulate in rather narrow area in medioposterior half. Scutellum very finely and almost entirely coriaceous. Mesopleuron smooth, posteriorly and upper distinctly striate. Metapleuron entirely, densely and coarsely rugose-reticulate. Propodeum with distinctly delineated and medium-sized basolateral areas, with rather distinctly delineated large areola; basal carina short, 0.15 times as long as propodeum, 0.2 times as long as anterior fork of areola; propodeum coarsely rugose-areolate, basolateral areas partly smooth medially and with sparse and deep punctatae. Hind coxae dorsally coarsely transversely curvedly striate and partly with fine granulation, smooth on lower 0.7. Hind femur dorsally distinctly and densely longitudinally striate, smooth on remaining part. First tergite with distinct and convergent dorsal carinae, densely, coarsely and almost linearly striate with very fine reticulate microsculpture. Second tergite entirely and third in basal 0.3 distinctly striate. Remaining tergites smooth. Vertex entirely with rather sparse, not long, semi-erect and directed forwards setae. Mesoscutum with dense, rather short and semi-erect pale setae arranged widely along notauli and narrowly marginally, all lobes rather widely glabrous medially. Metapleuron widely glabrous medially. Hind tibia dorsally with short, rather dense, semi-erect setae; length of these setae 0.5–0.8 times maximum width of hind tibia.

Colour. Head and mesosoma in anterior 0.7 yellowish brown to light reddish brown, rest part of mesosoma reddish brown. Metasoma reddish brown to dark reddish brown in basal half, with yellow spots on the sides of second and third tergites and pale colour posteriorly on third tergite; light reddish brown to brownish yellow in posterior half. Antenna brown to dark brown, light reddish brown or yellowish brown in basal 0.3. Palpi yellow. Legs yellow, paler basally. Fore wing very faintly infuscate. Pterostigma brown, yellow apically at short distance.

Male. Body length 3.3 mm; fore wing length 2.4 mm. Head width 1.7 times its median length. Transverse diameter of eye 2.7 times longer than temple (dorsal view). Ocelli in triangle with base 1.25 times its sides. Diameter of antennal socket 3.5 times distance between sockets. Malar space height 0.8 times basal width of mandible. Hypocypeal depression width 0.9 times distance from edge of depression to eye, 0.5 times width of face. Vertex almost smooth in posterior half. Antenna slender, filiform, 24-segmented, 1.1 times longer than body. Scapae 1.6 times longer than its maximum width. First flagellar segment 5.5 times longer than apical width, 1.2 times longer than second segment. Penultimate segment 3.5 times longer than wide, 0.55 times as long as first segment, 0.85 times as long as apical segment; the latter pointed apically. Mesosoma length twice its height. Pronotum with rather distinct pronotal carina in posterior 0.3. Precostellar depression 0.35 times as long as wide, 0.4 times as long as scutellum. Basal width of scutellum 1.1 times its median length. Sternaulus almost smooth. Mesoscutum with fine and straight median carina in medioposterior half. Mesopleuron mostly smooth. Basal carina of propodeum 0.2 times as long as propodeum, 0.7 times as long as anterior fork or areola; basolateral areas almost smooth or finely coriaceous and with rugae along carinae. Metacarpus of fore wing 1.4 times longer than pterostigma. Trace of first radiomedial vein 2.2 times longer than oblique second radiomedial vein, 2.4 times longer than recurrent vein. Distance from nervulus to basal vein 0.8 times nervulus length. Hind wing 5.8 times longer than wide. Sclerotised enlargement large, 1.7 times longer than distance between enlargement and base of wing; 0.75 times as long as last abscissa of costal vein. Hind coxa 1.4 times longer than maximum width, dorsally finely transversely striate with fine granulation partly. Hind femur very finely coriaceous dorsally. Hind tarsus 0.9 times as long as hind tibia. Second segment of hind tarsus 0.85 times as long as basitarsus. Metasoma 1.1 times longer than head and mesosoma combined, 2.8 times longer than its maximum width. First tergite with small spiracular tubercles in basal 0.25, its length 1.15 times apical width, 1.1 times length of propodeum. Second tergite with very shallow and slightly oblique lateral furrows. Median length of second tergite 0.5 times its basal width, 0.8 times length of third tergite. Combined length of second and third tergites 1.15 times basal width of second tergite, 0.8 times their maximum width. Third tergite with rather deep, narrow, slightly curved, distinctly and widely crenulate transverse furrow in basal 0.25. Third metasomal tergite in basal half, fourth more or less widely basally and fifth narrowly basally striate. Head yellow and yellowish brown dorsally. Mesosoma yellowish brown, propodeum infuscate. Metasoma reddish brown to light reddish brown with yellowish stripes. Otherwise similar to female.

**Diagnosis.** This new species is similar to *H. alboapicalis* Belokobylskij from Vietnam (Belokobylskij, 1994), but differs in having the head more transverse, the temple short, the first and the second tergites short, and the tergites behind third one smooth. *H. striatiscutum* sp. nov. is possibly similar to Chinese *H. breviatus* Shi, Yang et Chen (Chen and Shi, 2004), but differs in having the vertex entirely and densely striate, the occipital carina more or less unulate dorsally, the basolateral areas of propodeum...
sculptured, the first tergite long, and the mesoscutum mostly and densely striate.

**Heterospilus watanabei** sp. nov.
(Figs 73–82)


**Description.** Female. Body length 2.5 mm; fore wing length 1.8 mm.

Head not depressed, its width 1.4 times median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) almost parallel-sided in anterior half and distinctly roundly narrowed in posterior half. Transverse diameter of eye 1.7 times longer than temple (dorsal view). Ocelli medium size, in triangle with base 1.2 times its sides. POL equal to Od, 0.4 times OOL. Diameter of antennal socket almost equal to distance between sockets, 2.5 times distance between socket and eye. Eye glabrous, with very fine emargination opposite antennal sockets, 1.25 times as high as broad. Malar space height 0.55 times height of eye, 1.1 times basal width of mandible. Face slightly convex, its width 1.2 times height of eye and 1.3 times height of face and clypeus combined. Malar suture absent. Clypeus with distinct and rather narrow lower flange. Hypoclypeal depression medium size and round, its width 0.9 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina complete dorsally, ventrally joined with hypostomal carina above base of mandible. Head below eyes (frontal view) distinctly and almost straight narrowed. Hypostomal flange narrow.

Antenna slender, almost filiform, more than 6-segmented (most part of antenna missing). Scape rather short and thick, 1.45 times longer than its maximum width. First flagellar segment slender, slightly curved, subcylindrical, 5.0 times longer than apical width, as long as second segment.

Mesosoma not depressed, its length about twice height. Pronotum rather short, dorsally slightly convex, with distinct submedial pronotal carina; side of pronotum with rather deep, wide, curved down in posterior half and densely crenulate submedian furrow. Mesoscutum highly and almost perpendicularly elevated above pronotum, maximum width of mesoscutum (dorsal view) 1.1 times its length. Median lobe of mesoscutum slightly protruding forwards, with small and obtuse anterolateral shoulders, anteriorly convex (dorsal view). Notauli entirely wide and more or less deep, sparsely and distinctly crenulate. Prescutellar depression deep, wide, with coarse median and 2 incomplete lateral carinae, smooth, 0.4 times as long as wide, 0.45 times as long as scutellum. Scutellum convex, with distinct lateral carinae, its basal width almost equal to median length. Subalar depression rather deep, more or less wide, coarsely rugose-striate. Sternaulus deep, straight, slightly oblique, distinctly and densely crenulate, running along anterior 0.5 of lower part of mesopleuron. Metanotal tooth short and subpointed. Metapleural lobe rather large, wide, rounded apically. Propodeum (lateral view) regularly roundly slanted from base to apex, without lateral tubercles; propodeal spiracle small.

Wings. Fore wing 3.0 times longer than its maximum width, 0.7 times as long as body. Pterostigma 3.6 times longer than wide. Radial vein arising from middle of pterostigma. Radial cell not shortened. Metacarpus 1.3 times longer than pterostigma. First radial abscessa 0.9 times as long as maximum width of pterostigma. Second radial abscessa 1.7 times longer than first abscessa and forming with it obtuse angle, 0.3 times as long as the straight third abscessa, 0.75 times as long as the trace of first radiomedial vein. Trace of first radiomedial vein almost twice longer than second radiomedial vein, 2.4 times longer than recurrent vein. Recurrent vein postfurcal. First medial abscessa almost straight. Discoidal cell 1.8 times longer than wide. Posterior abscessa of basal vein twice longer than recurrent vein. Distance from nervulus to basal vein about 0.5 times nervulus length; nervulus straight and almost perpendicular. Medio cubital vein slightly S-shaped. Parallel vein slightly curved subbasally. Brachial cell widely open distally. Hind wing 5.3 times longer than wide. First abscessa of costal vein 1.6 times longer than second abscessa; second abscessa strongly sclerotised. Last costal abscessa slightly shorter than first and second abscessae combined. Radial vein very strongly desclerotised. Medial cell narrow, slightly widened in apical half, its length 8.5 times maximum width, about 0.25 times length of wing. First abscessa of mediocubital vein 0.75 times as long as second abscessa. Recurrent vein unsclerotised, almost straight, slightly antefurcal.

Legs. Fore tibia with several slender spines arranged in almost single row. Hind coxa with distinct basoventral tubercle, 1.3 times longer than maximum width. Hind femur wide, with indistinct dorsal protuberance, 3.1 times longer than wide. Hind tarsus 0.85 times as long as hind tibia. Basitarsus slightly thickened, without ventral keel, 0.35 times as long as second-fifth segments combined. Second segment of hind tarsus 0.9 times as long as basitarsus,
Figures 73–82. *Heterospilus watanabei* sp. nov. (73) Head, front view; (74) head, dorsal view; (75) basal segments of antenna; (76) propodeum, dorsal view; (77) metasoma, dorsal view; (78) hind femur; (79) hind tibia; (80) hind wing of male; (81) fore wing of female; (82) hind wing of female.
sparse, rather short and almost erect pale setae. Mesoscutum widely glabrous, with sparse, rather short and almost erect pale setae.
Median length of second tergite 0.9–1.0 times apical width of first tergite, 0.7–0.8 times basal width of second tergite. Combined length of second and third tergites 1.4–1.5 times basal width of second tergite, 0.9–1.1 times their maximum width. Third tergite in subbasal furrow sometimes finely striate at short distance. Body often reddish brown to dark reddish brown, mesosoma laterally widely light reddish brown or yellowish brown. Antenna dark brown or brown, 2–4 basal segments brownish yellow. Pterostigma entirely pale brown. Otherwise similar to female.

**Diagnosis.** This new species is very similar to the trans-Palaearctic *H. ater* Fischer, but differ in having the head less transverse, the hypoclypeal depression small, the occipital carina of female ventrally joined with hypostomal carina, the mesosoma and the first radial abscissa of fore wing long, the first abscissa of mediocubital vein of hind wing short, the second segment of hind leg long, the areola of the propodeum almost connected with the base of propodeum, the ovipositor long, the body mainly light reddish brown, and the mesopleuron in lower half finely rugulose-granulate.

**Etymology.** This species is named in honour Prof. Ch. Watanabe, the well-known Japanese hymenopterist.

**Tribe Eephylini**

*Eephylus (Sactopus) hahajimus* sp. nov.  
(Figs 83–95)


**Description.** Female. Body length 1.1 mm; fore wing length 1.1 mm.

Head width 1.5–1.55 times its median length, 1.2–1.25 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and convex-roundly narrowed. Transverse diameter of eye 1.4–1.5 times length of temple. Ocelli small, in triangle with base 1.0–1.1 times its sides; POL 1.3–1.7 times Od, 0.3–0.4 times OOL. Eye glabrous, 1.1–1.2 times as high as broad. Malar space height 0.6–0.7 times height of eye, 1.1–1.3 times basal width of mandible. Face width 1.2–1.3 times height of eye and 1.3–1.5 times height of face and clypeus combined. Malar suture absent. Hypoclypeal depression round, its width 0.6–0.65 times distance from edge of depression to eye, 0.35 times width of face. Occipital carina joined ventrally with hypostomal carina upper base of mandible. Head below eyes distinctly and roundly narrowed.

Antenna slender basally and slightly thickened apically, 13–14-segmented, 1.1–1.2 times longer than body. Scape 1.15–1.2 times longer than its maximum width, 1.5–1.6 times longer than pedicel. First flagellar segment 4.3–4.7 times longer than its apical width, 0.7–0.75 times as long as second segment. Penultimate segment 4.2–4.7 times longer than wide, 1.0–1.15 times longer than first segment, 0.9–1.0 times as long as apical segment; the latter obtuse apically.

Mesosoma. Length 1.6–1.7 times its height. Pronotum (dorsal view) with anterior margin slightly convex and with rather small antero-lateral shoulders. Pronotal carina rather distinct, distances from carina to both sides of pronotum subequal. Mesoscutum highly and almost perpendicularly elevated above pronotum. Notauli anteriorly rather deep, wide, sparsely crenulate with granulation, dorsally absent in posterior 0.7. Mesoscutum width 1.2–1.3 times median length, rounded anteriorly, with rather distinct pointed antero-lateral shoulders. Prescutellar depression deep and short, with indistinct median carina, coriaceous, 0.2–0.25 times as long as the convex scutellum. Sternal depression shallow, narrow, straight, finely granulate, running along anterior 0.45–0.5 of lower part of mesopleuron. Subalar depression rather deep, wide, finely striate-coriaceous. Metanotum with short, wide and obtuse dorsal tooth. Metapleural lobe short, rather wide, sub-pointed apically.

Wings. Fore wing 3.4–3.8 times longer than its maximum width. Radial cell wide, slightly shortened, 2.8–3.2 times longer than wide. Metacarpus 1.4–1.55 times longer than pterostigma. Pterostigma narrow; radial vein arising from anterior 0.35 of pterostigma, its first abscissa 1.7 times longer than maximum width of pterostigma. Second radial abscissa distinctly curved basally and almost straight in apical 0.6–0.7, 4.7–5.4 times longer than first abscissa, 7.7–8.0 times longer than first radiomedial vein. First radiomedial vein 0.6–0.7 times as long as first radial abscissa, 0.5–0.6 times as long as second medial abscissa, 0.8–0.9 times as long as recurrent vein. First medial abscissa slightly S-shaped or curved. Discoidal cell 1.6–1.8 times longer than wide. Second (posterior) abscissa of basal vein 1.7–2.0 times longer than first (anterior) abscissa. Mediocubital vein rather faintly sclerotised, evenly and distinctly curved. Brachial cell closed distinctly before level of recurrent vein. Hind wing 5.8–6.0 times longer than wide. Second costal abscissa absent.

Legs. Hind femur with very low dorsal protuberance, its length 3.2–3.5 times maximum width. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.7 times combined length of second-fifth segments. Second segment of hind tarsus 0.3–0.35 times as long
Figures 83–95. Ecphylus (Suctopus) hahajimus sp. nov. (83) Head, front view; (84) head, dorsal view; (85) basal and apical segments of antenna; (86) hind femur of female; (87) hind tibia of female; (88) hind femur of male; (89) mesosoma, lateral view; (90) mesonotum; (91) propodeum, dorsal view; (92) metasoma of female, dorsal view; (93) metasoma of male, dorsal view; (94) fore wing; (95) hind wing.
as basitarsus, 0.7–0.8 times as long as fifth segment (without pretarsus).

Metasoma 0.7–0.8 times as long as head and mesosoma combined. First tergite with distinct dorsope and indistinct spiracular tubercles, evenly and linearly widened from base to apex. Maximum width of first tergite 1.8–2.0 times its basal width; its length 0.75–0.8 times apical width, 1.2 times length of propodeum. Second suture fine and straight. Median length of second tergite 0.35–0.4 times its basal width, almost equal to length of third tergite. Combined length of second and third tergites 0.7–0.75 times basal width of second tergite and 0.6–0.7 times their maximum width. Ovipositor sheath 0.85–0.9 times as long as metasoma, 1.2–1.4 times longer than hind tibia, 0.9–1.0 times as long as mesosoma, 0.38–0.45 times as long as fore wing.

Sculpture and pubescence. Vertex and frons rather distinctly reticulate-coriaceous; face finely or very finely coriaceous; temple smooth. Mesoscutum entirely distinctly densely granulate. Scutellum finely or rather distinctly granulate-coriaceous. Mesopleuron entirely and rather finely granulate. Propodeum distinctly and densely granulate almost entirely, with distinctly delineated basolateral areas and narrow areole; with dorsal carina in basal half. Hind coxa and femur finely or very finely coriaceous. First tergite with high, distinctly convergent posteriorly and complete dorsal carinae, rather distinctly striate with reticulate microsculpture or (in paratype) rather finely striate-rugulose, densely rugulose or rugose mediadly or medio-basally. Remaining tergites smooth. Mesoscutum without distinct setae. Hind tibia dorsally with rather short, very sparse, semi-erect setae; length of these setae less than half of maximum width of hind tibia.

Colour. Body brown or almost black, propodeum and metasoma or only second tergite yellowish brown or reddish brown, first tergite darker or paler. Antenna brown or black, 2–3 basal segments brownish yellow, apical segment pale. Palpi yellow. Legs brownish yellow, all coxae and hind tibia infuscate, all tibiae pale basally. Ovipositor sheath brown or black, pale brown or brown basally. Fore wing more or less infuscate. Pterostigma pale brown. Otherwise similar to female.

**Diagnosis.** This new species is similar to East Palaearctic *E. hattori* Kono and Watanabe (Kono and Watanabe 1935), but differs in having the malar space long, the first flagellar segment short, the metacarpus and the first radiomedial vein long, the pterostigma narrow, the ovipositor sheath short, the vertex, frons, mesoscutum, scutellum and propodeum densely granulate, and the mesoscutum without setae. *E. hahajimus* sp. nov. differs from *E. arephini* Belokobylskij described from the south of the Russian Far East (Belokobylskij 1993b) in having the vertex, mesoscutum entirely, mesopleuron and the most part of the propodeum densely and distinctly granulate, the mesosoma short, the second absissa of medial vein and the ovipositor short, and the hind femur thick. New species is also related with Vietnamese *E. brevitergum* Belokobylskij (Belokobylskij 1993a), but differs in having the hypoclypeal depression small, the occipital carina joined ventrally with hypostomal carina, the basal flagellar segments of antenna more thick, the notauli lost at most dorsal part of mesoscutum, the second absissa of medial vein long, the ovipositor long, the head and mesosoma widely granulate, and the body dark.

**Tribe Spathiini**

*Spathius asanderoides* sp. nov.  
(Figs 96–106)

**Type material.** Holotype: female, “Japan: Ogasawara Is., Hahajima I., Sekimon, 21.VII.1998, H. Makihara” (NIAES)

Paratypes: 1 male, “Japan: Ogasawara Is., Hahajima I., Sekimon, 21.VII.1998, H. Makihara” (ZISP);
Figures 96–106. *Spathius asanderoides* sp. nov. (96) Head, front view; (97) head, dorsal view; (98) propodeum, dorsal view; (99) basal and apical segments of antenna; (100) hind tibia; (101) hind coxa; (102) hind femur; (103) petiole, lateral view; (104) metasoma, dorsal view; (105) fore wing; (106) hind wing.

**Description.** Female. Body length 3.3 mm; fore wing length 2.4 mm.

Head width 1.4 times its median length, 1.3 times width of mesoscutum. Head behind eyes (dorsal view) distinctly roundly narrowed. Transverse diameter of eye 1.8 times length of temple. Ocelli medium-sized, in triangle with base 1.2 times its sides; POL 0.8 times OD, 0.35 times OOL. Eye glabrous, 1.25 times as high as broad. Malar space height 0.4 times eye height and 0.85 times basal width of mandible. Face width almost equal to eye height and 1.2 times height of face and clypeus combined. Clypeal suture distinct and complete. Hypoclypeal depression suboval, its width 0.9 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina not joined ventrally with hypostomal carina and obliterated at short distance, complete dorsally. Hypostomal flange distinct and narrow. Vertex more or less convex. Head below eyes distinctly and roundly narrowed.

Antenna rather slender, filiform, 34-segmented, 1.3 times longer than body. scape 1.6 times longer than wide. First flagellar segment 4.2 times longer than its apical width, 1.1 times longer than second segment. Penultimate segment 3.2 times longer than wide, 0.6 times as long as first flagellar segment, almost as long as apical segment; the latter pointed apically and without spine.

Mesosoma. Length of mesosoma twice its height. Pronotal keel distinct, its posterior branch rather widely fused medially with posterior margin of pronotum, its anterior branch rather distinct and situated in anterior 0.4 of pronotum. Pronotum subanteriorly with more or less fine transverse carina. Pronotal lateral depression indistinctly separated by carinae, wide, shallow, sparsely and coarsely crenulate. Mesoscutum rather highly and roundly elevated above pronotum (lateral view), almost as wide as median length (dorsal view). Notauli rather deep anteriorly and shallow posteriorly, more or less wide, but narrow posteriorly, complete, sparsely and coarsely crenulate. Prescutellar depression rather deep, long, with 1 coarse median carina, entirely smooth, 0.5 times as long as scutellum. Scutellum slightly convex, with fine lateral carinae. Metanotum with short, rather thick and subpointed dorsal tooth. Subalar depression shallow, wide, coarsely and sparsely rugose-ribrate. Sternalus rather deep, but shallow in posterior half, narrow, S-shaped, coarsely crenulate, running along entire length of lower part of mesopleuron. Postpectal carina absent. Metapleural flange wide and rather long. Propodeum with short and rather thick pointed lateral tubercles.

Wings. Fore wing 3.8 times longer than its maximum width. Pterostigma 4.6 times longer than maximum width. Radial vein arising behind middle of pterostigma, inner margin of pterostigma between parastigma and radial vein 1.2 times its inner margin between radial vein and metacarpus. Radial cell not shortened, metacarpus 1.25 times longer than pterostigma. Second radial absissa 2.8 times longer than first absissa and forming very obtuse angle with it, 0.6 times as long as the straight third absissa, 1.1 times longer than first radiomedial vein. Second radiomedial cell not narrowed distally, its length 3.7 times maximum width, 1.6 times length of brachial cell. First absissa of medial vein slightly S-shaped. Recurrent vein 4.0 times longer than second absissa of medial vein. Distance between basal vein and nervulus 0.8 times nervulus length. Parallel vein not interstitial, arising from anterior 0.3 of distal vein of brachial cell. Mediocubital vein more or less curved to anal vein in distal half. Hind wing length 5.8 times its maximum width. First costal absissa 0.6 times as long as second absissa. First absissa of mediocubital vein 0.7 times as long as second absissa. Recurrent vein interstitial.

Legs. Fore tibia with distinct slender numerous spines arranged in single line. Hind coxa rather large (its length 1.6 times maximum width), with basoventral tooth. Hind femur elongate-oval, 3.1 times longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus 0.7 times as long as second-fifth segments combined; second segment of hind tarsus 0.5 times as long as basitarsus, 1.25 times longer than fifth segment (without pretarsus).

Metasoma. Petiole (lateral view) slightly curved ventrally, dorsally slightly and more or less regularly curved in basal half and almost straight in apical half, slightly thickened in basal 0.3; distinctly widened in apical 0.2 (dorsal view), with distinct spiracular tubercles in basal 0.3. Length of petiole 2.8 times its apical width, 2.2 times length of propodeum; apical width of petiole 1.6 times its width at level of spiracles. Second tergite without separate laterotergites. Second suture absent. Median length of second and third tergites combined 1.5 times basal width of second tergite, 0.85 times their maximum width. Ovipositor straight. Ovipositor sheath 0.6 times as long as body, 1.15 times longer than metasoma, 1.7 times longer than mesosoma, 0.8 times as long as fore wing.

Sculpture and pubescence. Vertex entirely smooth; frons finely or very finely, densely and interruptedly striate, smooth laterally and medially. Face very finely and interruptedly striate, widely smooth; temple entirely smooth. Mesoscutum densely granulate, with rather long and more or less distinct rugae near notauli and laterally; lateral lobes medially with wide granulate areas. Scutellum mostly smooth, finely striate laterally and finely granulate posteriorly. Mesopleuron mostly smooth. Propodeum finely and rather sparsely rugose-reticulate, basolateral areas densely and finely.
granulate in basal 0.8; areas distinctly delineated by carinae, areola long and narrow, petiolate area long and distinctly separated from areola; basal carina short, 0.4 times as long as anterior fork of areola. Hind coxae dorsally coarsely transversely striate, finely and rather densely and small rugulose-reticulate laterally. Hind femora mostly smooth, dorsally finely striate in posterior half. Petiole coarsely striate, with distinct and dense rugulosity between striae in basal 0.5, apically smooth at short distance. Remaining tergites smooth. Mesoscutum with rather dense, short and semi-erect yellow setae arranged widely along notauli and narrow laterally, median glabrous areas small. Mesopleuron widely glabrous. Setae on dorsal surface of hind tibia semi-erect, rather dense, long, their length 0.8–1.4 times maximum width of tibia.

Colour. Body reddish brown, mesosoma in anterior half light reddish brown, propodeum and petiole dark reddish brown. Antenna brownish yellow, faintly infuscate towards apex. Palpi pale yellow. Legs yellow to brownish yellow, hind coxa in basal 0.5 and hind femur in apical 0.7 reddish brown. Ovipositor sheath light brown in basal 0.7 and dark brown in apical 0.3. Fore wing faintly and almost entirely infuscate, distinctly darker along veins. Pterostigma brownish yellow, hind in basal 0.3.

Male. Body length 2.2–3.0 mm; fore wing length 1.7–2.2 mm. Transverse diameter of eye 1.6–2.0 times length of temple. POL 1.0–1.3 times Od, 0.4–0.5 times OOL. Malar space height 0.25–0.3 times eye height and 0.6 times basal width of mandible. Hypoclypeal depression width equal to distance from edge of depression to eye, 0.45–0.5 times width of face. Antenna 29–36-segmented, 1.5 times longer than body. Scape 1.4–1.5 times longer than wide. First flagellar segment 4.0–4.5 times as long as its apical width. Penultimate segment 3.8–4.5 times longer than wide, 0.9–1.0 times as long as apical segment. Length of mesosoma 2.1 times its height. Scutellum in large specimens finely coriaceous, distinctly striate laterally. Fore wing 3.7–4.1 times longer than wide. Pterostigma 4.2–4.5 times longer than maximum width. Metacarpus 1.35–1.4 times longer than pterostigma. Second radial abscessa 3.4–4.2 times longer than first abscessa, 1.3–1.4 times longer than first radiomedial vein. Length of second radiomedial cell 3.8–4.0 times its maximum width, 1.5–1.7 times length of brachial cell. Recurrent vein 5.0–6.0 times longer than second abscessa of medial vein. Distance between basal vein and nervulus 0.5 times nervulus length. Hind wing length 5.7–6.2 times its maximum width. First costal abscessa 0.5–0.55 times as long as second abscessa. First abscessa of mediocubital vein 0.6–0.65 times as long as second abscessa. Recurrent vein antefurcal. Hind coxa length about twice its maximum width, coarsely and densely rugose-granulate laterally. Hind femur 3.0–3.3 times longer than wide, entirely smooth. Hind basitarsus 0.6 times as long as second-fifth segments combined; second segment of hind tarsus 1.0–1.15 times as long as fifth segment (without pretarsus). Length of petiole 3.3–3.8 times its apical width, 1.9–2.1 times length of propodeum; apical width of petiole 1.3–1.5 times its width at level of spiracles. Median length of second and third tergites combined 1.9–2.2 times basal width of second tergite, almost equal to their maximum width. Body mostly reddish brown, head, petiole and sometimes propodeum more or less infuscate. Antenna brownish yellow in basal 0.3–0.5, infuscate to almost black in apical half. Legs yellowish brown or light brown, trochanters and basal part of tibiae yellow.

Diagnosis. This new species is similar to S. ansandoeroides sp. nov. of S. asander Nixon from Singapore (Nixon 1943), but differs in having the head behind eyes distinctly narrowed, the frons with more or less distinct but fine transverse striation, the mesoscutum narrow setose along notauli, the lateral lobes of mesoscutum with distinct but not long transverse rugae along notauli and laterally, the propodeal tubercles present, the recurrent vein distinctly postfurcal, and the ovipositor short. S. ansandoeroides sp. nov. is also similar to S. asander Nixon from Borneo (Nixon 1943), but differs in having the body pale, the head behind eyes distinctly narrowed, the mesoscutum distinctly rounded above pronotum, the mesoscutal setae dense and widely distributed, the hind femur slender, and the petiole long.

Spathius chichijimus sp. nov.
(Figs 107–117)

Type material. Holotype: female, “Japan: Ogasawara Is., Chichijima I., 22.VII.1908, H. Makihara” (NIAES).

Description. Female. Body length 5.2 mm; fore wing length 3.5 mm.
Head width 1.4 times its median length, 1.4 times width of mesoscutum. Head behind eyes (dorsal view) slightly convex in anterior half and roundly narrowed in posterior half. Transverse diameter of eye 1.6 times length of temple. Ocelli medium-sized, in triangle with base 1.2 times its sides; POL equal to Od, 0.4 times OOL. Eye glabrous, 1.3 times as high as broad. Malar space height 0.4 times eye height and 0.8 times basal width of mandible. Face width equal to eye height and almost equal to height of face and clypeus combined. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 0.9 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina not joined ventrally with hypostomal carina and obliterated at short distance, complete
Figures 107–117. *Spathius chichijimus* sp. nov. (107) Head, front view; (108) head, dorsal view; (109) basal segments of antenna; (110) propodeum, dorsal view; (111) hind coxa; (112) hind femur; (113) hind tibia; (114) petiole, lateral view; (115) metasoma, dorsal view; (116) fore wing; (117) hind wing.

Antenna rather slender, filiform, more than 30-segmented (apical segments missing). Scape 1.5 times longer than wide. First flagellar segment 5.5 times longer than its apical width, 1.1 times longer than second segment. Subapical segments 4.5 times longer than their width.

Mesosoma. Length of mesosoma 2.2 times its height. Pronotal keel distinct, its posterior branch not fused with posterior margin of pronotum, but medially closely situated to it; its anterior branch rather distinct and submedially situated on pronotum. Pronotum sub-anteriorly without transverse carina. Pronotal lateral depression distinctly separated by carinae, wide, rather deep, densely and coarsely crenulate. Mesoscutum highly and roundly elevated above pronotum (lateral view), 0.8 times as wide as median length (dorsal view). Notauli wide, deep anteriorly and shallow posteriorly, complete, more or less densely and coarsely crenulate. Prescutellar depression more or less deep, rather short, with 3 distinct carinae, finely rugulose, 0.35 times as long as scutellum. Scutellum slightly convex, with distinct lateral carinae. Metanotum with short, rather thick and pointed dorsal tooth. Subalar depression shallow, wide, coarsely and sparsely rugose-striate. Sternalus shallow, but medially deep at short part, rather wide, slightly S-shaped, coarsely crenulate, running along entire length of lower part of mesopleuron. Postpectal carina absent. Metapleural flange wide and rather short. Propodeum without lateral tubercles.

Wings. Fore wing about 4.5 times longer than its maximum width. Pterostigma 3.7 times longer than maximum width. Radial vein arising behind middle of pterostigma, inner margin of pterostigma between parastigma and radial vein 1.15 times its inner margin between radial vein and metacarpus. Radial cell not shortened, metacarpus 1.5 times longer than pterostigma. Second radial abscissa 4.2 times longer than first abscissa and forming very obtuse angle with it, 0.7 times as long as the straight third abscissa, 1.3 times longer than first radiomedial vein. Second radiomedial cell not narrowed distally, its length 4.0 times maximum width, 1.4 times length of brachial cell. First abscissa of medial vein S-shaped. Recurrent vein 2.5 times longer than second abscissa of medial vein. Distance between basal vein and nervulus 0.6 times nervulus length. Parallel vein not interstitial, arising from anterior 0.3 of distal vein of brachial cell. Mediocubital vein slightly curved to anal vein in distal half. Hind wing length 6.5 times its maximum width. First costal abscissa 0.6 times as long as second abscissa. First abscissa of mediocubital vein 0.6 times as long as second abscissa. Recurrent vein slightly antefurcal.

Legs. Fore tibia with distinct slender numerous spines arranged in single line. Hind coxa rather large (its length almost twice maximum width), with small basoventral tooth. Hind femur elongate-oval, 3.5 times longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus slightly thickened and with rather distinct ventral keel, 0.7 times as long as second-fifth segments combined; second segment of hind tarsus 0.5 times as long as basitarsus, 1.5 times longer than fifth segment (without pretarsus).

Metasoma. Petiole (lateral view) straight ventrally, slightly curved dorsally in basal 0.3 and almost straight in apical 0.7, slightly thickened in basal 0.3; distinctly widened in apical 0.25 (dorsal view), with very fine spiracular tubercles in basal 0.3. Length of petiole 4.0 times its apical width, 2.5 times length of propodeum; apical width of petiole 1.7 times its width at level of spiracles. Second tergite without separate laterotergites. Second suture absent. Median length of second and third tergites combined twice basal width of second tergite, 1.1 times their maximum width. Ovipositor more or less straight. Ovipositor sheath 0.9 times as long as body, 1.6 times longer than metasoma, 3.0 times longer than mesosoma, 1.4 times longer than fore wing.

Sculpture and pubescence. Vertex and temple entirely smooth; frons finely and very densely transversely striate. Face distinctly and undulately striate, with dense rugulosity between striae, below with small smooth median area. Mesoscutum densely granulate, with rather long and fine rugae near notauli and laterally. Scutellum entirely densely and more or less finely granulate. Mesopleuron mostly smooth, rugulose posteriorly. Propodeum distinctly and rather sparsely rugose-reticulate with granulation, basolateral areas densely granulate and with rugosity in posterior half; areas distinctly delineated by carinae, areola short and rather wide, petiolate area short and distinctly separated from areola; basal carina long, 1.3 times longer than anterior fork of areola. Hind coxae coarsely transversely striate dorsally, but rugose-granulate basally, entirely densely granulate, granulation becoming fine below. Hind femur smooth, densely and finely striate dorsally. Petiole entirely coarsely striate, with distinct and dense rugulosity and partly granulation between striae in basal 0.7. Remaining tergites smooth. Mesoscutum with rather sparse, more or less long, semi-erect or erect pale setae arranged narrow along notauli and in single line laterally, median glabrous areas rather large. Mesopleuron widely glabrous. Setae on dorsal surface of hind tibia almost erect, rather sparse, long, their length 0.8–1.3 times maximum width of tibia.

Colour. Head and mesosoma light reddish brown or reddish brown, head around eyes and mesoscutum brownish yellow. Petiole dark reddish brown, remaining metasoma pale brown to almost yellow. Antenna yellow to brownish yellow, faintly infuscate towards
apex. Palpi pale yellow. Legs yellow to brownish yellow, hind femur in apical 0.7 reddish brown. Ovipositor sheath pale brown, dark brown apically. Fore wing faintly and almost entirely infuscate. Pterostigma brown, yellow in basal 0.3.

Male. Body length 4.4 mm; fore wing length 3.0 mm. Head width 1.3 times width of mesoscutum. Head behind eyes (dorsal view) more or less regularly rounded-narrowed. Malar space height 0.35 times eye height and 0.7 times basal width of mandible. Frons very finely transversely striate. First flagellar segment thick, 4.0 times longer than its apical width. Mesoscutum almost without distinct rugae near notauli. Prescutellar depression with distinct median and very fine lateral carinae, densely rugulose-coriaceous. Basal carina of propodeum 2.8 times longer than anterior fork of areola. Fore wing 3.8 times longer than wide. Pterostigma 3.2 times longer than maximum width. Second radiomedial cell 1.3 times longer than brachial cell. Recurrent vein 3.0 times longer than second ascissa of medial vein. Distance between basal vein and nervulus 0.3 times nervulus length. Hind wing length 5.8 times its maximum width. First costal ascissa 0.5 times as long as second ascissa. Recurrent vein distinctly antefurcal. Fore tibia with spines arranged in narrow stripe. Hind coxa without basoventral tooth. Hind femur 3.2–3.3 times longer than wide. Hind basitarsus 0.8 times as long as second-fifth segments combined; second segment of hind tarsus 1.3 times longer than fifth segment (without pretarsus). Setae of dorsal surface of hind tibia semi-erect, rather dense, their length 0.7–0.9 times maximum width of tibia. Length of petiole 4.4 times its apical width, 2.4 times length of propodeum; apical width of petiole 1.5 times its width at level of spiracles. Petiole entirely with distinct and dense rugulosity between striae. Second tergite with separate laterotergites. Median length of second and third tergites combined 1.3 times their maximum width. Head and mesosoma reddish brown or dark reddish brown, face mesoscutum light reddish brown. Petiole almost black, rest part of metasoma dark reddish brown. Antenna light brown in basal half, distinctly infuscate towards apex. Hind tibia brownish with yellow base; all tarsi brown. Fore wing distinctly infuscate. Pterostigma dark brown, basally yellow at short distance. Otherwise similar to female.

**Diagnosis.** This new species is very similar to Indian *S. daedalus* Nixon (Nixon 1943), but differs in having the propodeum and petiole dark, the mesoscutum pale brown, the frons with distinct and complete striation, the base of ocellar triangle distinctly larger than its sides, the mesoscutum almost perpendicularly elevated above pronotum and with short striation along notauli and laterally, the scutellum densely granulate, the basolateral areas of the propodeum distinctly granulate and with rugosity posteriorly, the sternaulus long and densely crenulate, and the hind coxa of female with small ventral tubercle. *S. chichijimus* sp. nov. is similar to Chinese *S. longus* Chen and Shi (Chen and Shi 2004), but differs in having the temple long, the head behind eyes slightly convex in basal half, the malar space short, the mesosoma long, the third metasomal tergite less wide, the propodeal areola short, and the basal carina of the propodeum long.

*Spathius ogasawarai* sp. nov.

**(Figs 118–128)**


**Description.** Female. Body length 3.5–4.7 mm; fore wing length 2.7–3.4 mm. Head width 1.4–1.5 times its median length, 1.15–1.25 times width of mesoscutum. Head behind eyes (dorsal view) distinctly convex-roundly narrowed. Transverse diameter of eye 1.8–2.0 times length of temple. Ocelli medium-sized, in triangle with base 1.2–1.3 times its sides; POL almost equal to Od, 0.45–0.5 times OOL. Eye granular or sometimes with very short and sparse setae, 1.2–1.3 times as high as broad. Malar space height 0.35–0.4 times eye height and 0.8 times basal width of mandible. Face width 0.9–1.0 times eye height and 1.0–1.2 times height of face and clypeus combined. Clypeal suture distinct and complete. Hypoclypeal depression subround, its width 0.9–1.0 times distance from edge of depression to eye, 0.45–0.5 times width of face. Occipital carina ventrally not joined with hypostomal carina and obliterated at short distance, complete dorsally. Hypostomal flange distinct and narrow. Vertex convex. Head below eyes roundly narrowed.

Antenna rather slender, more or less filiform, 37-segmented, 1.3 times longer than body. Scape 1.5–1.7 times longer than wide. First flagellar segment 4.0–4.5 times as long as its apical width, 1.1–1.2 times longer than second segment. Penultimate segment 3.2 times longer than wide, 0.55 times as long as first flagellar segment, 0.9 times as long as apical segment; the latter pointed apically and without spine.

Mesosoma. Length of mesosoma 2.0–2.1 times its height. Pronotal keel distinct, its posterior branch narrow fused medially with posterior margin of pronotum, anterior branch of keel distinct and situated in anterior 0.3–0.5 of pronotum. Pronotum subanteriorly with more or less distinct transverse carina. Pronotal
Figures 118–128. *Spathius ogasawarai* sp. nov. (118) Head, front view; (119) head, dorsal view; (120) hind coxa; (121) basal segments of antenna; (122) hind femur; (123) hind tibia; (124) propodeum, dorsal view; (125) petiole, lateral view; (126) metasoma, dorsal view; (127) fore wing; (128) hind wing.
lateral depression distinctly separated by carinae, wide, more or less deep, densely or sparsely and coarsely crenulate. Mesoscutum highly and roundly elevated above pronotum (lateral view), almost as wide as median length (dorsal view). Notauli wide, deep anteriorly and shallow posteriorly, complete, more or less densely and coarsely crenulate. Preascutellar depression deep, long, with 3 more or less distinct carinae, rugulose, 0.4–0.45 times as long as scutellum. Scutellum slightly convex, with lateral carinae. Metanotum with distinct, thick and subpointed dorsal tooth. Subalar depression shallow, wide, coarsely and densely rugose-striate. Sternaulus deep in anterior 0.6 and shallow in posterior 0.4, narrow, curved posteriorly, coarsely crenulate, running along entire length of lower part of mesopleuron. Postpectal carina absent. Metapleural flange wide and rather long. Propodeum with more or less distinct pointed lateral tubercles.

Wings. Fore wing 3.8–4.0 times longer than its maximum width. Pterostigma 4.0–4.5 times longer than maximum width. Radial vein arising behind middle of pterostigma, inner margin of pterostigma between parastigma and radial vein 1.1–1.3 times its inner margin between radial vein and metacarpus. Radial cell not shortened, metacarpus 1.2–1.3 times longer than pterostigma. Second radial abscissa 2.5–3.6 times longer than first abscissa and forming obtuse or very obtuse angle with it, 0.55–0.6 times as long as the straight third abscissa, 1.1–1.2 times longer than first radiomedial vein. Second radiomedial cell not narrowed distally, its length 3.5–4.0 times its maximum width, 1.3–1.4 times length of brachial cell. First abscissa of medial vein slightly S-shaped. Recurrent vein 4.5–6.5 times longer than second abscissa of medial vein. Distance between basal vein and nervulus 0.4–0.6 times nervulus length. Parallel vein not interstitial, arising from anterior 0.3–0.4 of distal vein of brachial cell. Mediocubital vein slightly curved to anal vein in distal half. Hind wing length 5.5–5.7 times its maximum width. First costal abscissa 0.5–0.6 times as long as second abscissa. First abscissa of mediocubital vein 0.55–0.65 times as long as second abscissa. Recurrent vein slightly or distinctly antefurcal.

Legs. Fore tibia with distinct, slender and rather numerous spines arranged in more or less wide stripe. Hind coxa rather large (its length 1.5–1.7 times maximum width), with basoventral tooth. Hind femur elongate-oval, 3.3–3.5 times longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus slightly thickened and with narrow ventral keel, 0.7 times as long as second-fifth segments combined; second segment of hind tarsus 0.5 times as long as basitarsus, 1.1–1.3 times longer than fifth segment (without pretarsus).

Metasoma. Petiole (lateral view) slightly curved or almost straight ventrally, more or less distinctly curved dorsally in basal half and almost straight in apical half, more or less distinctly thickened in basal 0.3–0.5; distinctly widened in apical 0.2 (dorsal view), with distinct spiracular tubercles in basal 0.25–0.3. Length of petiole 2.9–3.3 times its apical width, 2.0–2.5 times length of propodeum; apical width of petiole 1.3–1.8 times its width at level of spiracles. Second tergite without separate laterotergites. Second suture absent. Median length of second and third tergites combined 1.5–1.7 times basal width of second tergite, 0.8–1.0 times their maximum width. Ovipositor more or less straight. Ovipositor sheath 0.65–0.7 times as long as body, 1.2–1.4 times longer than metasoma, 1.7–2.0 times longer than mesosoma, 0.8–1.0 times as long as fore wing.

Sculpture and pubescence. Vertex coarsely transversely and densely striate, more or less widely rugose in medio-anterior 0.2–0.3, striae in posterior 0.3 more or less distinctly curved and medially obliquely directed towards middle of occipital carina. Frons coarsely and undulated transversely striate, at least partly with more or less distinct rugose microsculpture. Face coarsely and more or less undulately striate, with dense and fine rugulose microsculpture between striae, with narrow smooth vertical area medially. Temple entirely or mostly smooth, finely and narrow striate along occipital carina. Mesoscutum densely granulate, with long, undulate and coarse rugae prolonged far from notaulli and laterally, median granulate areas on lateral lobes narrow. Seutellum medially widely smooth or very finely coriaceous, with sparse and short rugae laterally, posteriorly often finely and densely granulate with rugulosity. Mesopleuron mostly or rather widely smooth medially, with fine or distinct and more or less curved striae posteriorly and rugosity anteriorly. Propodeum distinctly, rather densely or more or less sparsely and coarsely rugose-rieticulate, with rather fine granulation in medio-anterior 0.2–0.3; areas distinctly delineated by carinae; areola long and narrow or (sometimes) very narrow, petiolar area long and distinctly separated from areola; basal carina short, 0.3–0.5 times as long as anterior fork of areola. Hind coxae coarsely transversely striate in dorsal half, densely rugose-reticulate in ventral half. Hind femur smooth, densely and very finely striate dorsally. Petiole almost entirely coarsely striate, with distinct and dense rugulose microsculpture between striae in basal 0.6–0.7; apically smooth. Remaining tergites smooth. Mesoscutum with more or less sparse (but dense anteriorly), rather long, semi-erect yellow setae rather widely arranged along notaulli and narrow laterally, median lobe entirely setose, median glabrous areas of lateral lobes rather narrow. Mesopleuron widely glabrous. Setae on dorsal surface of hind tibia semi-erect, rather dense, more or less short, their length 0.7–1.2 times maximum width of tibia.
Colour. Body reddish brown, sometimes with pale areas, always petiole and sometimes mesopleuron and propodeum dark reddish brown, head pale below, but dorsally and mesoscutum along notauli yellowish brown. Antenna brownish yellow, faintly infuscate towards apex, dark brown in apical 0.3. Palpi pale yellow. Legs yellow to brownish yellow, hind coxa in basal 0.7–0.8 reddish brown to dark reddish brown, hind femur in apical 0.5–0.7 reddish brown to dark reddish brown or almost black, fore and middle femora usually narrow infuscate medially, all tibiae medially more or less distinctly and widely infuscate, all tarsi light reddish brown. Ovipositor sheath light brown or brown in basal 0.3–0.7 and dark reddish brown to black in apical 0.3–0.7. Fore wing more or less distinctly and almost entirely infuscate, more clearly along veins. Pterostigma brown, yellow in basal 0.3.

Male. Body length 3.3–4.7 mm; fore wing length 2.4–3.3 mm. Head width 1.25–1.3 times width of mesoscutum. Transverse diameter of eye 1.6–2.0 times length of temple. Malar space height 0.3–0.35 times eye height and 0.75–0.8 times basal width of mandible. Vertex rugose in medio-anterior 0.2, usually striate in its posterior 0.2 curved and medially obliquely directed towards middle of occipital carina; sometimes vertex almost smooth posteriorly along carina. Antenna slightly setiform, 39–46-segmented, 1.5–1.6 times longer than body. First flagellar segment 1.2–1.3 times longer than second segment. Penultimate segment 3.4–3.5 times longer than wide. Posterior branch of pronotal carina more or less widely fused medially with posterior margin of pronotum. Prescutellar depression with high median and usually fine or very fine lateral carinae. Mesoscutum with more or less dense setae widely arranged along notauli and laterally, median glabrous areas of its lateral lobes very narrow. Sternaulus sometimes rather finely and sparsely crenulate. Pterostigma 3.5–4.2 times longer than maximum width. Second radial abscissa 3.5–3.8 times longer than first abscissa. Nervulus rarely almost interstitial. Hind wing length 5.7–6.3 times its maximum width. Length of hind coxa 1.7–1.8 times its maximum width. Hind femur 3.2–3.3 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Second segment of hind tarsus 0.45 times as long as basitarsus, almost as long as fifth segment (without pretarsus). Length of petiole 3.4–3.8 times its apical width; apical width 1.3–1.4 times width at level of spiracles. Second and third tergites usually finely longitudinally striate in basal 0.3; its median length combined 2.0–2.4 times basal width of second tergite, 1.0–1.3 times their maximum width. Body dark reddish brown to almost black with reddish spots; head light reddish brown on frons, dorsally, behind eyes and on malar space; mesoscutum along notauli widely yellow or brownish yellow; scutellum reddish brown; metasoma medially widely reddish brown. Hind coxa in basal 0.5–0.7 reddish brown to dark reddish brown, all tarsi reddish brown to dark reddish brown. Pterostigma dark brown, yellow in basal 0.25 and apically. Otherwise similar to female.

Diagnosis. This new species is very similar to S. polydectes Nixon from Philippine (Nixon 1943), but differs in having the body with distinct dark coloration, the all tibiae infuscate medially, the frons entirely coarsely and undulately striate, the propodeum with coarse rugae and with pointed lateral teeth, the basal carina of the propodeum distinct, the hind tibia less stout and not swollen basally, the petiole long, and the ovipositor short. S. ogasawurus sp. nov. is also similar to S. isocrates Nixon from Singapore (Nixon 1943), but distinctly differs in having the head of female mostly dark, the hind coxa mostly strongly infuscate, the frons rather finely and densely striate, the vertex entirely striate, the antennal segments thick, the mesoscutum roundedly and less highly elevated above pronotum, the mesopleuron distinctly and widely curvedly striate, the second medial abscissa short, the second radial abscissa long, the hind tibia distinctly infuscate in apical half and with short setae on its dorsal surface, the petiole long, less curved and less thickened. New species differs from Chinese S. chaoi Shi (S. brunneus Chao) (Chao 1956, Chen and Shi 2004) in having the mesoscutum near notauli and laterally with long and coarse undulate rugae and with more sparse setae arranged not along all mesoscutum, the nervulus distinctly postfurcal, the hind coxa mostly dark, the vertex almost entirely striate, the mesopleuron distinctly and widely curvedly striate, the propodeum distinctly sculptured, and the petiole slightly curved and long.

Spattus sugituarai sp. nov.
(Figs 129–140)


Description. Female. Body length 2.8–3.4 mm; fore wing length 2.0–2.5 mm. Head width 1.4–1.5 times its median length, 1.25–1.3 times width of mesoscutum. Head behind eyes (dorsal view) distinctly roundly narrowed. Transverse diameter of eye 1.7–2.0 times length of temple. Ocelli medium-sized, in triangle with base 1.2–1.3 times its sides; POL 1.0–1.2 times Od, 0.45–0.55 times OOL. Eye glabrous,
Figures 129–140. *Spathius sugurai* sp. nov. (129) Head, front view; (130) head, dorsal view; (131) propodeum, dorsal view; (132) basal and apical segments of antenna; (133) hind tibia; (134) mesosoma, lateral view; (135) hind femur; (136) hind coxa; (137) metasoma, dorsal view; (138) petiole, lateral view; (139) fore wing; (140) hind wing.
1.2–1.25 times as high as broad. Malar space height 0.4–0.5 times eye height and 0.8–1.1 times basal width of mandible. Face width 1.1 times eye height and 1.2 times height of face and clypeus combined. Clypeal suture distinct and complete. Hypoclypeal depression round, its width almost equal to distance from edge of depression to eye, 0.4–0.45 times width of face. Occipital carina usually not joined ventrally with hypostomal carina and obliterated at very short distance or rarely joined with it, complete dorsally. Hypostomal flange distinct and rather narrow. Vertex slightly convex. Head below eyes roundly narrowed.

Antenna rather slender, filiform, 27–29-segmented, 1.3 times longer than body. Scape 1.6–1.8 times longer than wide. First flagellar segment 4.5–5.0 times longer than its apical width, 1.1 times longer than second segment. Penultimate segment 3.0–3.5 times longer than wide, 0.6 times as long as first flagellar segment, 0.9–1.0 times as long as apical segment; the latter pointed apically and without spine.

Mesosoma. Length of mesosoma 1.9–2.0 times its height. Pronotal keel distinct, its posterior branch widely fused medially with posterior margin of pronotum, anterior branch rather distinct and situated in anterior 0.3 of pronotum. Pronotum subanteriorly with rather high transverse carina situated medially very closely to anterior branch of pronotal carina. Pronotal lateral depression more or less distinctly separated by carinae, wide, shallow, densely and coarsely crenulate. Mesoscutum highly and roundly elevated above pronotum, almost as wide as median length. Notauli rather deep anteriorly and shallow posteriorly, more or less wide, complete, rather densely crenulate. Prescutellar depression deep, rather long, with 3–4 coarse carinae, finely rugulose-reticulate between carinae, 0.35–0.4 times as long as scutellum. Scutellum slightly convex, with lateral carinae. Metanotum with distinct, short, thick and pointed dorsal tooth. Subalar depression shallow, wide, coarsely rugose-striate. Sternaulus rather shallow, narrow, S-shaped, coarsely crenulate, running along entire length of lower part of mesopleuron. Postpectal carina absent. Metapleural flange wide and rather short. Propodeum with distinct and thick lateral tubercles.

Wings. Fore wing 3.6–3.8 times longer than its maximum width. Pterostigma 4.0–4.7 times longer than maximum width. Radial vein arising behind middle of pterostigma, inner margin of pterostigma between parastigma and radial vein 1.2–1.4 times its inner margin between radial vein and metacarpus. Radial cell not shortened, metacarpus 1.15–1.3 times longer than pterostigma. Second radial abscissa 3.0–3.7 times longer than first abscissa and forming obtuse angle with it, 0.5–0.6 times as long as the straight third abscissa, 0.85–1.1 times as long as first radiomedial vein. Second radiomedial cell not narrowed distally, its length 3.2–4.0 times maximum width, 1.5–1.7 times length of brachial cell. First abscissa of medial vein slightly S-shaped. Recurrent vein 2.7–3.2 (rarely 2.0) times longer than second abscissa of medial vein. Nervulus not interstitial, distance between basal vein and nervulus 0.2–0.5 times nervulus length. Parallel vein not interstitial, arising from anterior 0.2–0.3 of distal vein of brachial cell. Mediocubital vein slightly curved to anal vein in distal half. Hind wing length 5.4–5.5 times its maximum width. First costal abscissa 0.55–0.65 times as long as second abscissa. First abscissa of medio-cubital vein 0.55–0.7 times as long as second abscissa. Recurrent vein almost interstitial or antefurcal.

Legs. Fore tibia with small, slender and rather numerous spines arranged in single line. Hind coxa more or less large (its length 1.6–1.8 times maximum width), with basoventral tooth. Hind femur elongate-oval, 3.3–3.4 times longer than wide. Hind tibia apically with 2 spines. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.6–0.65 times as long as second-fifth segments combined; second segment of hind tarsus 0.5–0.55 times as long as basitarsus, 1.1–1.2 times longer than fifth segment (without pretarsus).

Metasoma. Petiole (lateral view) almost straight ventrally, distinctly and more or less regularly curved dorsally, thickened in basal 0.3; distinctly widened in apical 0.2 (dorsal view), with small spiracular tubercles in basal 0.3. Length of petiole 2.5–2.7 times its apical width, 1.7–2.0 times length of propodeum; apical width of petiole 1.6–1.8 times its width at level of spiracles. Second tergite without separate laterotergites. Second suture absent. Median length of second and third tergites combined 1.4 times basal width of second tergite, 0.75–0.8 times their maximum width. Ovipositor straight. Ovipositor sheath 0.5–0.55 times as long as body, almost as long as metasoma, 1.4–1.5 times longer than mesosoma, 0.7 times as long as fore wing.

Sculpture and pubescence. Vertex almost entirely densely transversely striate, with fine rugulose microsculpture, with short or very short longitudinal striae along occipital carina. Frons coarsely, densely and curvedly striate, with very fine rugulose microsculpture. Face almost entirely coarsely striate. Temple mostly smooth, with very fine and partly interrupted vertical striae near occipital carina. Mesoscutum densely granulate, with long rugae near notauli and laterally; all its lobes mediately with narrow granulate areas. Scutellum rather densely granulate, almost entirely with fine additional rugosity. Mesopleuron almost entirely curvedly striate with rugosity, sometimes posteriorly with dense granulation and with small smooth submedian area. Propodeum coarsely, densely and almost entirely rugose-reticulate, basally
with dense granulation at short distance; areas more or less distinctly delineated by carinae, areola rather short and narrow, petiolate area long and distinctly separated from areola; basal carina 0.5–1.0 times as long as anterior fork of areola. Hind coxae coarsely transversely striate with granulation, laterally densely granulate-coriaceous. Hind femora dorsally densely and finely striate with granulation, laterally coriaceous to smooth. Petiole coarsely striate, with more or less distinct rugulosity between striae in basal 0.7. Remaining tergites smooth. Mesoscutum with rather sparse, rather long and semi-erect or erect setae arranged more or less widely along notauli and in single line laterally. Mesopleuron widely glabrous. Setae on dorsal surface of hind tibia semi-erect or partly almost erect, rather dense, more or less long, their length 0.5–0.8 times maximum width of tibia.

Colour. Head reddish brown, malar spaces, frons and vertex around eyes yellow or brownish yellow. Metasoma reddish brown, mesoscutum, metanotum and propodeum anteriorly light reddish brown, pronotum medio-dorsally and mesoscutum along notauli yellowish brown or yellow. Metasoma reddish brown, petiole dark. Antenna brownish yellow, faintly darker medially and apically, but sometimes rather distinctly darkened in apical 0.2–0.3. Palpi yellow. Legs yellow, brownish yellow in distal part, hind femur reddish brown or at least darker in distal 0.4, hind tibia paler basally. Ovipositor sheath light brown in basal half and dark reddish brown to black in apical half. Fore wing rather distinctly and almost evenly infuscate. Pterostigma dark brown, yellow in basal 0.25 and apically.

Male unknown.

**Diagnosis.** *Spathius sugiurai* sp. nov. is similar to *S. ares* Nixon from India (Nixon 1943), but differs in having the head dark, the different colour pattern of metasoma, the head behind eyes more or less strongly and regularly narrowed, the ocellar triangle with base distinctly large than its sides, the mesoscutum with less coarse and short rugosity and with wide median granulate areas on lateral lobes, the propodeal tubercles rather distinct, the mesopleuron almost entirely with distinct and curved striae, the recurrent vein of the fore wing distinctly postfurcal, and the petiolo long. New species is also similar to Chinese *S. longduensis* Chen and Shi (Chen and Shi 2004), but differs in having the temple long, the malar space short, the ovipositor sheath not longer than metasoma, the vertex entirely striate, the second radiomedial cell long and narrow, the body size small, and the number of antennal segments reduced.

**Etymology.** This species is named in honour Mr S. Sugiura (Forest and Forestry Product Research Institute, Tsukuba, Japan), the collector of the Hymenoptera insects on Ogasawara Island.

A key to genera and species of the subfamily *Doryctinae* of Ogasawara Islands

1. First metasomal tergite not petiolate, usually more or less short and wide (Figs 9, 19, 29, 39, 49, 56, 69, 77, 92); acrosternite not longer than 0.3 of tergite .................................................. 2

2. First metasomal tergite distinctly petiolate, long and more or less narrow (Figs 104, 115, 126, 137); acrosternite distinctly longer than 0.5 of tergite (Figs 103, 114, 125, 138) ........................................ 14

2. Nervulus and second radiomedial vein of fore wing absent. Parallel vein interstitial (Fig. 94). Nervellus and mediocubital cell of hind wing absent (Fig. 95) .................................................. .......................... *Epythus (Sactopus) hahajimus* sp. nov.

3. Brachial cell distinctly closed postero-distally by brachial vein (Figs 10, 20, 30). Mediocubital cell of hind wing long (Figs 11, 21, 31) .................. 4

3. Brachial cell not closed postero-distally by brachial vein (Figs 10, 20, 30). Mediocubital cell of hind wing short (Figs 42, 51, 61, 72, 82) .................. 7

4. Recurrent vein of fore wing postfurcal. Parallel vein arising from almost middle of distal vein of brachial cell (Fig. 30). Hind coxa without baso-ventral tubercle (Fig. 27). Vertex entirely or mostly densely transversely aciculate (Fig. 23) .......................... *Rhoptrocentrus picicus* Marshall

4. Recurrent vein of fore wing antefurcal. Parallel vein arising usually distinctly behind middle of distal vein of brachial cell (Figs 10, 20, 30). Hind coxa with baso-ventral tubercle (Figs 2, 16). Vertex mostly smooth (Figs 3, 13) .................. 5

5. Mesoscutum highly and almost perpendicularly elevated above pronotum. Pronotum dorsally without convex lobe. Ocellar triangle usually equilateral. – Second tergite with basal semi-circular smooth area .................. *Ontsira palliata* (Cameron)

5. Mesoscutum less highly and gently-roundly elevated above pronotum (Figs 4, 15). Pronotum dorsally with more or less distinct convex lobe (Figs 4, 15). Ocellar triangle usually not equilateral (Figs 3, 13) ... 6

6. First mediocubital abscissa of hind wing not shorter than second abscissa (Fig. 11). Mesoscutum and basal areas of propodeum not granulate. Hind coxa dorsally without tooth (Fig. 2). Areola of propodeum distinctly delineated by carinae (Fig. 6). First metasomal tergite short, its length 1.0–1.15 times apical width (Fig. 9) .................. *Doryctes (Doryctes) bonitus* sp. nov.
7(3). First radiomedial vein distinctly sclerotised. Hind wing of male without stigma-like enlargement .......................... 8
–. First radiomedical vein strongly descлярised or sometimes almost entirely reduced (Figs 41, 50, 60, 71, 81). Hind wing of male usually with stigma-like enlargement (Figs 40, 70, 80) ............. 9
8. Vertex entirely or at least partly densely transversely smoothly aciculate. Head behind eyes (dorsal view) rather strongly narrowed. Radial vein arising almost from the middle of pterostigma ...................... \textit{Parallorhogas bonitus} Belokobylskij and Maeto
–. Vertex entirely smooth. Head behind eyes (dorsal view) roundly narrowed. Radial vein arising from basal 0.3–0.4 of pterostigma ...................... \textit{Parallorhogas pacificus} Belokobylskij and Maeto
9. Second costal abscissa of hind wing of female absent. Head and mesosoma more or less depressed .......................... \textit{Heterospilus rubrocinatus} (Ashmead)
–. Second costal abscissa of hind wing of female distinct (Figs 42, 51, 61, 72, 82). Head and mesosoma not depressed (Figs 38, 55, 66) ............ 10
10. Mesoscutum almost entirely coarsely semi-circularly striate and with fine granulate microsculpture (Fig. 66). Pterostigma mostly dark brown (Fig. 71). Temple very short, transverse diameter of eye 2.7–3.3 times longer than temple (Fig. 64) ................ \textit{Heterospilus striaticutum} sp. nov.
–. Mesoscutum mostly densely granulate or granulate-coriaceous, without wide striation (Figs 38, 55). Pterostigma yellow or pale brown (Figs 41, 50, 60, 81). Temple less short, transverse diameter of eye 1.7–2.3 times longer than temple (Figs 33, 44, 53, 74) .................... 11
11. Ovipositor sheath long, 1.2–1.7 times longer than metasoma, 0.75–1.2 times as long as fore wing. First metasoma tergite 1.15–1.6 times longer than its apical width (Figs 39, 49) ............. 12
–. Ovipositor sheath short, not longer than metasoma, 0.35–0.45 times as long as fore wing. First metasoma tergite 0.9–1.0 times as long as its apical width (Figs 56, 77) ............. 13
12. First abscissa of mediocubital vein of hind wing 0.55–0.65 times as long as second abscissa (Fig. 42). Hind femur slender, 4.0–4.5 times longer than wide (Fig. 35). Tarsal segments of hind leg short. First metasomal tergite 1.4–1.6 times longer than apical width (Fig. 39). Ovipositor sheath 1.0–1.2 times longer than fore wing, 2.3–2.5 times longer than mesosoma. Mesopleuron more or less distinctly sculptured in lower half. Basal segments of antenna, hind coxa, all tibiae and tarsi yellow or brownish yellow ......................... \textit{Heterospilus micronesianus} sp. nov.
–. First abscissa of mediocubital vein of hind wing 0.85–1.0 times as long as second abscissa (Fig. 51). Hind femur thick, 3.5 times longer than wide (Fig. 48). Tarsal segments of hind leg long. First metasomal tergite 1.15–1.3 times longer than apical width (Fig. 49). Ovipositor sheath 0.75–0.85 times as long as fore wing, 1.6–1.8 times longer than mesosoma. Mesopleuron almost smooth in lower half. Basal segments of antenna, hind coxa, all tibiae and tarsi reddish brown or dark reddish brown .... \textit{Heterospilus nishijimus} sp. nov.
13. Sternaulus very finely crenulate-coriaceous or coriaceous (Fig. 55). Second metasomal suture very shallow and twice curved laterally. Third metasomal tergite smooth (Fig. 56). Hind wing of male without stigma-like enlargement (Fig. 62). Malar space of female short, 0.35 times as long as height of eye (Fig. 52). First abscissa of costal vein of hind wing of female 1.15–1.25 times longer than second abscissa. ................ \textit{Heterospilus pacificola} sp. nov.
–. Sternaulus coarsely crenulate. Second metasomal suture deep and almost straight. Third metasomal tergite widely crenulate in subbasal furrow (Fig. 77). Hind wing of male with large stigma-like enlargement (Fig. 80). Malar space of female long, 0.55 times as long as height of eye (Fig. 73). First abscissa of costal vein of hind wing of female 1.6 times longer than second abscissa. ................ \textit{Heterospilus watanahele} sp. nov.
14(1).Vertex smooth (Figs 97, 108) ............. 15
–. Vertex distinctly and almost entirely striate (Figs 119, 130) ..................... 16
15. Petiole short, rather distinctly curved (Figs 103, 104). 2.8 (female) or 3.3–3.8 (male) times longer than apical width, 1.9–2.2 times longer than propodeum. Ovipositor sheath 0.6 times as long as body, 0.8 times as long as fore wing. Median length of second and third tergites of female combined 1.5 times basal width of second tergite (Fig. 104). Posterior branch of pronotal keel widely fused with posterior margin of pronotum. First flagellar segment of female antenna short, 4.2 times longer than apical width (Fig. 99). Mesoscutum not elongate, almost as wide as median length. Propodeum with more or less distinct lateral tubercles. Scutellum smooth or very finely
coriaceous medi ally and striate laterally ........ Spathius asanderoides sp. nov.

- Petiole long, almost straight (Figs 114, 115), 4.0 (female) or 4.4 (male) times longer than apical width, 2.5 times longer than propodeum. Ovipositor sheath 0.9 times as long as body, 1.4 times longer than fore wing. Median length of second and third tegites of female combined twice basal width of second tegrite (Fig. 115). Posterior branch of pronotal keel not fused with posterior margin of pronotum, but medially situated closely to it. First flagellar segment of female antenna long, 5.5 times longer than apical width (Fig. 109). Mesoscutum elongate, 0.8 times as wide as median length. Propodeum without lateral tubercles. Scutellum entirely densely granulate ............... Spathius chichi himus sp. nov.

16. Hind coxa largely basally, yellow apically at short distance. Scutellum medi ally smooth or very faintly coriaceous. Ovipositor longer, its sheath 1.7–2.0 times longer than mesosoma, 0.8–1.0 times as long as fore wing. Basal carina of propodeum usually short (Fig. 124). Mesoscutum with setae widely arranged along notauli. Posterior or branch of pronotal carina narrowly fused medially with posterior margin of pronotum .................. Spathius ogasawar us sp. nov.

- Hind coxa entirely yellow. Scutellum medi ally distinctly and densely granulate. Ovipositor shorter, its sheath 1.4–1.5 times longer than mesosoma, 0.7 times as long as fore wing. Basal carina of propodeum long (Fig. 131). Mesoscutum with setae narrowly arranged along notauli. Posterior branch of pronotal carina widely fused medially with posterior margin of pronotum .................. Spathius sugi urai sp. nov.

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