

REVIEW OF THE GENERA FROM THE SUBFAMILY DORYCTINAE (HYMENOPTERA: BRACONIDAE) NEW FOR JAPAN

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Abstract.— Ten genera of the subfamily Doryctinae are recorded from Japan for the first time: *Caenophanes* Foerster, 1862, *Guaygata* Marsh, 1993, *Leluthia* Cameron, 1887, *Mimipodoryctes* Belokobylskij, 2001, *Neurocrassus* Šnoflak, 1945, *Parallorhogas* Marsh, 1993, *Platyspathius* Viereck, 1911, *Polystenus* Foerster, 1862, *Rhacontsira* Belokobylskij, 1998, and *Spathiomorpha* Tobias, 1976. Twenty five new species and one new subspecies are described from the Japanese islands: *Caenophanes confusus* sp. nov., *C. infuscatus* sp. nov., *C. kyushuensis* sp. nov., *C. pumilio* sp. nov., *C. rasilis* sp. nov., *C. yakuensis* sp. nov., *Guaygata mayaensis* sp. nov., *Leluthia (Leluthia) honshuensis* sp. nov., *L. (L.) nagoyae* sp. nov., *L. (Euhecabolodes) postfurcalis* sp. nov., *Mimipodoryctes rokkoensis* sp. nov., *Neurocrassus hinoematus* sp. nov., *N. hypodoryctoides* sp. nov., *N. ibarakius* sp. nov., *N. miyanourus* sp. nov., *N. sanaageensis* sp. nov., *Parallorhogas ambiguus* sp. nov., *P. boninus* sp. nov., *P. icarus* sp. nov., *P. maeseensis* sp. nov., *P. pacificus* sp. nov., *P. pacificus micronesianus* subsp. nov., *Rhacontsira insulicola* sp. nov., *R. toyota* sp. nov., *R. yamagishii* sp. nov., *Spathiomorpha japonica* sp. nov. Six species are recorded for the first time for Japan: *Guaygata mariae* (Belokobylskij, 1993), *Neurocrassus rarus* (Belokobylskij, 1982), *N. tentorialis* Belokobylskij, 1993, *Platyspathius ornatulus* (Enderlein, 1912), *Polystenus rugosus* Foerster, 1862, *Rhacontsira heterospiloides* (Belokobylskij, 1988). Two new synonyms are suggested: *Rhyssalus rubriceps* Cameron, 1909 = *Mimipodoryctes robustus* Belokobylskij, 2001 (**syn. nov.**); *Spathiohormius ornatulus* Enderlein, 1912 = *Spathius dinoderi* Gahan, 1925 (**syn. nov.**). The following new combinations are given: *Guaygata mariae* (Belokobylskij, 1993), **comb. nov.**, *Polystenus remus* (Nixon, 1943), **comb. nov.**, *Spathiostenus tenuis* (Nixon, 1943), **comb. nov.** Lectotypes of *Spathiohormius ornatulus* Enderlein and *Rhyssalus rubriceps* Cameron are designated for stability of nomenclature. Keys to species of the genera *Caenophanes* Foerster, *Guaygata* Marsh, *Leluthia* Cameron, *Mimipodoryctes* Belokobylskij, *Neurocrassus* Šnoflak, *Parallorhogas* Marsh, *Rhacontsira* Belokobylskij, and *Spathiomorpha* Tobias are provided.



Key words.— Hymenoptera, Braconidae, Doryctinae, new taxa, new records, new synonyms, keys, Japan.

INTRODUCTION

The braconid wasps of the subfamily Doryctinae represent a diversified and worldwide distributed group mainly comprises idiobiont parasitoids of xylophagous and bark-boring coleopteran larvae. This subfamily contains more than 170 genera worldwide mostly of them being described from tropical and subtropical regions (Shenefelt and Marsh 1976, Marsh 1993, 2002, Belokobylskij *et al.* 2004). Despite the current available information, our knowledge about the diversity and distribution of this speciose group of parasitoids are still far from complete. Recent intensive fieldwork carried out in different countries (Madagascar, Indonesia, Japan) has revealed that our first impression about the possible diversity of these parasitoids in the world's biota was considerably underestimated.

The Japanese archipelago is a chain of more than 3900 islands distributed along the eastern coast of Asia, with four main islands: Hokkaido, Honshu, Shikoku and Kyushu. Most of the territory belongs to the Palaearctic region, which is divided in the Eurosiberian (Hokkaido) and Palaearctic (Honshu, Shikoku, Kyushu and their neighbouring islands) subregions. The most southern islands, Ryukyu and Ogasawara (Bonin), are true oceanic islands, with a marked predominance of the floristic and faunistic elements of the Oriental Region. The climate of Japan is basically mid-latitude oceanic type with small annual variation of temperature. Such high annual temperatures specially in winter time, mainly connected with the influence of the warm Kuroshio straits, are very important for the distribution of braconids on the North of the Japanese islands. The warm temperature allows the overwintering of many thermophilous organisms in the conditions of Hokkaido and the north of Honshu.

The doryctine fauna of Japan has not been adequately studied with only 28 species from 9 genera recorded during the 20th century (Kono and Watanabe 1935, Watanabe 1937, 1948, 1951a, 1951b, 1952, 1954, 1961, Belokobylskij 1998b). New information about parasitoids of Japan have been published in the 21st century, with descriptions of three genera new for science and several new species (Belokobylskij 2001, Belokobylskij and Konishi 2001, Belokobylskij and Chen 2004a, 2004b, Belokobylskij *et al.* 2005).

In this paper, ten doryctine genera are recorded from Japan for the first time: *Caenophanes* Foerster, 1862, *Guaygata* Marsh, 1993, *Leluthia* Cameron, 1887, *Mimipodoryctes* Belokobylskij, 2001, *Neurocrassus* Šnoflak, 1945, *Parallorhogas* Marsh, 1993, *Platyspathius* Viereck, 1911, *Polystenus* Foerster, 1862, *Rhacontsira* Belokobylskij, 1998, and *Spathiomorpha* Tobias, 1976. Most of these genera include

previously undescribed species, adding up to a total of 25 species and one subspecies new for science, and 6 species firstly recorded for the Japanese fauna.

The terms of wing venation are used as defined by Belokobylskij and Tobias (1998). The following abbreviations are used:

- POL – postocellar line;
- OOL – ocular-ocellar line;
- Od – maximum diameter of lateral ocellus;
- EIHU – Laboratory of Systematic Entomology, Faculty of Agriculture, Hokkaido University (Sapporo, Japan);
- KBUJ – Laboratory of Insects Science, Faculty of Agriculture, Kobe University (Kobe, Japan);
- MIZW – Museum and Institute of Zoology (Warsaw, Poland);
- MUNJ – Laboratory of Entomology, Faculty of Agriculture, Meijo University (Nagoya, Japan);
- NIAES – National Institute of Agro-Environmental Sciences (Tsukuba, Japan);
- NSMT – National Science Museum (Natural History) (Tokyo, Japan);
- USNM – United States National Museum (Washington, USA);
- ZISP – Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia).

SYSTEMATIC PART

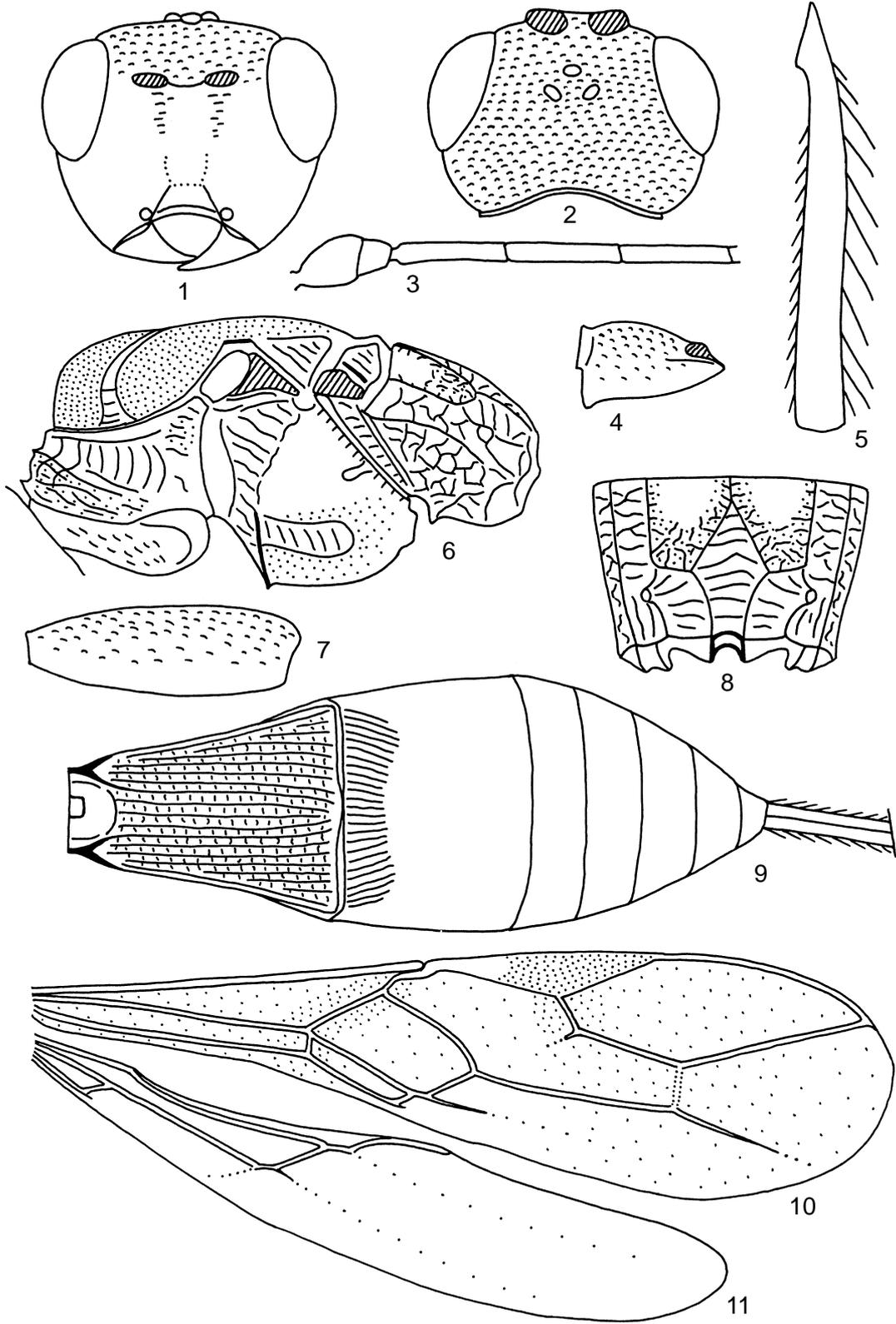
Caenophanes Foerster, 1862

This is small genus that has been recorded in the Palaearctic [European *C. incompletes* (Ratzeburg, 1844)], Oriental (Vietnamese *C. luculentus* Belokobylskij, 1993) and Australasian [*C. asion* (Nixon, 1943) and *C. nukunu* (Marsh and Austin, 1994)] Regions (Belokobylskij 1993a, Belokobylskij *et al.* 2004). Six new species of this genus are described below from southern Japan (Kyushu and Ryukyu Islands). These represent the first records of *Caenophanes* for the East Palaearctic as well as for Japan.

Caenophanes confusus sp. nov. (Figs 1–11)

Type material. Holotype: female, Japan, "Aira-gawa, Iriomote-jima Is., Okinawa Pref., 27–29.VI.1993, K. Konishi" (NIAES).

Paratypes. 1 female, "Japan: Ryukyus, Iriomote Is., Mt. Sonai, 16–18. X. 1999, S. Belokobylskij" (ZISP); 2 males, "Japan: Ryukyus, Ishigaki Is., Mt. Omotodake, 19–21.X.1999, S. Belokobylskij" (NIAES, ZISP); 1 male, "Japan: Ryukyus, Iriomote Is., Aira-gawa,



Figures 1–11. *Caenophanes confusus* sp. nov. (1) Head, front view; (2) head, dorsal view; (3) five basal segments of antenna; (4) hind coxa; (5) hind tibia; (6) mesosoma, lateral view; (7) hind femur; (8) propodeum, dorsal view; (9) metasoma, dorsal view; (10) fore wing; (11) hind wing.

16–18.X.1999, S. Belokobylskij” (ZISP); 1 male, “Japan: Ryukyus Is., Ishigaki I., Mt. Omoto-dake, 19–21.X.1999, YPT, K. Konishi & S. Belokobylskij” (NIAES).

Description. Female. Body length 1.6–1.9 mm; fore wing length 1.6–1.8 mm.

Head width 1.6 times its median length, 1.2–1.3 times width of mesoscutum. Head behind eyes (dorsal view) uniformly and roundly narrowed. Transverse diameter of eye 1.55–1.75 times longer than temple. Ocelli small, arranged in triangle with base 1.1–1.2 times its sides. POL 1.0–1.5 times Od, 0.3–0.5 times OOL. Eye glabrous, 1.1–1.15 times as high as broad. Malar space height 0.6 times eye height, almost equal to basal width of mandible. Face width 1.1–1.2 times eye height and 1.1 times height of face and clypeus combined. Clypeus with distinct and narrow lower flange. Clypeal suture shallow and distinct laterally, almost absent above. Hypoclypeal depression small and round, its width 0.65–0.7 times the distance from edge of depression to eye, 0.4 times width of face. Head distinctly and weakly-roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow.

Antennae slender, filiform, more than 14-segmented (apical segments missing). Scape 1.6 times longer than wide. First flagellar segment 5.8–6.0 times longer than its apical width, 0.9 times as long as second segment. Subapical segments 4.0–4.5 times longer than their width.

Mesosoma. Length about twice its height. Neck of prothorax rather short, with distinct pronotal keel submedially. Mesoscutum highly and roundly elevated above pronotum, its length 0.85–0.9 times maximum width. Notauli deep anteriorly and shallow posteriorly, complete, crenulate. Prescutellar depression rather deep, finely rugulose, with three carinae, 0.4 times as long as scutellum. Subalar depression rather shallow and rugose-striate. Sternauli deep, short, crenulate with fine granulation, running along anterior half of lower part of mesopleuron. Metanotal tooth very short and weakly pointed. Metapleural flange narrow and almost pointed apically. Propodeum with small lateral tubercles.

Wings. Length of fore wing 3.3–3.5 times its width. Radial cell weakly shortened. Metacarpus almost as long as pterostigma. Radial vein arising behind middle of pterostigma (from its apical 0.4–0.45). Second radial abscissa 3.0–3.3 times longer than first abscissa, 0.5–0.55 times as long as the almost straight third abscissa. First radiomedial vein absent, but its short or very short abscissa present anteriorly, trace of this vein 1.1–1.2 times longer than second radial abscissa. Second radiomedial cell 3.0–3.4 times longer than wide, 1.7–2.1 times longer than brachial cell. First medial abscissa distinctly convex. Nervulus interstitial or very

weakly postfurcal. Brachial cell not narrowed apically, closed shortly before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein shortly present. Hind wing 5.5–6.0 times longer than maximum width. First abscissa of costal vein about half as long as second abscissa. First abscissa of mediocubital vein 0.5–0.55 times as long as second abscissa. Recurrent vein weakly curved, distinctly antefurcal, unsclerotised.

Legs. Hind coxa with distinct basoventral tubercle. Hind femur about 3.0 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus thickened, 0.6 times as long as 2nd–5th segments combined. Second tarsal segment 0.55–0.6 times as long as basitarsus, 1.25–1.3 times longer than fifth segment (without pretarsus).

Metasoma 0.9 times as long as mesosoma and head combined. First metasomal tergite rather long, distinctly widened apically, with small spiracular protuberances in basal 0.3. Length of first tergite 1.2 times its apical width; apical width 2.2–2.5 times its minimum width. Second suture indistinct. Length of second and third tergites combined almost equal to basal width of second tergite, 0.85–1.0 times their maximum width. Ovipositor sheath equal to or 1.2 times longer than metasoma, 1.3–1.4 times longer than mesosoma, 0.6 times as long as fore wing.

Sculpture and pubescence. Vertex and frons distinctly and densely granulate; face almost entirely and temple entirely smooth. Mesoscutum and scutellum coarsely and densely granulate. Mesopleuron finely granulate around sternauli and posteriorly, smooth or sometimes additionally very finely coriaceous at rather large median area. Propodeum with areas distinctly delineated by carinae; basolateral areas large, punctulate-reticulate but almost smooth mediobasally; areola long, pentagonal, 1.8–2.0 times longer than wide, rugose-striate; distal 0.4 of propodeum rugose; basal carina short, 0.2–0.3 times as long as anterior fork of areola. Hind coxa densely striate-granulate in dorsal half, almost smooth in ventral half. Hind femur densely granulate-coriaceous dorsally, coriaceous laterally, almost smooth ventrally. First metasomal tergite distinctly and densely striate, with fine ground reticulation between striae, with rather fine and weakly convergent dorsal carinae. Second tergite densely and distinctly striate basally. Remainder tergites smooth. Vertex with rather dense long semi-erect setae in posterior half and laterally, glabrous in medioanterior half. Mesoscutum entirely with dense short semi-erect setae. Hind tibia dorsally with long, sparse and semi-erect setae, their length 1.2–1.4 times maximum width of tibia.

Colour. Body light reddish brown, head brownish yellow, mesopleuron partly and metasoma behind first tergite reddish brown or dark reddish brown.

Antennae dark reddish brown or black, 2–3 basal segments brownish yellow or light brown. Palpi pale yellow. Legs yellow. Ovipositor sheath brown or dark brown in basal half and black in apical half. Fore wings rather faintly infuscate, with two large dark spots around basal vein and second radiomedial cell. Pterostigma brown, yellow in basal quarter.

Male. Body length 1.4–1.7 mm; fore wing length 1.3–1.5 mm. Transverse diameter of eye 1.3–1.5 times length of temple. Malar space height 0.6–0.7 times eye height. Antennae 16–17-segmented, 1.2–1.3 times longer than body. Penultimate segment 4.0–4.3 times as long as wide, 0.7 times as long as first flagellar segment, as long as apical segment; the latter pointed apically. Propodeal areas indistinctly delineated; basal carina of propodeum long, about as long as or longer than anterior fork of areola. Hind femur 3.4–3.5 times longer than wide. Length of first tergite 1.3–1.4 times its apical width. Length of second and third tergites combined 0.85 times basal width of second tergite, 0.7 times their maximum width. Vertex finely granulate-coriaceous, sometimes frons almost smooth. Head yellow, mesosoma darker, metasoma paler in posterior half. Otherwise similar to female.

Diagnosis. The new species is similar to the Vietnamese *C. luculentus* Belokobylskij (Belokobylskij 1993a), but differs from the latter by having the ovipositor as long as metasoma and distinctly longer than mesosoma, the metacarpus as long as pterostigma, the radial vein arising distinctly behind middle of pterostigma, the hind femur wide, the basal carina of propodeum short, and the first metasomal tergite light reddish brown.

Distribution. Japan (Ryukyu Is.).

Caenophanes infuscatus sp. nov.

(Figs 12–20)

Type material. Holotype: female, “Japan: Ryukyus, Ishigaki Is., Mt. Maese-dake, 19–21.X.1999, S. Belokobylskij” (ZISP).

Paratypes. 1 male, “Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 19–21.X.1999, S. Belokobylskij” (NIAES); 1 male, “Japan: Ryukyus, Iriomote Is., Mt. Sonai, 16–18.X.1999, S. Belokobylskij” (ZISP).

Description. Female. Body length 1.5 mm; fore wing length 1.6 mm.

Head width 1.5 times its median length, 1.3 times width of mesoscutum. Head behind eyes (dorsal view) uniformly and roundly narrowed. Transverse diameter of eye 1.8 times longer than temple. Ocelli small, arranged in triangle with base 1.2 times its sides. POL almost equal to Od, 0.3 times OOL. Eye glabrous, 1.1 times as high as broad. Malar space height 0.6 times eye height, almost equal to basal width of mandible.

Face width 1.1 times eye height and equal to height of face and clypeus combined. Clypeus with distinct and narrow lower flange. Clypeal suture shallow and complete. Hypoclypeal depression small and round, its width 0.8 times the distance from edge of depression to eye, about half width of face. Head distinctly and roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange very narrow.

Antennae slender, filiform, more than 13-segmented (apical segments missing). Scape 1.8 times longer than wide. First flagellar segment 5.5 times longer than its apical width, as long as second segment. Subapical segments 4.3 times longer than their width.

Mesosoma. Length about twice its height. Neck of prothorax rather short, with distinct pronotal keel submedially. Mesoscutum highly and roundly elevated above pronotum, its length 0.9 times maximum width. Notauli deep, complete, coarsely crenulate with granulation. Prescutellar depression rather deep, rugulose, with distinct median carina, 0.4 times as long as scutellum. Subalar depression rather deep and striate with fine granulation. Sternauli rather deep, wide, coarsely crenulate with fine granulation, running along anterior half of lower part of mesopleuron. Metanotal tooth indistinct. Metapleural flange rather narrow and pointed apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.3 times its width. Radial cell not shortened. Metacarpus almost as long as pterostigma. Radial vein arising distinctly behind middle of pterostigma (from apical 0.4). Second radial abscissa 3.6 times longer than first abscissa, almost half as long as the straight third abscissa. First radiomedial vein absent, at most present only short basal abscissa, trace of this vein almost equal to second radial abscissa. Second radiomedial cell about 3.0 times longer than wide, 1.9 times longer than brachial cell. First medial abscissa weakly convex. Nervulus interstitial. Brachial cell not narrowed apically, closed before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein shortly present. Hind wing 5.5 times longer than maximum width. First abscissa of costal vein half as long as second abscissa. First abscissa of mediocubital vein 0.55 times as long as second abscissa. Recurrent vein curved, distinctly antefurcal, unsclerotised.

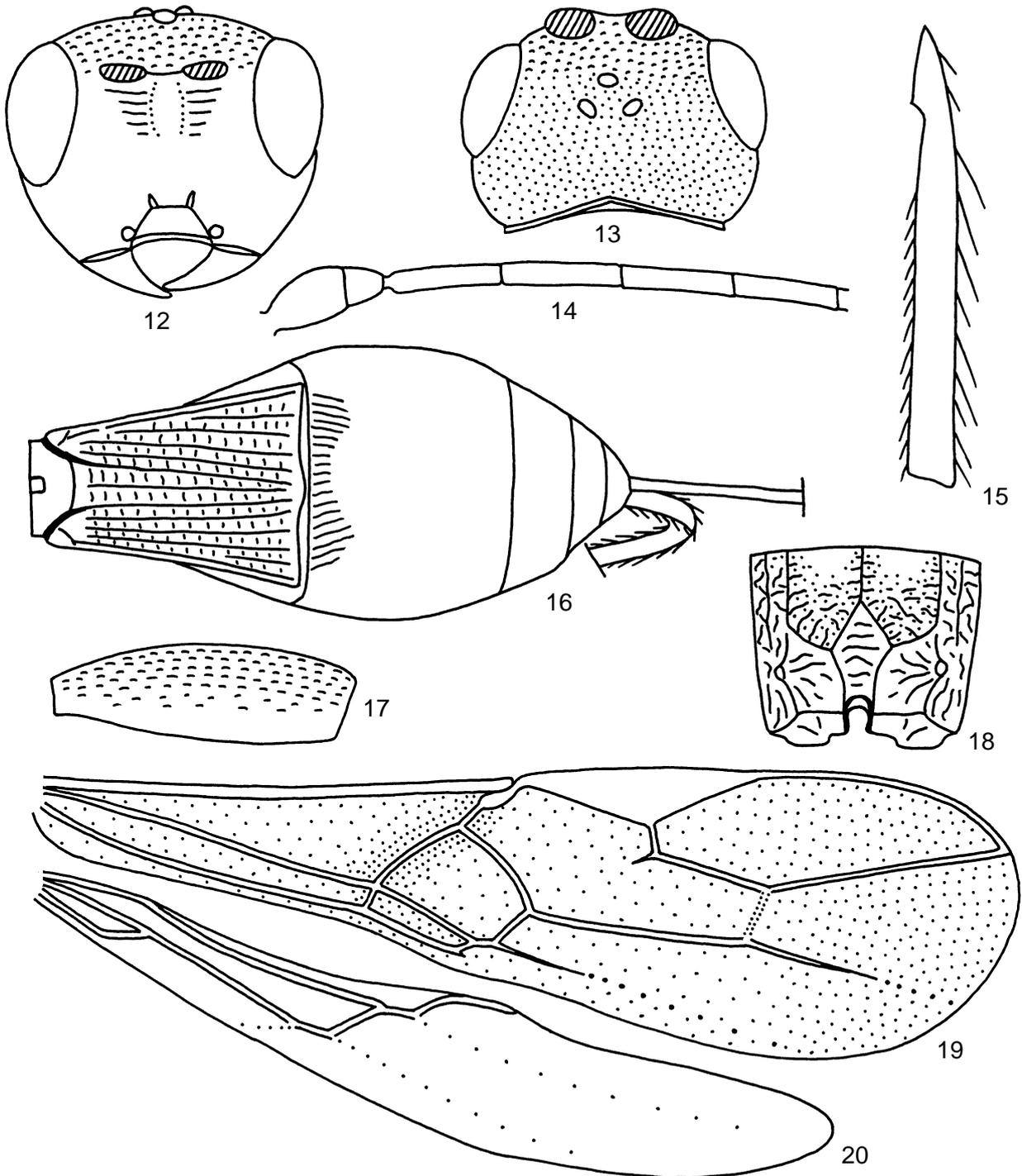
Legs. Hind coxa with distinct basoventral tubercle. Hind femur 3.0 times longer than wide. Hind tarsus almost as long as hind tibia. Hind basitarsus thickened, 0.5 times as long as 2nd–5th segments combined. Second tarsal segment 0.6 times as long as basitarsus, 1.3 times longer than fifth segment (without pretarsus).

Metasoma 0.8 times as long as mesosoma and head combined. First metasomal tergite rather long,

distinctly widened apically, with rather distinct spiracular protuberances in basal 0.3. Length of first tergite 1.3 times its apical width; apical width 2.4 times its minimum width. Second suture absent. Length of second and third tergites combined 0.75 times basal width of second tergite, 0.7 times maximum width of tergites.

Ovipositor sheath 1.4 times longer than metasoma, 1.5 times longer than mesosoma, 0.6 times as long as fore wing.

Sculpture and pubescence. Vertex rather distinctly and densely granulate, frons finely or very finely and rather densely granulate. Face mostly smooth, rather



Figures 12–20. *Caenophanes infuscatus* sp. nov. (12) Head, front view; (13) head, dorsal view; (14) six basal segments of antenna; (15) hind tibia; (16) metasoma, dorsal view; (17) hind femur; (18) propodeum, dorsal view; (19) fore wing; (20) hind wing.

finely rugulose-punctulate submedially in upper half. Temple smooth. Mesoscutum densely and distinctly granulate with rugulosity partly; scutellum distinctly and densely granulate. Mesopleuron smooth medially, rather distinctly granulate in posterior 0.25. Propodeum with areas distinctly delineated by carinae; basolateral areas mostly coarsely rugose, finely granulate to smooth basally; areola present, but not distinctly delineated, pentagonal, rather coarsely rugose; distal half of propodeum coarsely and rather sparse rugose; basal carina as long as anterior fork of areola. Hind coxa rugose-striate with granulation in dorsal half, almost smooth in ventral half. Hind femur finely reticulate-coriaceous, very finely sculptured in ventral half. First metasomal tergite densely striate with ground reticulation between striae, densely rugulose in narrow mediobasal 0.7. Second tergite finely striate basally. Remainder tergites smooth. Vertex with very sparse long semi-erect setae in posterior half, glabrous in anterior half. Mesoscutum entirely with dense short semi-erect setae. Hind tibia dorsally with rather short, rather sparse and semi-erect setae, its length 0.9–1.1 times maximum width of tibia.

Colour. Head dorsally dark reddish brown, face reddish brown, parts around eyes and antennal sockets, malar space, lower part of temple and clypeus brownish yellow. Mesosoma black with several small reddish spots. Metasoma dark reddish brown anteriorly, reddish brown narrowly medially and apically, almost black in posterior 0.4. Antennae dark reddish brown to black, two basal segments brownish yellow. Palpi yellow. Legs yellow. Ovipositor sheath black. Fore wings faintly infusate, intensively infusate around basal vein, brachial cell and distal 0.3. Pterostigma almost entirely pale yellow.

Male. Body length 1.5 mm; fore wing length 1.3–1.4 mm. Width of hypoclypeal depression 0.6–0.7 times the distance from edge of depression to eye, 0.4 times width of face. Antennae 16-segmented, 1.1 times longer than body. First flagellar segment of antenna 5.5–5.8 times longer than its apical width. Penultimate segment about 4.0 times longer than wide, 0.7 times as long as first segment. Radial vein arising behind (from apical 0.45) or almost from middle of pterostigma. Second radial abscissa 0.45–0.5 times as long as the weakly curved third abscissa. First radiomedial vein without basal abscissa, trace of this vein 1.1–1.2 times longer than second radial abscissa. Nervulus postfurcal, distance from basal vein to nervulus 0.5–1.0 times nervulus length. Brachial cell closed sometimes distinctly before recurrent vein. Hind femur 3.3–3.6 times longer than wide. Length of first metasomal tergite 1.4 times its apical width. Length of second and third tergites combined 1.4–1.5 times basal width of second tergite. Vertex laterally very finely granulate, sometimes medially with very fine striation; frons almost smooth or

very finely granulate. Basal carina of propodeum 1.5–1.7 times longer than anterior fork of areola. Head light reddish brown or yellowish brown, dorsally dark reddish brown. Propleuron dark reddish brown; propodeum and metapleuron reddish brown or light reddish brown. Metasoma reddish brown anteriorly, sometimes narrowly yellowish brown medially, dark reddish brown in posterior 0.4. Pterostigma pale yellow in basal half, faintly infusate in apical half. Otherwise similar to female.

Diagnosis. The new species is closely similar to *C. luculentus* Belokobylskij and *C. confusus* sp. nov., but differs from them by having the first flagellar segment long, the pterostigma almost entirely yellow, the mesosoma black or sometimes dark reddish brown, and the setae on dorsal surface of hind tibia short.

Distribution. Japan (Ryukyu Is.).

Caenophanes kyushuensis sp. nov.

(Figs 21–29)

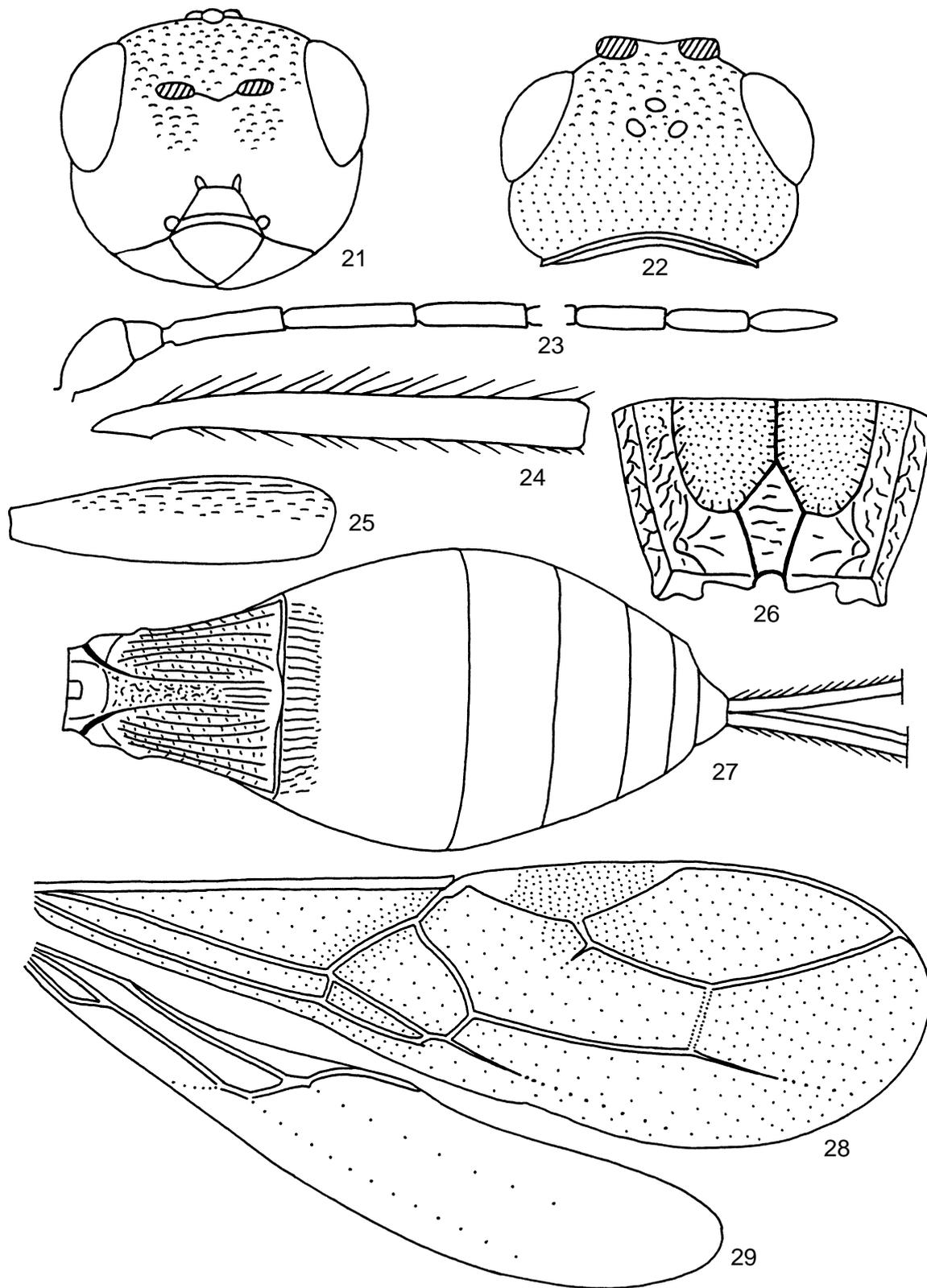
Type material. Holotype: female, Japan, “Takakumayama, Kyushu, 29.V.1965, H. Takada” (EIHU).

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

Head width 1.6 times its median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) uniformly and roundly narrowed. Transverse diameter of eye 1.4 times longer than temple. Ocelli small, arranged in triangle with base 1.2 times its sides. POL almost equal to Od, 0.4 times OOL. Eye glabrous, 1.1 times as high as broad. Malar space height 0.7 times eye height, 1.1 times basal width of mandible. Face width 1.4 times eye height and 1.4 times height of face and clypeus combined. Clypeus with distinct and narrow lower flange. Clypeal suture shallow and complete. Hypoclypeal depression rather small and round, its width 0.9 times the distance from edge of depression to eye, half width of face. Head distinctly and roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow.

Antennae slender, filiform, 18-segmented, 1.3 times longer than body. Scape 1.6 times longer than wide. First flagellar segment 5.0 times longer than its apical width, 0.85 times as long as second segment. Penultimate segment 4.0 times longer than wide, 0.8 times as long as first segment, almost as long as apical segment; the latter obtuse apically.

Mesosoma. Length 1.8 times its height. Neck of prothorax short, with distinct pronotal keel situated before its middle. Mesoscutum rather highly and roundly elevated above pronotum, its length 0.9 times maximum width. Notauli complete, deep, but shallow in



Figures 21–29. *Caenophanes kyushuensis* sp. nov. (21) Head, front view; (22) head, dorsal view; (23) basal and apical segments of antenna; (24) hind tibia; (25) hind femur; (26) propodeum, dorsal view; (27) metasoma, dorsal view; (28) fore wing; (29) hind wing.

posterior 0.3, crenulate. Prescutellar depression rather deep, rugulose, with distinct median and two fine lateral carinae, 0.35 times as long as scutellum. Subalar depression rather deep and rugulose-striate. Sternauli deep, straight, crenulate, running along anterior 0.6 of lower part of mesopleuron. Metanotal tooth absent. Metapleural flange narrow and pointed apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.0 times its width. Radial cell weakly shortened. Metacarpus almost as long as pterostigma. Radial vein arising weakly behind middle of pterostigma (from apical 0.45). Second radial abscissa 4.5 times longer than first abscissa, 0.6 times as long as the weakly curved third abscissa. First radiomedial vein mostly absent, only with short basal abscissa, trace of this vein almost equal to second radial abscissa. Second radiomedial cell 2.6 times longer than wide, 2.2 times longer than brachial cell. First medial abscissa distinctly convex. Distance from nervulus to basal vein 0.3 times nervulus length. Brachial cell narrowed apically, closed before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein shortly present. Hind wing 5.1 times longer than maximum width. First abscissa of costal vein 0.6 times as long as second abscissa. First abscissa of mediocubital vein 0.55 times as long as second abscissa. Recurrent vein weakly curved, distinctly antifurcal, unsclerotised.

Legs. Hind coxa with distinct basoventral tubercle. Hind femur 3.6 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus thickened, 0.6 times as long as 2nd–5th segments combined. Second tarsal segment half as long as basitarsus, 1.3 times longer than fifth segment (without pretarsus).

Metasoma 0.9 times as long as mesosoma and head combined. First metasomal tergite short and distinctly widened apically, with small spiracular protuberances in basal 0.3. Length of first tergite almost equal to its apical width; apical width about twice its minimum width. Second suture absent. Length of second and third tergites combined almost equal to basal width of second tergite, 0.85 times their maximum width. Ovipositor sheath 0.8 times as long as metasoma, 1.1 times longer than mesosoma, 0.45 times as long as fore wing.

Sculpture and pubescence. Vertex and frons densely and finely granulate-coriaceous; face almost smooth, superior region finely sculptured; temple smooth. Mesoscutum and scutellum densely granulate, mesoscutum rugulose in small medioposterior area. Mesopleuron smooth in large median area. Propodeum with areas distinctly delineated by carinae; basolateral areas large, finely granulate-coriaceous, almost smooth medially, rugulose near carinae; areola rather small and pentagonal, rugulose; distal 0.4 of propodeum sparsely and distinctly rugulose; basal carina

long, 1.2 times longer than anterior fork of areola. Hind coxa striate dorsally, finely striate with granulation laterally, almost smooth lower. Hind femur finely striate with reticulation in dorsal half and smooth in ventral half. First metasomal tergite striate, with dense ground reticulation between striae, with distinct and not strongly convergent posteriorly dorsal carinae. Second tergite densely striate basally. Remainder tergites smooth. Vertex with rather dense long semi-erect setae in posterior 0.7, glabrous in anterior 0.3. Mesoscutum entirely with dense short semi-erect setae. Hind tibia dorsally with rather short sparse and semi-erect setae, their length 0.8–1.0 times maximum width of tibia.

Colour. Body reddish brown to light reddish brown, mesopleuron dark reddish brown, metasoma in apical half dark reddish brown to almost black. Antennae black, two basal segments brownish yellow. Palpi yellow. Legs brownish yellow, faintly infusate basally. Ovipositor sheath light brown, almost black apically. Fore wings faintly infusate, intensively infusate around basal vein, brachial cell and distal 0.3. Pterostigma brown, pale yellow in basal 0.2 and apically.

Male unknown.

Diagnosis. The new species is very similar to *C. luculentus* Belokobylskij, but differs by having the second radiomedial cell wide, the temple and malar space long and the eyes small, the hypoclypeal depression wide, the first metasomal tergite short and wide, and the dorsal setae of hind tibia short and dense. *C. kyushyuensis* sp. nov. differs from *C. confusus* sp. nov. by having the temple long, the hypoclypeal depression large, the second radiomedial cell wide, the hind femur slender, the first metasomal tergite wide, and the basal carina of propodeum long.

Distribution. Japan (Kyushu).

Caenophanes pumilio sp. nov.

(Figs 30–38)

Type material. Holotype: 1 female, “Japan: Ryukyus, Is. Iriomote, Rv. Shiiminato, 22.II–6.III.1996, T. Muroi: MT” (MUNJ).

Paratypes. 1 female, “Japan: Ryukyus, Is. Iriomote, Rv. Shiiminato, 8.VIII–4.IX.1996, K. Ebi: MT” (ZISP).

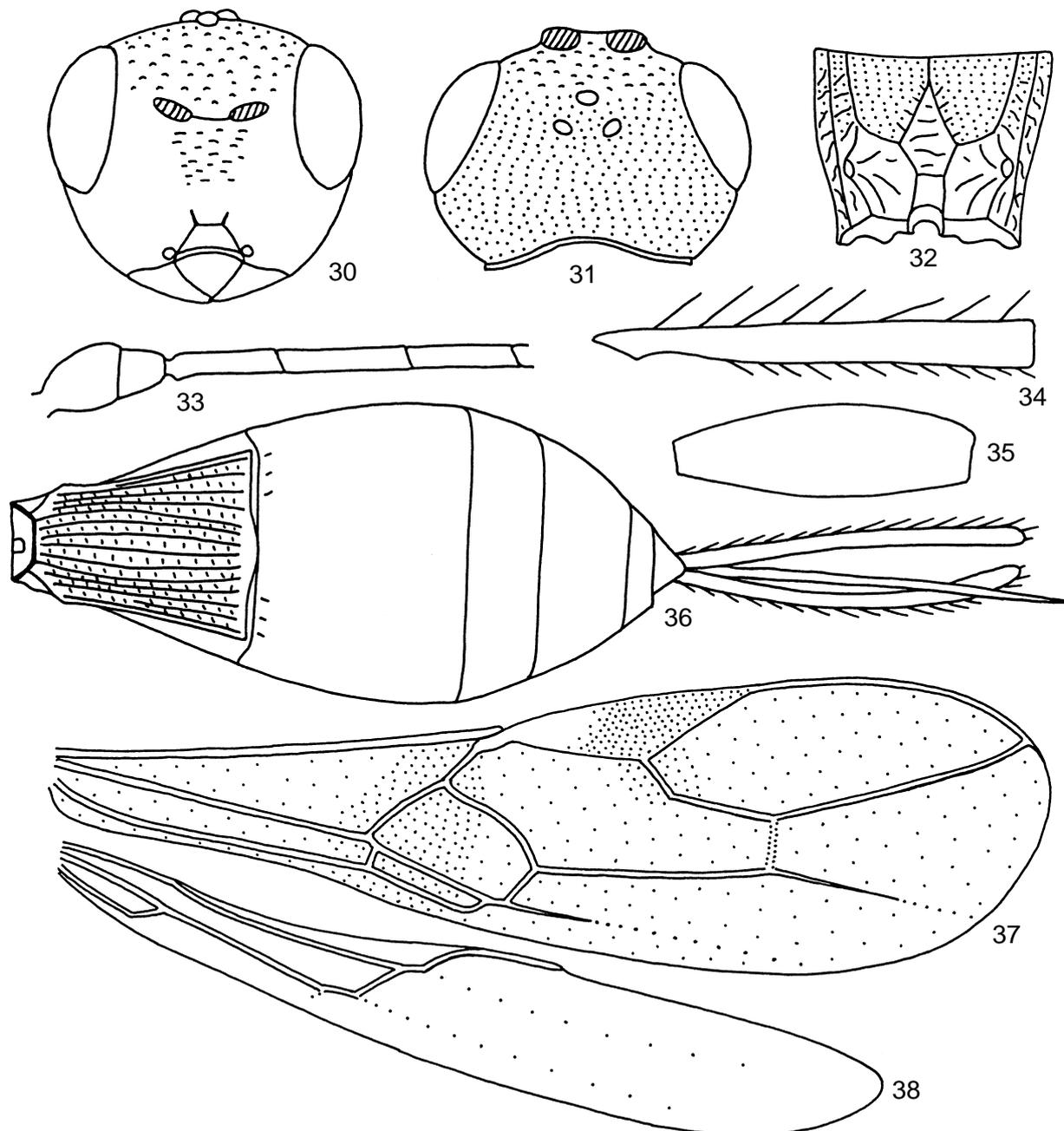
Description. Female. Body length 1.5 mm; fore wing length 1.3 mm.

Head width 1.6–1.65 times its median length, 1.35–1.4 times width of mesoscutum. Head behind eyes (dorsal view) uniformly and roundly narrowed. Transverse diameter of eye 1.6–1.8 times longer than temple. Ocelli small, arranged in triangle with base 1.3 times its sides. POL 1.5 times Od, 0.4–0.5 times OOL. Eye glabrous, 1.15–1.2 times as high as broad. Malar space height 0.5–0.55 times eye height, 1.1 times basal width

of mandible. Face width 1.05–1.1 times eye height and 1.15–1.2 times height of face and clypeus combined. Clypeus with distinct and narrow lower flange. Clypeal suture shallow and distinct laterally, almost absent above. Hypoclypeal depression rather small and round, its width 0.6–0.8 times the distance from edge of depression to eye, 0.35–0.4 times width of face. Head distinctly and roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on rather long distance upper base of mandible. Hypostomal flange narrow.

Antennae rather slender, filiform, 16-segmented, 1.2 times longer than body. Scape 1.4–1.5 times longer than wide. First flagellar segment 5.0–5.5 times longer than its apical width, 0.85–0.9 times as long as second segment. Penultimate segment 4.5 times longer than wide, 0.8 times as long as first segment, almost as long as apical segment; the latter weakly pointed apically.

Mesosoma. Length 1.9 times its height. Neck of prothorax rather long, with distinct pronotal keel in anterior 0.3–0.4. Mesoscutum highly and roundly elevated



Figures 30–38. *Caenophanes pumilio* sp. nov. (30) Head, front view; (31) head, dorsal view; (32) propodeum, dorsal view; (33) five basal segments of antenna; (34) hind tibia; (35) hind femur; (36) metasoma, dorsal view; (37) fore wing; (38) hind wing.

above pronotum, its length 0.8–0.9 times maximum width. Notauli deep anteriorly and shallow posteriorly, complete, crenulate with granulation. Prescutellar depression rather deep, finely or very finely rugulose, with one carina, half as long as scutellum. Subalar depression rather shallow, rugulose-striate and partly with rather dense granulation. Sternauli deep, rather wide, rather densely crenulate and sometimes with fine granulation, running along anterior 0.5–0.6 of lower part of mesopleuron, mesopleuron usually with following behind sternauli distinct sculpture. Metanotal tooth indistinct. Metapleural flange rather wide and subpointed apically. Propodeum with small lateral tubercles.

Wings. Length of fore wing 3.0–3.2 times its width. Radial cell weakly shortened. Metacarpus 1.0–1.1 times as long as pterostigma. Radial vein arising behind middle of pterostigma (from apical 0.45). Second radial abscissa 2.4–2.8 times longer than first abscissa, 0.4–0.45 times as long as the weakly curved third abscissa. First radiomedial vein absent, almost without basal abscissa, trace of vein 1.25–1.3 times longer than second radial abscissa. Second radiomedial cell 3.1–3.4 times longer than wide, 2.2 times longer than brachial cell. First medial abscissa distinctly S-shaped. Distance from nervulus to basal vein 0.4 times nervulus length. Brachial cell weakly or distinctly narrowed apically, closed distinctly before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein very shortly present or almost indistinct. Hind wing 5.6–6.0 times longer than maximum width. First abscissa of costal vein 0.45–0.5 times as long as second abscissa. First abscissa of mediocubital vein about half as long as second abscissa. Recurrent vein straight, distinctly antefurcal, unsclerotised.

Legs. Hind coxa with distinct basoventral tubercle. Hind femur 3.0–3.3 times longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus thickened, 0.6 times as long as 2nd–5th segments combined. Second tarsal segment half as long as basitarsus, 1.2–1.3 times longer than fifth segment (without pretarsus).

Metasoma 0.9–1.0 times as long as mesosoma and head combined. First metasomal tergite rather long, distinctly widened apically, with small spiracular protuberances in basal 0.3. Length of first tergite 1.3 times its apical width; apical width twice its minimum width. Second suture indistinct. Length of second and third tergites combined 0.8–0.9 times basal width of second tergite, 0.65–0.75 times their maximum width. Ovipositor sheath 0.65–0.7 times as long as metasoma, 0.8–0.85 times as long as mesosoma, 0.35–0.4 times as long as fore wing.

Sculpture and pubescence. Vertex rather distinctly and densely granulate; frons finely granulate-coriaceous; face mostly smooth, finely rugulose medially in upper half; temple smooth. Mesoscutum and scutellum

coarsely and densely granulate. Mesopleuron finely granulate below and behind sternauli, smooth at rather wide median area. Propodeum with areas distinctly delineated by carinae; basolateral areas rather large, granulate-reticulate with rugosity along carinae, finely or distinctly coriaceous in mediobasal half; areola long, pentagonal, about twice longer than wide, rugose-striate; posterior 0.4 of propodeum finely rugulose; basal carina rather short, 0.4–0.7 times as long as anterior fork of areola. Hind coxa striate-granulate in dorsal half, almost smooth in ventral half. Hind femur finely granulate-coriaceous in dorsal 0.3–0.5, almost smooth in ventral 0.5–0.7. First metasomal tergite distinctly and densely striate, with fine or distinct ground reticulation between striae, with rather fine and convergent dorsal carinae. Remainder tergites (including all second one) smooth, rarely (in paratype) second tergite very shortly striate basolaterally. Vertex with rather sparse long semi-erect setae in posterior half and laterally, glabrous in medioanterior half. Mesoscutum entirely with dense short semi-erect setae. Hind tibia dorsally with long sparse and semi-erect setae, their length 1.1–1.5 times maximum width of tibia.

Colour. Head dark reddish brown dorsally, face at least below and lower half of head or only malar space brownish yellow, sometimes most part of face reddish brown. Mesosoma light reddish brown, with dark spots, but in paratype mesopleuron and scutellum reddish brown and mesoscutum light reddish brown. Metasoma yellowish brown or light reddish brown, pale yellow medially. Antennae brown, pale brown basally, 2–4 basal segments yellow. Palpi pale yellow. Legs entirely yellow, all tibiae basally pale yellow. Ovipositor sheath dark brown. Fore wings faintly infusate, with two wide dark spots around basal vein and opposite middle of pterostigma. Pterostigma brown, yellow in basal 0.3–0.4.

Male unknown.

Diagnosis. The new species is very similar to Vietnamese *C. luculentus* Belokobylskij (Belokobylskij 1993a), but differs by having the ocellar triangle wide, the trace of the first radiomedial vein and the second radiomedial cell long, the first tergite and the basal carina of propodeum short, the second tergite smooth or rarely very shortly striate basolaterally, and the first metasomal tergite yellowish brown or light reddish brown.

Distribution. Japan (Ryukyu Is.).

Caenophanes rasilis sp. nov.

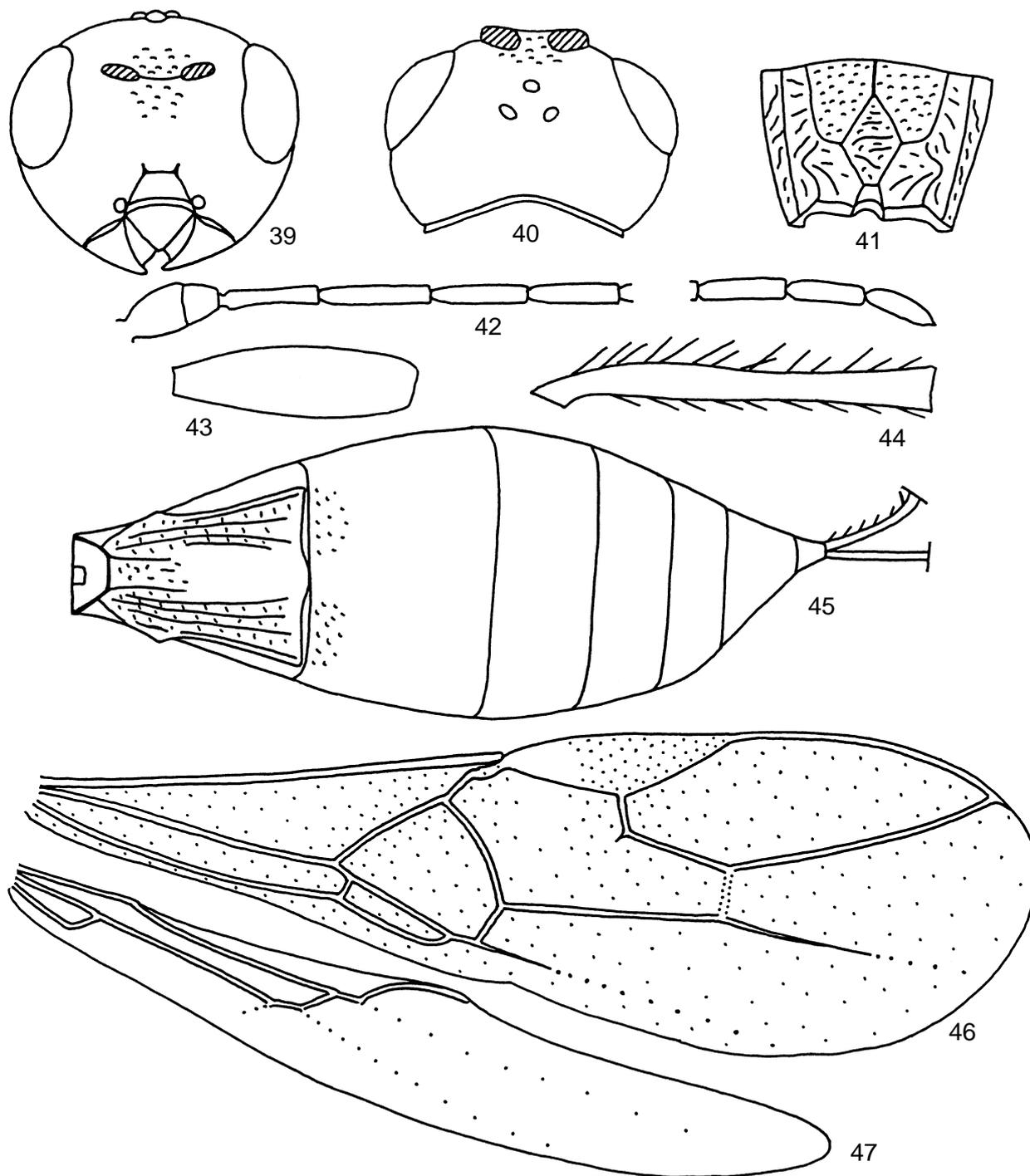
(Figs 39–47)

Type material. Holotype: female, “Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 28.VIII–19.IX.1999, T. Murata; MT (A. Hanai)” (MUNJ).

Paratypes. 3 males, "Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), T. Murata; MT (A. Hanai)", 3-20.IV, 21.VI-11.VII and 28.VIII-19.IX.1999 (NIAES, ZISP); 1 male, "Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 18.X-30.XI.1999, T. Murata; MT (S. Miyashita)" (MUNJ).

Description. Female. Body length 1.4 mm; fore wing length 1.2 mm.

Head width 1.6 times its median length, 1.4 times width of mesoscutum. Head behind eyes (dorsal view) weakly convex anteriorly, then uniformly and roundly narrowed. Transverse diameter of eye 1.3 times longer



Figures 39-47. *Caenophanes rasilis* sp. nov. (39) Head, front view; (40) head, dorsal view; (41) propodeum, dorsal view; (42) basal and apical segments of antenna; (43) hind femur; (44) hind tibia; (45) metasoma, dorsal view; (46) fore wing; (47) hind wing.

than temple. Ocelli small, arranged in triangle with base 1.2 times its sides. POL 1.3 times Od, 0.4 times OOL. Eye glabrous, 1.25 times as high as broad. Malar space height 0.6 times eye height, almost equal to basal width of mandible. Face width 1.2 times eye height and 1.3 times height of face and clypeus combined. Clypeus with distinct and narrow lower flange. Clypeal suture shallow and entirely distinct. Hypoclypeal depression small and round, its width 0.85 times the distance from edge of depression to eye, 0.45 times width of face. Head distinctly and roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on rather long distance upper base of mandible. Hypostomal flange narrow.

Antennae slender, filiform, 17-segmented, 1.1 times longer than body. Scape 1.4 times longer than wide. First flagellar segment 4.5 times longer than its apical width, 0.75 times as long as second segment. Penultimate segment 4.0 times longer than wide, almost as long as first segment, 1.1 times longer than apical segment; the latter pointed apically.

Mesosoma. Length 1.85 times its height. Neck of prothorax rather short, with distinct pronotal keel submedially. Mesoscutum highly and roundly elevated above pronotum, its length 0.9 times maximum width. Notauli deep anteriorly and shallow posteriorly, complete, sparsely crenulate. Prescutellar depression deep, almost smooth, with one carina, 0.55 times as long as scutellum. Subalar depression rather shallow and rugulose-striate. Sternauli deep, rather short, finely crenulate-granulate, running along anterior 0.6 of lower part of mesopleuron. Metanotal tooth almost absent. Metapleural flange narrow and almost pointed apically. Propodeum with small lateral tubercles.

Wings. Length of fore wing 3.1 times its width. Radial cell weakly shortened. Metacarpus 1.2 times longer than pterostigma. Radial vein arising from middle of pterostigma. Second radial abscissa 3.6 times longer than first abscissa, 0.45 times as long as the weakly curved third abscissa. First radiomedial vein absent, but its very short abscissa present anteriorly, trace of this vein 1.1 times longer than second radial abscissa. Second radiomedial cell 3.0 times longer than wide, 2.1 times longer than brachial cell. First medial abscissa weakly convex. Distance from nervulus to basal vein 0.7 times nervulus length. Brachial cell weakly narrowed just apically, closed distinctly before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein shortly present. Hind wing 6.2 times longer than maximum width. First abscissa of costal vein about half as long as second abscissa. First abscissa of mediocubital vein 0.4 times as long as second abscissa. Recurrent vein straight, distinctly antefurcal, unsclerotised.

Legs. Hind coxa with distinct basoventral tubercle. Hind femur 3.2 times longer than wide. Hind tarsus 0.9

times as long as hind tibia. Hind basitarsus weakly thickened, 0.6 times as long as 2nd–5th segments combined. Second tarsal segment half as long as basitarsus, almost as long as fifth segment (without pretarsus).

Metasoma almost as long as mesosoma and head combined. First metasomal tergite rather long, distinctly widened apically, with distinct spiracular protuberances in basal 0.3. Length of first tergite 1.2 times its apical width; apical width almost twice its minimum width. Second suture indistinct. Length of second and third tergites combined 0.85 times basal width of second tergite, 0.65 times their maximum width. Ovipositor sheath 0.8 times as long as metasoma, 1.3 times longer than mesosoma, about half as long as fore wing.

Sculpture and pubescence. Vertex smooth or sometimes partly very finely coriaceous; frons smooth, usually finely coriaceous anteriorly; face smooth, very finely rugulose medially; temple smooth. Mesoscutum and scutellum distinctly and densely granulate. Mesopleuron smooth at most part, finely coriaceous around sternauli. Propodeum with areas distinctly delineated by carinae; basolateral areas granulate-coriaceous; areola rather long and wide, almost rhomboid, 1.8 times longer than wide, finely rugose-areolate; distal half of propodeum finely coriaceous; basal carina rather long, 0.8 times as long as anterior fork of areola. Hind coxa striate-rugulose dorsally, granulate-coriaceous laterally, almost smooth ventrally. Hind femur densely and finely interruptedly striate-coriaceous in dorsal half, smooth ventrally. First metasomal tergite distinctly and rather densely striate, with distinct and dense ground reticulation between striae, with rather high and weakly convergent dorsal carinae. Second tergite almost entirely smooth, finely coriaceous basally. Remainder tergites smooth. Vertex with rather sparse short semi-erect setae in posterior third and laterally, glabrous in medioanterior two-thirds. Mesoscutum entirely with dense short semi-erect setae. Hind tibia dorsally with long, rather sparse and semi-erect setae, their length 1.0–1.5 times maximum width of tibia.

Colour. Body brownish yellow, head reddish brown to dark reddish brown, face light reddish brown, face below and malar space yellow, metasoma in posterior half brown. Antennae black, four basal segments yellow. Palpi pale yellow. Legs yellow. Ovipositor sheath light brown, infusate towards apex. Fore wings faintly infusate, with two large dark spots around basal vein and second radiomedial cell. Pterostigma brown, yellow in basal quarter and apically.

Male. Body length 1.3–1.7 mm; fore wing length 1.1–1.5 mm. Head width 1.4–1.5 times its median length, 1.3 times width of mesoscutum. Transverse diameter of eye 1.2–1.3 times longer than temple. Malar space height 0.5–0.7 times eye height. Hypoclypeal depression width 0.7–0.8 times the distance from edge

of depression to eye, 0.4–0.45 times width of face. First flagellar segment 5.3–6.3 times longer than its apical width, 0.85–0.9 times as long as second segment. Penultimate segment 3.2–3.6 times longer than their width, 0.75–0.9 times as long as first segment, 0.9–1.0 times as long as apical segment. Length of mesosoma almost twice its height. Notauli densely crenulate. Mesopleuron behind sternaulus sometimes coarsely and distinctly rugose-punctulate. Metanotal tooth short and more or less pointed. Propodeum with very small lateral tubercles, finer sculptured, its areola short, 1.7–2.0 times longer than wide, basal carina 1.0–1.5 times as long as anterior fork of areola. Hind coxa rugulose-granulate dorsally. Length of fore wing 3.3–3.4 times its width. Metacarpus 1.1–1.2 times longer than pterostigma. Second radial abscissa 2.9–4.5 times longer than first abscissa, 0.4–0.5 times as long as third abscissa. First radiomedial vein absent and without short abscissa basally, trace of this vein 1.1–1.2 times longer than second radial abscissa. Second radiomedial cell 2.8–2.9 times longer than wide, 2.1–2.2 times longer than brachial cell. Distance from nervulus to basal vein half nervulus length, but sometimes nervulus interstitial. Hind femur 3.7–4.0 times longer than wide. Length of first tergite 1.45–1.6 times its apical width. Second tergite distinctly, but rather finely striate-rugulose in basal half or third. Length of second and third tergites combined almost equal to basal width of second tergite, 0.7–0.8 times their maximum width. Colour. Body reddish brown, partly light reddish brown or dark reddish brown, metasoma in basal half yellow or pale yellow. Legs brownish yellow. Otherwise similar to female.

Diagnosis. The new species is very similar to *C. confusus* sp. nov., but differs by having the vertex entirely or almost entirely smooth, the radial vein arising from middle of pterostigma, and the prescutellar depression with one carina.

Distribution. Japan (Ryukyu Is.).

Caenophanes yakuensis sp. nov.

(Figs 48–56)

Type material. Holotype: female, “Japan: Kyushu, Is. Yaku-shima, Shiratani, 600 m, 6.V–20.VII.2000, T. Murata; MT (K. Nojima)” (MUNJ).

Description. Female. Body length 2.7 mm; fore wing length 2.4 mm.

Head width 1.6 times its median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) uniformly and roundly narrowed. Transverse diameter of eye 1.5 times longer than temple. Ocelli small, arranged in triangle with base 1.2 times its sides. POL 1.6 times Od, 0.5 times OOL. Eye glabrous, 1.25 times as high as broad. Malar space height 0.6 times eye height, almost equal to basal width of mandible. Face

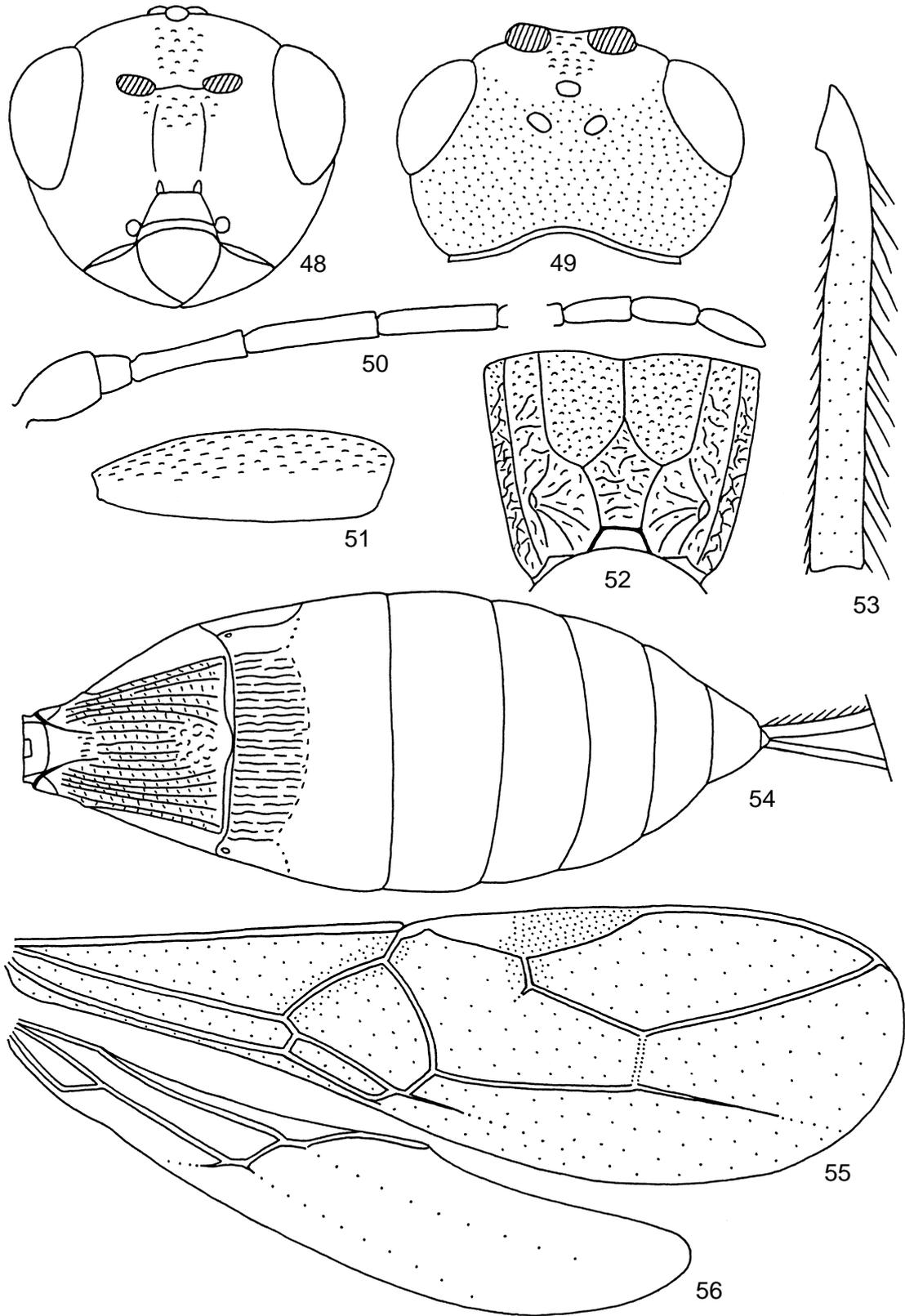
width 1.3 times eye height and 1.3 times height of face and clypeus combined. Clypeus with rather distinct and narrow lower flange. Clypeal suture distinct laterally and almost absent above. Hypoclypeal depression rather small and round, its width 0.85 times the distance from edge of depression to eye, 0.4 times width of face. Head distinctly and roundly narrowed below eyes. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow.

Antennae rather thick, filiform, 22-segmented, almost as long as body. Scape 1.5 times longer than wide. First flagellar segment 4.5 times longer than its apical width, 0.85 times as long as second segment. Penultimate segment 3.0 times longer than wide, 0.6 times as long as first segment, 0.9 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.8 times its height. Neck of prothorax rather short, with distinct pronotal keel situated submedially. Mesoscutum rather highly and roundly elevated above pronotum, its length 0.9 times maximum width. Notauli complete, rather deep, but shallow in posterior 0.3, crenulate. Prescutellar depression rather deep, rugulose, with distinct median carina, 0.35 times as long as scutellum. Subalar depression shallow and rugose-granulate. Sternauli deep, straight, oblique, sparsely crenulate with granulation, running along anterior half of lower part of mesopleuron. Metanotal tooth short and pointed. Metapleural flange narrow and pointed apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.0 times its width. Radial cell weakly shortened. Metacarpus 1.1 times longer than pterostigma. Radial vein arising weakly before middle of pterostigma. Second radial abscissa 4.8 times longer than first abscissa, half as long as the weakly curved third abscissa. First radiomedial vein mostly absent, only with short basal abscissa, trace of this vein almost equal to second radial abscissa. Second radiomedial cell 2.3 times longer than wide, 1.9 times longer than brachial cell. First medial abscissa weakly convex. Distance from nervulus to basal vein 0.7 times nervulus length. Brachial cell not narrowed apically, closed weakly before recurrent vein. Parallel vein interstitial. Abscissa of longitudinal anal vein behind recurrent vein shortly present. Hind wing 4.8 times longer than maximum width. First abscissa of costal vein 0.45 times as long as second abscissa. First abscissa of mediocubital vein 0.55 times as long as second abscissa. Recurrent vein curved, distinctly antefurcal, unsclerotised.

Legs. Hind coxa with distinct basoventral tubercle. Hind femur 3.3 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus thickened, 0.65 times as long as 2nd–5th segments combined. Second tarsal segment half as long as



Figures 48–56. *Caenophanes yakuensis* sp. nov. (48) Head, front view; (49) head, dorsal view; (50) basal and apical segments of antenna; (51) hind femur; (52) propodeum, dorsal view; (53) hind tibia; (54) metasoma, dorsal view; (55) fore wing; (56) hind wing.

basitarsus, 1.3 times longer than fifth segment (without pretarsus).

Metasoma 1.2 times longer than mesosoma and head combined. First metasomal tergite rather long and distinctly widened apically, with small spiracular protuberances in basal 0.3. Length of first tergite 1.1 times its apical width; apical width 2.8 times its minimum width. Second suture finely developed. Second tergite 0.3 times as long as its basal width, 0.9 times as long as third tergite. Length of second and third tergites combined 0.7 times basal width of second tergite, 0.55 times their maximum width. Ovipositor sheath 0.8 times as long as metasoma, 1.25 times longer than mesosoma, half as long as fore wing.

Sculpture and pubescence. Vertex densely and finely granulate-coriaceous; frons almost smooth laterally and finely coriaceous medially; face and temple smooth, face upper very finely coriaceous. Mesoscutum and scutellum densely granulate, mesoscutum rugulose in small medioposterior area. Mesopleuron smooth in large median area, finely granulate posteriorly in lower half. Propodeum with areas distinctly delineated by carinae; basolateral areas large, finely rugulose-granulate, almost smooth medioanteriorly; areola rather small and pentagonal, rugulose-striate; distal 0.4 of propodeum rather densely and distinctly rugose-striate; basal carina as long as anterior fork of areola. Hind coxa striate dorsally, rugulose-granulate in dorso-lateral part, almost smooth in lower half. Hind femur finely reticulate, almost smooth ventrally. First metasomal tergite coarsely and rather sparsely striate, with dense ground reticulation between striae, with distinct and weakly convergent posteriorly dorsal carinae. Second tergite (except for narrow lateral parts) densely and irregularly striate almost entirely. Remainder tergites smooth. Vertex with rather sparse long semi-erect setae in posterior half, glabrous in anterior half. Mesoscutum with dense short semi-erect setae, glabrous on small median areas of lateral lobes. Hind tibia dorsally with rather long sparse and semi-erect setae, their length 0.8–1.2 times maximum width of tibia.

Colour. Head brownish yellow in lower half and reddish brown to dark reddish brown in upper half. Mesosoma light reddish brown to yellowish brown, pronotum dorsally, large parts of mesoscutum, scutellum and lower half of mesopleuron reddish brown to dark reddish brown. Metasoma yellowish brown, first tergite light reddish brown. Antennae dark brown, three basal and half of fourth segments yellow. Palpi pale yellow. Legs brownish yellow, all tibiae pale yellow basally. Ovipositor sheath black. Fore wings faintly infuscate, weakly intensively infuscate around basal vein and first abscissa of radial vein. Pterostigma brown, yellow in basal 0.4 and apically.

Male unknown.

Diagnosis. The new species is very similar to *C. kyushuensis* sp. nov., but differs by having the second tergite sculptured throughout, the brachial cell not narrowed posteriorly, the penultimate segment of antenna wide, the radial vein arising before middle of pterostigma, and the second and third metasomal tergites short.

Distribution. Japan (Yakushima I.).

A key to the world species of the genus *Caenophanes* Foerster

1. Submedial cell of hind wing long; first abscissa of mediocubital vein almost as long as second abscissa. Sternauli narrowly and very finely crenulate or only granulate-coriaceous. Nervulus strongly postfurcal, distance from nervulus to basal vein equal to nervulus length. First flagellar segment 1.2–1.3 times longer than second segment. Brachial cell closed at level of basal vein. Body length 2.4–2.7 mm. – Russia (Novosibirsk and Samara Provinces), Finland, Sweden, Latvia, Slovakia, Czech Republic, Hungary, Austria, Italy, Germany, France, Spain *incompletus* (Ratzeburg)
- Submedial cell of hind wing short; first abscissa of mediocubital vein 0.4–0.6 times as long as second abscissa (Figs 11, 20, 29, 38, 47, 56). Sternauli coarsely and widely crenulate. Nervulus interstitial or usually weakly postfurcal, distance from nervulus to basal vein 0.1–0.4 (rarely 0.7) times nervulus length (Figs 10, 19, 28, 37, 46, 55) **2**
2. Brachial cell closed on or a little behind recurrent vein. First flagellar segment longer than second segment. Second tergite largely striate **3**
- Brachial cell closed more or less distinctly before recurrent vein (Figs 10, 19, 28, 37, 46, 55). First flagellar segment not longer than second segment (Figs 3, 14, 23, 33, 42, 50). Second tergite usually shortly striate at the base (Figs 9, 16, 27, 36, 45, 55) **4**
3. Prepectal carina rather fine, not distinctly expanded in flange below. Second tergite with sharply delineated basal area. Pterostigma evenly dark brown throughout. Body length 3.5–4.0 mm. – Australia (Queensland) *asion* (Nixon)
- Prepectal carina distinct, distinctly expanded in flange below. Second tergite without delineated basal area. Pterostigma brown with pale spots on basal 0.3 and apically. Body length 3.0 mm. – Australia (South Australia) *nukunnu* (Marsh et Austin)
4. Pterostigma of female almost entirely yellow (Fig. 19). First flagellar segment as long as second segment (Fig. 14). Mesosoma almost entirely black, sometimes (male) propodeum and metapleuron

- reddish brown or light reddish brown. Body length 1.5 mm. – Japan (Ryukyu Is.) *infuscatus* sp. nov.
- Pterostigma of female brown or dark brown medially or at least in apical half, yellow basally and sometimes apically (Figs 10, 28, 37, 46, 55). First flagellar segment 0.8–0.9 times as long as second segment (Figs 3, 23, 33, 42, 50). Mesosoma almost entirely light reddish brown or yellowish brown 5
5. Second radiomedial cell wide, 2.3–2.6 times longer than maximum width (Figs 28, 55). Setae on dorsal surface of hind tibia dense (Figs 24, 53). First metasomal tergite wide, its length almost equal to apical width (Figs 27, 54). Hypoclypeal depression large, 0.85–0.9 times distance from edge of depression to eye (Figs 21, 48). Transverse diameter of eye 1.4–1.5 times longer than temple (Figs 22, 49) 6
- Second radiomedial cell narrow, (2.8) 3.0–3.4 times longer than maximum width (Figs 10, 37, 46). Setae on dorsal surface of hind tibia sparse (Figs 5, 34, 44). First metasomal tergite narrow, its length 1.2–1.5 times longer than apical width (Figs 9, 36, 45). Hypoclypeal depression rather small, 0.6–0.7 times distance from edge of depression to eye (Figs 1, 30, 39). Transverse diameter of eye 1.55–1.75 times longer than temple (Figs 2, 31, 40) 7
6. Second metasomal tergite sculptured basally only (Fig. 27). Brachial cell distinctly narrowed apically (Fig. 28). Penultimate segment 4.0 times longer than wide (Fig. 23). Radial vein arising behind middle of pterostigma (Fig. 28). Body length 1.8 mm. – Japan (Kyushu) *kyushuensis* sp. nov.
- Second metasomal tergite entirely sculptured (Fig. 54). Brachial cell indistinctly narrowed apically (Fig. 55). Penultimate segment about 3.0 times longer than wide (Fig. 50). Radial vein arising before middle of pterostigma (Fig. 55). Body length 2.7 mm. – Japan (Yakushima I.) *yakuensis* sp. nov.
7. Ovipositor sheath distinctly shorter than mesosoma (Fig. 36), 0.3–0.4 times as long as fore wing 8
- Ovipositor sheath 1.3–1.5 times longer than mesosoma, 0.5–0.65 times as long as fore wing 9
8. Ocellar triangle wide, POL 1.5 times Od, 0.4–0.5 times OOL (Fig. 31). Trace of first radiomedial vein 1.25–1.3 times longer than second radial abscissa (Fig. 37). Second radiomedial cell 3.1–3.4 times longer than wide (Fig. 37). Length of first tergite 1.3 times its apical width (Fig. 36). Basal carina of propodeum rather short, 0.4–0.7 times as long as anterior fork of areola (Fig. 32). Second

- tergite smooth or rarely very shortly striate basolaterally (Fig. 36). First metasomal tergite yellowish brown or light reddish brown. Body length 1.5 mm. – Japan (Ryukyu Is.) *pumilio* sp. nov.
- Ocellar triangle narrow, POL equal to Od, 0.25–0.3 times OOL. Trace of first radiomedial vein 1.0–1.1 times as long as second radial abscissa. Second radiomedial cell 2.8 times longer than wide. Length of first tergite 1.4–1.5 times its apical width. Basal carina of propodeum long, 1.0–1.3 times longer than anterior fork of areola. Second tergite rather widely striate at the base. First metasomal tergite dark reddish brown or almost black. Body length 1.4–1.9 mm. – Vietnam *luculentus* Belokobylskij
9. Vertex entirely smooth or rarely very finely coriaceous (Fig. 40). Radial vein arising from middle of pterostigma (Fig. 46). Prescutellar depression with one carina. Body length 1.3–1.6 mm. – Japan (Yakushima I.) *rasilis* sp. nov.
- Vertex more or less distinctly and densely granulate or granulate-coriaceous (Fig. 2). Radial vein arising behind middle of pterostigma (Fig. 10). Prescutellar depression with three carinae. Body length 1.4–1.9 mm. – Japan (Ryukyu Is.) *confusus* sp. nov.

Guaygata Marsh, 1993

The genus *Guaygata* Marsh was described from Jamaica with the type species *G. howdeni* Marsh, 1993 (Marsh 1993). An examination of the species described in the genus *Neurocrassus* distinctly shows the separate position of *N. mariae* Belokobylskij, 1993, which was recorded in the Russian Far East and Vietnam (Belokobylskij 1993b). The main differences between the latter species and other species of *Neurocrassus* are the absence of dorsal tentorial pits near the antennal sockets (the main generic feature of *Neurocrassus*), the parallel vein clearly arising before the middle of the distal margin of brachial cell, the first mediocubital abscissa of hind wing shorter than the second abscissa, and the vertex and mesopleuron densely granulate. Also the fore wing of the recently discovered male of this species lacks a sclerotised enlargement. All the above characters, together with a postfurcal position of the recurrent vein of the fore wing and the radial vein arising before the middle of pterostigma, correspond to the generic features present in the Neotropical genus *Guaygata* (the paratype of *G. howdeni* deposited in the Canadian National Collection in Ottawa was studied by the first author). Therefore, *N. mariae* is transferred here to the genus *Guaygata* (comb. nov.).

G. mariae is also significantly similar to the genus *Dendrosotinus* Telenga, 1941 (which has *Gildoria*

Hedqvist, 1974 as its subgenus) in the postfurcal position of the recurrent vein, the shortened submedial cell of the hind wing, and the densely granulate vertex and mesopleuron. This species differs from *Dendrosotinus* in the presence of a basoventral tooth on the hind coxa [usually absent in *Dendrosotinus*, except for West Palearctic *D. (G.) elongatus* Achterberg: van Achterberg 2003] and the parallel vein of the fore wing not located interstitially (usually interstitial in *Dendrosotinus*, except for the Vietnamese *D. gratus* Belokobylskij: Belokobylskij 1993a). An examination of the morphological variability in *G. mariae* based on Japanese material revealed an almost interstitial position of the parallel vein in the small specimens included, which is similar to the condition displayed by the species belonging to *Dendrosotinus*. This suggests that the above characters are not valid for considering *Dendrosotinus* and *Guaygata* as separate genera. Examination of additional materials will clarify whether the actual taxonomic status of the latter two genera.

The genus *Guaygata* is recorded for the first time for the fauna of the Old World. A second new Palearctic species of this genus, *C. mayaensis* sp. nov., is described below.

Guaygata mariae (Belokobylskij, 1993) comb. nov.

Neurocrassus mariae Belokobylskij, 1993b: 163, 1998b: 63.

Examined material. Japan: 2 females, "Japan: Honshu, Tsukuba, S. Belokobylskij", 19.IX & 10.X.1999 (ZISP); 1 female, "Japan: Aichi, Toyota, Takiwaki, 10–16.VI.2002, MT (Y. Kurahashi) (MUNJ); 1 female, same locality, "14–20.X.2002 (R. Kogiso) MT" (MUNJ); 7 females, 1 male, "Japan: Honshu, Hyogo Pref., Kobe, Rokko Mts., Maya Mt., forest, S. Belokobylskij", 3, 4, 17, 25.IX, 16.X. & 5.XI.2005 (NIAES, ZISP).

Diagnosis. *G. mariae* (Belokobylskij) differs from *G. howdeni* Marsh by having the second tergite almost entirely striate, the radial vein arising distinctly before middle of pterostigma, the pterostigma entirely pale brown, the ocellar triangle not equilateral, the ovipositor and the malar space long, and the antennal segments thick.

Distribution. Japan (Honshu) (first record); Russia (Primorskiy kraj), Vietnam.

Discussion. The specimens of *G. mariae* collected in one locality (around Tsukuba and around Kobe) showed distinct variation in the place of detachment of the parallel vein of the fore wing from the distal vein of the brachial cell. In large specimens collected in summer, the parallel vein usually arose rather distinctly away from the cubital vein (from the anterior 0.3–0.4 of the distal vein of the brachial cell). The usually small

specimens of this species collected mostly in autumn show distinct removal of the parallel vein to the cubital vein with both veins sometimes located subinterstitially. The removal of the parallel vein can be studied in serial material and because other valuable differences between these specimens (except partly for fine granulation of vertex) are absent, we consider these specimens to belong to one species *G. mariae*.

Guaygata mayaensis sp. nov.
(Figs 57–67)

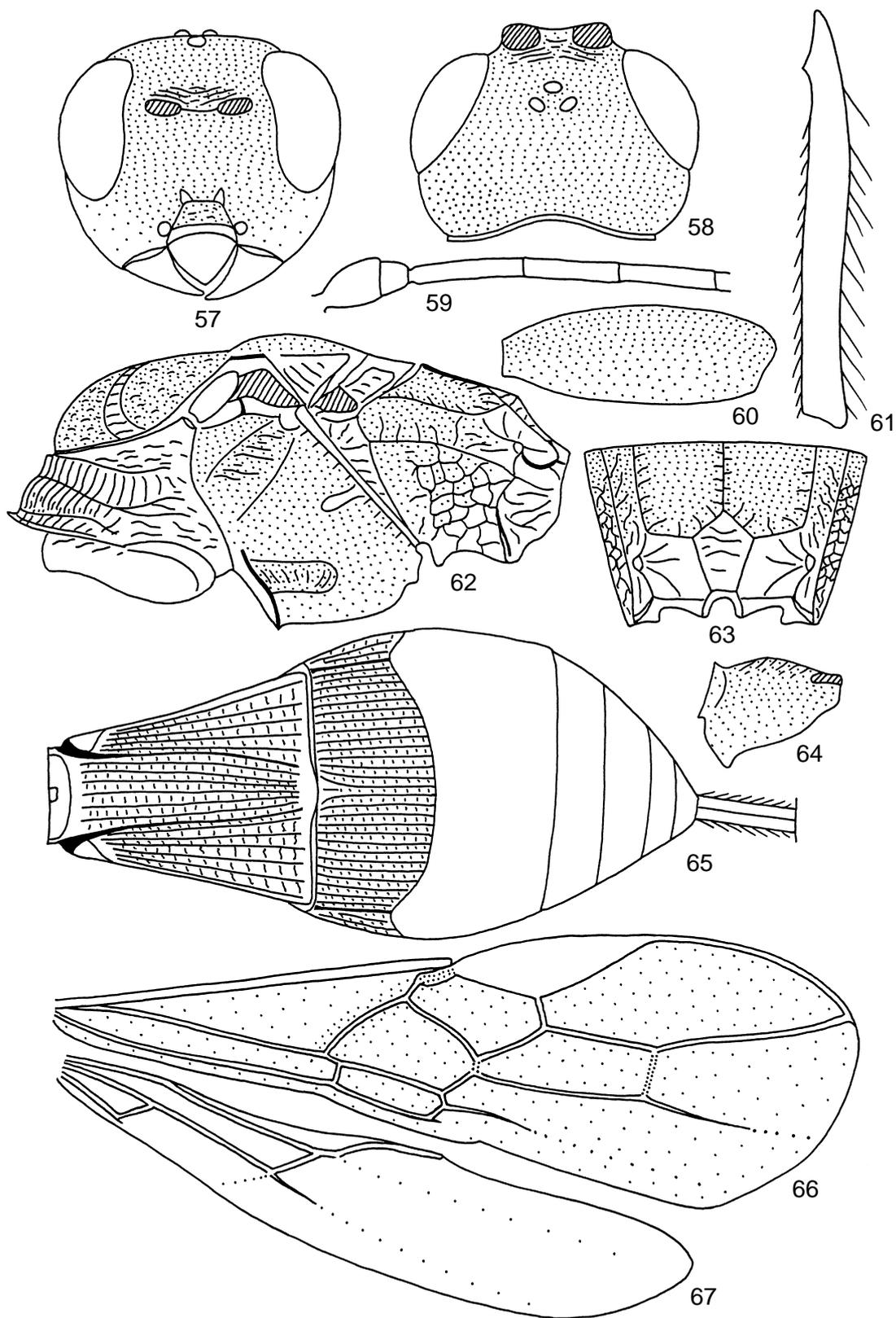
Type material. Holotype: female, "Japan: Honshu, Hyogo Pr., Kobe, Rokko Mts., Maya Mt., forest, 27.VIII.2005, S. Belokobylskij" (ZISP).

Description. Female. Body length 2.3 mm; fore wing length 2.1 mm.

Head width 1.4 times its median length, 1.2 times width of mesoscutum. Temple rather distinctly and roundly narrowed behind eye. Transverse diameter of eye almost twice longer than temple. Ocelli small, arranged in triangle with base 1.3 times its sides; POL almost equal to Od, 0.4 times OOL. Eye glabrous, 1.15 times as high as broad. Malar space height 0.5 times eye height, 0.8 times basal width of mandible. Face width equal to eye height and 1.1 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow lower flange. Clypeal suture rather distinct laterally, almost absent above. Hypoclypeal depression subround, its width 0.9 times distance from edge of depression to eye, half width of face. Head below eyes distinctly and roundly narrowed. Occipital carina not fused with hypostomal carina being obliterated rather widely near base of mandible. Hypostomal flange narrow. Postgenal bridge wide.

Antennae rather slender, filiform, more than 14-segmented (apical segments missing). Scape 1.6 times longer than maximum width. First flagellar segment weakly curved, almost 6.0 times longer than its apical width, 1.1 times longer than second segment. Submedian segments about 4.0 times longer than their width.

Mesosoma. Length 1.9 times its height. Neck of prothorax rather short, weakly convex dorsally, with two rather distinct pronotal carinae: first carina situated submedially and second carina distinctly and rather widely fused with posterior margin of pronotum. Mesoscutum not highly and roundly elevated above pronotum, its width (dorsal view) equal to median length. Notauli more or less deep and rather wide anteriorly, shallow posteriorly, crenulate with granulation. Median lobe of mesoscutum strongly convex anteriorly, without median furrow. Prescutellar depression rather shallow, rather long, distinctly rugulose-granulate entirely, with more or less distinct three carinae, 0.3 times as long as convex scutellum. Subalar depression



Figures 57–67. *Guaygata mayaensis* sp. nov. (57) Head, front view; (58) head, dorsal view; (59) five basal segments of antenna; (60) hind femur; (61) hind tibia; (62) mesosoma, lateral view; (63) propodeum, dorsal view; (64) hind coxa; (65) metasoma, dorsal view; (66) fore wing; (67) hind wing.

shallow, rather wide, rugose-striate with granulation. Sternauli rather deep, distinctly crenulate-granulate, running along anterior half of lower part of mesopleuron. Metanotal tooth indistinct. Propodeum distinctly and roundly slanted from base to apex (lateral view), with small lateral tubercles.

Wings. Length of fore wing 2.9 times its width. Radial cell not shortened; metacarpus almost as long as pterostigma. Radial vein arising distinctly before middle of pterostigma (from basal 0.4 of pterostigma). Second radial abscissa 3.5 times longer than first abscissa, 0.6 times as long as third abscissa, 1.35 times longer than first radiomedial vein. Second radiomedial cell 3.0 times longer than its maximum width, 1.8 times longer than the rather wide brachial cell. First medial abscissa distinctly S-shaped. Recurrent vein postfurcal, about 4.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.7 times nervulus length. Parallel vein not interstitial, arising from anterior 0.4 of distal margin of brachial cell. Hind wing 5.3 times longer than wide. First abscissa of costal vein 0.6 times as long as second abscissa. Medial cell rather narrow, 8.2 times longer than wide, 0.4 times as long as hind wing. First abscissa of mediocubital vein 0.75 times as long as second abscissa. Recurrent vein almost straight, strongly oblique, almost interstitial, and unsclerotised.

Legs. Hind coxa with distinct basoventral tooth, 1.3 times longer than maximum width. Hind femur 2.7 times longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus thickened, with rather distinct flange ventrally, 0.6 times as long as 2nd–5th segments combined. Second tarsal segment half as long as basitarsus, 1.2 times longer than fifth segment (without pretarsus).

Metasoma 0.85 times as long as mesosoma and head combined. First metasomal tergite with distinct dorsope, with small spiracular protuberances in basal 0.3, distinctly and almost linearly widened from base to apex, with distinct and almost complete dorsal carinae. Length of first tergite 1.1 times its apical width; apical width 2.6 times its minimum width. Second tergite length 0.4 times its basal width, 0.85 times length of third tergite. Second suture considerably shallow and slightly curved. Third tergite without transverse furrow. Length of second and third tergites combined 0.9 times basal width of second tergite, 0.8 times their maximum width. Ovipositor sheath 1.15 times longer than metasoma, 1.3 times longer than mesosoma, 0.6 times as long as fore wing.

Sculpture and pubescence. Vertex distinctly and densely granulate; frons distinctly and densely granulate with fine striation anteriorly; face granulate-coriaceous, finely coriaceous below; temple densely coriaceous in upper half and almost smooth in lower half. Mesoscutum rather finely and small reticulate with

distinct and dense granulation, with rugosity in rather narrow medioposterior area. Scutellum entirely distinctly and densely granulate. Mesopleuron entirely rather distinctly and densely granulate-coriaceous. Propodeum with areas distinctly delineated by carinae, basolateral areas entirely rather distinctly granulate with fine striation, rugose along carinae, rest part of propodeum sparsely rugose-striate with fine rugosity or granulation between striae; areola short and rather wide, transversely striate with fine reticulation, 1.3 times longer than wide; petiolate area short; basal carina 1.8 times longer than anterior fork of areola. Hind coxa densely granulate with fine striation dorsally, granulate-coriaceous on rest part. Hind femur densely granulate, granulate-coriaceous in ventral half. First metasomal tergite entirely distinctly and rather densely curvedly striate with dense and distinct ground rugosity between striae; second tergite rather densely striate with ground rugosity. Remainder tergites smooth. Vertex with sparse short and semi-erect setae in posterior half and laterally, glabrous in medioanterior half. Mesoscutum entirely with dense short semi-erect white setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather long, rather dense and semi-erect setae, their length 0.7–1.0 times maximum width of tibia.

Colour. Body reddish brown, head yellowish brown. Antenna dark reddish brown to black, six basal segments yellow or brownish yellow. Palpi pale yellow. Legs yellow with brownish tint in some areas, all tibiae pale yellow at base. Ovipositor sheath black. Fore wings faintly infusate. Pterostigma and most part of costal vein (except for its dark apical part) yellow.

Male unknown.

Diagnosis. *G. mayaensis* sp. nov. is very similar to *G. mariae* (Belokobylskij), but differs from the latter by having the ovipositor sheaths distinctly long, the hypoclypeal cavity large, the first antennal segment slender, the second pronotal carina rather widely fused with posterior margin of pronotum, the third metasomal tergite without transverse furrow, and the basal carina of propodeum long.

Distribution. Japan (Honshu).

A key to species of the genus *Guaygata* Marsh

1. Second metasomal tergite striate only in basal 0.3. Radial vein arising almost from middle of pterostigma. Pterostigma brown, pale basally and apically. Malar space 0.3 times longitudinal diameter of eye and 0.7 times basal width of mandible. First flagellar segment about 7.0 times longer than apical width. Body length 2.5–4.3 mm. – Jamaica, Grand Cayman I. *howdeni* Marsh
- Second metasomal tergite entirely striate (Fig.

- 65). Radial vein arising distinctly before middle of pterostigma (Fig. 66). Pterostigma pale brown or brownish yellow (Fig. 66). Malar space 0.45–0.5 times longitudinal diameter of eye and 0.8–1.0 times basal width of mandible (Fig. 57). First flagellar segment 4.8–6.0 times longer than apical width (Fig. 59) 2
2. Ovipositor short, sheath 0.5–0.7 times as long as metasoma, 0.6–0.8 times as long as mesosoma, 0.3–0.4 times as long as fore wing. Hypoclypeal cavity small, its width 0.6–0.7 times distance from edge of depression to eye, 0.35–0.4 times width of face. First flagellar segment 4.8–5.3 times longer than its apical width. Second pronotal carina not fused with posterior margin of pronotum. Third metasomal tergite usually with more or less distinct transverse furrow. Basal carina of propodeum short, 0.8–1.2 times as long as anterior fork of areola. Body length 1.5–2.9 mm. – Japan (Honshu); Russia (Primorskij kraj), Vietnam *mariae* (Belokobylskij)
- . Ovipositor long, sheath 1.15 times longer than metasoma, 1.3 times longer than mesosoma, 0.6 times as long as fore wing. Hypoclypeal cavity large, its width 0.9 times distance from edge of depression to eye, half width of face (Fig. 57). First flagellar segment almost 6.0 times longer than its apical width (Fig. 59). Second pronotal carina rather widely fused with posterior margin of pronotum (Fig. 62). Third metasomal tergite without transverse furrow (Fig. 65). Basal carina of propodeum long, 1.8 times longer than anterior fork of areola (Fig. 63). Body length 2.3 mm. – Japan (Honshu) *mayaensis* sp. nov.

Leluthia Cameron, 1887

This genus was originally described from the New World and a total of 6 species have been recorded in this region (Marsh 1967, 2002). A study of the Palaearctic species of the genera *Doryctosoma* Picard, 1938 and *Euhecabolodes* Tobias, 1962, these genera were synonymised with *Leluthia* (Belokobylskij and Tobias 1986, Belokobylskij 1994). A member of *Leluthia* (*L. australica* Belokobylskij, Iqbal et Austin, 2004) was also recorded from Australia. In addition, the first author of the present work studied undescribed species of this genus from Madagascar and New Caledonia.

Two species groups are recognized in *Leluthia* on the basis of the shape of the mesosoma. In this paper, they are separated as subgenera. The species of the subgenus *Leluthia* s. str. have a more or less distinctly dorsoventrally depressed mesosoma and the mesoscutum weakly elevated above the pronotum. On the

other hand, the mesosoma of species belonging to the subgenus *Euhecabolodes* Tobias is weakly or not depressed and the mesoscutum highly elevated above the pronotum. Because there is obvious variation of the mesosomal depression, we prefer to use these names for subgenera of the genus *Leluthia*.

Species of *Leluthia* have been previously found in the East Palaearctic (Russian Far East: Belokobylskij 1998b), but this genus is recorded for the first time in the fauna of Japan.

Leluthia (Leluthia) honshuensis sp. nov.
(Figs 68–77)

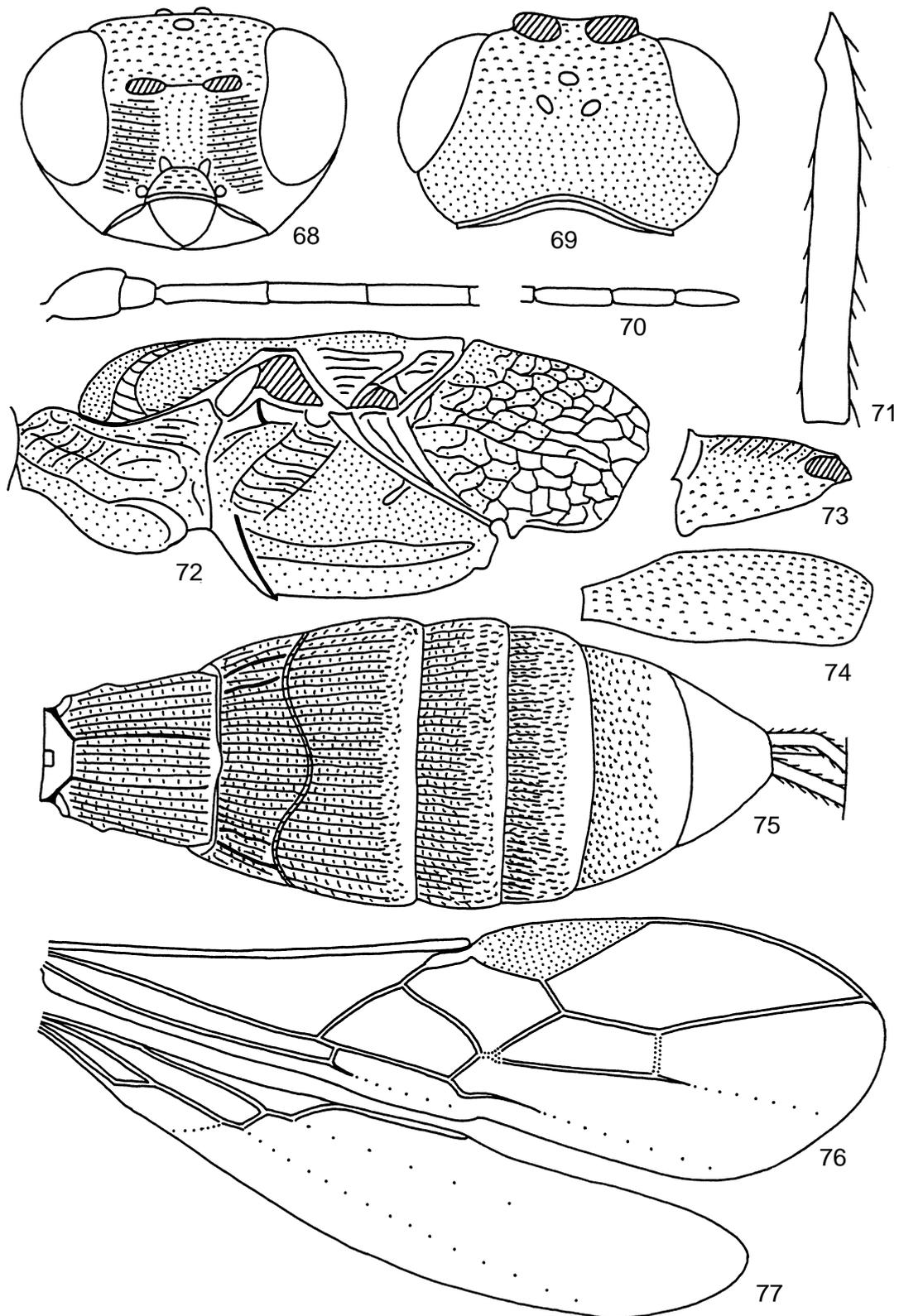
Type material. Holotype: female, “Japan: Nagoya, Higashiyama pk, 23.VIII–18.IX.2000, M. Watanabe; MT” (MUNJ).

Paratypes. 1 female, “Japan: Honshu, Hyogo Pref., Kobe, Rokko Mts, Maya Mt., forest, 27.VIII.2005, S. Belokobylskij” (ZISP); 1 female, same label, but “11.IX.2005” (strongly depressed specimen) (ZISP); 1 female, “Japan: Nagoya, Higashiyama pk, 24.X–23.XI.2000, M. Watanabe; MT” (NIAES); 2 females, 1 male, “Japan: Gifu, Kani, Katabira, K. Ito (MT)” 26.VI–2.VII.2004 (17), 3–9.IX.2004 (27) and 17–24.IX.2004 (29) (MUNJ, NIAES); 1 male, “Japan: Aichi, Toyota, Sanage (Evergreen frst), 19.VIII–25.VIII.2002, Mizue Kiyota; MT” (MUNJ);

Description. Female. Body length 2.7–4.4 mm; fore wing length 2.0–2.7 mm.

Head weakly or rarely distinctly depressed, its width 1.5–1.75 times median length, 1.2–1.4 (rarely 1.55) times its height, 1.1 times width of mesoscutum. Head behind eyes distinctly roundly narrowed. Transverse diameter of eye (dorsal view) 2.2–2.5 times longer than temple. Occiput rather strongly concave (dorsal view). Ocelli medium size, arranged in triangle with base 1.15–1.25 times its sides; POL 1.2–1.4 times Od, about half OOL. Eye glabrous, 1.1–1.2 times as high as broad. Malar space height 0.25–0.3 times eye height, 0.6–0.75 times basal width of mandible. Face width 0.85–0.9 times eye height and 1.25–1.3 times height of face and clypeus combined. Malar suture absent. Clypeus not height and rather narrow, with short lower flange. Clypeal suture entirely deep. Hypoclypeal depression round, its width 0.8–1.0 times distance from edge of depression to eye, 0.4–0.45 times width of face. Occipital carina complete dorsally, fused with hypostomal carina distinctly upper base of mandible. Hypostomal flange rather narrow.

Antennae weakly setiform, 23–29-segmented, almost as long as body. Scape 1.5–1.6 times longer than maximum width. First flagellar segment 4.7–5.5 times longer than its apical width, 1.1–1.15 times longer than second segment. Penultimate segment 3.5–4.0 times



Figures 68–77. *Leluthia (Leluthia) honshuensis* sp. nov. (68) Head, front view; (69) head, dorsal view; (70) basal and apical segments of antenna; (71) hind tibia; (72) mesosoma, lateral view; (73) hind coxa; (74) hind tibia; (75) metasoma, dorsal view; (76) fore wing; (77) hind wing.

longer than wide, 0.5–0.65 times as long as first flagellar segment, almost as long as apical segment; the latter weakly pointed apically and without spine.

Mesosoma weakly or (rarely) distinctly depressed, its length 2.2–2.3 (rarely 3.0) times maximum height. Neck of prothorax short and dorsally with high and distinctly convex lobe. Mesoscutum weakly and roundly elevated above pronotum. Notauli rather shallow in anterior half and very shallow in posterior half, sparsely crenulate. Prescutellar depression deep, rather long, with distinct 5–7 carinae and almost smooth or finely granulate between their, 0.4–0.45 times as long as scutellum. Scutellum almost flat, with distinct lateral carinae, its basal width 1.3–1.5 times median length. Metanotum without distinct tooth (lateral view). Subalar depression rather shallow, rather wide, more or less sparsely and shortly transversely striate with dense granulation. Sternauli shallow marginally, deep and wide submedially, densely granulate, but submedially finely granulate, running along almost entirely length of lower part of mesopleuron. Metapleural flange rather short, narrow, narrowed towards apex and rounded apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.3–3.5 times its width. Radial cell not or very weakly shortened; metacarpus 1.15–1.25 times longer than pterostigma. Radial vein arising from basal 0.4–0.45 of pterostigma. Second radiomedial vein always present. Second radial abscissa 2.3–2.7 times longer than first abscissa, 0.5–0.6 times as long as the straight third abscissa, 1.25–1.3 times longer than first radiomedial vein. Second radiomedial cell rather long, 3.0–3.4 times longer than wide, 1.1–1.3 times longer than brachial cell. First abscissa of medial vein distinctly S-shaped. Recurrent vein antefurcal, 5.5–6.5 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 1.0–1.7 times nervulus length. Hind wing 4.4–5.0 times longer than wide. First abscissa of costal vein 0.8–0.95 times as long as second abscissa. Medial cell rather narrow, widened distally, 7.5–8.5 times longer than wide, 0.33–0.35 times as long as hind wing. First abscissa of mediocubital vein 1.15–1.35 times longer than second abscissa. Recurrent vein straight, oblique, unsclerotised, distinctly antefurcal.

Legs. Fore tibia rather narrow, with several thick and short spines arranged almost in one row; middle tibia rather wide and with 7–8 rather slender and short spines. Hind coxa short and wide, its anteroventral corner more or less protruding forwards, with distinct basoventral tooth, 1.5–1.7 times longer than wide. Hind femur 3.2–3.4 times longer than wide. Hind tibia thick, with 3–4 apical spines. Hind tarsus 1.1–1.15 times longer than hind tibia. Hind basitarsus 0.55–0.6 times as long as 2nd–5th segments combined. Second tarsal segment 0.6–0.65 times as long as basitarsus,

1.55–1.7 times longer than fifth segment (without pretarsus).

Metasoma 1.15–1.25 times longer than mesosoma and head combined. First tergite rather distinctly and almost linearly widened from base to apex, with distinct dorsope, spiracular tubercles small and situated in basal 0.25–0.3. Length of first tergite almost equal to its apical width; apical width 1.8–2.0 times minimum width. Second tergite with shallow and rather short lateral depressions, median length of tergite 0.45–0.5 times its basal width, 0.9–1.1 times length of third tergite. Second suture rather deep, with distinct lateral bends (minimum sublateral length of tergite 0.55–0.65 times its maximum median length). Ovipositor sheath distinctly widened from base to subapex, then apically rather strongly pointed, 0.85–0.9 times as long as metasoma, 1.35–1.55 times longer than mesosoma, 0.7–0.8 times as long as fore wing.

Sculpture and pubescence. Vertex entirely densely granulate or coriaceous-granulate, rarely (in large specimen) with fine striation near ocellar triangle; frons densely granulate, finely rugose-striate anteriorly; face densely granulate with fine or very finely striation at least partly; temple densely and finely granulate in upper 0.6, coriaceous to almost smooth in lower 0.4. Mesoscutum densely and distinctly granulate, undulately striate with fine rugosity on wide area in medio-posterior half. Scutellum distinctly and densely granulate. Mesopleuron rather finely granulate, granulate-coriaceous upper and below sternauli. Propodeum and metapleuron coarsely and entirely reticulate-rugose with fine granulation, propodeum without areas delineated by carinae. Hind coxa densely granulate dorsally and without rugae, coriaceous laterally; hind femur densely and rather finely granulate-coriaceous; hind tibia very densely granulate. First and second metasomal tergites entirely and less densely, third and fourth tergites in basal 0.8–0.9 densely striate and with dense ground rugulosity between striae, fifth tergite finely and densely rugulose-coriaceous in basal 0.7, sixth tergite finely or very finely coriaceous in basal half; third–sixth tergites smooth on the rest parts. Mesoscutum with sparse, very short, semi-erect setae arranged narrowly laterally and widely along notauli and in medioposterior area. Hind tibia dorsally with short, rather sparse and semi-erect setae, their length 0.25–0.4 times maximum submedial width of tibia.

Colour. Head brownish yellow or light reddish brown, usually unfuscate dorsally; mesosoma reddish brown or light reddish brown and infuscate dorsally, in large specimen with black spots sometimes; metasoma yellowish brown with reddish tint, first tergite more or less infuscate. Antenna brown to black, 5–6 basal segments brownish yellow or yellow. Palpi yellow or pale. Legs brownish yellow, yellow basally; all tibiae basally pale yellow. Ovipositor sheath black. Fore

wing almost hyaline or very faintly infusate. Pterostigma dark brown, faintly and shortly paler basally and apically.

Male. Body length 1.5–2.4 mm; fore wing length 1.2–1.7 mm. Head width 1.4–1.5 times its median length. Head behind eyes less distinctly narrowed. Vertex finely coriaceous. Transverse diameter of eye (dorsal view) 1.5–1.7 times longer than temple. Occiput weakly concave (dorsal view). Malar space height 0.3–0.4 times eye height. Antennae 16–20-segmented. First flagellar segment almost as long as second segment. Mesoscutum almost straight and less widely striate in medioposterior half. Prescutellar depression with 4–6 carinae. Metacarpus 1.1–1.2 times longer than pterostigma. Second radial abscissa 2.2–2.7 times longer than first abscissa, 0.45–0.55 times as long as third abscissa, 1.2–1.5 times longer than first radiomedial vein. Recurrent vein sometimes distinctly antefurcal, 1.6–2.7 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.5–0.7 times nervulus length. Hind wing 5.0–5.8 times longer than wide. Stigma-like enlargement rather large, strongly sclerotised, distinctly separated from first costal abscissa, almost as long as distance between base of wing and margin of enlargement. Hind femur 3.1–3.4 times longer than wide. Hind tibia rather slender. Length of first tergite 1.15–1.3 times its apical width. Second tergite without lateral depressions, median length of tergite 0.7 times its basal width. Second suture regularly curved, without lateral bends. Fourth metasomal tergite in small specimens striate in basal half only, then as well as fifth and sixth tergites very finely coriaceous. Body distinctly infusate dorsally or only on propodeum and metasoma. Otherwise similar to female.

Diagnosis. This new species is similar to *L. (L.) disrupta* (Belokobylskij, 1994), but differs by having the second metasomal suture distinctly curved sublaterally, the third tergite without additional transverse furrow, the mesosoma and pterostigma short, the second radial abscissa long, the first mediocubital abscissa of hind wing short, the body and legs pale. *L. (L.) honshuensis* sp. nov. is also similar to West Palaearctic *L. (L.) paradoxa* (Picard, 1938) and differs by having the second metasomal suture distinctly curved sublaterally, the third tergite without additional transverse furrow, the pterostigma short, the first mediocubital abscissa of hind wing short, the vertex only granulate, the temple and antennal segments short, and the body and legs pale. The new species is also similar to the North American *L. (L.) astigma* (Ashmead, 1896) and differs by having the pterostigma and temple short, the second radial abscissa long, the radial cell of the fore wing weakly shortened, the first metasomal tergite short, the body and legs pale.

Distribution. Japan (Honshu).

Leluthia (Leluthia) nagoyae sp. nov.
(Figs 78–87)

Type material. Holotype: female, "Japan: Nagoya, Higashiyama pk, 24.X–23.XI.2000, M. Watanabe; MT" (MUNJ).

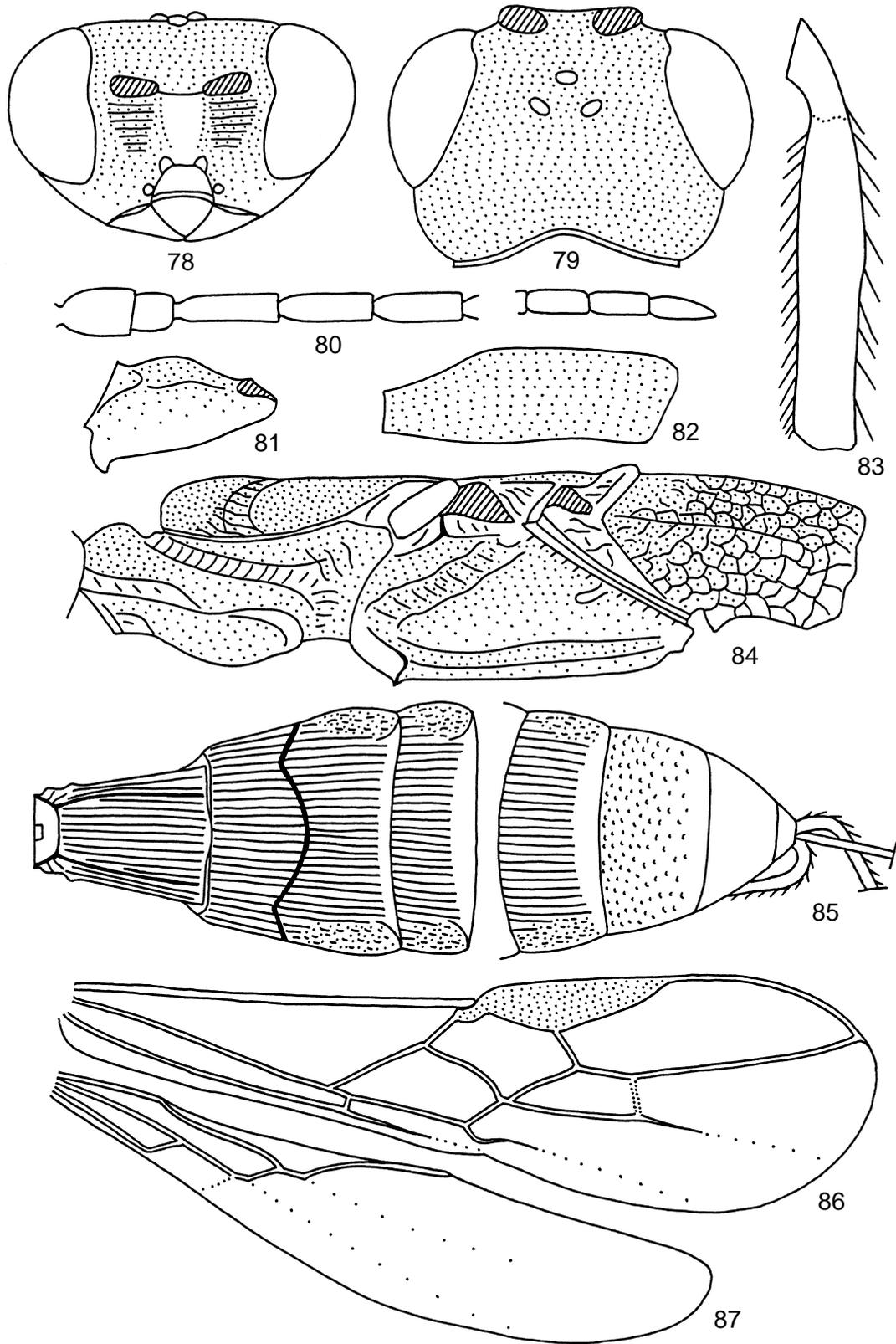
Description. Female. Body length 3.5 mm; fore wing length 2.2 mm.

Head distinctly depressed, its width 1.5 times median length, 1.7 times its height, equal to width of mesoscutum. Head behind eyes weakly convex anteriorly, roundly narrowed posteriorly. Transverse diameter of eye (dorsal view) about twice longer than temple. Occiput distinctly concave (dorsal view). Ocelli small, arranged in triangle with base 1.2 times its sides; POL 1.5 times Od, 0.7 times OOL. Eye glabrous, 1.2 times longer than broad. Malar space height 0.25 times maximum diameter of eye, half basal width of mandible. Face width 0.9 times maximum diameter of eye and 1.6 times height of face and clypeus combined. Malar suture absent. Clypeus rather height and rather narrow, with short lower flange. Clypeal suture distinct, entirely deep. Hypoclypeal depression round, its width equal to distance from edge of depression to eye, 0.35 times width of face. Occipital carina complete dorsally, fused with hypostomal carina distinctly upper base of mandible. Hypostomal flange rather narrow.

Antennae weakly setiform, 24-segmented, 0.8 times as long as body. Scape 1.5 times longer than maximum width. First flagellar segment 3.7 times longer than its apical width, as long as second segment. Penultimate segment 2.7 times longer than wide, 0.65 times as long as first flagellar segment, almost as long as apical segment; the latter pointed apically and without spine.

Mesosoma strongly depressed, its length 3.6 times maximum height. Neck of prothorax rather long and dorsally with high and distinctly convex lobe. Mesoscutum very weakly and roundly elevated above pronotum. Notauli rather deep in anterior quarter and very shallow in posterior three-quarters, sparsely crenulate with dense granulation. Prescutellar depression shallow, rather short, with distinct 8 carinae and almost smooth between carinae, 0.3 times as long as scutellum. Scutellum flat, with fine lateral carinae, its basal width 1.5 times median length. Metanotum without tooth (lateral view). Subalar depression rather shallow, narrow, sparsely and shortly transversely striate with dense and fine granulation. Sternauli narrow and rather deep, finely granulate-coriaceous, running along entirely length of lower part of mesopleuron. Metapleural flange rather short, wide, distinctly narrowed towards apex and rounded apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.5 times its width. Radial cell not shortened; metacarpus almost as long as



Figures 78–87. *Leluthia (Leluthia) nagoyae* sp. nov. (78) Head, front view; (79) head, dorsal view; (80) basal and apical segments of antenna; (81) hind coxa; (82) hind femur; (83) hind tibia; (84) mesosoma, lateral view; (85) metasoma, dorsal view; (86) fore wing; (87) hind wing.

pterostigma. Radial vein arising from basal 0.45 of pterostigma. Second radiomedial vein present. Second radial abscissa 1.4 times longer than first abscissa, 0.2 times as long as the straight third abscissa, 0.6 times as long as first radiomedial vein. Second radiomedial cell short, 2.8 times longer than wide, almost as long as brachial cell. First abscissa of medial vein strongly curved. Recurrent vein antefurcal, 4.5 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 1.3 times nervulus length. Hind wing 4.7 times longer than wide. First abscissa of costal vein 0.9 times as long as second abscissa. Medial cell rather narrow, widened distally, 7.8 times longer than wide, 0.33 times as long as hind wing. First abscissa of mediocubital vein 1.8 times longer than second abscissa. Recurrent vein straight, oblique, unsclerotised, almost interstitial.

Legs. Fore tibia rather narrow, with 8 thick and short spines arranged in one row; middle tibia rather wide and with about 9 rather slender and short spines. Hind coxa rather long and wide, 1.75 times longer than wide, its anteroventral corner distinctly protruding forwards, with distinct basoventral tooth. Hind femur 3.0 times longer than wide. Hind tibia thick, with four apical spines. Hind tarsus 1.1 times longer than hind tibia. Hind basitarsus 0.6 times as long as 2nd–5th segments combined. Second tarsal segment 0.55 times as long as basitarsus, 1.1 times longer than fifth segment (without pretarsus).

Metasoma 1.2 times longer than mesosoma and head combined. First tergite rather weakly and almost linearly widened from base to apex, with distinct dorsople, spiracular tubercles small and situated in basal 0.2. Length of first tergite 1.2 times its apical width; apical width 1.6 times minimum width. Second tergite with very shallow and rather short lateral depressions, median length of tergite 0.6 times its basal width, 1.3 times length of third tergite. Second suture rather deep, with distinct lateral bends (minimum sublateral length of tergite 0.6 times its maximum median length). Ovipositor sheath distinctly widened from base to subapex, then apically rather strongly pointed, 0.7 times as long as metasoma, 1.1 times longer than mesosoma, 0.6 times as long as fore wing.

Sculpture and pubescence. Vertex entirely densely coriaceous-granulate, without striation; frons densely granulate-coriaceous; face finely granulate-coriaceous with very finely striation upper, smooth medially; temple densely and finely granulate-coriaceous in upper half, almost smooth in lower half. Mesoscutum densely and finely granulate, distinctly undulately striate with fine rugosity on wide area in medioposterior 0.7. Scutellum distinctly, densely and finely granulate. Mesopleuron rather finely granulate in upper half, coriaceous upper and below sternauli. Propodeum and metapleuron coarsely and entirely small

reticulate-rugose with fine granulation, propodeum without areas delineated by carinae. Hind coxa densely granulate dorsally and without rugae, coriaceous to smooth laterally; hind femur densely and rather finely granulate-coriaceous; hind tibia very densely coriaceous. First and second metasomal tergites entirely, third-fifth tergites in basal 0.7–0.9 rather densely striate and with dense and fine ground rugosity between striae, sixth tergite finely and densely reticulate-coriaceous in basal half, third–sixth tergites smooth on the rest parts. Mesoscutum with sparse, short, semi-erect setae arranged rather narrow along notauli and laterally. Hind tibia dorsally with short, rather sparse and semi-erect setae, their length 0.4–0.5 times maximum submedian width of tibia.

Colour. Body light reddish brown, head distinctly infuscate dorsally, mesoscutum in wide medioposterior area and prescutellar depression almost black, propodeum, metapleuron and first tergite infuscate, head below and propleura brownish yellow. Antenna brown to black, yellow or brownish yellow in basal 0.35. Palpi yellow. Legs brownish yellow; all tibiae basally yellow. Ovipositor sheath black. Fore wing very faintly infuscate. Pterostigma entirely dark brown.

Male unknown.

Diagnosis. The new species is similar to *L. (L.) honshuensis* sp. nov., but differs by having the body strongly depressed, the face narrow, the antenna short, the penultimate antennal segments thick, the second radial abscissa short, the first (anterior) abscissa of basal vein long, the recurrent vein short, the discoidal cell narrow, the first abscissa of mediocubital vein of hind wing long, the first metasomal tergite long, and the ovipositor sheath short.

Distribution. Japan (Honshu).

***Leluthia (Euhecabolodes) postfurcalis* sp. nov.**
(Figs 88–96)

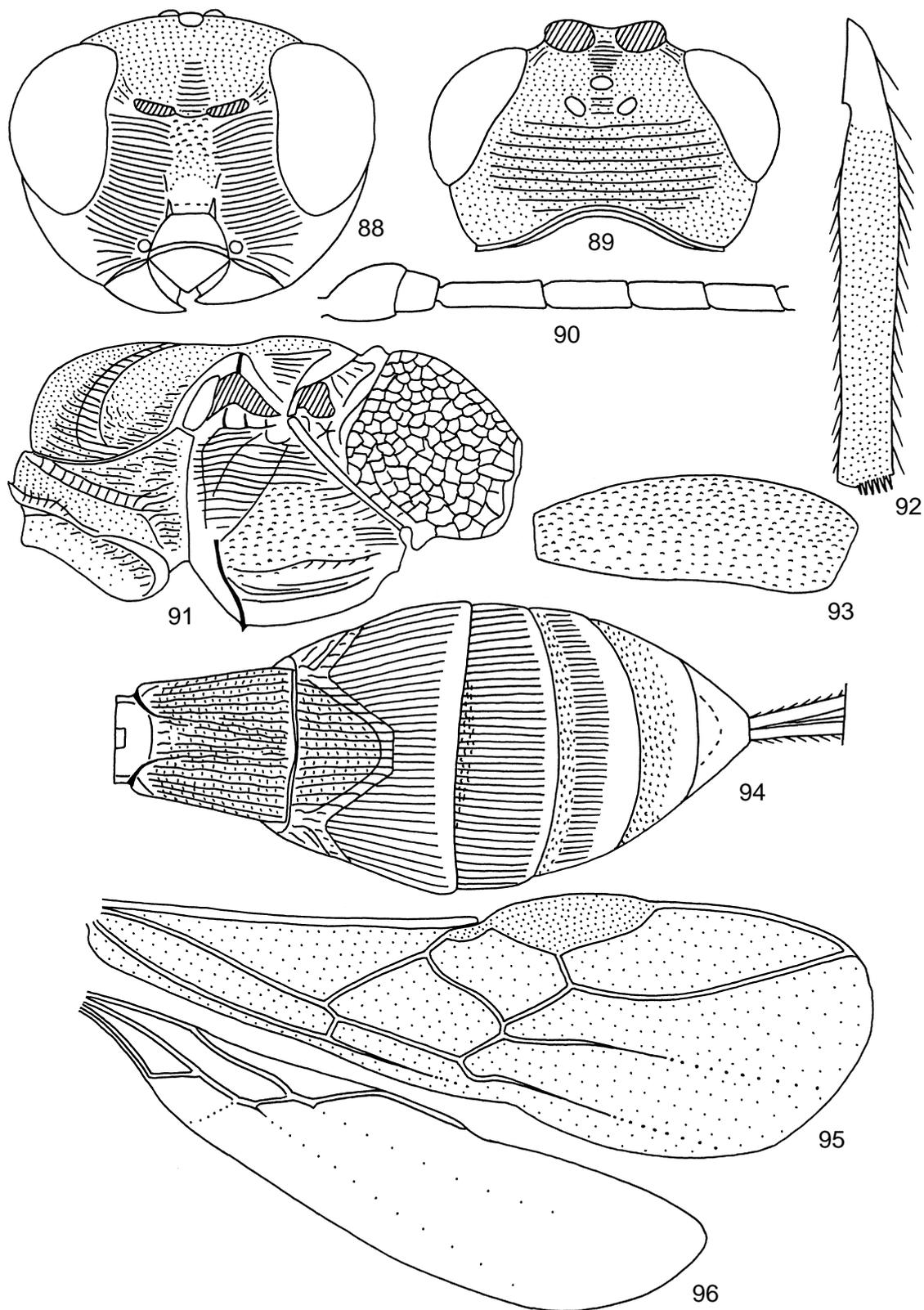
Type material. Holotype: female, Japan, “Minano, Saitama, Honshu, 29.VI.1975, T. Nambu” (NIAES).

Paratypes. 3 females, “[Kyushu] Mt. Kurodake, Oita Pref., 27.VIII.1995, K. Tenma (L.T.)” (NIAES, ZISP).

Non-type material. 1 female, without geographic label, but possibly was collected near Tokyo, “Masao Yamanaka Collection, 1980” (NSMT).

Description. Female. Body length 3.5–4.0 mm; fore wing length 2.7–3.0 mm.

Head not depressed, its width 1.6–1.8 times median length, 1.2 times its height, 1.0–1.1 times width of mesoscutum. Head behind eyes roundly narrowed. Transverse diameter of eye about twice longer than temple. Occiput distinctly concave. Ocelli medium size, arranged in triangle with base 1.3–1.4 times its sides; POL 1.4–1.7 times Od, 0.55–0.6 times OOL. Eye shortly



Figures 88–96. *Leluthia (Euhecabolodes) postfurcalis* sp. nov. (88) Head, front view; (89) head, dorsal view; (90) six basal segments of antenna; (91) mesosoma, lateral view; (92) hind tibia; (93) hind femur; (94) metasoma, dorsal view; (95) fore wing; (96) hind wing.

and rather densely setose, 1.25–1.3 times as high as broad. Malar space height 0.3 times eye height, 0.6–0.7 times basal width of mandible. Face width 0.8–0.85 times eye height and 1.2–1.3 times height of face and clypeus combined. Malar suture absent. Clypeus rather height and narrow, with short lower flange. Clypeal suture distinct, very shallow above. Hypoclypeal depression round, its width 0.8–0.9 times distance from edge of depression to eye, 0.4–0.45 times width of face. Occipital carina complete dorsally, not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow.

Antennae filiform, 28–31-segmented, slightly longer than body. Scape 1.6 times longer than maximum width. First flagellar segment 3.8–4.0 times longer than its apical width, 1.15–1.25 times longer than second segment. Penultimate segment 2.3–2.5 times longer than wide, 0.45–0.5 times as long as first flagellar segment, 0.9 times as long as apical segment; the latter weakly pointed apically and without spine.

Mesosoma. Length 1.7–1.8 times its height. Neck of prothorax short and weakly convex dorsally. Mesoscutum highly and almost perpendicularly or roundly elevated above pronotum. Notauli rather shallow, but very shallow in posterior 0.3, coarsely crenulate. Prescutellar depression deep, rather short, with distinct 6–7 carinae, smooth between them, 0.35–0.4 times as long as scutellum. Scutellum convex, its basal width 1.2 times median length. Metanotum with weak and obtuse or weakly pointed tooth (lateral view). Subalar depression rather shallow, rather narrow, transversely striate with granulation. Sternauli shallow, but deep and wide submedially, partly almost smooth, with longitudinal striae below and curved striae anteriorly, running along almost entirely length of lower part of mesopleuron. Metapleural flange rather short, narrow, and pointed apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.0–3.1 times its width. Radial cell not shortened; metacarpus 1.1–1.15 times longer than pterostigma. Radial vein arising from basal 0.35–0.4 of pterostigma. Second radiomedial vein absent (holotype) or present (paratypes). In holotype, first radial abscissa 0.13 times as long as the weakly curved second abscissa, half as long as first radiomedial vein, 0.8 times as long as recurrent vein. In paratypes, second radial abscissa 1.7 times longer than first abscissa, 0.25–0.3 times as long as the straight third abscissa, 0.8–0.9 times as long as first radiomedial vein. Second radiomedial cell of paratypes small, 2.5–2.7 times longer than wide, 0.9 times as long as brachial cell. First abscissa of medial vein distinctly S-shaped. Recurrent vein distinctly postfurcal, 4.0–5.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.4–0.8 times nervulus length. Hind wing 4.2–4.3 times longer than wide.

First abscissa of costal vein 0.9–1.0 times as long as second abscissa. Medial cell rather narrow, weakly widened distally, 8.0–9.2 times longer than wide, 0.3–0.35 times as long as hind wing. First abscissa of mediocubital vein almost twice longer than second abscissa. Recurrent vein straight, oblique, distinctly antefurcal.

Legs. Fore tibia wide, with 6–7 rather thick and short spines arranged almost in one row; middle tibia wide and with 5–6 rather thick and short spines. Hind coxa short and wide, with distinct basoventral tooth, 1.5–1.6 times longer than wide. Hind femur 2.8–3.0 times longer than wide. Hind tibia thick, with 4–5 apical spines. Hind tarsus almost as long as hind tibia. Hind basitarsus 0.65–0.7 times as long as 2nd–5th segments combined. Second tarsal segment 0.5–0.6 times as long as basitarsus, 1.3–1.4 times longer than fifth segment (without pretarsus).

Metasoma 1.1 times longer than mesosoma and head combined. First tergite weakly and almost linearly widened from base to apex, with small dorsope, spiracular tubercles indistinct or small and situated in basal 0.3. Length of first tergite 1.1 times its apical width; apical width 1.7–2.0 times minimum width. Second tergite with very shallow and short lateral depression, median length of tergite 0.45–0.55 times its basal width, 1.15–1.3 times length of third tergite. Second suture shallow, very shallow medially, with very deep lateral bends (minimum sublateral length of tergite 0.2–0.25 times its maximum median length). Ovipositor sheath distinctly widened from base to subapex, then apically rather strongly pointed, 0.8–0.9 times as long as metasoma, 1.0–1.2 times longer than mesosoma, 0.5–0.6 times as long as fore wing.

Sculpture and pubescence. Vertex transversely striate almost entirely or in anterior half and with very dense granulation between striae; frons densely granulate sometimes with fine striation; face finely or very finely striate and with dense fine granulation between striae, only granulate medially; temple densely granulate in upper 0.7–0.8, coriaceous to almost smooth in lower 0.2–0.3. Mesoscutum densely and rather finely granulate, partly finely rugulose anteriorly, undulately striate with rugosity in wide medioposterior half. Scutellum finely and very densely granulate. Mesopleuron granulate-coriaceous in lower 0.5–0.7, with 2–4 longitudinal and sometimes incomplete striae below sternauli, coarsely striate in upper 0.3–0.5. Propodeum and metapleura coarsely and entirely reticulate-rugose, propodeum without areas delineated by carinae. Hind coxa densely granulate-coriaceous, with rugae dorsally; hind femur densely and finely coriaceous; hind tibia very densely and finely coriaceous. First and second metasomal tergites entirely, third and fourth tergites in basal 0.85 striate and with dense rugulosity between striae, fifth tergite finely and

densely striate-coriaceous in basal half and sixth tergite coriaceous in basal half; third-sixth tergites smooth on the rest parts. Mesoscutum with sparse short semi-erect setae arranged widely along notauli and medioposterior area and narrowly laterally. Hind tibia dorsally with short, rather sparse and semi-erect setae, their length 0.4–0.5 times maximum submedial width of tibia.

Colour. Head and mesosoma in anterior half or almost entirely reddish brown, mesosoma in posterior half or dorsally and metasoma almost entirely dark reddish brown to almost black partly. Antenna light reddish brown in basal 0.25, scape and pedicel sometimes yellowish brown, darkened toward apex, almost black in apical 0.3–0.5. Palpi yellowish brown. Legs reddish brown or light reddish brown, fore coxae, all trochanters and tarsi light brown or yellow; fore femur light reddish brown; all tibiae basally yellow. Ovipositor sheath black. Fore wing faintly infuscate. Pterostigma dark brown to black almost entirely. Veins brown in apical 0.7, yellow or pale brown in basal 0.3.

Male unknown.

Diagnosis. This new species is similar to *L. (D.) transeucasica* (Tobias, 1976) and differs by having the recurrent vein distinctly postfurcal, the vertex rather coarsely striate, the ovipositor and first flagellar segment short, the mesopleuron with striae below sternauli, and the second suture strongly curved laterally. The postfurcal position of the recurrent vein is a key diagnostic character of the cosmopolitan genus *Monolexis* Foerster, 1862. *L. (D.) postfurcalis* sp. nov. distinctly differs from *M. fuscicornis* Foerster, 1862 (type species of this genus) by having the other sculpture of vertex, mesosoma and metasoma, the long first flagellar segment, the narrow and small mesopleuron flange, the very deep lateral bends of second suture, the S-curved first medial abscissa, and the distinctly widened apically medial cell of hind wing.

Distribution. Japan (Honshu, Kyushu).

A key to East Palaearctic species of the genus *Leluthia* Cameron

1. Body distinctly depressed, 2.2–3.6 times longer than maximum height. Mesoscutum weakly and gently-roundly elevated above pronotum (Figs 72, 84). Neck of prothorax rather long, with wide and more or less distinctly convex dorsal lobe (Figs 72, 84). Subgenus *Leluthia* Cameron 2
- Body not or weakly depressed, 1.7–1.8 times longer than maximum height. Mesoscutum strongly and almost perpendicularly elevated above pronotum (Fig. 91). Neck of prothorax short, with

- narrow and weakly convex dorsal lobe (Fig. 91). Subgenus *Euhecabolodes* Tobias 4
2. Body strongly depressed, its length 3.6 times maximum height (Fig. 84). Antenna short, 0.8 times as long as body. Penultimate segments of flagellum thick, 2.7 times longer than wide (Fig. 80). Ovipositor sheath short, 0.7 times as long as metasoma, 1.1 times longer than mesosoma. Body length 3.5 mm. – Japan (Honshu) *L. (L.) nagoyae* sp. nov.
- Body less strongly depressed, its length 2.2–2.5 (rarely 3.0) times maximum height (Fig. 72). Antenna long, almost as long as body. Penultimate segments of flagellum slender, 3.5–4.0 times longer than wide (Fig. 70). Ovipositor sheath long, 0.85–1.0 times as long as metasoma, 1.3–1.55 times longer than mesosoma 3
3. Second metasomal suture distinctly curved sublaterally. Third tergite without additional transverse furrow (Fig. 75). Pterostigma short, 2.7–3.0 times longer than wide (Fig. 76). Second radial abscissa 0.5–0.6 times as long as the straight third abscissa, 1.25–1.3 times longer than first radiomedial vein (Fig. 76). Body brownish yellow or light reddish brown, usually unfuscate dorsally. Hind legs brownish yellow. Body length 2.7–4.4 mm. – Japan (Honshu) *L. (L.) honshuensis* sp. nov.
- Second metasomal suture weakly roundly curved laterally. Third tergite subbasally usually with distinct additional transverse furrow. Pterostigma long, 3.8–4.2 times longer than wide. Second radial abscissa 0.3–0.35 times as long as the straight third abscissa, almost as long as first radiomedial vein. Body mostly dark reddish brown or black. Hind legs reddish brown to dark reddish brown, rarely light reddish brown, tarsus yellow. Body length 2.7–5.5 mm. – Russia (Primorskij kraj, south of the European part), Georgia *L. (L.) disrupta* (Belokobylskij)
4. Recurrent vein distinctly postfurcal (Fig. 95). Mesopleuron with striae below sternauli (Fig. 91). Second suture very deeply broken laterally (Fig. 94). Body length 3.5–4.0 mm. – Japan (Honshu, Kyushu) *L. (E.) postfurcalis* sp. nov.
- Recurrent vein antefurcal. Mesopleuron without striae below sternauli. Second suture less deeply broken laterally 5
5. Body light reddish brown or yellowish brown. Body length 3.0–4.3 mm. – Kazakhstan *L. (E.) asiatica* (Tobias, 1980)
- Body dark reddish brown or black, sometimes with reddish spots. Body length 2.3–3.7 mm. – Mongolia, Russia (Primorskij kraj, Buryatia, south of the European part), Kazakhstan, Georgia *L. (E.) transeucasica* (Tobias 1976) [*E. ulmi* Tobias, 1980]

Mimipodoryctes Belokobylskij, 2001

This small genus with immovably fused first and second metasomal tergites was described recently from the Oriental Region (Belokobylskij 2001). Only three species, *M. robustus* Belokobylskij, 2001, *M. korotyaevi* (Belokobylskij, 1996) and *M. peregrinus* (Belokobylskij, 1994), recorded from Vietnam, Thailand, Malaysia, and China (Taiwan), are known in the genus *Mimipodoryctes*. The discovery of the member of this genus in the southern part of Honshu Island as a part of the Palaearctic Region is undoubtedly remarkable. Thus, *Mimipodoryctes* is recorded for the first time in the Palaearctic and Japanese faunas.

Rhysalus rubriceps Cameron, 1909 and *R. striatulus* Cameron, 1909 were described from Borneo in the beginning of 20th century (Cameron 1909). The type specimen of *Rh. rubriceps* was found in the Natural History Museum (London) [female, "Cotype" (round with yellow border), "J. Hewitt, Kuching", "*Rhysallus* (sic!) *rubriceps* Cam. Type, Borneo" (handwriting by Cameron), "J. 5"; lectotype, designated here]. An examination of this type shows that this species is a member of the genus *Mimipodoryctes* and is a senior synonym of *M. robustus* Belokobylskij, 2001 (syn. nov.). The second species, *R. striatulus* Cameron (type material not found yet), possibly also belongs to one of the genera of the *Rhaconotus*-group.

Mimipodoryctes rokkoensis sp. nov.
(Figs 97–105)

Type material. Holotype: female, "Japan: Honshu, Hyogo Pr., Kobe, Rokko Mts, Maya Mt., 28.VIII.2005, S. Belokobylskij" (NIAES).

Paratype. 1 female, same label as in holotype, but "3.IX.2005" (ZISP).

Description. Female. Body length 4.9–5.9 mm; fore wing length 3.9–4.6 mm.

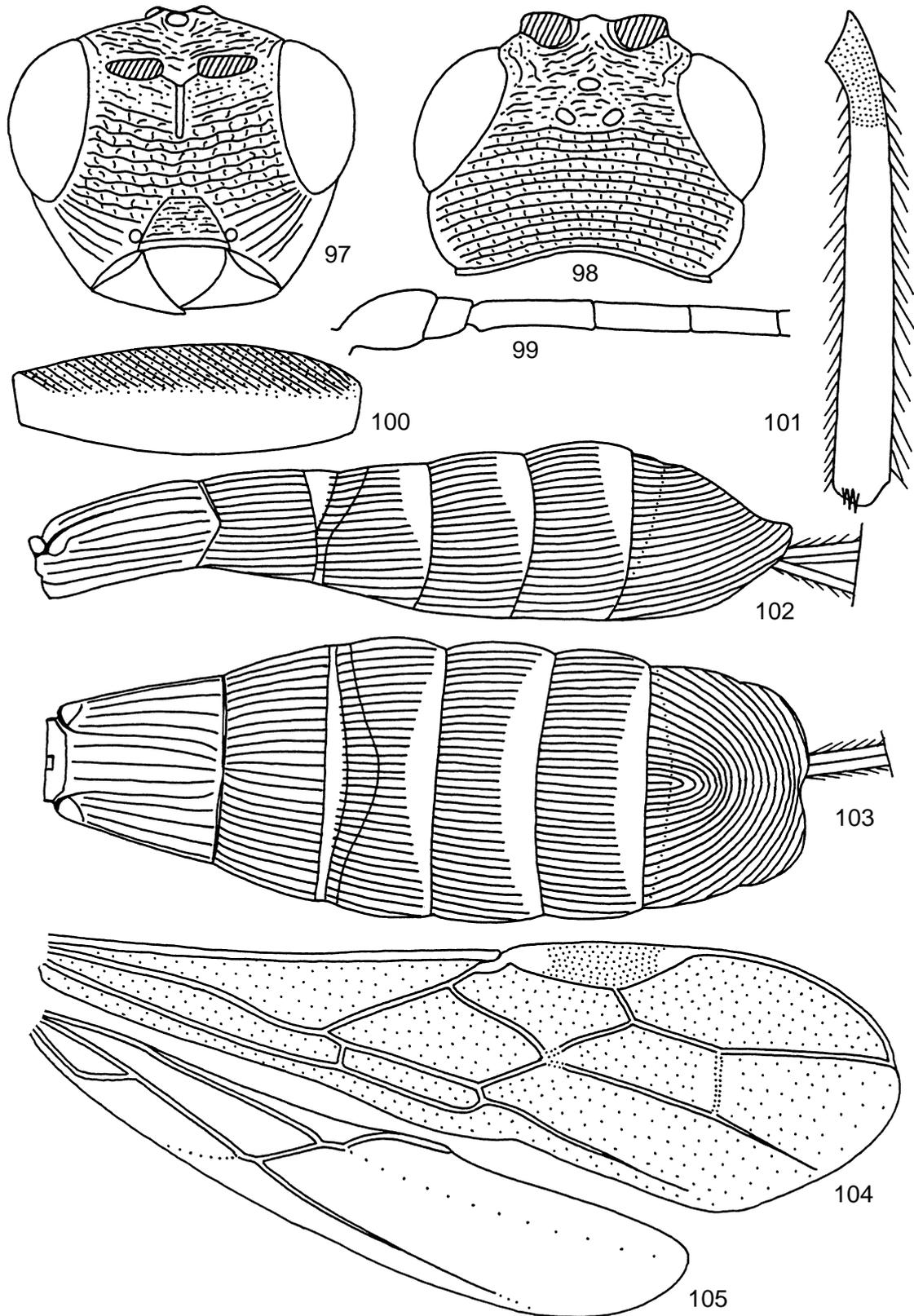
Head width 1.4–1.5 times its median length, 1.1–1.15 times width of mesoscutum. Head behind eyes (dorsal view) convex-roundly narrowed. Transverse diameter of eye 1.8–2.0 times length of temple. Ocelli rather small, arranged in triangle with based 1.3 times its sides; POL 1.3 times Od, 0.55–0.6 times OOL. Eye glabrous, rather distinctly emarginated opposite antennal sockets, 1.2 times as high as broad. Malar space height 0.45–0.5 times height of eye, almost equal to basal width of mandible. Face with rather distinct narrow median vertical area in upper half. Face width 1.0–1.1 times height of eye and 1.2 times height of face and clypeus combined. Malar suture absent. Upper margin of clypeus situated almost at lower level of eyes. Hypoclypeal depression round, its width 0.7–0.75 times distance from edge of depression to eye, 0.4 times

width of face. Clypeus with rather short ventral flange. Occipital carina not fused ventrally with hypostomal carina being obliterated shortly upper base of mandible. Vertex convex. Head below eyes rather distinctly and weakly-roundly narrowed.

Antennae rather slender, weakly setiform, more than 28-segmented (apical segments missing). Length of scape 1.7 times its maximum width. First flagellar segment 4.2–4.8 times longer than its apical width, 1.15–1.2 times longer than second segment. Subapical segments 4.0–4.2 times longer than their width.

Mesosoma. Length about twice its height. Pronotal carina distinct, distances from carina to both sides of pronotum subequal. Mesoscutum rather highly and roundly elevated above pronotum. Notauli deep anteriorly and rather shallow posteriorly, complete, wide, densely and rather coarsely crenulate with dense and fine reticulation. Median lobe of mesoscutum with shallow median furrow. Prescutellar depression rather shallow, wide, distinctly and roundly curved posterolaterally, with median and four lateral carinae, rather distinctly and densely rugulose, 0.3–0.4 times as long as convex scutellum. Sternauli shallow, but deep in short median part, rather narrow, weakly S-shaped, entirely smooth, running along entire lower part of mesopleuron. Subalar depression shallow, wide, densely longitudinally striate. Mesopleural suture smooth in lower half. Metanotum without dorsal tooth. Metapleural lobe rather long, wide, rounded apically, with dense, rather long and white pubescence.

Wings. Fore wing 3.4–3.5 times its maximum width. Radial cell not shortened. Metacarpus 1.3–1.4 times longer than pterostigma. Radial vein arising distinctly behind middle of pterostigma (from its anterior 0.4–0.45). First radial abscissa forming very obtuse angle with second abscissa. Second radial abscissa 2.1–2.3 times longer than first abscissa, half as long as the almost straight third abscissa, almost as long as first radiomedial vein. Second radiomedial vein distinctly curved. Second radiomedial cell medium size, not widened distally, 2.7–3.0 times longer than wide, 1.2–1.25 times longer than rather narrow brachial cell. First medial abscissa weakly or distinctly S-shape. Recurrent vein weakly postfurcal or almost interstitial. Mediocubital vein weakly curved to anal vein in distal half. Nervulus postfurcal, distance between nervulus and basal vein 0.7–0.8 times nervulus length. Brachial cell almost linearly closed behind level of recurrent vein; posterior abscissa of anal vein (behind brachial vein) shortly present. Parallel vein not interstitial, arising a little before middle of distal margin of brachial cell. Hind wing 4.7–5.1 times longer than wide. First costal abscissa 0.5–0.55 times as long as second abscissa. First abscissa of mediocubital vein 0.7–0.8 times as long as second abscissa. Recurrent vein more or less sclerotised basally and unsclerotised



Figures 97–105. *Mimipodoryctes rokkoensis* sp. nov. (97) Head, front view; (98) head, dorsal view; (99) five basal segments of antenna; (100) hind femur; (101) hind tibia; (102) metasoma, lateral view; (103) metasoma, dorsal view; (104) fore wing; (105) hind wing.

apically, curvedly slanted toward base of wing, distinctly antefurcal.

Legs. Hind femur with shallow dorsal protuberance, its length 3.1–3.2 times maximum width. Hind tibia thickened, apically with 3–5 spines. Hind tarsus 1.1 times longer than hind tibia. Hind basitarsus 0.7–0.75 times combined length of 2nd–5th segments. Second tarsal segment 0.4–0.45 times as long as basitarsus, 2.0–2.5 times longer than fourth segment, 1.1–1.2 times longer than fifth segment (without pre-tarsus).

Metasoma 1.1 times longer than head and mesosoma combined, with six visible tergites. First tergite with short, distinct pointed and directed ventrally sub-basal lateral processes. Length of first tergite 0.85–0.9 times apical width, almost equal to length of propodeum; maximum width of tergite about twice its basal width. Second tergite without basal area, without transverse subapical furrow, with distinctly separated by pattern of sculpture narrow smooth apical area. Median length of second tergite (with apical area) 0.65–0.7 times its basal width, 1.7–1.9 times length of third tergite. Second suture deep, rather wide, regularly curved. Sixth tergite enlarged, roundly convex in posterior margin, with rather shallow but distinct median emargination, without posteroventral lobes. Sixth tergite 1.35–1.45 times longer than fifth tergite, 1.5–1.7 times longer than fourth tergite. Ovipositor sheath 1.1 times longer than metasoma, 1.45–1.5 times longer than mesosoma, 0.7–0.75 times as long as fore wing.

Sculpture and pubescence. Vertex densely coarsely and weakly undulately transversely striate, with fine ground reticulation; frons coarsely rugose-striate; face densely rugose-reticulate with dense small granulation between rugulae; temple smooth, finely vertically striate in posterior 0.3. Mesoscutum entirely densely rugose-striate with fine and dense granulation, coarsely rugose in medioposterior 0.3. Scutellum finely or distinctly rugulose-reticulate with dense and distinct granulation. Mesopleuron very finely coriaceous-punctulate in lower half. Metapleuron coarsely rugose-areolate. Propodeum with distinctly delineated by carinae large basolateral areas and rather small areola, basolateral area smooth at least in anterior 0.4, finely granulate-rugulose with short striation along carinae or distinctly striate in posterior 0.6; rest part of propodeum rugose; areola about as long as wide; dorsal carina 1.5–2.0 times longer than anterior fork of areola. Hind coxa densely rugulose-granulate dorsally, finely granulate-coriaceous laterally, smooth in lower half. Hind femur distinctly and rather coarsely striate with dense granulation in upper half, smooth or finely coriaceous partly in lower half. First and second tergites with rather sparsely and third–fifth tergites rather densely coarsely longitudinally striate with fine or very fine ground rugosity, apical area of second tergite

and apical 0.25–0.3 of third–fifth tergites smooth. Sixth tergite entirely densely coarsely and semi-circularly striate 2nd–5th tergites laterally entirely densely and coarsely striate with very fine ground reticulation between striae. Vertex entirely with short, dense, semi-erect pale setae. Mesoscutum entirely with very dense, short and semi-erect yellow setae. Mesopleuron entirely with rather long yellow setae. Hind tibia dorsally with short and long, rather dense, semi-erect setae; length of these setae 0.4–0.9 times maximum width of hind tibia.

Colour. Body black with reddish tint partly; head light reddish brown, yellowish brown or reddish brown, dark reddish brown or almost black ventrally, with black face, occiput, narrow stripe on vertex and sometimes malar space; mesonotum dark reddish brown. Antenna reddish brown or yellowish brown, dark reddish brown two basal and several apical segments. Palpi pale yellow. Legs brownish yellow, hind and sometimes middle coxae dark reddish brown or almost black at least partly, hind femur reddish brown at least laterally, middle and hind tibiae basally, segments of fore and hind tarsi at most part and of middle tarsi in most part of first and fifth segments black or partly dark reddish brown. Ovipositor sheath black. Fore wing rather evenly faintly or very faintly infuscate. Pterostigma dark brown, yellow in basal 0.25 and apically (as well as basal half of metacarpus).

Male unknown.

Diagnosis. This new species is very similar to *M. peregrinus* (Belokobylskij), but differs from the latter by having the first and second tergites shorter, the pubescence of mesosoma yellow, the mesoscutum coarsely transversely striate, the head reddish brown dorsally, the 2nd–4th segments of hind tarsus dark reddish brown to reddish brown, and the hind femur light reddish brown.

Distribution. Japan (Honshu).

A key to species of the genus *Mimipodoryctes* Belokobylskij

1. Second tergite with distinct and smooth basal area. Length of first tergite 0.8–0.85 times its apical width. Length of second tergite 0.5–0.55 times its apical width. Ovipositor shorter, its sheath 0.6–0.65 times as long as fore wing. Body length 3.5–5.1 mm. – Vietnam, Thailand, Malaysia, Indonesia (Borneo) *rubriceps* Cameron
robustus Belokobylskij, **syn. nov.**
- . Second tergite without basal area (Fig. 103). Length of first tergite 0.85–1.2 times its apical width. Length of second tergite 0.65–1.0 times its apical width (Fig. 103). Ovipositor longer, its sheath 0.7–1.1 times as long as fore wing 2

2. Sixth tergite medially with deep and narrow emargination on posterior margin. Vertex densely and linearly striate, with rather sparse setae. Middle tibia pale basally. Apical area of second tergite smooth at most part. Body length 3.8–5.0 mm. – China (Taiwan), Vietnam *korotyaevi* (Belokobylskij)
- Sixth tergite medially with shallow and more or less wide emargination on posterior margin (Fig. 103). Vertex rather sparsely and more or less undulately striate (Fig. 98), with very dense setae. Middle tibia dark basally **3**
3. Setae of mesosomal pubescence white. First and second tergites long; length of first tergite equal to or a little larger than its apical width; median length of second tergite (with apical area) 0.8–0.85 times its basal width. Head mostly yellow dorsally. Hind femur mostly dark reddish brown. 2nd–4th segments of hind tarsus pale yellow. Body length 4.8–7.6 mm. – Vietnam *peregrinus* (Belokobylskij)
- Setae of mesosomal pubescence yellow. First and second tergites short; length of first tergite 0.85–0.9 times its apical width; median length of second tergite (with apical area) 0.65–0.7 times its basal width (Fig. 103). Head mostly reddish brown dorsally. Hind femur light reddish brown. 2nd–4th segments of hind tarsus dark reddish brown to reddish brown. Body length 4.9–5.9 mm. – Japan (Honshu) *M. rokkoensis* sp. nov.

Neurocrassus Šnoflak, 1945

Neurocrassus Šnoflak is a small genus with five species described from the Palaearctic and Oriental (Vietnam) regions (Šnoflak 1945, Belokobylskij 1993b). This genus with undescribed species has also been recorded in North America (Whitfield 1988). Described previously in this genus, *N. mariae* Belokobylskij (Belokobylskij 1993b) is transferred here to the genus *Guaygata* (see above). Five new species of this genus are described below from Japan and two species previously known from the Asian mainland [*N. rarus* (Belokobylskij, 1982) and *N. tentorialis* Belokobylskij, 1993] are recorded for the first time in this country.

The members of this genus, especially females, are very similar to *Ontsira* Cameron. The main diagnostic characters of *Neurocrassus* are the presence of more or less distinct upper tentorial pits (near the posterolateral margins of antennal sockets) in both sexes and a strongly sclerotised spot of varying size and shape on the fore wing in males.

The genus *Neurocrassus* is recorded for the first time for Japan.

Neurocrassus hinoematus sp. nov.
(Figs 106–116)

Type material. Holotype: female, “Hinoemata Village, Fukushima Pref., Honshu, Japan, 16–18.VIII.1999, S. Belokobylskij” (ZISP).

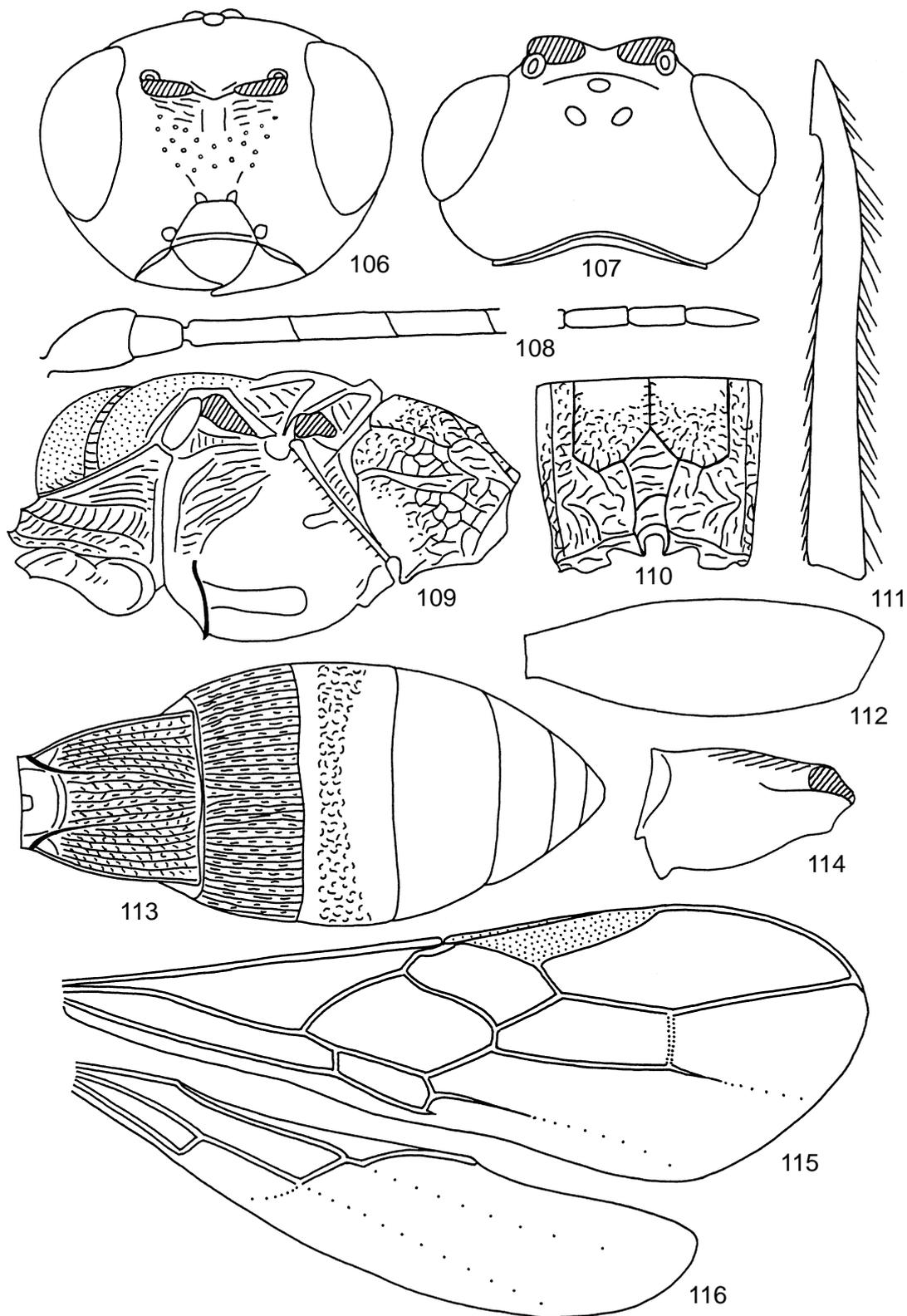
Description. Female. Body length 2.8 mm; fore wing length 2.8 mm.

Head width 1.7 times its median length, 1.1 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and weakly-roundly narrowed. Transverse diameter of eye 1.65 times longer than temple (dorsal view). Ocelli small, in almost equilateral triangle; POL almost equal to Od, 0.4 times OOL. Dorsal tentorial pits near antennal sockets small and subround. Eye glabrous, 1.2 times as high as broad. Malar space height 0.35 times eye height, almost equal to basal width of mandible. Face width 1.1 times eye height and 1.3 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Clypeal suture entirely distinct. Hypoclypeal depression suboval, its width almost equal to distance from edge of depression to eye, 0.4 times width of face. Occipital carina not fused with hypostomal carina being obliterated near base of mandible, but below present rather fine and irregular additional rugae. Hypostomal flange distinct.

Antennae rather slender, weakly setiform, 27-segmented, 1.3 times longer than body. First flagellar segment 4.0 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 segment, 0.9 times as long as apical segment; the latter with short apical spine.

Mesosoma. Length 1.85 times its height. Neck of prothorax short, with fine pronotal keel submedially. Mesoscutum highly and roundly elevated above pronotum, its width 1.2 times median length. Notauli deep anteriorly and shallow posteriorly, narrow, crenulate. Median lobe of mesoscutum convex anteriorly, without distinct median furrow. Prescutellar depression deep, long, rugulose almost entirely, with median carina, 0.45 times as long as convex scutellum. Subalar depression rather shallow, wide, rugose-striate. Sternauli rather shallow anteriorly and deep posteriorly, smooth, running along anterior 0.6 of lower part of mesopleuron. Metanotal tooth short and weakly pointed. Metapleural flange rather wide and rounded apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 3.0 times its width. Metacarpus as long as pterostigma. Radial vein arising before middle of pterostigma (from basal 0.45 of pterostigma). Second radial abscissa 3.0 times longer than first abscissa, 0.6 times as long as third abscissa, 1.5 times longer than first radiomedial vein. Second radiomedial cell 3.0 times longer than its maximum



Figures 106–116. *Neurocrassus hinoematus* sp. nov. (106) Head, front view; (107) head, dorsal view; (108) basal and apical segments of antenna; (109) mesosoma, lateral view; (110) propodeum, dorsal view; (111) hind tibia; (112) hind femur; (113) metasoma, dorsal view; (114) hind coxa; (115) fore wing; (116) hind wing.

width, 1.85 times longer than the wide brachial cell. First medial abscissa weakly S-shaped. Recurrent vein postfurcal, 2.8 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 1.6 times nervulus length. Parallel vein arising from middle of distal margin of brachial cell. Hind wing 4.3 times longer than wide. First abscissa of costal vein half as long as second abscissa. Medial cell wide, 6.5 times longer than wide, 0.4 times as long as hind wing. First abscissa of mediocubital vein 1.3 times longer than second abscissa. Recurrent vein regularly curved towards base of wing, interstitial, unsclerotised.

Legs. Fore tibia with numerous slender spines arranged in almost single row. Hind femur 2.9 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.7 times as long as 2nd–5th segments combined. Second tarsal segment 0.4 times as long as basitarsus, 1.1 times longer than fifth segment (without pretarsus).

Metasoma 0.9 times as long as mesosoma and head combined. First metasomal tergite with distinct dorsope, with small spiracular protuberances in basal 0.3, distinctly and almost linearly widened from base to apex, with fine and almost complete dorsal carinae. Length of first tergite equal to its apical width; apical width about twice its minimum width. Second tergite length about half its basal width, 1.1 times length of third tergite. Second suture shallow, narrow, weakly curved. Third tergite with very shallow transverse furrow in basal 0.3. Length of second and third tergites combined equal to basal width of second tergite, 0.8 times their maximum width. Ovipositor sheath 0.6 times as long as metasoma, 0.7 times as long as mesosoma, 0.3 times as long as fore wing.

Sculpture and pubescence. Head smooth, face finely and sparsely punctulate, finely and narrowly rugulose-striate medially. Mesoscutum finely and densely granulate with sparse and shallow punctulation, with two rather distinct and strongly convergent posteriorly striae and distinct rugulosity in medioposterior area. Scutellum smooth with fine and sparse punctulation. Mesopleuron smooth in lower 0.8. Propodeum with areas distinctly delineated by carinae, basolateral areas smooth in basal 0.3, densely and distinctly granulate with rugulosity posteriorly, rest part of propodeum rather coarsely rugose-striate; areola long and narrow, 1.7 times longer than wide; petiolate area short; basal carina 2.4 times longer than anterior fork of areola. Hind coxa densely striate in dorso-posterior 0.7, smooth at rest part. Femur smooth. First and second metasomal tergites entirely distinctly and densely striate with dense and fine ground rugulosity between striae. Third tergite in subbasal 0.2 distinctly and rather finely rugulose-striate. Remainder tergites smooth. Vertex with rather sparse short and semi-erect setae in posterior half and laterally, glabrous in

medioanterior half. Mesoscutum entirely with dense short semi-erect white setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with short and long, dense and semi-erect setae, their length 0.6–0.8 times maximum width of tibia.

Colour. Head black, area around base of mandible light reddish brown. Mesosoma almost black, mesopleuron in lower half, metapleuron and propodeum light reddish brown. Metasoma light reddish brown or yellowish brown, almost black apically. Antenna dark reddish brown to black, four basal segments light reddish brown. Palpi yellow. Legs brownish yellow, hind coxa light reddish brown, hind tibia in apical half paler. Ovipositor sheath black, brown basally. Wings faintly infusate. Pterostigma entirely brown.

Male unknown.

Diagnosis. The new species is similar to *N. rarus* (Belokobylskij), but differs by having the head transverse and behind eyes strongly and weakly-roundly narrowed, the hind femur wide, the mesoscutum finely granulate, the mesosoma long, the radial vein arising before middle of pterostigma, and the parallel vein arising from the middle of distal margin of brachial cell.

Distribution. Japan (Honshu).

Neurocrassus hypodoryctoides sp. nov.

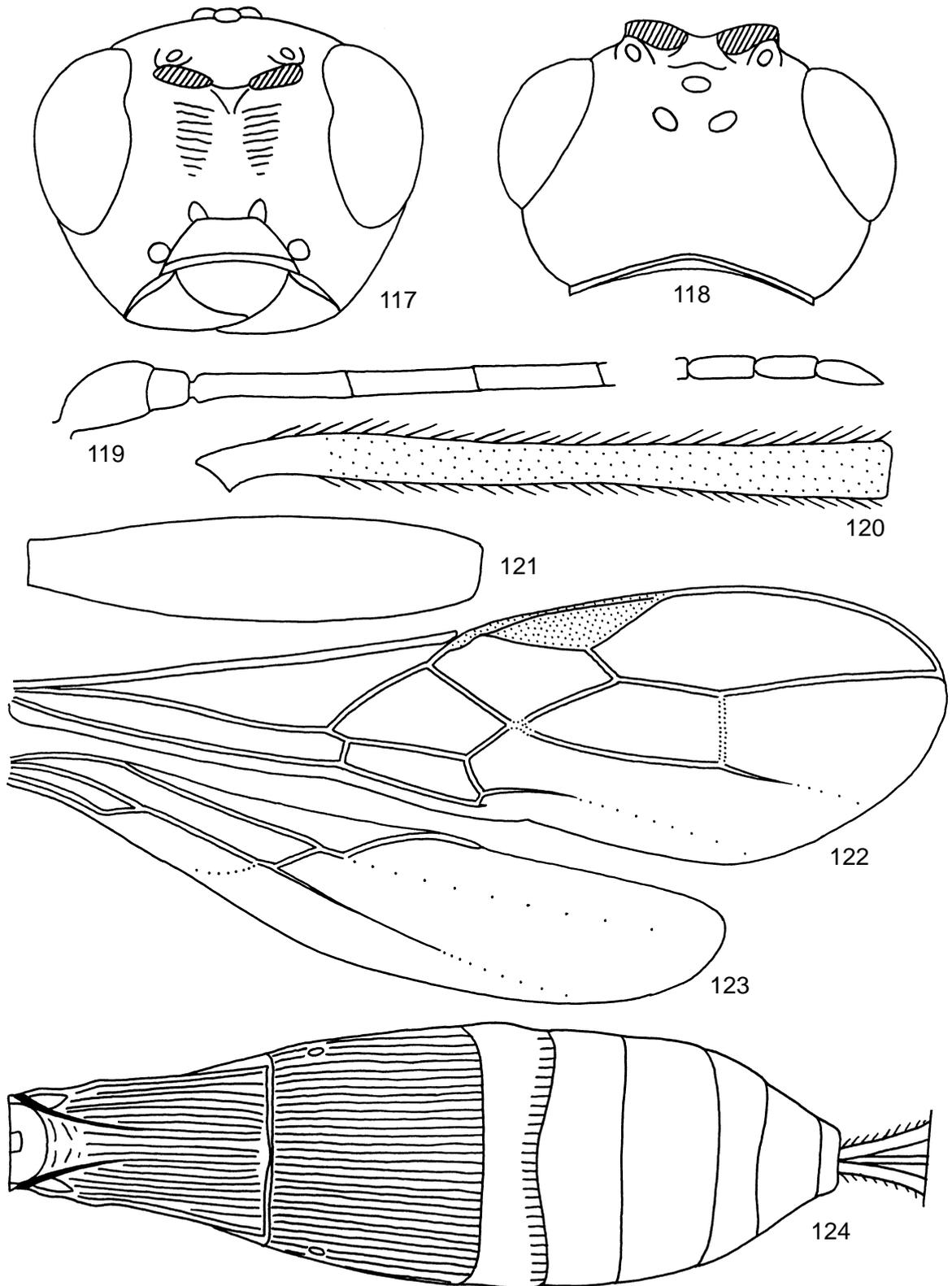
(Figs 117–124)

Examined material. Holotype: female, Japan, “Shimashima-dani (900–1300 m), Nagano Pref., 25.VIII.1978, K. Maeto leg.” (NIAES).

Paratype. 3 females, “Japan: Honshu, Hyogo Pref., Kobe, Rokko Mts., Maya Mt., forest, S. Belokobylskij” 21 & 27.VIII, 29.IX.2005 (ZISP, KBUJ); 1 female, Japan, “Tsubaigawa, Iwasaki-mura, Aomori Pref., 30.VII.1994, T. Ichita” (NIAES).

Description. Female. Body length 3.1–4.7 mm; fore wing length 2.7–3.8 mm.

Head width 1.45–1.6 times its median length, 1.2–1.25 times as wide as mesoscutum. Head behind eyes (dorsal view) regularly and distinctly roundly narrowed. Transverse diameter of eye 1.7–2.0 times longer than temple (dorsal view). Ocelli medium-sized, arranged in triangle with base 1.1–1.15 times its sides; POL 0.7–1.0 times Od, 0.3–0.4 times OOL. Dorsal tentorial pits near antennal sockets small and subround. Eye glabrous, 1.1–1.15 times as high as broad. Malar space height 0.4–0.45 times height of eye, 0.8–1.0 times basal width of mandible. Face width almost equal to height of eye and 1.0–1.2 times height of face and clypeus combined. Malar suture very shallow. Clypeus with wide lower flange. Clypeal suture distinct and complete. Hypoclypeal depression subround, its width 0.85–1.0 times distance from edge of depression to eye, 0.4–0.5 times width of face. Occipital carina below



Figures 117–124. *Neurocrassus hypodoryctoides* sp. nov. (117) Head, front view; (118) head, dorsal view; (119) basal and apical segments of antenna; (120) hind tibia; (121) hind femur; (122) fore wing; (123) hind wing; (124) metasoma, dorsal view.

fused with hypostomal carina upper base of mandible. Hypostomal flange distinct.

Antennae rather slender, almost filiform, 29–34-segmented, 1.2–1.3 times longer than body. First flagellar segment 5.5–6.2 times longer than its apical width, 1.25–1.35 times longer than second segment. Penultimate segment 2.8–3.0 times longer than wide, 0.4–0.5 times as long as first flagellar segment, 0.8–1.0 times as long as apical segment; the latter shortly pointed apically.

Mesosoma. Length 1.75–1.85 times its height. Neck of prothorax rather short, weakly convex dorsally and with high pronotal carina submedially or in anterior 0.4. Mesoscutum highly and roundly elevated above pronotum, its width 1.2 times median length. Notauli deep anteriorly and shallow posteriorly, rather wide, coarsely crenulate anteriorly, rugose-crenulate in posterior half. Median lobe of mesoscutum convex anteriorly, without distinct median furrow. Prescutellar depression rather deep, with 1–3 carinae, median carina strong, almost smooth or finely rugulose between carinae, 0.4 times as long as convex scutellum. Subalar depression rather deep, wide, coarsely rugose-striate. Sternauli rather shallow, but deep posteriorly in sub-round area, entirely smooth, running along anterior 0.5–0.6 of lower part of mesopleuron. Metanotal tooth short but distinct and pointed. Metapleural flange rather short, wide, rounded apically. Propodeum with rather distinct, short, thick lateral tubercles.

Wings. Fore wing 3.3–3.6 times longer than its maximum width. Radial vein arising distinctly behind middle of pterostigma (from its apical 0.35–0.43). Metacarpus 1.3–1.5 times longer than pterostigma. Second radial abscissa 2.6–3.2 times longer than first abscissa, 0.45–0.55 times as long as third abscissa, 1.1–1.2 times longer than first radiomedial vein. Second radiomedial cell 2.5–2.9 times longer than its maximum width, 1.3–1.6 times longer than brachial cell. First medial abscissa weakly S-shaped. Recurrent vein antefurcal, 3.0–4.5 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.6–0.8 times nervulus length. Parallel vein arising from posterior 0.3 of distal margin of brachial cell. Hind wing 5.0–5.5 times longer than maximum width. First costal abscissa 0.6–0.7 times as long as second abscissa. Medial cell wide, 7.5–9.0 times longer than wide, 0.4–0.45 times as long as wing. First abscissa of mediocubital vein 0.9–1.2 times as long as second abscissa. Recurrent vein more or less distinctly and uniformly curved, weakly antefurcal, partly sclerotised.

Legs. Fore tibia with numerous slender spines arranged in almost single row or in very narrow stripe. Hind femur 3.9–4.1 times longer than wide. Hind tarsus 1.1–1.15 times longer than hind tibia. Hind basitarsus 0.75–0.85 times as long as 2nd–4th segments combined. Second segment of hind tarsus 0.4–0.45 times as long

as basitarsus, 1.6–1.7 times longer than fifth segment (without pretarsus).

Metasoma 1.1 times longer than head and mesosoma combined. First tergite with large dorsope, with small spiracular tubercles in basal 0.3, weakly and almost linearly widened from base to apex, with distinct, almost complete and subparallel dorsal carinae. Length of first tergite 1.45–1.55 times its apical width; maximum width 1.7–1.9 times its minimum width. Second tergite length 1.1–1.15 times its basal width, 1.6–1.8 times length of third tergite. Second suture almost straight, but weakly curved laterally, rather distinct, complete. Third tergite with rather deep, wide and more or less widely crenulate transverse furrow. Length of second and third tergites combined 1.8–1.9 times basal width of second tergite, 1.3–1.4 times their maximum width. Ovipositor sheath 1.1–1.4 times longer than body, 2.0–2.7 times longer than metasoma, 3.0–4.0 times longer than mesosoma, 1.2–1.7 times longer than fore wing.

Sculpture and pubescence. Vertex, temple and frons smooth; face finely transversely striate medially or in median upper half, widely smooth laterally and sometimes below, rarely face entirely smooth. Mesoscutum rather finely, densely punctulate-rugulose anteriorly and rather sparsely punctulate posteriorly, smooth between punctulae and sometimes in posterior 0.2, usually coarsely rugose-striate in rather narrow medioposterior half. Scutellum almost smooth. Mesopleuron mostly smooth. Propodeum with areas distinctly delineated by carinae; basolateral areas large, usually smooth medially (sometimes widely) or rarely basally only, rugulose (sometimes widely) along carinae or rarely at most part; areola long and narrow or rather wide, 1.2–1.7 times longer than wide, petiolate area short; dorsal carina rather long, 1.5–2.0 times longer than anterior fork of areola. Hind coxae rather coarsely striate in dorsal 0.2–0.5, smooth on rest part. Hind femur entirely smooth. First and second tergites densely, coarsely and almost linearly striate with fine or very fine ground sculpture between striae. Third tergite rather widely striate in subbasal furrow, smooth basally and in apical 0.5–0.6. Remainder tergites smooth. Vertex with rather sparse, short and semi-erect setae, sometimes shortly glabrous anteriorly; mesoscutum almost entirely with dense, short and semi-erect pale setae. Hind tibia dorsally with short, very dense and semi-erect setae, length of these setae 0.4–0.5 times maximum width of hind tibia.

Colour. Body black or dark reddish brown; malar space, lower part of temple, clypeus or its lower margin only brownish yellow or yellow; mesosoma along sutures, notauli and in medioposterior 0.4 of mesoscutum, areas around bases of wings and mesopleuron around or below sternauli reddish brown or light reddish brown; metasoma reddish brown medially or

reddish brown to dark reddish brown in apical half, rarely third tergite and apex of metasoma yellowish brown. Antennae black, dark reddish brown basally, two–three basal segments brownish yellow or yellowish brown. Palpi yellow. Legs yellow or brownish yellow, sometimes distally partly faintly infusate, all tibiae basally pale yellow. Ovipositor sheath brown or black. Fore wing very faintly infusate. Pterostigma entirely brown or dark brown.

Male unknown.

Diagnosis. This new species differs from the all known species of *Neurocrassus* Šnoflak by having the distinctly long ovipositor, the first and second metasomal tergites, the first flagellar segment and the hind basitarsus.

Distribution. Japan (Honshu).

Neurocrassus ibarakius sp. nov.
(Figs 125–133)

Type material. Holotype: female, “18/19.VI–2/3.VII.2002, H. Goto leg., Malaise trap”, “Ogawa, Kitaibaraki-shi, Ibaraki Pref. [Japan: Honshu]” (NIAES).

Description. Female. Body length 2.6 mm; fore wing length 2.3 mm.

Head width 1.45 times its median length, 1.1 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and roundly narrowed. Transverse diameter of eye 1.55 times longer than temple (dorsal view). Ocelli rather small, arranged in triangle with base 1.1 times its sides; POL 1.4 times Od, 0.35 times OOL. Dorsal tentorial pits near antennal sockets rather small and subround. Eye glabrous, 1.2 times as high as broad. Malar space height 0.35 times eye height, 0.7 times basal width of mandible. Face width almost equal to eye height and 1.2 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Clypeal suture entirely distinct. Hypoclypeal depression suboval, its width almost equal to distance from edge of depression to eye, half width of face. Occipital carina not fused with hypostomal carina being obliterated at short distance near base of mandible. Hypostomal flange distinct.

Antennae rather slender, almost filiform, 24-segmented, 1.2 times longer than body. First flagellar segment 4.3 times longer than its apical width, 1.2 times longer than second segment. Penultimate segment 3.2 times longer than wide, 0.6 times as long as first segment, 0.9 times as long as apical segment; the latter with short apical spine.

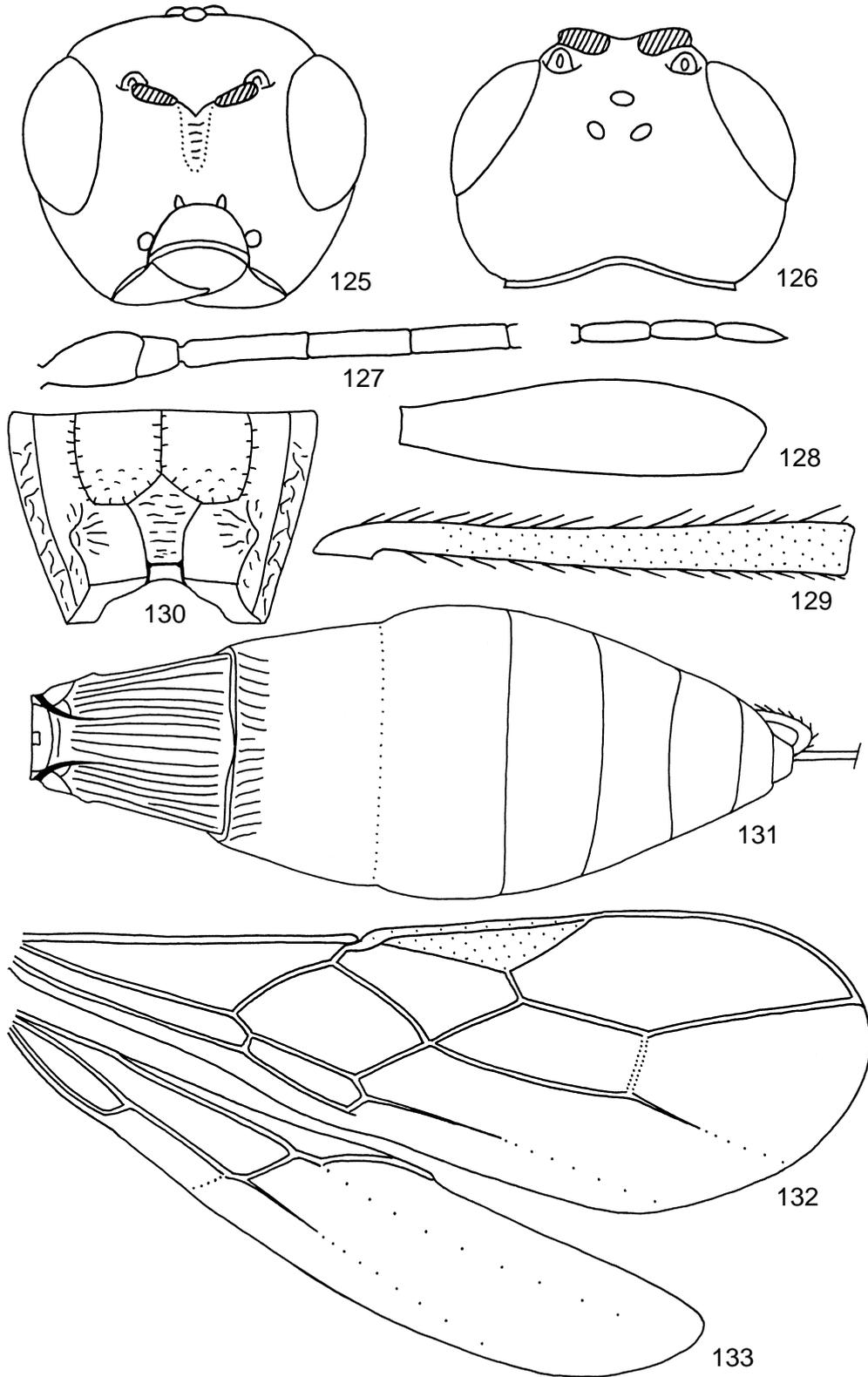
Mesosoma. Length 1.7 times its height. Neck of prothorax short, with rather distinct pronotal keel submedially. Mesoscutum rather highly and roundly elevated

above pronotum, its width 1.15 times median length. Notauli deep anteriorly and rather shallow posteriorly, narrow, finely and densely crenulate with fine granulation. Median lobe of mesoscutum convex anteriorly, without median furrow. Prescutellar depression deep, rather short, almost smooth, with distinct median carina, 0.25 times as long as convex scutellum. Subalar depression rather shallow, wide, partly finely rugose-striate. Sternauli rather shallow anteriorly and deep posteriorly, smooth, running along anterior half of lower part of mesopleuron. Metanotal tooth very short and weakly pointed. Metapleural flange narrow and rounded apically. Propodeum without lateral tubercles.

Wings. Length of fore wing 2.8 times its width. Metacarpus 1.2 times longer than pterostigma. Radial vein arising behind middle of pterostigma (from anterior 0.4). Second radial abscissa 4.3 times longer than first abscissa, 0.6 times as long as third abscissa, 1.3 times longer than first radiomedial vein. Second radiomedial cell 2.7 times longer than its maximum width, 1.8 times longer than the wide brachial cell. First medial abscissa very weakly curved. Recurrent vein weakly antefurcal, about 12.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 1.5 times nervulus length. Parallel vein arising from middle of distal margin of brachial cell. Hind wing 5.0 times longer than wide. First abscissa of costal vein 0.55 times as long as second abscissa. Medial cell wide, 6.5 times longer than wide, 0.4 times as long as hind wing. First abscissa of mediocubital vein almost as long as second abscissa. Recurrent vein weakly curved towards base of wing, oblique, distinctly antefurcal, pigmented.

Legs. Fore tibia with several slender spines arranged in almost single row. Hind femur 4.0 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.7 times as long as 2nd–5th segments combined. Second tarsal segment 0.4 times as long as basitarsus, almost as long as fifth segment (without pretarsus).

Metasoma 1.1 times longer than mesosoma and head combined. First metasomal tergite with distinct dorsope, with small spiracular protuberances in basal 0.3, distinctly and almost linearly widened from base to apex, with distinct and complete dorsal carinae. Length of first tergite 1.1 times its apical width; apical width 2.3 times its minimum width. Second tergite length 0.7 times its basal width, 1.2 times length of third tergite. Second suture shallow, narrow, weakly curved. Third tergite without transverse furrow. Length of second and third tergites combined 1.3 times basal width of second tergite, 0.9 times their maximum width. Ovipositor sheath 0.8 times as long as metasoma, 1.2 times longer than mesosoma, 0.45 times as long as fore wing.



Figures 125–133. *Neurocrassus ibarakius* sp. nov. (125) Head, front view; (126) head, dorsal view; (127) basal and apical segments of antenna; (128) hind femur; (129) hind tibia; (130) propodeum, dorsal view; (131) metasoma, dorsal view; (132) fore wing; (133) hind wing.

Sculpture and pubescence. Head smooth, face narrowly and finely rugulose medially in upper half. Mesoscutum finely or very finely and densely granulate, with two distinct and strongly convergent posteriorly striae and fine rugulosity in medioposterior area. Scutellum smooth. Mesopleuron smooth in lower 0.8. Metapleuron very finely reticulate-coriaceous in anterior half and distinctly rugose-reticulate in posterior half. Propodeum with areas distinctly delineated by carinae, basolateral areas smooth to finely coriaceous almost entirely, without rugulosity along carinae, rest part of propodeum very finely coriaceous to almost smooth; areola finely rugulose, rather long and narrow, about 1.5 times longer than wide; petiolate area short; basal carina 1.6 times longer than anterior fork of areola. Hind coxa and femur smooth. First metasomal tergite entirely distinctly and rather sparsely striate with very fine ground rugulosity between striae. Second tergite mostly smooth with very fine reticulation partly, rather distinctly striate in basolateral 0.3. Remainder tergites (including base of third one) smooth. Vertex almost entirely with sparse short and semi-erect setae. Mesoscutum entirely with rather dense short semi-erect white setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather long, rather sparse and semi-erect setae, their length 0.4–0.7 times maximum width of tibia.

Colour. Body dark reddish brown with reddish spots, area around base of mandible and lower part of clypeus yellow; metasoma behind first tergite yellowish brown with reddish brown margins. Antenna black, scape and pedicel brownish yellow. Palpi yellow. Legs brownish yellow, hind tibia rather distinctly infuscate at most part, all tibiae pale yellow basally. Ovipositor sheath black or brown. Wings very faintly infuscate. Pterostigma entirely brownish.

Male unknown.

Diagnosis. The new species is similar to *N. rarus* (Belokobylskij), but differs by having the second tergite mostly smooth except at the base, where is striate, the ovipositor sheath long, the hind femur narrow, the first abscissa of mediocubital vein of hind wing as long as second abscissa, and the propodeum generally smooth.

Distribution. Japan (Honshu).

Neurocrassus miyanourus sp. nov.

(Figs 134–141)

Type material. Holotype: female, "Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 28.VIII–19.IX.1999, T. Murata; MT (A. Hanai)" (MUNJ).

Paratype. 1 female, "Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 18.X–30.XI.1999, T. Murata; MT (S. Miyashita)" (ZISP).

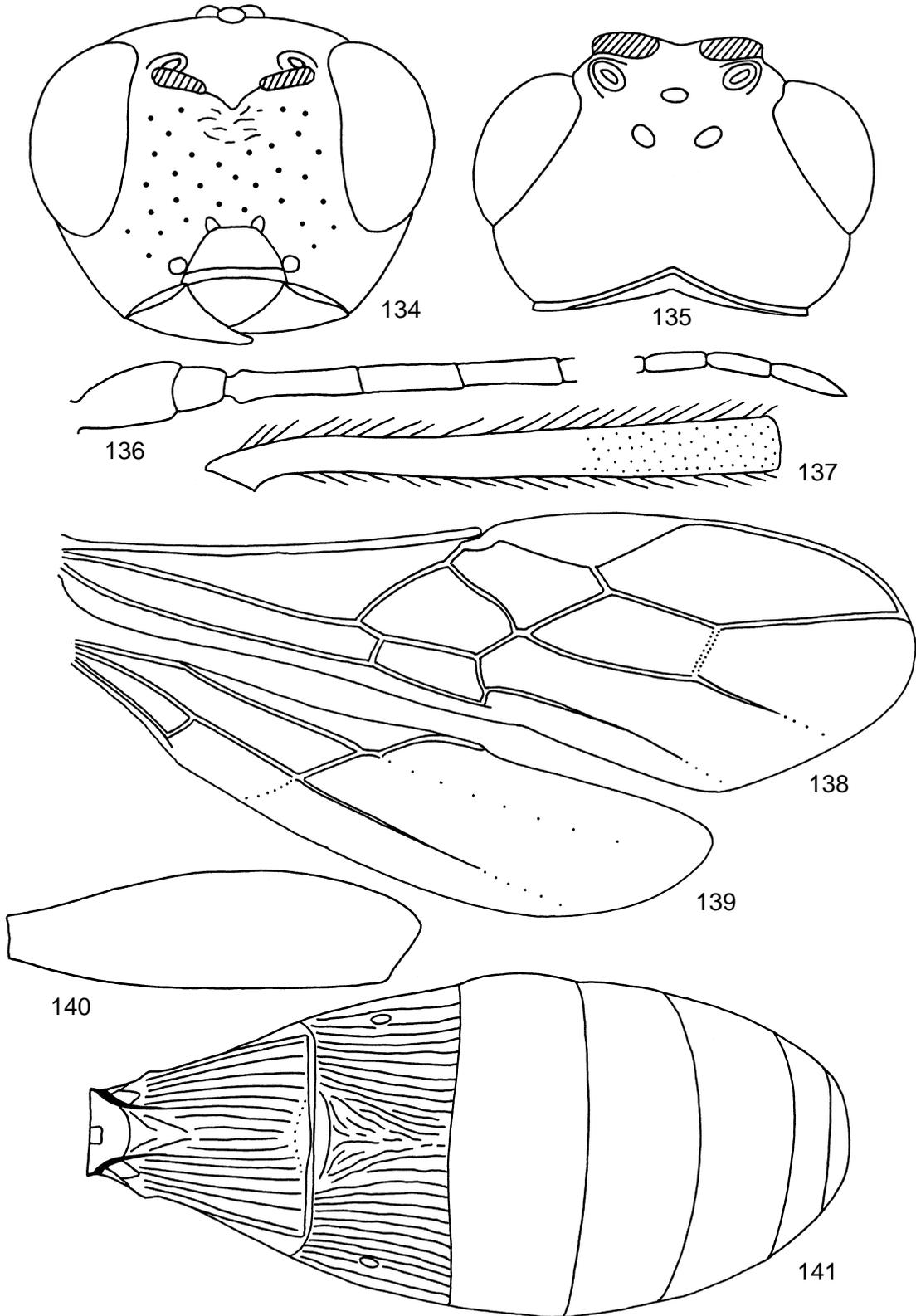
Description. Female. Body length 4.1–4.9 mm; fore wing length 3.5–3.6 mm.

Head width 1.4–1.5 times its median length, 1.1–1.2 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and roundly narrowed. Transverse diameter of eye 1.8–2.0 times longer than temple (dorsal view). Ocelli medium-sized, arranged in triangle with base 1.2–1.25 times its sides; POL 1.2–1.5 times Od, 0.55–0.6 times OOL. Dorsal tentorial pits near antennal sockets rather large and oval. Eye glabrous, 1.2 times as high as broad. Malar space height 0.35–0.4 times eye height, 0.8 times basal width of mandible. Face width almost equal to eye height and 1.2 times height of face and clypeus combined. Malar suture very shallow. Clypeus with rather wide and almost perpendicular lower flange. Clypeal suture distinct and complete. Hypoclypeal depression subround, its width 0.85 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina not fused with hypostomal carina being obliterated near base of mandible. Hypostomal flange distinct.

Antennae rather thick, weakly setiform, 33-segmented, 1.1 times longer than body. First flagellar segment 4.5–4.8 times longer than its apical width, 1.25–1.3 times longer than second segment. Penultimate segment 3.2 times longer than wide, 0.45 times as long as first segment, 0.8 times as long as apical segment; the latter with rather long apical spine.

Mesosoma. Length 1.75 times its height. Neck of prothorax short, with rather distinct pronotal keel in anterior 0.3. Mesoscutum highly and roundly elevated above pronotum, its width 1.1 times median length. Notauli deep anteriorly and rather shallow posteriorly, rather narrow, densely rugulose-crenulate. Median lobe of mesoscutum convex anteriorly, without distinct median furrow. Prescutellar depression deep, rather long, almost smooth, with median carina, 0.4–0.45 times as long as convex scutellum. Subalar depression rather shallow, wide, rugose-striate. Sternauli shallow anteriorly and deep posteriorly, smooth or finely and very narrowly crenulate, running along anterior 0.5–0.6 of lower part of mesopleuron. Metanotal tooth short and weakly pointed. Metapleural flange rather wide and rounded apically. Propodeum with short and wide lateral tubercles.

Wings. Length of fore wing about 3.0 times its width. Metacarpus 1.15–1.2 times longer than pterostigma. Radial vein arising from middle of pterostigma. Second radial abscissa 3.1–3.8 times longer than first abscissa, 0.5–0.55 times as long as third abscissa, 1.25–1.3 times longer than first radiomedial vein. Second radiomedial cell 2.4–2.6 times longer than its maximum width, about 1.5 times longer than the wide brachial cell. First medial abscissa weakly or rather distinctly S-shaped. Recurrent vein weakly antefurcal, 5.5–7.0 times longer than second abscissa of medial vein. Distance from



Figures 134–141. *Neurocrassus miyanourus* sp. nov. (134) Head, front view; (135) head, dorsal view; (136) basal and apical segments of antenna; (137) hind tibia; (138) fore wing; (139) hind wing; (140) hind femur; (141) metasoma, dorsal view.

nervulus to basal vein 0.6–0.9 times nervulus length. Parallel vein arising behind middle of distal margin of brachial cell. Hind wing 4.5 times longer than wide. First abscissa of costal vein 0.55 times as long as second abscissa. Medial cell wide, 6.0–6.2 times longer than wide, 0.4 times as long as hind wing. First abscissa of mediocubital vein 1.1–1.2 times longer than second abscissa. Recurrent vein weakly curved towards base of wing, oblique, interstitial, pigmented.

Legs. Fore tibia with numerous slender spines arranged in almost single row. Hind femur 3.3–3.4 times longer than wide. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.65–0.7 times as long as 2nd–5th segments combined. Second tarsal segment 0.4–0.45 times as long as basitarsus, 1.3–1.4 times longer than fifth segment (without pretarsus).

Metasoma 1.3–1.5 times longer than mesosoma and head combined. First metasomal tergite with distinct dorsope, with small spiracular protuberances in basal 0.3–0.35, distinctly and almost linearly widened from base to apex, with distinct and complete dorsal carinae. Length of first tergite almost equal to its apical width; apical width 2.2 times its minimum width. Second tergite length 0.55–0.6 times its basal width, equal to length of third tergite. Second suture shallow, narrow, almost straight. Third tergite with very shallow transverse furrow in basal 0.3. Length of second and third tergites combined 1.1–1.15 times basal width of second tergite, 0.8–0.9 times their maximum width. Ovipositor sheath 0.75–0.9 times as long as metasoma, 1.4–1.5 times longer than mesosoma, 0.6 times as long as fore wing.

Sculpture and pubescence. Head smooth, face distinctly punctulate, finely or very finely rugulose upper. Mesoscutum finely and rather sparsely punctulate with very fine and partly indistinct granulation, with two distinct and strongly convergent posteriorly striae and distinct rugulosity in medioposterior area. Scutellum smooth. Mesopleuron smooth in lower 0.8, sometimes finely coriaceous posteriorly. Propodeum with areas distinctly delineated by carinae, basolateral areas smooth in basal 0.7–0.8 and distinct rugulosity posteriorly, rest part of propodeum coarsely and rather densely rugose-striate; areola rather long and narrow, 1.7 times longer than wide; petiolate area short; basal carina 1.2–1.5 times longer than anterior fork of areola. Hind coxa curvedly striate dorsally, smooth on the rest part. Femur entirely smooth. First metasomal tergite almost entirely distinctly and rather densely striate and without ground sculpture, smooth at small medioapical area. Second tergite densely, regularly and distinctly striate almost entirely and with fine ground rugulosity between striae, smooth on rather large or small and narrow mediobasal area. Remainder tergites (including base of third one) smooth. Vertex entirely with rather sparse, rather long and semi-erect

setae. Mesoscutum entirely with dense short semi-erect white setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather long, dense and semi-erect setae, their length 0.35–0.8 times maximum width of tibia.

Colour. Body almost black or dark reddish brown, with reddish or reddish brown spots upper eyes, on lower and posterior parts of mesopleuron, sometimes also on medioposterior half of mesoscutum and scutellum; area around base of mandible yellowish brown; metasoma in posterior half brownish yellow or yellow. Antenna black, scape and pedicel light reddish brown. Palpi pale yellow. Legs brownish yellow or yellow, all tibiae faintly infusate in apical halves and pale yellow basally. Ovipositor sheath black or brown. Wings faintly infusate. Pterostigma entirely light brown.

Male unknown.

Diagnosis. The new species is very similar to *N. tentorialis* Belokobylskij (Belokobylskij 1993b), but differs by having the mesoscutum finely granulate, the scutellum smooth, the parallel vein of the fore wing arising distinctly behind the middle of the distal margin of brachial cell, the recurrent vein of the fore wing rather distinctly antefurcal, and the second tergite coarsely and regularly striate.

Distribution. Japan (Yakushima I.).

Neurocrassus rarus (Belokobylskij, 1982)

Ontsira rara Belokobylskij, 1982: 66.

Neurocrassus rarus: Belokobylskij 1993b: 164, 1998b: 66.

Examined material. Japan: 1 female, 1 male, “18/19.VI–2/3.VII.2002, H. Goto leg., Malaise trap”, “Sarugajo, Kitaibaraki-shi, Ibaraki Pref. [Japan: Honshu]” (KBUJ); 1 female, “Japan: Honshu, Hyogo Pr., Kobe, Rokko Mts, Maya Mt., forest, 17.IX.2005, S. Belokobylskij” (ZISP).

Distribution. Japan (Honshu) (first record); Vietnam, Russia (south of Far East), Abkhazia, Ukraine.

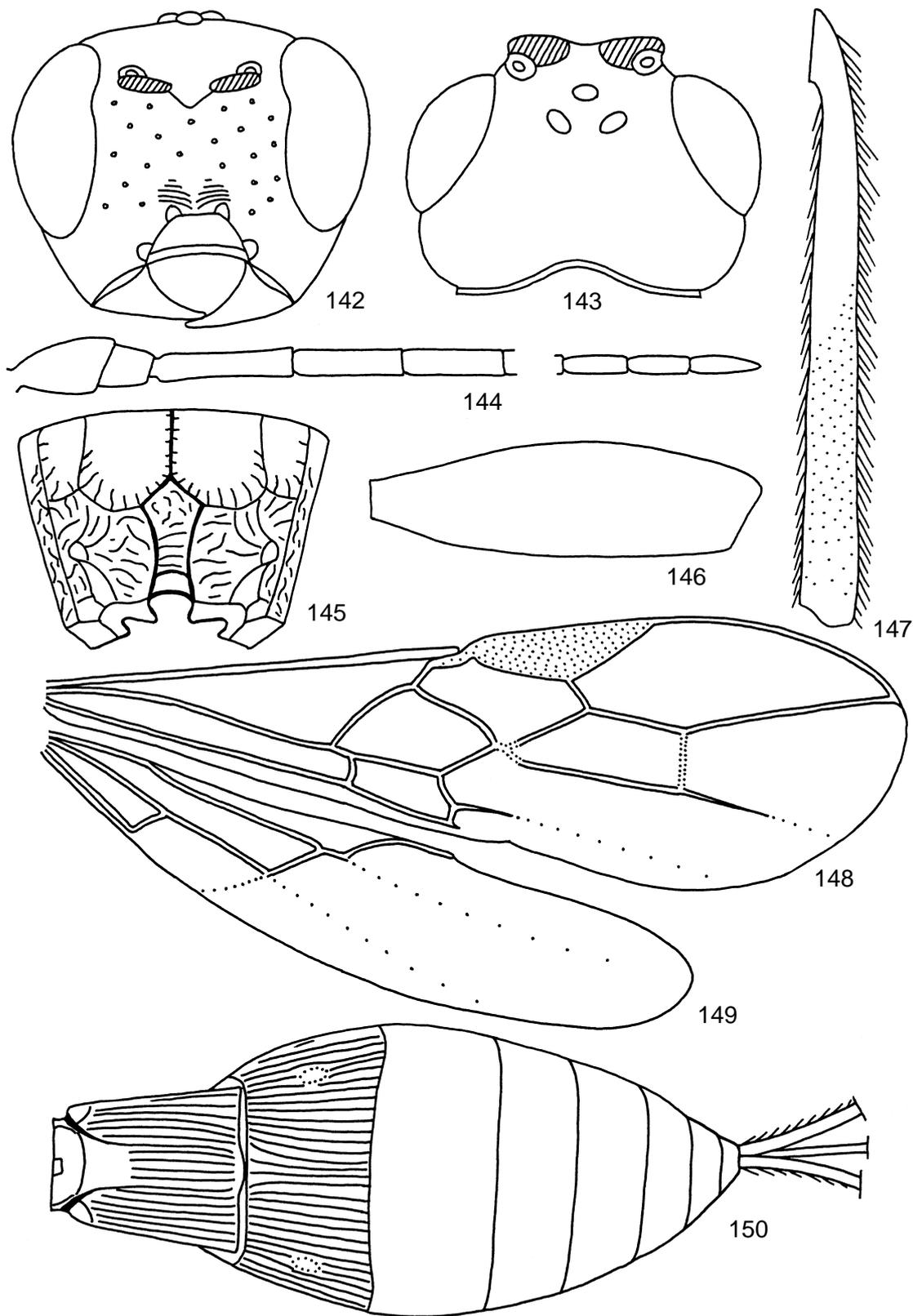
Neurocrassus sanageensis sp. nov.

(Figs 142–150)

Type material. Holotype: female, “Japan: Aichi, Mt. Sanage, 16–22.X.1992, T. Kanbe; Ms. Tr. Evergr. forest “ (NIAES).

Description. Female. Body length 3.6 mm; fore wing length 3.2 mm.

Head width 1.6 times its median length, 1.15 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and roundly narrowed. Transverse diameter of eye 1.7 times longer than temple (dorsal view). Ocelli small, arranged in triangle with base 1.2 times its



Figures 142–150. *Neurocrassus sanageensis* sp. nov. (142) Head, front view; (143) head, dorsal view; (144) basal and apical segments of antenna; (145) propodeum, dorsal view; (146) hind femur; (147) hind tibia; (148) fore wing; (149) hind wing; (150) metasoma, dorsal view.

sides; POL 1.1 times Od, 0.6 times OOL. Dorsal tentorial pits near antennal sockets small and subround. Eye glabrous, 1.2 times as high as broad. Malar space height 0.4 times eye height, 0.85 times basal width of mandible. Face width almost equal to eye height and 1.1 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Clypeal suture distinct laterally, very shallow above. Hypoclypeal depression suboval, its width almost equal to distance from edge of depression to eye, 0.45 times width of face. Occipital carina fused with hypostomal carina near base of mandible. Hypostomal flange distinct.

Antennae rather slender, weakly setiform, 32-segmented, 1.3 times longer than body. First flagellar segment 4.6 times longer than its apical width, 1.2 times longer than second segment. Penultimate segment 3.6 times longer than wide, half as long as first segment, 0.8 times as long as apical segment; the latter pointed apically and with apical spine.

Mesosoma. Length 1.8 times its height. Neck of prothorax short, with fine pronotal keel submedially. Mesoscutum highly and roundly elevated above pronotum, its width 1.1 times median length. Notauli deep anteriorly and rather shallow posteriorly, narrow, distinctly crenulate. Median lobe of mesoscutum convex anteriorly, with very shallow median furrow. Prescutellar depression deep, long, partly finely rugulose, with median carina, half as long as convex scutellum. Subalar depression shallow, wide, coarsely rugose-striate. Sternauli deep, smooth, running along anterior 0.6 of lower part of mesopleuron. Metanotal tooth short and weakly pointed. Metapleural flange rather wide and rounded apically. Propodeum without lateral tubercles.

Wings. Length of fore wing about 3.0 times its width. Metacarpus 1.2 times longer than pterostigma. Radial vein arising from middle of pterostigma. Second radial abscissa 3.1 times longer than first abscissa, half as long as third abscissa, 1.15 times longer than first radiomedial vein. Second radiomedial cell 3.0 times longer than its maximum width, 1.7 times longer than the wide brachial cell. First medial abscissa weakly S-shaped. Recurrent vein antefurcal, 4.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.7 times nervulus length. Parallel vein arising weakly behind middle of distal margin of brachial cell. Hind wing about 4.5 times longer than wide. First abscissa of costal vein 0.55 times as long as second abscissa. Medial cell wide, 6.0 times longer than wide, 0.4 times as long as hind wing. First abscissa of mediocubital vein 1.1 times longer than second abscissa. Recurrent vein rather regularly curved towards base of wing, interstitial, unsclerotised.

Legs. Fore tibia with numerous slender spines arranged in almost single row. Hind femur 3.4 times

longer than wide. Hind tarsus as long as hind tibia. Hind basitarsus 0.7 times as long as 2nd–4th segments combined. Second tarsal segment 0.4 times as long as basitarsus, 1.3 times longer than fifth segment (without pretarsus).

Metasoma as long as mesosoma and head combined. First metasomal tergite with distinct dorsope, with spiracular protuberances in basal 0.3, almost linearly widened from base to apex, with distinct and complete dorsal carinae. Length of first tergite 1.15 times its apical width; apical width 2.3 times its minimum width. Second tergite length 0.6 times its basal width, 1.1 times length of third tergite. Second suture very shallow, wide, almost straight. Third tergite without transverse subbasal furrow. Length of second and third tergites combined 1.15 times basal width of second tergite, 0.9 times their maximum width. Ovipositor sheath as long as metasoma, 1.35 times longer than mesosoma, 0.55 times as long as fore wing.

Sculpture and pubescence. Head smooth, face finely and interruptedly striate medially. Mesoscutum finely and very densely granulate, with two distinct and convergent posteriorly striae and fine rugulosity in medioposterior area. Scutellum smooth. Mesopleuron smooth in lower 0.8. Propodeum with areas distinctly delineated by carinae, basolateral areas smooth, rugulose-crenulate along carinae, rest part of propodeum coarsely rugose-striate; areola long and narrow, about twice longer than wide; petiolate area short; basal carina 1.8 times longer than anterior fork of areola. Hind coxa and femur smooth. First and second metasomal tergites entirely distinctly and rather densely striate, rest of tergites smooth. Vertex with rather dense short and semi-erect setae. Mesoscutum entirely with dense short semi-erect white setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with short, rather dense and semi-erect setae, their length 0.5–0.6 times maximum width of tibia.

Colour. Head black, face dark reddish brown to black, area around base of mandible yellow. Mesosoma black, mesopleuron in lower half and propodeum reddish brown to dark reddish brown. Metasoma reddish brown in basal half, yellowish brown in posterior half. Antenna dark reddish brown to black, two basal segments light reddish brown. Palpi yellow. Legs yellow, hind tibia in apical half and all tarsi infusate. Ovipositor sheath black, brown to pale brown basally. Wings faintly infusate. Pterostigma dark brown entirely.

Male unknown.

Diagnosis. The new species is similar to *N. rarus* (Belokobylskij) (Belokobylskij 1993b), but differs by having the ovipositor sheath long, the mesoscutum finely granulate, the mesosoma long, the recurrent vein distinctly antefurcal, the nervulus weakly postfurcal, and the first tergite long.

Distribution. Japan (Honshu).

Neurocrassus tentorialis Belokobylskij, 1993

Neurocrassus tentorialis Belokobylskij, 1993b: 167, 1998b: 66.

Examined material. 1 male, "Japan: Aichi, Okazaki, Ikegane, (Evergreen), 24.VIII.2000, M. Hayakawa; YPT" (MUNJ).

Distribution. Japan (Honshu) (first record); Russia (south of Far East), Vietnam.

A key to East Palaearctic species of the genus *Neurocrassus* Šnoflak

- 1. Female 2
- Male 7
- 2. Dorsal tentorial pit near antennal sockets large and oval (Fig. 135) 2
- Dorsal tentorial pit near antennal sockets small and subround (Figs 107, 118, 126, 143) 3
- 2. Scutellum rather distinctly granulate. Mesoscutum distinctly, densely and almost entirely granulate. Parallel vein on fore wing arising from or before middle of distal margin of brachial cell. Recurrent vein interstitial. Second tergite rather finely and less regularly striate. Body length 2.6–2.9 mm. – Japan (Honshu), Russia (Primorskij kraj), Vietnam (See also couplet 7) *tentorialis* Belokobylskij
- Scutellum smooth. Mesoscutum finely and rather sparsely punctulate with very fine and partly indistinct granulation. Parallel vein on fore wing arising distinctly behind middle of distal margin of brachial cell (Fig. 138). Recurrent vein rather distinctly antefurcal (Fig. 138). Second tergite coarsely and regularly striate (Fig. 141). Body length 4.1–4.9 mm. – Japan (Yakushima I.) *miyanourus* sp. nov.
- 3. First tergite 1.45–1.55 times longer than apical width (Fig. 124). Second tergite length 1.1–1.15 times its basal width (Fig. 124). Ovipositor sheath 1.1–1.4 times longer than body, 2.0–2.7 times longer than metasoma, distinctly longer than fore wing. First flagellar segment 5.5–6.2 times longer than its apical width (Fig. 119). Hind basitarsus 0.75–0.85 times as long as 2nd–5th segments combined. Body length 3.1–4.7 mm. – Japan (Honshu) *hypodoryctooides* sp. nov.
- First tergite 1.0–1.2 times as long as apical width (Figs 113, 131, 150). Second tergite length 0.5–0.7 times its basal width (Figs 113, 131, 150). Ovipositor sheath distinctly shorter than body, 0.6–1.0 times as long as metasoma, shorter than fore wing. First flagellar segment 4.0–4.8 times longer than its apical width (Figs 108, 127, 144). Hind basitarsus 0.6–0.7 times as long as 2nd–4th

- segments combined 4
- 4. Second metasomal tergite smooth at most part, sculptured basally only (Fig. 131). Ovipositor sheath long, longer than mesosoma, 0.45 times as long as fore wing. Hind femur narrow, 4.0 times longer than wide (Fig. 128). Propodeum smooth at most part (Fig. 130). Body length 2.6 mm. – Japan (Honshu) *ibarakius* sp. nov.
- Second metasomal tergite sculptured entirely or almost entirely (Figs 113, 150). Ovipositor sheath usually short (except for *N. sanageensis* sp. nov.), shorter than mesosoma, 0.3–0.35 times as long as fore wing. Hind femur wide, 2.9–3.5 times longer than wide (Figs 112, 146). Propodeum sculptured at most part (Figs 110, 145) 5
- 5. Ovipositor long, ovipositor sheaths as long as metasoma, 0.55 times as long as fore wing. Nervulus less distinctly postfurcal, distance from nervulus to basal vein 0.7 times nervulus length (Fig. 148). Third tergite entirely smooth (Fig. 150). Hind coxa smooth dorsally. Body length 3.6 mm. – Japan (Honshu) *sanageensis* sp. nov.
- Ovipositor short, ovipositor sheaths 0.6–0.8 times as long as metasoma, 0.3–0.4 times as long as fore wing. Nervulus distinctly postfurcal, distance from nervulus to basal vein 1.0–2.0 times nervulus length (Fig. 115). Third tergite usually with sculptured subbasal transverse area (Fig. 113). Hind coxa striate dorsally at least partly (Fig. 114) 6
- 6. Head more transverse, 1.7 times as wide as median length; strongly and weakly-roundly narrowed behind eyes (Fig. 107). Hind femur 2.9 times longer than maximum width (Fig. 112). Mesosoma long, 1.9 times longer than high (Fig. 109). Mesoscutum finely granulate. Radial vein arising before middle of pterostigma (Fig. 115). Parallel vein arising from middle of distal margin of brachial cell (Fig. 115). First metasomal tergite shorter, as long as its apical width (Fig. 113). Body length 2.8 mm. – Japan (Honshu) *hinoematus* sp. nov.
- Head less transverse, 1.4–1.5 times as wide as median length; not strongly and distinctly-roundly narrowed behind eyes. Hind femur 3.3–3.8 times longer than maximum width. Mesosoma short, 1.6–1.7 times longer than high. Mesoscutum distinctly granulate. Radial vein arising from or weakly behind middle of pterostigma. Parallel vein arising behind middle of distal margin of brachial cell. First metasomal tergite longer, 1.1–1.15 times longer than apical width. Body length 1.8–3.3 mm. – Japan (Honshu), Vietnam, Russia (south of Far East), Abkhazia, Ukraine *rarus* Belokobylskij
- 7. Dorsal tentorial pit near antennal sockets rather large and narrowly oval. Fore wing with rather

small and almost round enlargement. First metasomal tergite 1.4 times longer than its apical width. Head more transverse, 1.7 times as wide as median length; strongly and weakly-roundly narrowed behind eyes. Body length 2.3 mm. (See also couplet 2) *tentorialis* Belokobylskij

- . Dorsal tentorial pit near antennal sockets small and subround. Fore wing with large and bean-like enlargement. First metasomal tergite almost as long as its apical width. Head less transverse, 1.4 times as wide as median length; weakly and distinctly-roundly narrowed behind eyes. Body length 2.4 mm. – Russia (Primorskij kraj)
 *fabimaculatus* Belokobylskij

Parallorhogas Marsh, 1993

The genus *Parallorhogas* Marsh was described recently to include some members of the former genus *Allorhogas* Gahan, 1912 (Marsh 1993). Compared to phytophagous species of the genus *Allorhogas*, this genus includes real parasitoids of beetle larvae of the families Bostrichidae and Bruchidae as well as cryptic larvae of lepidopteran Pyralidae.

Parallorhogas is a small genus including 7 species from the Old World and Nearctic region (Marsh 1993, Belokobylskij 1998b): widely distributed Pantropical *P. pallidiceps* (Perkins, 1910), the Madagascanian *P. annulicornis* (Granger, 1949) and *P. transversulcatus* (Granger, 1949), the South African *P. capys* (Nixon, 1939), the Oriental *P. colophon* (Nixon, 1939), comb. nov., the Nearctic *P. pyralophagus* (Marsh, 1984), and the South-East Palaearctic *P. hasanicus* (Belokobylskij, 1985). Five new species and one subspecies of *Parallorhogas* are described below from the south of Japan (Ryukyu and Ogasawara Islands). This genus is recorded from the fauna of Japan for the first time.

Parallorhogas ambiguus sp. nov. (Figs 151–160)

Type material. Holotype: female, “10–11.X.1988, Kunigamison, Okinawa-honto, Okinawa Pref., K. Konishi” (NIAES).

Paratypes. 2 females, “Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 19–21.X.1999, S. Belokobylskij” (NIAES, ZISP); 1 female, “Japan: Ryukyus, Ishigaki Is., Shiramizu, 13–21.X.1999, MT, K. Konishi & S. Belokobylskij” (NIAES); 1 female, “Japan: Ryukyus, Ishigaki Is., Shiramizu, 13–15.X.1999, S. Belokobylskij” (ZISP); 1 male, “Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 19–21.X.1999, S. Belokobylskij” (ZISP); 3 males, “Japan: Ryukyus, Ishigaki Is., Mt.

Maese-dake, 19–21.X.1999, S. Belokobylskij” (NIAES, ZISP).

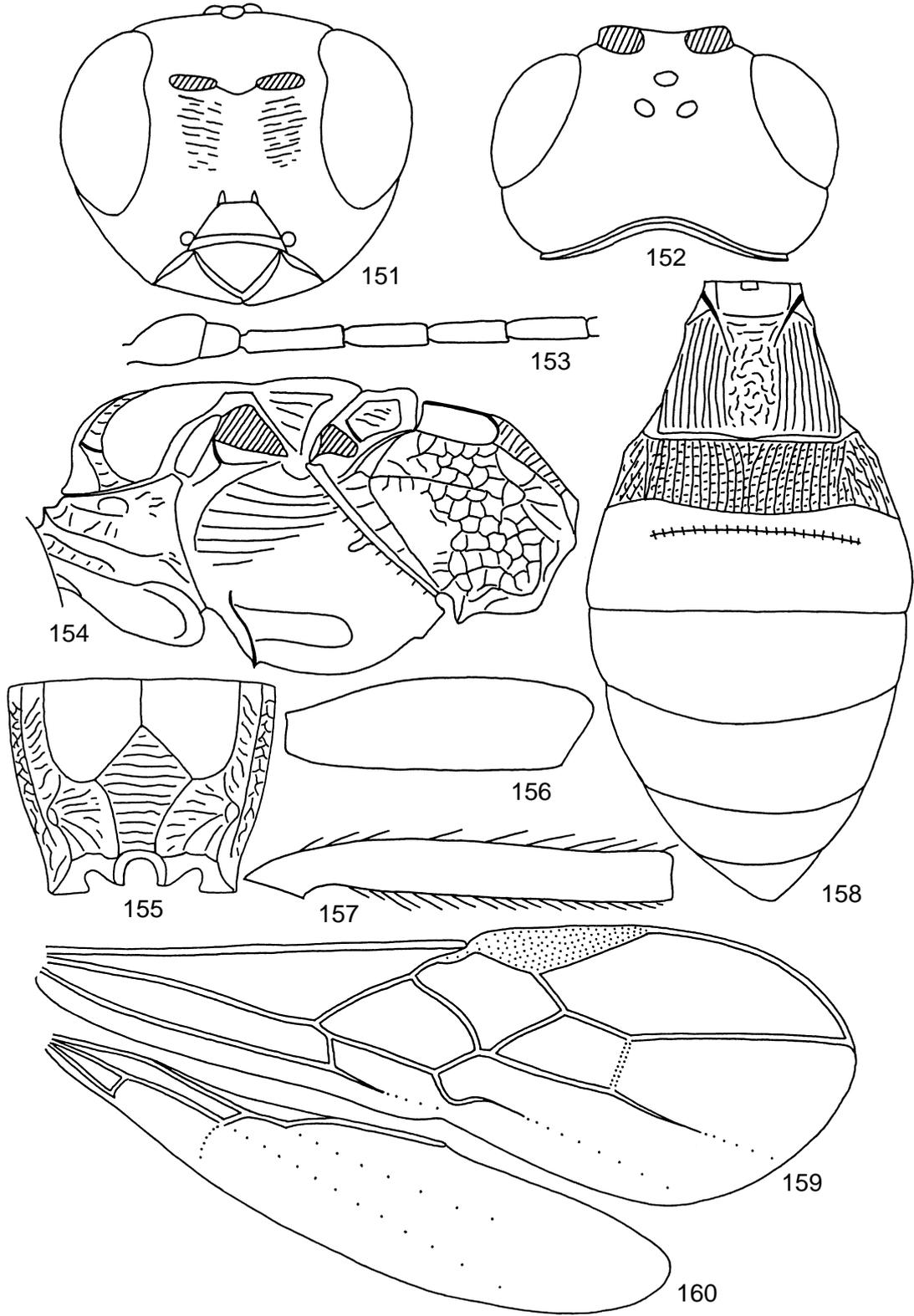
Description. Female. Body length 2.4–3.3 mm; fore wing length 1.9–2.3 mm.

Head width 1.6–1.7 times its median length, 1.1–1.2 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and roundly narrowed. Transverse diameter of eye 1.6–2.0 times longer than temple (dorsal view). Ocelli arranged in triangle with base 1.1–1.2 times its sides. POL 0.8–1.0 times Od, 0.4–0.6 times OOL. Eye glabrous, 1.25–1.3 times as high as broad. Malar space height 0.3–0.35 times eye height, 0.7–0.8 times basal width of mandible. Face width 0.8–0.9 times eye height and 1.1–1.25 times height of face and clypeus combined. Malar suture very shallow. Clypeus with narrow and almost perpendicular lower flange. 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 not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow. Length of maxillary palpi 0.9–1.0 times head height (without mandible).

Antennae rather slender, filiform, 22–25-segmented, almost as long as body. Scape 1.4–1.6 times longer than maximum width, 2.0–2.5 times longer than pedicel. First flagellar segment 4.0–4.5 times longer than its apical width, 1.1–1.15 times longer than second segment. Penultimate segment 2.8–3.0 times longer than wide, 0.7 times as long as first segment, 0.9–1.0 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.7–1.8 times its height. Neck of prothorax short, with distinct pronotal keel submedially. Mesoscutum highly and perpendicularly elevated above pronotum; short, its width 1.35–1.5 times median length. Notauli rather deep, wide, finely crenulate. Median lobe of mesoscutum weakly convex anteriorly, without or rarely with very shallow longitudinal median furrow. Prescutellar depression deep, rather long, almost smooth, with 3–5 distinct carinae, 0.4–0.45 times as long as scutellum. Subalar depression rather shallow, wide, widely coarsely striate. Sternauli rather shallow anteriorly and deep posteriorly, smooth, running along almost half of lower part of mesopleuron. Metapleural flange wide basally, distinctly narrowed in apical half and pointed apically. Propodeum with very small lateral tubercles.

Wings. Length of fore wing 2.9–3.0 times its width. Metacarpus 1.1–1.2 times longer than pterostigma. Radial vein arising distinctly before middle of pterostigma, from basal 0.3–0.4 of pterostigma. Second radial abscissa 1.1–1.5 times longer than first abscissa, 0.3 times as long as the straight third abscissa, 0.75–0.85 times as long as first radiomedial vein. Second radiomedial cell 2.3–2.5 times longer than its maximum width, 1.1–1.2 times longer than brachial cell.



Figures 151–160. *Parallorhogas ambiguus* sp. nov. (151) Head, front view; (152) head, dorsal view; (153) six basal segments of antenna; (154) mesosoma, lateral view; (155) propodeum, dorsal view; (156) hind femur; (157) hind tibia; (158) metasoma, dorsal view; (159) fore wing; (160) hind wing.

First medial abscissa distinctly convexly curved. Recurrent vein 4.0–4.5 times as long as second abscissa of medial vein. Distance from nervulus to basal vein 0.4–0.7 times nervulus length. Hind wing 4.2–4.6 times longer than wide. First abscissa of costal vein 1.0–1.2 times as long as second abscissa. Fourth costal abscissa very long, 3.8–4.6 times longer than third abscissa. Basal vein 0.7–0.9 times as long as third costal abscissa. Medial cell very narrow, 10.5–12.5 times longer than wide, 0.3 times as long as hind wing. First abscissa of mediocubital vein about 0.8 times as long as second abscissa. Recurrent vein almost straight or weakly regularly curved towards apex of wing, slightly postfurcal.

Legs. Hind femur 3.0–3.3 times longer than wide. Hind tibia rather thick, its length 6.0–8.0 times maximum width, 1.4–1.5 times length of hind femur. Hind tarsus 0.8–0.9 times as long as hind tibia. Hind basitarsus thickened, 0.5–0.65 times as long as 2nd–5th segments combined. Second tarsal segment 0.5–0.55 times as long as basitarsus, 1.2–1.25 times longer than fifth segment (without pretarsus).

Metasoma 1.1–1.2 times longer than mesosoma and head combined. First metasomal tergite with distinct dorsope, with small spiracular protuberances in basal 0.3, strongly and almost linearly widened from base to apex. Length of first tergite 0.75–0.8 times its apical width; apical width 2.0–2.3 times minimum width. Length of second tergite 0.35–0.4 times its basal width, 0.7–0.85 times length of third tergite. Second suture shallow, weakly and regularly curved medially, with weak lateral bends. Third tergite with shallow or very shallow transverse depression in basal 0.25. Ovipositor sheath 0.5–0.65 times as long as metasoma, 0.7–1.0 times as long as mesosoma, 0.35–0.43 times as long as fore wing.

Sculpture and pubescence. Head smooth, face finely or very finely striate, smooth (usually widely) medially, sometimes laterally and below. Mesoscutum almost smooth, finely striate anteriorly near notauli and medially and sometimes partly finely granulate, with several long median convergent carinae in posterior half, sometimes additionally finely rugulose at short area submedially. Scutellum smooth. Mesopleuron smooth in lower 0.7–0.75. Propodeum with areas distinctly delineated by carinae, wide basolateral areas mostly smooth and usually with short rugae along carinae; wide and large areola entirely coarsely and densely transversely striate, rest part of propodeum sparsely and rather coarsely rugulose-striate; basal carina 0.7–1.0 times as long as anterior fork of areola. Hind coxa dorsally distinctly and densely transversely striate, smooth on rest part. Hind femur smooth. First metasomal tergite densely and rather coarsely striate, sometimes more or less rugose medially, with two distinct convergent dorsal carinae in basal half and transverse striation between carinae. Second tergite

entirely coarsely striate, third tergite in subbasal depression very finely or distinctly striate. Remainder tergites smooth. Vertex with sparse short and semi-erect setae. Mesoscutum glabrous, rather sparsely and rather widely setose along notauli and laterally. Mesopleuron in lower 0.7 almost completely glabrous. Hind tibia dorsally with short, sparse and semi-erect setae, their length 0.5–0.6 times maximum width of tibia.

Colour. Head light reddish brown or yellowish brown, usually yellow below and always infuscate dorsally. Mesosoma and metasoma reddish brown, propodeum and rarely scutellum, median spot of mesoscutum, and metathorax, as well as sometimes 1st–3rd tergites more or less darker till almost black, apex of metasoma usually paler. Antenna reddish brown or dark reddish brown, blackened toward apex, two basal segments brownish yellow or yellow. Palpi pale yellow. Legs yellow or yellowish brown, hind femur and sometimes hind tibia infuscate partly or rarely at most part. Ovipositor sheath black. Wings faintly infuscate. Pterostigma dark brown, faintly paler basally.

Male. Body length 1.7–2.1 mm; fore wing length 1.3–1.8 mm. Antennae 18–21-segmented. Hind tibia slender, its length 8.7–9.1 times maximum width. Length of first tergite 0.9–1.0 times its apical width. Length of second tergite 0.55–0.6 times its basal width, almost equal to length of third tergite. Metasoma entirely dark reddish brown. Otherwise similar to female.

Diagnosis. The new species is very similar to *P. hasanicus* (Belokobylskij) (from South of the Russia Far East) (Belokobylskij 1985), but differs from the latter by having the occipital carina not fused below with hypostomal carina, the mesoscutum rather coarsely striate medioposteriorly, the basal carina of the propodeum and the second radiomedial cell short, the first tergite rather long, the mesoscutum sparsely and more narrowly arranged setae, the dorsal setae of hind tibia sparse, and the body size small. *P. ambiguus* sp. nov. is also similar to *P. pallidiceps* (Perkins) and differs by having the head more transverse, the malar space short, the scape and first flagellar segment of antenna short, the mesosoma long, the mesoscutum mostly glabrous, the hind coxa densely striate dorsally, the ovipositor and second tergite short, the metapleural flange strongly narrowed in apical half, and the different pattern of body colouration. This new species is rather similar to African *P. capys* (Nixon) (Nixon 1939), but differs by having the temple and malar space short, the mesoscutum sculptured anterolaterally and medioposteriorly, the metapleuron generally coarsely sculptured, the metapleural lobe long and narrow, the basolateral areas of propodeum smooth, and the third tergite subbasally striate.

Distribution. Japan (Ryukyu Is.).

Parallorhogas boninus sp. nov.
(Figs 161–169)

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

Paratypes. 3 females, “Japan: Ogasawara Is., Hahajima I., Kuwanokiyama, 1.VII.2005, S. Sugiura” (NIAES, ZISP); 7 females, 11 male, “Japan: Ogasawara Is., Hahajima I., Kuwanokiyama, 21.VII.1998, H. Makihara” (FFPRI, KBUJ, ZISP); 4 females, 12 males, “Japan: Ogasawara Is., Hahajima I., Sekimon, 21.VII.1998, H. Makihara” (FFPRI, NIAES, KBUJ, ZISP); 1 female, “Japan: Ogasawara Is., Nishijima I., Mokumaou, 29.VI.2005, S. Sugiura” (NIAES).

Description. Female. Body length 2.4–4.0 mm; fore wing length 2.0–2.8 mm.

Head width 1.55–1.7 times its median length, 1.1–1.2 times width of mesoscutum. Head behind eyes (dorsal view) more or less strongly (in small specimens usually less strongly) and roundly narrowed. Transverse diameter of eye 1.9–2.3 times longer than temple (dorsal view). Ocelli arranged in triangle with base 1.1–1.15 times its sides; POL 0.8–1.0 times Od, 0.5–0.6 times OOL. Eye glabrous, 1.15–1.25 times as high as broad. Malar space height 0.3–0.4 times eye height, 0.75–0.85 times basal width of mandible. Face width 0.85–0.9 times eye height and 1.1–1.2 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Hypoclypeal depression subround, its width 0.9–1.0 times distance from edge of depression to eye, 0.45 times width of face. Occipital carina not fused with hypostomal carina being obliterated ventrally on very short distance upper base of mandible. Hypostomal flange narrow. Length of maxillary palpi 1.1–1.2 times head height (without mandible).

Antennae slender, almost filiform, 22–29-segmented, 1.1–1.2 times longer than body. Scape 1.4–1.6 times longer than maximum width, 2.0–2.5 times longer than pedicel. First flagellar segment 4.3–4.8 times longer than its apical width, 1.15–1.25 times longer than second segment. Penultimate segment 3.4–4.2 times longer than wide, 0.6–0.7 times as long as first segment, 0.9–1.0 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.7–1.8 times its height. Neck of prothorax short, with distinct pronotal keel in posterior 0.35–0.4. Mesoscutum highly and perpendicularly elevated above pronotum, rather short, its width 1.2–1.3 times median length. Notauli deep, rather wide, densely and finely crenulate. Median lobe of mesoscutum almost straight or weakly convex anteriorly, without median furrow. Prescutellar depression deep, almost smooth or finely rugulose partly, with 3–5 distinct or rather fine carinae, 0.3 times as long as

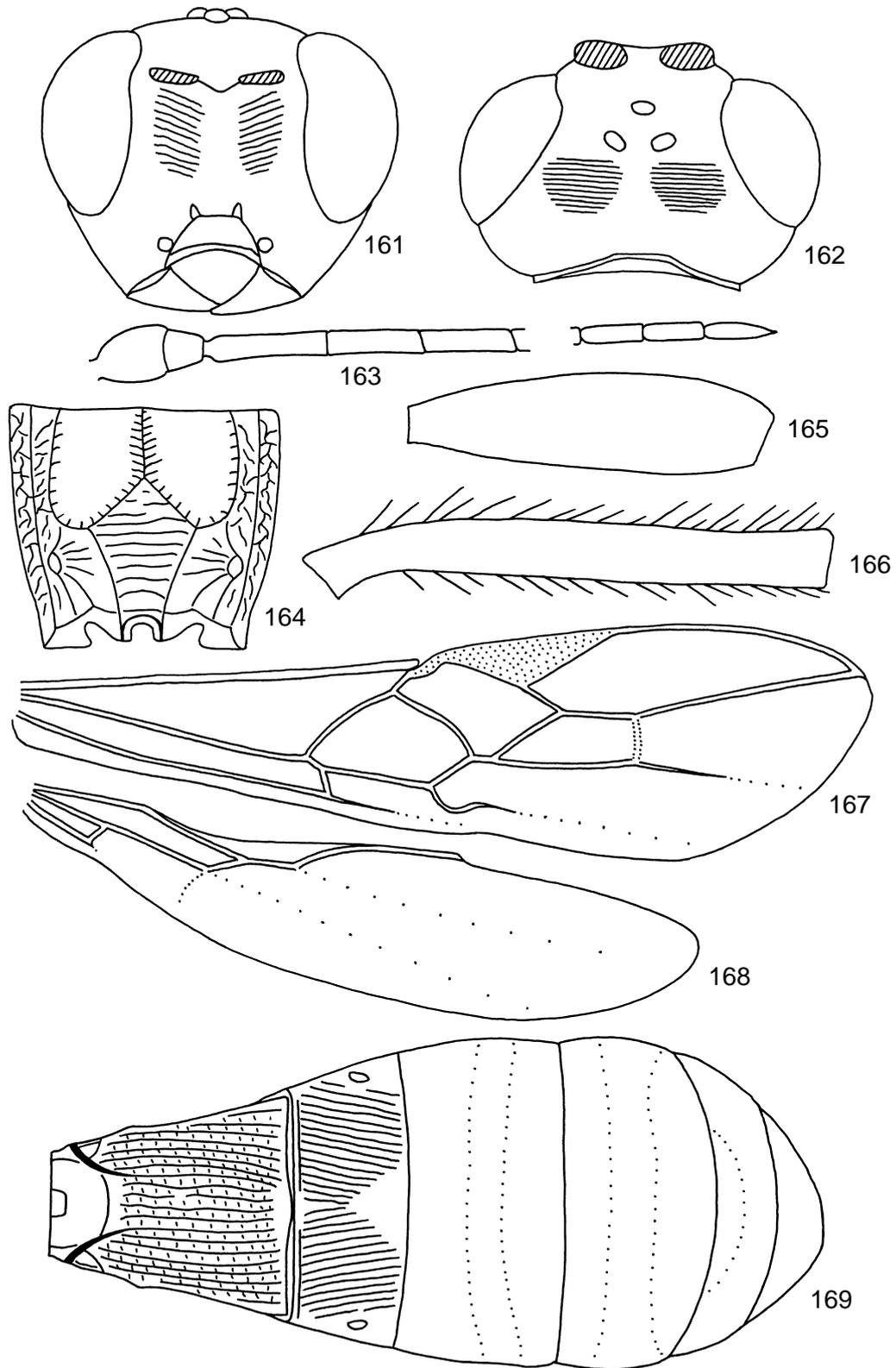
scutellum. Subalar depression shallow, rather narrow, rugose-striate. Sternauli rather shallow, but deeper posteriorly, oblique, entirely smooth, running along anterior half of lower part of mesopleuron. Metapleural flange very wide basally and strongly narrowed towards apex, subpointed apically. Propodeum with very short and wide lateral tubercles.

Wings. Length of fore wing 3.0–3.2 times its width. Metacarpus 1.3–1.35 times longer than pterostigma. Radial vein arising almost from middle of pterostigma. Second radial abscissa 1.6–2.0 times longer than first abscissa, 0.3–0.37 times as long as the straight third abscissa, 0.9–1.2 times as long as first radiomedial vein. Second radiomedial cell 2.5–3.0 times longer than its maximum width, 1.0–1.2 times as long as brachial cell. First medial abscissa distinctly curved. Recurrent vein 2.5–5.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.3–0.7 times nervulus length. Hind wing 4.1–4.5 times longer than wide. First abscissa of costal vein 1.1–1.2 times longer than second abscissa. Fourth costal abscissa long, 3.3–3.9 times longer than third abscissa. Basal vein 0.5–0.7 times as long as third costal abscissa. Medial cell very narrow, 10.5–13.0 times longer than wide, 0.3 times as long as hind wing. First abscissa of mediocubital vein 0.7–0.8 times as long as second abscissa. Recurrent vein weakly or very weakly and rather regularly curved towards apex of wing, slightly postfurcal, unsclerotised.

Legs. Hind femur 3.5–3.7 times longer than wide. Hind tibia rather slender, its length 8.0–9.5 times maximum width, 1.3–1.4 times length of hind femur. Hind tarsus almost as long as hind tibia. Hind basitarsus thickened, 0.6–0.65 times as long as 2nd–5th segments combined. Second tarsal segment 0.5–0.6 times as long as basitarsus, 1.35–1.5 times longer than fifth segment (without pretarsus).

Metasoma 1.1–1.3 times longer than mesosoma and head combined. First metasomal tergite with distinct dorsope, with small or distinct spiracular protuberances in basal 0.3–0.35, distinctly and almost linearly widened from base to apex. Length of first tergite 0.85–0.95 times its apical width; apical width about twice its minimum width. Length of second tergite 0.4–0.6 times its basal width, 0.7–0.85 times length of third tergite. Second suture shallow and weakly curved. Third tergite without transverse furrow. Ovipositor sheath 0.7–1.0 times as long as metasoma, 1.3–1.7 times longer than mesosoma, 0.55–0.8 times as long as fore wing.

Sculpture and pubescence. Vertex finely aciculate in anterior half at least laterally, very finely striate in small specimens, smooth in posterior half and sometimes medially. Frons and temple smooth; face finely or very finely striate widely or narrowly medially, smooth below and usually laterally. Mesoscutum



Figures 161–169. *Parallorhogas bonimus* sp. nov. (161) Head, front view; (162) head, dorsal view; (163) basal and apical segments of antenna; (164) propodeum, dorsal view; (165) hind femur; (166) hind tibia; (167) fore wing; (168) hind wing; (169) metasoma, dorsal view.

smooth, finely striate anteriorly near notauli and sometimes medially, with two strongly convergent posteriorly carinae with fine rugulosity or smooth between their in posterior half, rarely finely coriaceous in median part. Scutellum smooth. Mesopleuron mostly smooth. Metapleuron rugose-reticulate, almost smooth or sometimes finely punctulate-granulate at least partly anteriorly. Propodeum with areas distinctly delineated by carinae, basolateral areas mostly smooth, partly finely or very finely rugulose-striate or coriaceous-reticulate, distinctly and more or less shortly rugulose along carinae, rest part of propodeum rather coarsely rugose-striate; areola large, rather wide and pentagonal, transversely striate, basal carina 1.0–1.4 times as long as anterior fork of areola. Hind coxa more or less distinctly and densely striate dorsally, smooth on rest part. Hind femur mostly smooth, sometimes very finely reticulate or aciculate dorsally. First metasomal tergite entirely rather coarsely striate with dense ground rugulosity between striae, with two convergent dorsal carinae and rugosity between their. Second tergite rather densely and rather finely striate with fine ground sculpture between striae, often almost smooth laterally. Remainder tergites (including third one) smooth. Vertex with rather sparse, short and semi-erect setae, glabrous at short medioanterior area. Mesoscutum with rather dense short semi-erect white setae arranged rather narrow along notauli and laterally, with wide submedian glabrous areas on all lobes. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather short, more or less sparse and semi-erect setae, their length 0.3–0.6 times maximum width of tibia.

Colour. Head yellow or brownish yellow, brown or at least dark dorsally (sometimes only around ocellar triangle). Mesosoma dark reddish brown to black, prothorax almost entirely, narrow lower and wide medio-posterior parts of mesoscutum, scutellum, base of propodeum and most part of mesopleuron brownish yellow or light reddish brown. Metasoma dark reddish brown to reddish brown in basal half, yellow or brownish yellow in posterior half (partly with brown stripes) and ventrally. Antenna dark brown to black, two basal segments reddish brown. Palpi pale yellow. Legs yellow. Ovipositor sheath light brown in basal half and dark brown in apical half. Wings faintly infuscate. Pterostigma entirely brown.

Male. Body length 2.0–3.4 mm; fore wing length 1.7–2.5 mm. Transverse diameter of eye 1.75–2.3 times longer than temple (dorsal view). Antennae 19–27-segmented. Hind femur 3.6–4.0 times longer than wide. First metasomal tergite slender, its length 1.0–1.3 times apical width. Length of second tergite 0.7–0.8 times its basal width, almost equal to length of third tergite. Vertex often mostly smooth. Sometimes body entirely light reddish brown. Otherwise similar to female.

Diagnosis. The new species is similar to *P. colophon* (Nixon), but differs by having the head rather strongly narrowed behind the eyes, the hypoclypeal depression small, the pronotal carina distinct, the basal carina of the propodeum long, the mesoscutum entirely smooth, the radial vein arising almost from the middle of pterostigma, the fore wing faintly infuscate, the first tergite long, the second tergite finely sculptured posteriorly, and the third tergite without crenulate subbasal transverse furrow. *P. boninus* sp. nov. is also similar to the Nearctic *P. pyralophagus* Marsh, but differs by having the head rather strongly narrowed behind the eyes, the vertex finely and partly aciculate, the basal carina of the propodeum long, the mesoscutum smooth near notauli and in the medioposterior half, the pterostigma dark, the second tergite finely sculptured posteriorly, and the body with wide dark colouration. *P. boninus* sp. nov. differs from *P. pacificus* sp. nov. by having the vertex at least partly aciculate, the head rather strongly narrowed behind the eyes, the pronotum with a distinct pronotal keel, the sternauli entirely smooth, the radial vein arising almost from the middle of pterostigma, the fifth segments of hind tarsus short, the third tergite without transverse furrow, and the setae arranged rather narrow along notauli of the mesoscutum.

Remarks. The female from Nishijima Island has a shorter first and second tergite and a shorter ovipositor.

Distribution. Japan (Ogasawara Is.).

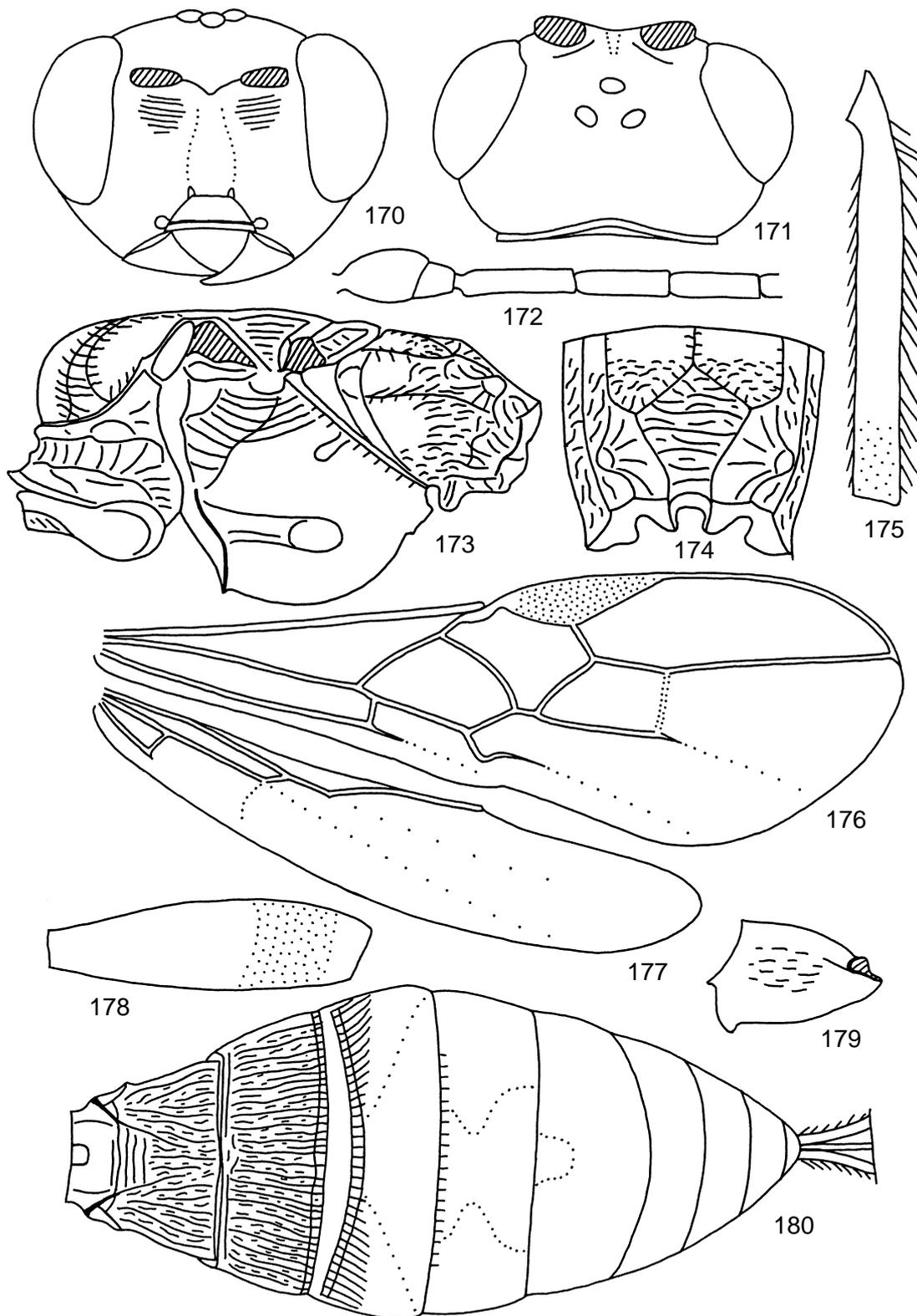
Parallorhogas icarus sp. nov.
(Figs 170–180)

Type material. Holotype: female, “Yonaguni-jima Is., Ryukyus, Japan, 5–8.IV.1999, yellow pan trap, K. Konishi” (NIAES).

Paratypes. 2 females, “Japan: Ryukyus, Ishigaki Is., Shiramizu, 13–15.X.1999, S. Belokobylskij” (NIAES, ZISP); 1 male, “Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 19–21.X.1999, S. Belokobylskij” (NIAES); 1 female, “Japan: Ryukyus, Iriomote Is., Aira-gawa, 16–18.X.1999, S. Belokobylskij” (ZISP); 1 female, “Japan: Ryukyus, Is. Iriomoto, Rv. Shiiminato, 11–24.VII.1996, K. Ebi: MT” (MUNJ); 2 females, same label, but “5–18.IX.1996” (MUNJ, ZISP); 1 female, same label, but “13–26.VI.1996” (MUNJ); 2 females, “Japan: Ryukyus, Mt. Nago-dake, MT, Okinawa Is., 29.V–2.VI.2004, H. Makihara” (FFPRI, ZISP).

Description. Female. Body length 2.7–3.8 mm; fore wing length 2.2–2.8 mm.

Head width 1.55–1.7 times its median length, 1.15–1.2 times width of mesoscutum. Head behind eyes (dorsal view) strongly and weakly-roundly narrowed. Transverse diameter of eye 1.9–2.5 times longer than



Figures 170–180. *Parallorhogas icarus* sp. nov. (170) Head, front view; (171) head, dorsal view; (172) five basal segments of antenna; (173) mesosoma, lateral view; (174) propodeum, dorsal view; (175) hind tibia; (176) fore wing; (177) hind wing; (178) hind femur; (179) hind coxa; (180) metasoma, dorsal view.

temple (dorsal view). Ocelli arranged in triangle with base 1.05–1.15 times its sides; POL 0.7–0.85 times Od, 0.3–0.4 times OOL. Eye glabrous, 1.15–1.2 times as high as broad. Malar space height 0.3–0.35 times eye height, 0.7–0.9 times basal width of mandible. Face width almost equal to eye height and 1.2–1.4 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Hypoclypeal depression subround or oval, its width 0.8–1.0 times distance from edge of depression to eye, about 0.4 times width of face. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange distinct. Head below eyes rather strongly and almost linearly narrowed. Length of maxillary palpi almost equal to head height (without mandible).

Antennae rather slender, filiform, 23–27-segmented, 1.0–1.2 times as long as body. Scape 1.4–1.6 times longer than maximum width, 1.7–2.3 times longer than pedicel. First flagellar segment 4.7–5.5 times longer than its apical width, 1.15–1.3 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, 0.8–0.9 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.6–1.7 times its height. Neck of prothorax short, with distinct pronotal keel submedially. Mesoscutum highly and perpendicularly elevated above pronotum, rather short, its width 1.2–1.3 times median length. Notauli deep, wide on entirely their length, sparsely and usually distinctly crenulate. Median lobe of mesoscutum weakly convex anteriorly, with distinct, shallow and rather wide longitudinal and finely crenulate median furrow. Prescutellar depression deep, rather long, finely rugulose, with 3–5 distinct carinae, 0.25–0.35 times as long as scutellum. Subalar depression shallow, wide, coarsely rugose-striate. Sternauli distinct, smooth, running along almost half of lower part of mesopleuron. Metanotal tooth wide, rather short and rounded apically. Metapleural flange wide and rounded apically. Propodeum with short, but rather distinct tubercles.

Wings. Length of fore wing 2.8–3.2 times its width. Metacarpus 1.4–1.55 times longer than pterostigma. Radial vein arising distinctly before middle of pterostigma. Second radial abscissa 1.5–2.0 times longer than first abscissa, 0.3–0.4 times as long as third abscissa, 0.8–1.0 times as long as first radiomedial vein. Second radiomedial cell 2.0–2.4 times longer than its maximum width, 1.1–1.2 times longer than brachial cell. First medial abscissa distinctly curved. Recurrent vein 3.0–6.0 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.4–0.7 times nervulus length. Hind wing 4.3–4.7 times longer than wide. First abscissa of costal vein 0.9–1.2 times as long as second abscissa. Fourth costal abscissa very

long, 4.0–4.7 times longer than third abscissa. Basal vein 0.6–0.8 times as long as third costal abscissa. Medial cell very narrow, 10.0–13.0 times longer than wide, 0.27–0.3 times as long as hind wing. First abscissa of mediocubital vein 0.6–0.8 times as long as second abscissa. Recurrent vein weakly and regularly curved towards apex of wing or almost straight and oblique, slightly postfurcal.

Legs. Hind femur 3.2–3.6 times longer than wide. Hind tibia rather slender, its length 8.0–8.7 times maximum width, 1.35–1.4 times length of hind femur. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.6–0.7 times as long as 2nd–5th segments combined. Second tarsal segment 0.45–0.5 times as long as basitarsus, 1.15–1.25 times longer than fifth segment (without pretarsus).

Metasoma 1.0–1.2 times as long as mesosoma and head combined. First metasomal tergite with distinct dorsope, with very small spiracular protuberances in basal 0.3, strongly and more or less linearly widened from base to apex. Length of first tergite 0.6–0.67 times its apical width; apical width 2.0–2.4 times its minimum width. Second tergite with very narrow and rather weakly separate basal area; length of tergite 0.45–0.5 times its basal width, 0.9–1.0 times length of third tergite. Second suture shallow, wide, almost straight. Third tergite with distinct transverse and coarsely crenulate furrow in basal 0.25–0.3. Ovipositor sheath 0.65–0.85 times as long as metasoma, 1.0–1.2 times as long as mesosoma, 0.5–0.55 times as long as fore wing.

Sculpture and pubescence. Head smooth, sometimes face finely or very finely striate upper and (rarely) laterally. Mesoscutum finely or very finely widely or narrowly rugulose-striate along notauli, almost smooth on rest large part, rarely finely coriaceous-granulate or coriaceous-aciculate, rugose or striate at least anteriorly or antero-laterally and with two distinct and convergent posteriorly striae in narrow medioposterior area. Scutellum smooth or rarely finely coriaceous at least partly. Mesopleuron smooth in lower 0.7–0.75. Propodeum with areas distinctly delineated by carinae, basolateral areas finely rugulose posteriorly and smooth in anterior 0.3–0.8, rarely almost entirely smooth, crenulate along carinae, rest part of propodeum coarsely rugose-striate; areola large, wide and pentagonal, coarsely transversely striate; basal carina 0.5–0.8 times as long as anterior fork of areola. Hind coxa finely but distinctly rugulose-striate, sometimes only laterally, smooth below. Hind femur smooth. First metasomal tergite coarsely and more or less undulately striate with dense ground reticulation, partly (especially medially) with rugosity, with two distinct convergent dorsal carinae in basal half and coarse transverse striation between these carinae. Second tergite entirely, third tergite in subbasal depression and often very shortly basally fourth tergite coarsely striate.

Sometimes laterally third tergite in basal 0.6 and fourth in basal half rather finely rugulose-striate with punctulation. Remainder tergites smooth. Vertex with sparse short and semi-erect setae, glabrous medio-anteriorly. Mesoscutum with dense short semi-erect white setae arranged very widely along notauli and narrowly laterally, with glabrous narrow submedian areas on all lobes. Mesopleuron widely medially glabrous. Hind tibia dorsally with rather short, more or less sparse and semi-erect setae, their length 0.5–0.75 times maximum width of tibia.

Colour. Head, mesoscutum, scutellum, propleuron in posterior 0.3 or entirely, sides of pronotum widely upper and sometimes narrow lower, mesopleuron in lower 0.7 or almost entirely, mesosternum at least in anterior half, and basolateral areas of propodeum brownish yellow, light brown or light reddish brown, head paler ventrally and sometimes infusate around ocelli or dorsally. Other parts of mesosoma, first tergite entirely or basally and apically, usually second at most part, third and fourth basally and in posterior 0.35–0.5 dark reddish brown to black. Remainder parts of metasoma (including sometimes second tergite) yellow, brownish yellow or light reddish brown. Antenna reddish brown or dark reddish brown, almost black in apical half, scape and sometimes pedicel light brown or yellow. Palpi pale yellow. Legs pale yellow or yellow, sometimes almost white basally, hind femur in apical 0.25–0.5, usually hind tibia apically and hind basitarsus medially at least faintly infusate. Ovipositor sheath black. Wings almost hyaline. Pterostigma black or dark brown, yellow basally and usually apically.

Male. Body length 2.5 mm; fore wing length 2.0 mm. Antennae 21-segmented, 1.1 times longer than body. First flagellar segment 4.5 times longer than its apical width. Hind femur slender, 3.75 times longer than wide. Length of first tergite 0.8 times its apical width; length of second tergite 0.6 times its basal width. Basal carina of propodeum short, 0.55 times as long as anterior fork of areola. Propodeum brownish yellow, narrowly dark posteriorly. Metasoma light reddish brown in basal half, brownish yellow in apical half, around sutures infusate, brown in basal 1/3 of third tergite, dark brown in apical 1/3 of third and in base of fourth tergites. Otherwise similar to female.

Diagnosis. The new species is similar to *P. pallidiceps* (Perkins), but differs by having the temple strongly narrowed behind eyes, the median lobe of mesoscutum with a longitudinal furrow, the occipital carina not fused ventrally with the hypostomal carina, the first metasomal tergite and ovipositor short, and the contrasting colouration of the body and pterostigma. *P. icarus* sp. nov. is similar also to *P. ambiguus* sp. nov., but differs by having the temple strongly and weakly-roundly narrowed behind eyes, the mesoscutum sculptured and with distinct longitudinal furrow,

the hind femur slender, the first tergite short, and the contrasting colouration of the body and pterostigma.

Distribution. Japan (Ryukyu Is.).

Parallorhogas maeseensis sp. nov.

(Figs 181–189)

Type material. Holotype: female, "Japan: Ryukyu, Ishigaki Is., Mt. Maese-dake, 13–15.X.1999, S. Belokobyskij" (ZISP).

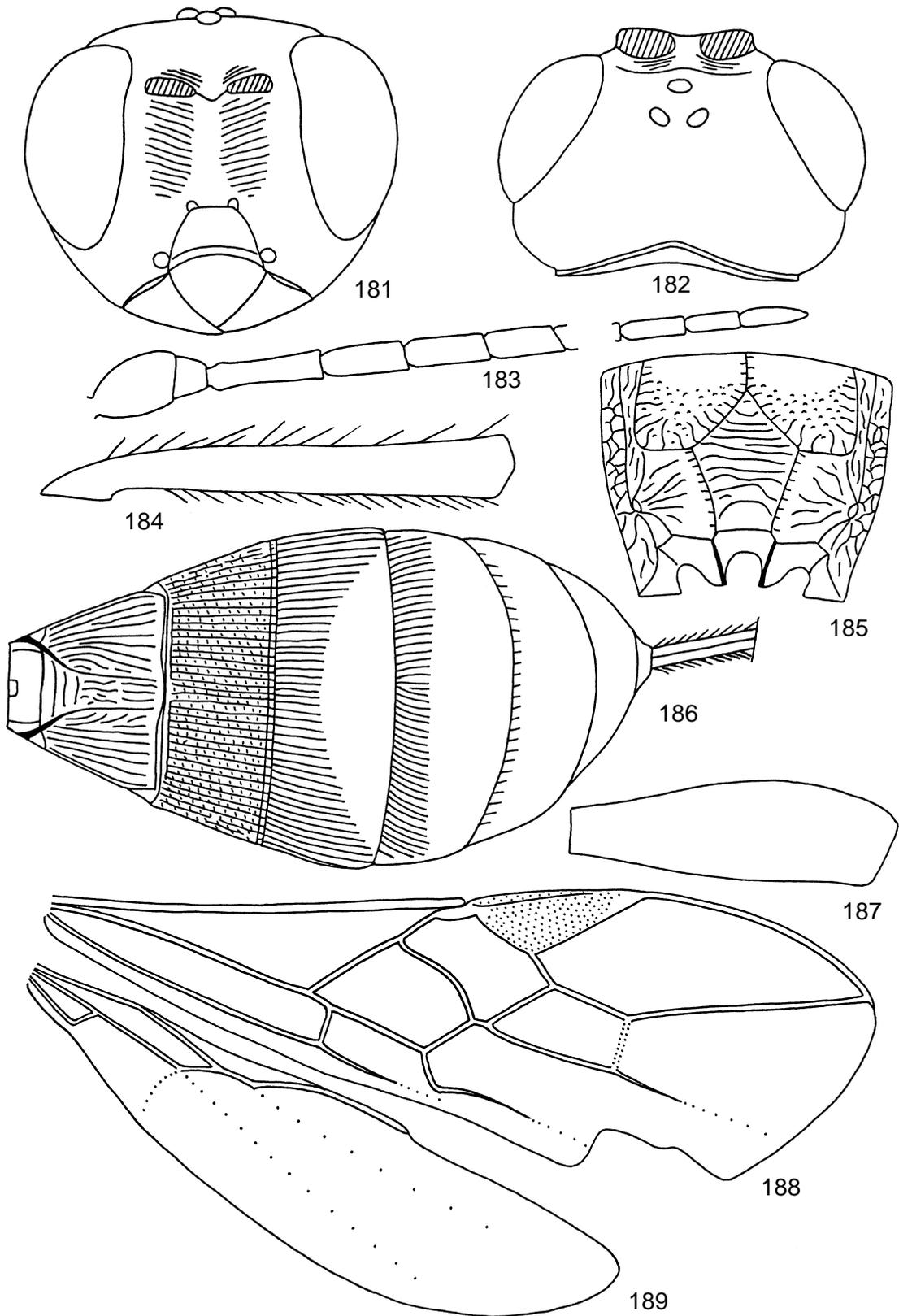
Description. Female. Body length 4.2 mm; fore wing length 3.1 mm.

Head width 1.6 times its median length, 1.1 times width of mesoscutum. Head behind eyes (dorsal view) distinctly and roundly narrowed. Transverse diameter of eye about twice longer than temple (dorsal view). Ocelli arranged in almost equilateral triangle; POL 0.8 times Od, 0.4 times OOL. Eye with very short and sparse setae, 1.2 times as high as broad. Malar space height 0.25 times eye height, about half basal width of mandible. Face width 0.85 times eye height and 1.1 times height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Hypoclypeal depression sub-round, its width 1.3 times distance from edge of depression to eye, half width of face. Occipital carina fused below with hypostomal carina. Hypostomal flange distinct. Length of maxillary palpi almost equal to head height (without mandible).

Antennae rather slender, weakly setiform, 28-segmented, almost as long as body. Scape 1.6 times longer than maximum width, 2.4 times longer than pedicel. First flagellar segment 4.0 times longer than its apical width, 1.25 times longer than second segment. Penultimate segment 3.6 times longer than wide, 0.55 times as long as first segment, 0.8 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.6 times its height. Neck of prothorax short, with distinct pronotal keel in posterior 0.3. Mesoscutum highly and perpendicularly elevated above pronotum, rather short, its width 1.25 times median length. Notauli deep, entirely wide, sparsely and rather distinctly crenulate, but smooth posteriorly. Median lobe of mesoscutum weakly convex anteriorly, without distinct median furrow. Prescutellar depression deep, rather long, smooth, with three distinct carinae, 0.4 times as long as scutellum. Subalar depression shallow, rather wide, coarsely striate. Sternauli distinct, weakly and narrowly crenulate, running along anterior 0.6 of lower part of mesopleuron. Metapleural flange wide basally and distinctly narrowed towards apex, rounded apically. Propodeum with very short lateral tubercles.

Wings. Length of fore wing 2.8 times its width. Metacarpus 1.35 times longer than pterostigma. Radial



Figures 181–189. *Parallorhogas maesoensis* sp. nov. (181) Head, front view; (182) head, dorsal view; (183) basal and apical segments of antenna; (184) hind tibia; (185) propodeum, dorsal view; (186) metasoma, dorsal view; (187) hind femur; (188) fore wing; (189) hind wing.

vein arising from basal 0.33 of pterostigma. Second radial abscissa 1.8 times longer than first abscissa, 0.35 times as long as third abscissa, as long as first radiomedial vein. Second radiomedial cell 2.25 times longer than its maximum width, almost as long as brachial cell. First medial abscissa distinctly curved. Recurrent vein 5.5 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.75 times nervulus length. Hind wing 4.2 times longer than wide. First abscissa of costal vein 1.1 times longer than second abscissa. Fourth costal abscissa very long, 6.0 times longer than third abscissa. Basal vein 1.6 times longer than third costal abscissa. Medial cell very narrow, 10.5 times longer than wide, 0.3 times as long as hind wing. First abscissa of mediocubital vein 0.7 times as long as second abscissa. Recurrent vein weakly and regularly curved towards apex of wing, slightly antefurcal.

Legs. Hind femur 3.3 times longer than wide. Hind tibia rather thick, its length 7.5 times maximum width, 1.45 times length of hind femur. Hind tarsus 0.85 times as long as hind tibia. Hind basitarsus 0.6 times as long as 2nd–5th segments combined. Second tarsal segment 0.55 times as long as basitarsus, 1.4 times longer than fifth segment (without pretarsus).

Metasoma 1.4 times longer than mesosoma and head combined. First metasomal tergite with rather distinct dorsope, with very small spiracular protuberances in basal quarter, strongly and almost linearly widened from base to subapex, but weakly narrowed apically. Length of first tergite 0.8 times its apical width; apical width about twice its minimum width. Length of second tergite half its basal width, about equal to length of third tergite. Second suture shallow and almost straight. Third tergite with very shallow transverse crenulate furrow in basal 0.25. Ovipositor sheath 0.6 times as long as metasoma, 1.15 times longer than mesosoma, 0.55 times as long as fore wing.

Sculpture and pubescence. Head smooth, frons striate near antennal sockets, face rather widely and finely striate. Mesoscutum without rugulosity along notauli, entirely smooth, only lateral lobes posteriorly very finely and indistinctly coriaceous, with two strongly convergent posteriorly striae and without sculpture medioposteriorly. Scutellum smooth. Mesopleuron smooth in lower 0.7. Propodeum with areas distinctly delineated by carinae, basolateral areas almost smooth in anterior 0.3, finely rugulose in posterior 0.7, sparsely crenulate along carinae, rest part of propodeum coarsely rugose-striate; areola large, wide and pentagonal, transversely striate, basal carina 0.7 times as long as anterior fork of areola. Hind coxa finely and densely striate dorsally, densely and very finely granulate-coriaceous on rest part. Hind femur almost smooth. First metasomal tergite entirely striate, partly medially with rugosity, with two distinct convergent

dorsal carinae in basal 0.7 and distinct transverse striation between these carinae. Second tergite entirely rather densely striate with numerous fine ground sculpture between striae. Third tergite in basal 0.5 (medially) – 0.7 (laterally) and fourth tergite in basal 0.3 densely distinctly striate and without ground sculpture. Fifth tergite mediobasally very shortly striate. Remainder parts of tergites smooth. Vertex with sparse short and semi-erect setae. Mesoscutum with dense short almost erect white setae arranged rather widely along notauli and narrower laterally, with bare narrow submedian areas on all lobes. Mesopleuron widely glabrous medially. Hind tibia dorsally with rather short, more or less sparse and semi-erect setae, their length 0.5–0.6 times maximum width of tibia.

Colour. Head brownish yellow, prothorax, mesoscutum, scutellum, mesopleuron, mesosternum, metapleuron in upper 0.7 and metasoma at most part reddish yellow, axillae, metanotum, metapleuron ventrally, propodeum, first tergite almost entirely and second tergite medially dark reddish brown and partly black. Antenna reddish brown, darkened towards apex, scape laterally partly and pedicel almost entirely dark reddish brown. Palpi yellow. Legs yellow, fifth segments infusate. Ovipositor sheath black. Wings distinctly infusate. Pterostigma black, yellow basally and apically.

Male unknown.

Diagnosis. The new species is similar to *P. icarus* sp. nov., but differs by having the temple roundly narrowed behind eyes, the face narrow, the occipital carina fused below with the hypostomal carina, the first flagellar segment short, the hind tibia thick, the first tergite long, the mesoscutum without rugulosity along the notauli, the hind coxa finely and densely striate dorsally, and the third tergite widely and densely striate in basal 0.5–0.7. *P. maeseensis* sp. nov. is also similar to *P. ambiguus* sp. nov. and *P. pacificus* sp. nov., but differs by having of the basal half of third tergite and fourth tergite basally striate, the occipital carina fused below with the hypostomal carina, and the setae dense and widely arranged along notauli. The new species differs from *P. pallidiceps* (Perkins) by having the antennal segments slender, the mesoscutum with rather wide bare areas and almost smooth medioposteriorly, the first tergite and the ovipositor short, and the colouration of the body pale.

Distribution. Japan (Ryukyu Is.).

Parallorhogas pacificus sp. nov.

(Figs 190–198)

Type material. Holotype: female, “Japan: Ryukyus, Ishigaki Is., Mt. Maese-dake, 19–21.X.1999, S. Belokobylskij” (NIAES).

Paratypes. 1 female (ovipositor partly missing), "Japan: Ryukyus, Iriomoto Is., Mt. Sonai, 16–18.X.1999, S. Belokobylskij" (ZISP); 2 males, "Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 13–15.X.1999 K. Konishi" (NIAES); 1 male, "Japan: Ryukyus, Ishigaki Is., Mt. Omoto-dake, 19–21.X.1999 S. Belokobylskij" (ZISP).

Description. Female. Body length 2.4–2.5 mm; fore wing length 2.0–2.2 mm.

Head width 1.45–1.5 times its median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) roundly narrowed. Transverse diameter of eye 1.8 times longer than temple (dorsal view). Ocelli in almost equilateral triangle; POL 0.8–1.0 times Od, 0.4–0.5 times OOL. Eye glabrous, 1.25–1.3 times as high as broad. Malar space height 0.3 times eye height, 0.6–0.65 times basal width of mandible. Face width 0.85 times eye height and almost equal to height of face and clypeus combined. Malar suture absent. Clypeus with narrow and almost perpendicular lower flange. Hypoclypeal depression subround, its width almost equal to distance from edge of depression to eye, 0.45–0.5 times width of face. Occipital carina not fused with hypostomal carina being obliterated ventrally on short distance upper base of mandible. Hypostomal flange narrow. Length of maxillary palpi almost equal to head height (without mandible).

Antennae slender, weakly setiform, 21–22-segmented, almost as long as body. Scape 1.6–1.7 times longer than maximum width, 1.8–1.9 times longer than pedicel. First flagellar segment about 5.0 times longer than its apical width, 1.1–1.15 times longer than second segment. Penultimate segment 3.8–4.0 times longer than wide, 0.7–0.8 times as long as first segment, 0.7–0.85 times as long as apical segment; the latter pointed apically.

Mesosoma. Length 1.75–1.9 times its height. Neck of prothorax short, with indistinct or fine pronotal keel submedially. Mesoscutum highly and perpendicularly elevated above pronotum, short, its width 1.3–1.4 times median length. Notauli deep, entirely rather wide, densely and rather finely crenulate. Median lobe of mesoscutum almost straight anteriorly, with very shallow median furrow. Prescutellar depression deep, almost smooth, with 3–5 distinct carinae, 0.35 times as long as scutellum. Subalar depression shallow, rather wide, coarsely striate with rugulosity. Sternauli rather deep, finely and very narrowly crenulate, running along anterior half of lower part of mesopleuron. Metapleural flange wide basally and narrowed towards apex, rounded apically. Propodeum with very short and wide lateral tubercles.

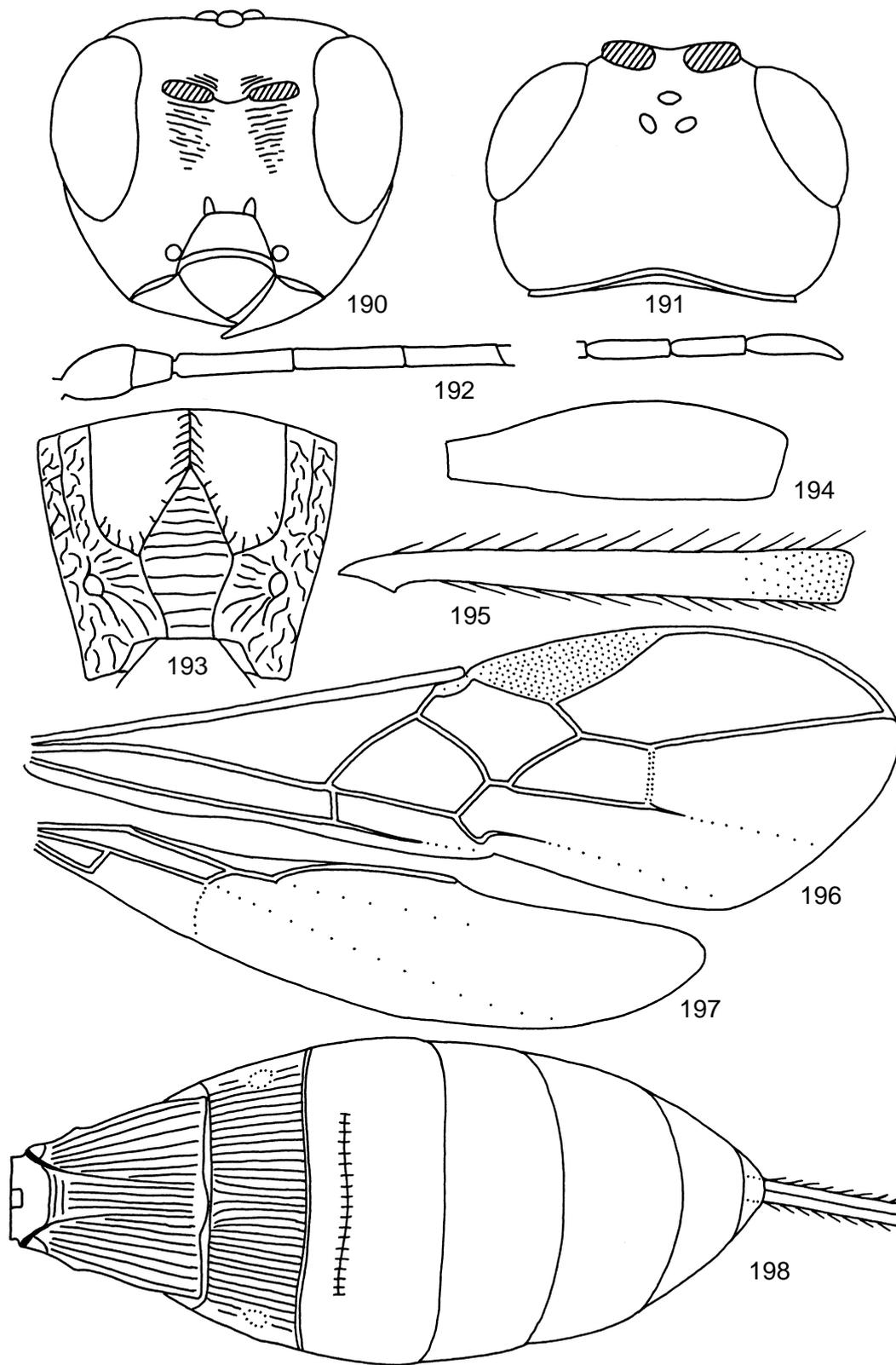
Wings. Length of fore wing 3.0–3.2 times its width. Metacarpus 1.25–1.3 times longer than pterostigma. Radial vein arising from basal 0.3–0.38 of pterostigma. Second radial abscissa 1.4–1.7 times longer than first

abscissa, 0.25–0.3 times as long as the straight third abscissa, 0.75–0.9 times as long as first radiomedial vein. Second radiomedial cell 2.3–2.4 times longer than its maximum width, almost as long as brachial cell. First medial abscissa distinctly curved. Recurrent vein 1.9–2.2 times longer than second abscissa of medial vein. Distance from nervulus to basal vein 0.1–0.2 times nervulus length. Hind wing 4.7–5.1 times longer than wide. First abscissa of costal vein almost as long as second abscissa. Fourth costal abscissa very long, 4.5–4.8 times longer than third abscissa. Basal vein 0.5–0.7 times as long as third costal abscissa. Medial cell very narrow, 10.0–11.5 times longer than wide, 0.3 times as long as hind wing. First abscissa of mediocubital vein 0.7 times as long as second abscissa. Recurrent vein weakly and regularly curved towards apex of wing, slightly antefurcal, unsclerotised.

Legs. Hind femur 3.5–3.6 times longer than wide. Hind tibia slender, its length 9.5–10.0 times maximum width, 1.5 times length of hind femur. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.65–0.7 times as long as 2nd–5th segments combined. Second tarsal segment half as long as basitarsus, 1.15–1.25 times longer than fifth segment (without pretarsus).

Metasoma 1.2–1.3 times longer than mesosoma and head combined. First metasomal tergite with rather distinct dorsope, with very small spiracular protuberances in basal 0.3, distinctly and almost linearly widened from base to apex. Length of first tergite 0.9 times its apical width; apical width 2.0–2.3 times its minimum width. Length of second tergite 0.4–0.45 times its basal width, 0.8 times length of third tergite. Second suture shallow and almost straight. Third tergite with very shallow transverse crenulate (sometimes very finely) furrow in basal 0.25. Ovipositor sheath as long as metasoma, 1.6 times longer than mesosoma, 0.65 times as long as fore wing.

Sculpture and pubescence. Head smooth, frons medially and face upper very finely aciculate. Mesoscutum smooth, finely striate anteriorly near notauli and narrowly medially, with two strongly convergent carinae and sometimes fine rugulosity between their in posterior half. Scutellum smooth. Mesopleuron smooth in lower 0.7. Propodeum with areas distinctly delineated by carinae, basolateral areas smooth, rugose along carinae, rest part of propodeum coarsely rugose-striate; areola large, rather narrow and pentagonal, transversely striate, basal carina 0.55–0.6 times as long as anterior fork of areola. Hind coxa rather finely or sometimes very finely and usually densely striate dorsally, smooth on the rest part. Hind femur smooth. First metasomal tergite entirely striate, partly medially with fine ground rugosity, with two distinct convergent dorsal carinae and rugulose or transverse striate between these carinae. Second tergite entirely rather



Figures 190–198. *Parallorhogas pacificus* sp. nov. (190) Head, front view; (191) head, dorsal view; (192) basal and apical segments of antenna; (193) propodeum, dorsal view; (194) hind femur; (195) hind tibia; (196) fore wing; (197) hind wing; (198) metasoma, dorsal view.

densely striate with very fine ground sculpture between striae. Third tergite narrowly striate in sub-basal depression. Remainder tergites smooth. Vertex with sparse short and semi-erect setae, glabrous medioanteriorly. Mesoscutum with rather dense short semi-erect white setae arranged widely along notauli and narrow laterally, with bare wide submedian areas on all lobes. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather short, more or less sparse and semi-erect setae, their length 0.7–0.8 times maximum width of tibia.

Colour. Head brownish yellow, reddish brown anteriorly and dorsally; mesosoma dark reddish brown to black, sides of pronotum widely below and sometimes narrowly upper, mesoscutum along notauli and widely medio-posteriorly and mesopleuron in lower half reddish brown to light reddish brown. Metasoma in basal half dark reddish brown to reddish brown, yellowish laterally, light reddish brown to yellowish brown in posterior half. Antenna black, two basal segments brownish yellow. Palpi pale yellow. Legs yellow, hind femur and tibia apically and hind tarsus almost entirely brownish. Ovipositor sheath black apically and brown basally. Wings faintly infusate. Pterostigma brown, shortly faintly pale basally and apically.

Male. Body length 1.9–2.0 mm; fore wing length 1.4–1.6 mm. Temple long; transverse diameter of eye 1.3–1.6 times longer than temple. Antennae 18–20-segmented. First flagellar segment 3.6–4.0 times longer than its apical width. Penultimate segment 3.5–3.8 times longer than wide. Sternauli smooth. Second radial abscissa 1.8–2.0 times longer than first abscissa, 0.35–0.45 times as long as third abscissa, 1.0–1.2 times as long as first radiomedial vein. Second radiomedial cell 2.1–2.6 times longer than its maximum width. Distance from nervulus to basal vein 0.7–1.0 times nervulus length. First abscissa of mediocubital vein of hind wing 0.8–0.9 times as long as second abscissa. Hind femur 3.4–3.8 times longer than wide. Length of first tergite about 1.1 times its apical width. Length of second tergite 0.6–0.65 times its basal width, 0.9 times length of third tergite. Third tergite with widely crenulate furrow in basal 0.25. All body reddish brown, faintly infusate dorsally, but propodeum sometimes almost black. Otherwise similar to female.

Diagnosis. The new species is similar to *P. pallidiceps* (Perkins), but differs by having the occipital carina not fused with the hypostomal carina ventrally, the mesoscutum sparsely and rather narrowly setose, the first tergite long, the antennal segments slender, the sides of pronotum above widely smooth, and the first medial abscissa not strongly curved. *P. pacificus* sp. nov. is also similar to *P. maeseensis* sp. nov., but differs by having the eyes glabrous, the occipital carina not fused with the hypostomal carina ventrally, the antennae less segmented, the first flagellar segment

and hind tibia slender, the second tergite short, the ovipositor long, the third tergite narrowly crenulate in the transverse furrow only, and the tergites behind third one smooth. The new species is similar to *P. ambiguous* sp. nov., but differs by having the ovipositor and first metasomal tergite long, and the penultimate segment of antenna, hind femur and tibia slender.

Distribution. Japan (Ryukyu Is.).

Parallorhogas pacificus micronesianus subsp. nov.

Type material. Holotype: female, “Japan: Ogasawara Is., Hahajima I., Kuwanokiyama, 21.VII.2005, H. Makihara” (NIAES).

Paratypes. 2 females, “Japan: Ogasawara Is., Hahajima I., Sekimon, 21.VII.1998, H. Makihara” (FFPRI, ZISP).

Differs from nominative subspecies in the following characters.

Description. Female. Body length 2.7–3.1 mm; fore wing length 2.1–2.4 mm.

Ocelli arranged in triangle with base 1.05–1.15 times its sides; POL 1.0–1.3 times Od. Frons widely and rather distinctly transversely striate. Antennae filiform, 23–24-segmented. Scape 1.4–1.5 times longer than maximum width, 1.7–2.0 times longer than pedicel. First flagellar segment 4.4–4.8 times longer than its apical width. Penultimate segment 3.3–3.4 times longer than wide. Pronotum with distinct pronotal keel. Width of mesoscutum 1.2–1.3 times median length. Subalar depression rather finely or distinctly striate, usually almost without rugulosity. Sternauli smooth. Basal carina of propodeum 0.7–0.9 times as long as anterior fork of areola. Metacarpus 1.3–1.4 times longer than pterostigma. Radial vein arising from basal 0.4 of pterostigma. Second radiomedial cell 2.4–2.6 times longer than its maximum width. Distance from nervulus to basal vein 0.2–0.3 times nervulus length. Hind wing 4.5–5.2 times longer than wide. First abscissa of mediocubital vein 0.6 times as long as second abscissa. Recurrent vein almost straight or weakly curved. Second tergite densely and rather finely striate, very fine sculptured medioposteriorly. Length of second tergite 0.45–0.55 times its basal width, 0.8–0.9 times length of third tergite. Second suture weakly curved. Third tergite without crenulate transverse furrow. Ovipositor sheath 0.9 times as long as metasoma, 1.4–1.45 times longer than mesosoma. Body light reddish brown or brownish yellow, sometimes vertex medially, mesosoma dorsally, usually metapleuron, propodeum and first–third metasomal tergites dark. Pterostigma entirely brown.

Distribution. Japan (Ogasawara Is.)

Remarks. The subspecies from Ogasawara Island differs from nominative subspecies basically by having

the fine and incomplete sculpture on the second tergite and in the absence of a sculptured furrow on the third tergite.

A key to Asian species of the genus *Parallorhogas* Marsh

1. Mesoscutum almost entirely setose. First medial abscissa strongly curved. Head of female yellow or brownish yellow; mesosoma and metasoma more or less black. [Ovipositor long, its sheath not shorter than metasoma, 0.7–0.8 times as long as fore wing. Face rather distinctly transversely striate in latero-median parts. Body length 4.0–4.5 mm. – Hawaii, Guam, Fiji, Society Islands, New Zealand, Vietnam, India; Uganda; USA (Florida)] *pallidiceps* (Perkins)
- Mesoscutum usually narrow or more or less widely setose along notauli and marginally. First medial abscissa usually less strongly curved. Colouration of female different 2
2. Vertex entirely or at least partly densely transversely smoothly aciculate (Fig. 162) 3
- Vertex entirely smooth (Figs 152, 171, 182, 191) 4
3. Head rather strongly narrowed behind the eyes (Fig. 162). Hypoclypeal depression small, its width 0.45 times width of face (Fig. 161). Basal carina of the propodeum long, 1.0–1.4 times as long as anterior fork of areola (Fig. 164). Mesoscutum entirely smooth. Radial vein arising almost from the middle of pterostigma (Fig. 167). First tergite long, its length 0.85–0.95 times apical width (Fig. 169). Second tergite finely sculptured posteriorly, third tergite without crenulate subbasal transverse furrow (Fig. 169). Body length 2.0–4.0 mm. – Japan (Ogasawara Is.) *boninus* sp. nov.
- Head weakly narrowed behind the eyes. Hypoclypeal depression large, its width 0.65 times width of face. Basal carina of the propodeum very short, much shorter than anterior fork of areola. Mesoscutum finely reticulate-coriaceous. Radial vein arising from anterior 0.35 of pterostigma. First tergite short, its length about 0.7 times apical width. Second tergite distinctly sculptured posteriorly, third tergite distinctly striate in subbasal half. Body length 2.1–3.7 mm. – India *colophon* (Nixon)
4. Head behind eyes strongly and weakly-roundly narrowed (Fig. 171). Mesoscutum finely rugulose-striate along notauli (Fig. 173), median lobe of mesoscutum with distinct median furrow. First tergite shorter, its length 0.6–0.67 times apical width (Fig. 180). Second tergite with very narrow basal area (Fig. 180). Colouration of body contrasting. Body length 2.5–3.3 mm. – Japan (Ryukyu Is.) *icarus* sp. nov.
- Head behind eyes less strongly and distinctly-roundly narrowed (Figs 152, 182, 191). Mesoscutum mostly smooth (Fig. 154), median lobe of mesoscutum without or sometimes with very shallow median furrow. First tergite usually longer (except for *P. chasanicus* Belokobylskij), its length 0.75–0.9 times apical width (Figs 158, 186, 198). Second tergite without basal area (Figs 158, 186, 198). Colouration of body not contrasting 5
5. Basal half of third tergite and fourth tergite basally distinctly striate (Fig. 186). Mesoscutum with rather dense setae widely arranged along notauli. Body length 4.2 mm. – Japan (Ryukyu Is.) *maeseensis* sp. nov.
- Basal half of third tergite smooth, short striation present in subbasal furrow only; fourth tergite entirely or almost entirely smooth (Figs 158, 198) 6
6. Ovipositor long, ovipositor sheath as long as metasoma, 1.6 times longer than mesosoma, 0.65 times as long as fore wing. First metasomal tergite long, its length 0.9 times maximum width (Fig. 198). Penultimate segment of antenna slender, 3.5–4.0 times longer than wide (Fig. 192). Hind tibia slender, 9.5–10.0 times longer than wide (Fig. 195). *P. pacificus* sp. nov. 7
- Ovipositor short, ovipositor sheath 0.4–0.65 times as long as metasoma, 0.6–1.0 times as long as mesosoma, 0.28–0.43 times as long as fore wing. First metasomal tergite short, its length 0.63–0.8 times maximum width (Fig. 158). Penultimate segment of antenna thick, 2.5–3.0 times longer than wide (Fig. 153). 8
7. Second tergite of metasoma with rather coarse and complete striation (Fig. 198). Third tergite with more or less distinct crenulate transverse furrow in basal 0.3 (Fig. 198). Body length 1.9–2.5 mm. – Japan (Ryukyu Is.) *pacificus pacificus* sp. nov.
- Second tergite of metasoma with fine striation, very finely sculptured to almost smooth apically. Third tergite without sculptured furrow in basal 0.3. Body length 2.7–3.1 mm. – Japan (Ogasawara Is.). *pacificus micronesianus* subsp. nov.
8. First tergite short, 0.63–0.73 times as long as apical width. Mesoscutum long, its width 1.2–1.25 times median length; rather widely covered by long setae along notauli and marginally. Metapleuron almost smooth in anterior 0.3. Hind tibia slender, 8.5–9.5 times longer than wide. Dorsal setae of hind tibia dense. Body large, body length 3.4–4.5 mm. – Russia (Primorskij kraj). *hasanicus* (Belokobylskij)
- First tergite long, 0.75–0.8 times as long as apical

width (Fig. 158). Mesoscutum short, its width 1.35–1.5 times median length; narrowly covered by rather short setae along notauli and marginally. Metapleuron areolate-rugose in anterior 0.3. Hind tibia thick, 6.0–8.0 times longer than wide (Fig. 157). Dorsal setae of hind tibia sparse (Fig. 157). Body large, body length 1.7–3.3 mm. – Japan (Ryukyu Is.) *ambiguus* sp. nov.

Platyspathius Viereck, 1911

Platyspathius Viereck is a rather small genus comprising 12 species from the Oriental, Afrotropical and East Palaearctic Regions (Shenefelt and Marsh 1976, Chao 1978, Belokobylskij and Ku 2001). Recently a new species *P. europaeus* Achterberg, 2003 was also described from the West Palaearctic (France and Italy: van Achterberg 2003). A key for determination of all species of the genus *Platyspathius* is provided by van Achterberg (2003).

Only one Korean species of this genus *P. hospitus* Belokobylskij and Ku, 2001 has been recorded in the East Palaearctic (Belokobylskij and Ku 2001). This is first record of *Platyspathius* in the fauna of Japan and the second species [*P. ornatulus* (Enderlein)] in the East Palaearctic Region.

Platyspathius ornatulus (Enderlein, 1912)
(Figs 199–210)

Spathiohormius ornatulus Enderlein, 1912: 21; Watanabe 1937: 42.
Platyspathius ornatulus: Shenefelt and Marsh 1976: 1385, van Achterberg 2003: 284, 286.
Spathius dinoderi Gahan, 1925: 84, *syn. nov.*
Platyspathius dinoderi: Nixon 1943: 427, Shenefelt and Marsh 1976: 1385.

Type material. China (Taiwan): 1 female (lectotype, designated here for stability of nomenclature), “Formosa, Takao, H. Sauter S., 21.7.07”, “Type” (red), “*Spathiohormius ornatulus* Enderl. ♀ Type, Dr. Enderlein det. 1912”, “Lectotype *Spathiohormius ornatulus* End. By P. Marsh’ 66”, “Mus. Zool. Polonicum, Warszawa 12/45” (MIIZ); 1 female (paralectotype), “Formosa, Takao, H. Sauter S., 11.VI.07”, “Co-Typus” (yellow), “*Spathiohormius ornatulus* Enderl. ♀ Type, Dr. Enderlein det. 1912”, “Mus. Zool. Polonicum, Warszawa 12/45”, “Paralectotype *Spathiohormius ornatulus* End.” (MIZW); 1 male (paralectotype), “Formosa, Takao, H. Sauter S., 11.VI.07”, “Type” (red), “*Spathiohormius ornatulus* Enderl. ♂ Type, Dr. Enderlein det. 1912”, “Paralectotype *Spathiohormius ornatulus* End.” (MIZW). 1 male (holotype), “Mt. Makiling, Luzon, Baker”, “Bamboo”,

“18618”, “Ex *Dinoderus minutus* Fabr.”, “Type No 26758 U.S.N.M.” (red), “*Spathius dinoderi* Gahan, ♂ Type” (USNM).

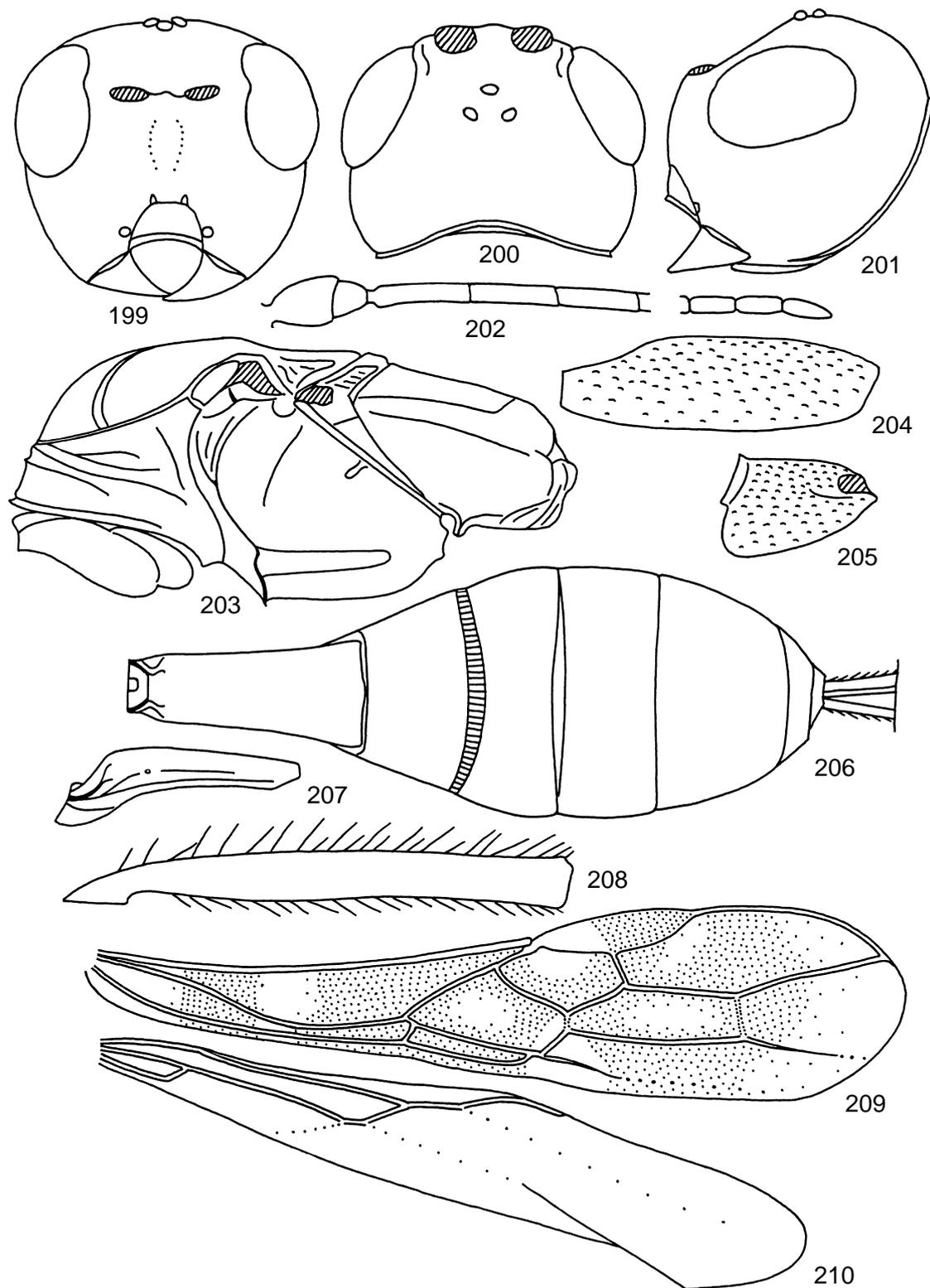
Non-type material. China (Taiwan): 3 females, 3 males, “Kankau (Koshun), Formosa, H. Sauter, VI.1912”, “*Spathius annuliventris* (Enderlein), det. C. Watanabe”. Japan: 1 female, Honshu, “Nishiogikube, Tokyo, VII.23. 1937, Makoto Kawai” (NIAES); 1 female, “[Kyushu] Fukuoka, 6.IX.1946, K. Yasumatsu” (EIHU).

Description. Female. Body length 3.4–4.1 mm; fore wing length 2.3–2.7 mm.

Head width 1.3–1.5 times median length. Head behind eyes weakly roundly narrowed (dorsal view). Transverse diameter of eye 1.3–1.4 times longer than temple (dorsal view). Ocelli small, arranged in triangle with base 1.15–1.2 times its sides. POL 1.6–2.2 times Od, 0.35–0.5 times OOL. Eye glabrous, 1.2–1.25 times as high as broad. Malar space height 0.5–0.65 times height of eye, 1.2–1.3 times basal width of mandible. Face width almost equal to height of eye and 1.05–1.15 times height of face and clypeus combined. Clypeal suture distinct, but shallow. Hypoclypeal depression rather small and round, its width 0.5–0.6 times distance from edge of depression to eye, 0.35–0.4 times width of face. Occipital carina complete dorsally, not fused ventrally with hypostomal carina being obliterated before base of mandible. Postgenal bridge rather wide. Head below eyes (frons view) distinctly and weakly-roundly narrowed.

Antennae filiform, densely and shortly setose, 26–28-segmented, about 0.9 times as long as body. Scape 1.6–1.7 times longer than its maximum width. First flagellar segment 4.3–4.6 times longer than apical width, almost as long as second segment. Penultimate segment 2.2–2.5 times longer than wide, 0.4–0.5 times as long as first flagellar segment, 0.75–0.8 times as long as apical segment; the latter pointed apically.

Mesosoma. Length of mesosoma 2.0–2.25 times its height. Pronotal keel present, but fine, complete, situated near middle of dorsal side of pronotum. Pronotal lateral depressions narrow, rather shallow, coriaceous and often with very fine and rather sparse crenulation, usually rather strongly crenulate anteriorly. Mesoscutum distinctly, uniformly and roundly elevated above pronotum. Notauli rather wide, deep, but shallow in posterior 0.3–0.4, complete, entirely finely granulate-coriaceous with fine crenulation at least partly, only granulate-coriaceous posteriorly. Prescutellar depression short, with 3–4 carinae (sometimes lateral carinae rather fine), granulate-coriaceous or almost smooth between carinae, 0.25–0.3 times as long as the weakly convex scutellum. Subalar depression shallow, rather narrow, finely coriaceous, almost without rugosity. Sternauli very shallow, straight, only finely coriaceous, running along anterior 0.6–0.7 of lower part of mesopleuron. Metanotal tooth almost absent. Metapleural lobe distinct, narrow, rounded apically.



Figures 199–210. *Platyspathius ornatulus* (Enderlein). (199) Head, front view; (200) head, dorsal view; (201) head, lateral view; (202) basal and apical segments of antenna; (203) mesosoma, lateral view; (204) hind femur; (205) hind coxa; (206) metasoma, dorsal view; (207) petiole, lateral view; (208) hind tibia; (209) fore wing; (210) hind wing.

Wings. Fore wing 3.8–4.0 times longer than its maximum width. Radial vein arising almost from middle of pterostigma. Radial cell not shortened. Metacarpus 1.1–1.2 times longer than pterostigma. Second radial abscissa about 3.0 times longer than first radial abscissa and forming weakly obtuse or almost straight angle with it, 0.7–0.8 times as long as third abscissa, 1.4–1.5 times longer than the weakly sclerotised first radiomedial vein. First medial abscissa S-shaped. Second radiomedial cell not widened distally, its length 3.2–3.4 times maximum width, 1.5–1.6 times length of the wide brachial cell. Nervulus weakly or sometimes distinctly (in lectotype!) declivous. Distance from nervulus to basal vein 0.2–0.5 times nervulus length. Parallel vein interstitial. Mediocubital vein strongly curved towards anal vein submedially. Brachial cell narrowed towards apex, apically gently closed before level of recurrent vein. Hind wing 4.7–5.0 times longer than wide. First abscissa of costal vein about half as long as second abscissa. First abscissa of mediocubital vein about half as long as second abscissa. Recurrent vein strongly declivous towards base of wing, antefurcal, unsclerotised.

Legs. Hind coxa with basoventral tubercle. Hind femur 3.2–3.5 times longer than wide. Hind tibia with 3–4 apical spines on its outside apical margin. Hind tarsus as long as hind tibia. Hind basitarsus 0.7–0.75 times as long as 2nd–5th segments combined. Second tarsal segment 0.4–0.45 times as long as basitarsus, 1.3–1.4 times longer than fifth segment (without pretarsus).

Metasoma. Petiole distinctly curved in basal 0.3, then almost straight (lateral view), widened from base to apex (dorsal view), with small spiracular tubercles in basal quarter. Acrosternite rather short, about 0.3 times as long as first tergite. Length of petiole 2.1–2.2 times its apical width, 1.35–1.5 times length of propodeum; maximum width of petiole almost twice its minimum width. Second tergite without any furrows. Median length of second tergite 0.8–0.9 times its basal width, 1.5–1.7 times length of third tergite. Second suture shallow, rather wide, entirely finely or very finely crenulate. Ovipositor sheath 0.8–1.0 times longer than metasoma, 2.5–2.8 times longer than petiole, 1.25–1.4 times longer than mesosoma, 0.7–0.75 times as long as fore wing.

Sculpture and pubescence. Vertex rather finely and very densely aciculate or aciculate-coriaceous, sometimes partly with reticulation; frons coriaceous or reticulate-coriaceous, sometimes finely striate anteriorly; face densely granulate with aciculation at least below; temple finely and densely coriaceous. Mesoscutum densely and finely granulate-coriaceous, lobes near notauli without rugae, with short and narrow striation or only with two striae in medioposterior area. Scutellum densely and finely

or very finely coriaceous. Mesopleuron very finely reticulate-coriaceous, distinctly coriaceous below sternauli. Metapleuron very finely and entirely reticulate-coriaceous, sometimes partly almost smooth. Propodeum densely and coarsely granulate-reticulate, rugulose posteriorly, with striation lateroposteriorly, areas absent, present long two lateral and one median carinae, which is rarely fused posteriorly forming long basolateral areas. Hind coxae finely granulate-coriaceous, very finely sculptured laterally. Hind femur finely or very finely coriaceous, sometimes finely aciculate dorsally. Petiole and second tergite very densely and distinctly reticulate-areolate with granulation, areolation very small, second tergite basally with rather fine, dense and usually short striae. Third tergite finely and densely reticulate-coriaceous, almost smooth in posterior 0.2. Fourth and fifth tergites very finely reticulate-coriaceous in basal 0.5–0.7, almost smooth apically. Mesoscutum with sparse and short semi-erect pale setae arranged rather widely along notauli and narrowly marginally. Hind tibia dorsally with short, rather sparse, semi-erect setae; length of these setae 0.5–0.8 times maximum width of hind tibia.

Colour. Body reddish brown or dark reddish brown, head and sometimes mesosoma anteriorly light reddish brown or at least paler than rest body. Antenna yellow or yellowish brown, faintly darkened towards apex, dark brown or black in apical 0.2–0.4. Palpi dark brown, paler apically. Legs reddish brown or dark reddish brown, fore and middle coxae paler, yellowish brown or light reddish brown, all tibiae dark basally, all tarsi entirely brownish yellow or light reddish brown or at least faintly paler than rest legs; all tibiae without pale stripes. Ovipositor sheath reddish brown, yellow or pale basally, almost black apically. Fore wing distinctly and rather strongly maculate, with hyaline stripes: basally, on maximum narrowed area of submedial cell, under base of pterostigma, and widely apically; with small subhyaline spots in discoidal, radial and sometimes second radiomedial cells. Pterostigma dark brown, whitish yellow, yellow or distinctly pale in basal 0.4–0.5.

Male. Body length 2.7–3.1 mm; fore wing length 2.0–2.1 mm. Head behind eyes (dorsal view) weakly convex anteriorly and roundly narrowed posteriorly. Transverse diameter of eye 1.15–1.25 times longer than temple (dorsal view). Ocellar triangle more obtuse. Hypoclypeal depression width 0.4–0.45 times width of face. Antennae weakly setiform, 25-segmented, 1.1 times longer than body. First flagellar segment 0.9 times as long as second segment. Penultimate segment 3.4 times longer than wide, 0.9 times as long as apical segment. Subalar depression more or less distinctly and shortly or very shortly crenulate anteriorly. Metapleural lobe shorter and wide. Second radial abscissa

2.6–2.7 times longer than first radial abscissa, 0.6–0.65 times as long as third abscissa, 1.3 times longer than first radiomedial vein. Second radiomedial cell 3.5 times longer than maximum width, 1.3–1.4 times longer than the wide brachial cell. Nervulus interstitial or weakly postfurcal, more or less distinctly declivous. First abscissa of mediocubital vein of hind wing 0.45–0.5 times as long as second abscissa. Hind coxa without basoventral tubercle. Hind femur widened, 2.7–2.9 times longer than wide. Hind basitarsus 0.8 times as long as 2nd–5th segments combined. Petiole weakly and gently curved basally (lateral view), weakly widened from base to apex (dorsal view). Acrosternite about 0.25 times as long as first tergite. Length of petiole 2.5–2.7 times its apical width; maximum width of petiole 1.7–1.8 times its minimum width. Median length of second tergite 1.0–1.1 times its basal width. Mesoscutum and hind coxa sometimes very finely reticulate-coriaceous. Basal striation on second tergite sometimes rather long. Third tergite distinctly reticulate-coriaceous in basal half and finely or very finely reticulate-coriaceous in apical half. Fourth–sixth tergites finely or very finely reticulate-coriaceous in basal 0.5–0.7. Legs reddish brown, sometimes partly yellowish brown. Otherwise similar to female.

Host. *Dinoderus minutus* Fabricius (Bostrichidae).

Distribution. Japan (Honshu) (new record); China (Taiwan), Philippines, Fiji, Andamans, India.

Discussion. The type material examined of *P. ornatulus* (Enderlein) included two females (lectotype and paralectotype; not holotype as indicated by van Achterberg, 2003: 286) and one male (paralectotype) from Taiwan, whereas for *P. dinoderi* (Gahan) we only examined one male (holotype) from the Philippines. We also studied non-type specimens from Taiwan (3 females and 3 males) from the EIHU collection as well as two Japanese specimens. The comparison of all these specimens distinctly showed that they were members of one species. We found sexual dimorphism in this species: in the female the nervulus of the fore wing is usually rather distinctly postfurcal and more or less perpendicular to the cubital vein, but in the male (holotype of *P. dinoderi* and specimens from Taiwan) the nervulus is interstitial or sometimes a little antefurcal or postfurcal and rather distinctly declivous. Thus, *Spathiohormius ornatulus* Enderlein, 1912 is a senior synonym for *Spathius dinoderi* Gahan, 1925 (**syn. nov.**).

The characters published to distinguish the aforementioned species (van Achterberg 2003: 286) are not useful, because in the lectotype of *P. ornatulus* the basal third of the submarginal cell of the fore wing has the same colour as in the holotype of *P. dinoderi*, the differences in colouration of the hind femora are

indistinct, and the size of the ocellar triangle (relation of POL and OOL) is similar.

Polystenus Foerster, 1862

This genus was originally described in the generic key (Foerster 1862) and considered an enigmatic taxon for a long time. After a study of the type specimens of *Polystenus rugosus* Foerster, 1862 and *Corystes aciculatus* Reinhard, 1865 (type species of the genus *Eucorystoides* Ashmead, 1900), these names were synonymized (Papp 1984). Now the genus *Polystenus* includes three species – *P. remus* (Nixon, 1943), comb. nov. from India, *P. ruficeps* (Ashmead, 1905) from the Philippines and widely distributed in the Palaearctic Region *P. rugosus* Foerster 1862. Two other species previously included in *Polystenus* Foerster (or its synonym *Eucorystoides* Ashmead) (Shenefelt and Marsh 1976) are members of the genus *Spathiostenus* Belokobylskij, 1993 [*S. formosanus* (Watanabe, 1934) and *S. tenuis* (Nixon, 1943), comb. nov.]. The Miocene *Polystenus obduratus* Brues, 1933 was described from Baltic amber (Brues 1933). A re-study of the description of this species (its type material was probably lost) clearly showed that it is not a member of *Polystenus*, but, quite possible, a species of the genus *Monolexis* Foerster 1862.

Polystenus rugosus Foerster 1862

Polystenus rugosus Foerster 1862: 237, Shenefelt and Marsh 1976: 1361, Papp 1984: 182, Belokobylskij and Tobias 1986: 34, Belokobylskij 1998b: 74.

Corystes aciculatus Reinhard 1865: 259.

Eucorystes aciculatus: Marshall 1888: 204, 206.

Eucorystoides aciculatus: Ashmead 1900: 368, Shenefelt and Marsh 1976: 1354, Papp, 1984: 182 (as synonym of *P. rugosus*).

Examined material. Japan: 1 female, “Japan: Gifu, Kani, Katabira, 24–30.VII.20004, K. Ito (MT) (21)” (MUNJ); 2 females, “Japan: Gifu, Kani, Katabira, 20–26.VIII.20004, K. Ito (MT) (25)” (MUNJ, ZISP); 1 male “Kobotoke (Tokyo Pref., near Hachioji City), 2613 6 25 (= 1953, June, 25)”, “J. Yoshioka Collection”, “NSMT-I-Hym No 15585” (NSMT).

Hosts. *Agrilus viridis* (Linnaeus, 1758), *Corabus florentinus* (Herbst, 1801) (*bifasciatus* Olivier, 1790) (Buprestidae), *Phymatodes testaceus* (Linnaeus, 1758) (Cerambycidae), *Ips sexdentatus* (Boerner, 1776) (Scolytidae).

Distribution. Japan (Honshu) (first record); Korea, China (Taiwan), Kazakhstan, Tajikistan, Russia (Far East, European part), Belorussia, Ukraine, Hungary, Slovakia, Czech Republic, Germany, Switzerland, Italy.

Rhacontsira Belokobylskij, 1998

Rhacontsira Belokobylskij is a small East Asian genus including three recently described species from the Russian Far East [*R. heterospiloides* (Belokobylskij, 1988)] and Vietnam (*R. sculpturator* Belokobylskij, 1998 and *R. nana* Belokobylskij, 1998) (Belokobylskij 1998a). Three new species of this genus are described here from the Japanese islands Honshu and Yakushima.

The genus *Rhacontsira* with type species *Rhacontsira heterospiloides* (Belokobylskij 1988) is recorded for the first time for the Japanese fauna.

Rhacontsira heterospiloides (Belokobylskij, 1988)

Ontsira heterospiloides Belokobylskij, 1988: 627.

Rhacontsira heterospiloides: Belokobylskij 1998a: 4, 1998b: 66.

Examined material. 1 female, "Japan: Honshu, Hyogo Pr., Kobe, Rokko Mts, Maya Mt., forest, 17.IX.2005, S. Belokobylskij" (ZISP).

Distribution. Japan (Honshu) (first record); Russia (South of Far East).

Rhacontsira insulicola sp. nov.

(Figs 211–220)

Type material. Holotype: female, "Japan: Honshu, Wakayama Pref., Susami, Esuzaki, 4.V.1994, S. Nomura leg." (NIAES).

Paratypes. 2 females, 2 males, with label as holotype (NIAES, ZISP).

Description. Female. Body length 2.7–3.0 mm; fore wing length 2.2–2.4 mm.

Head width 1.6–1.7 times its median length, 1.1–1.15 times width of mesoscutum. Temple distinctly and roundly narrowed behind eye (dorsal view); transverse diameter of eye 2.0–2.2 times length of temple. Ocelli small, arranged in almost equilateral triangle; POL 1.0–1.3 times Od, 0.4–0.6 times OOL; Od 0.4 times OOL. Eye 1.2–1.3 times as high as broad. Malar space height 0.3–0.35 times height of eye, 0.7–0.9 times basal width of mandible. Face width 0.9–1.0 times height of eye and 1.1–1.2 times height of face and clypeus combined. Malar suture absent. Hypoclypeal depression round, its width 0.8–0.9 times distance from edge of depression to eye, 0.45 times width of face. Occipital carina complete, fused with hypostomal carina near mandible. Head below eyes (front view) distinctly and almost linearly narrowed.

Antennae filiform, 25–26-segmented, 1.1–1.2 times longer than body. Scape 1.5–1.55 times longer than wide. First flagellar segment 3.8–4.3 times longer than

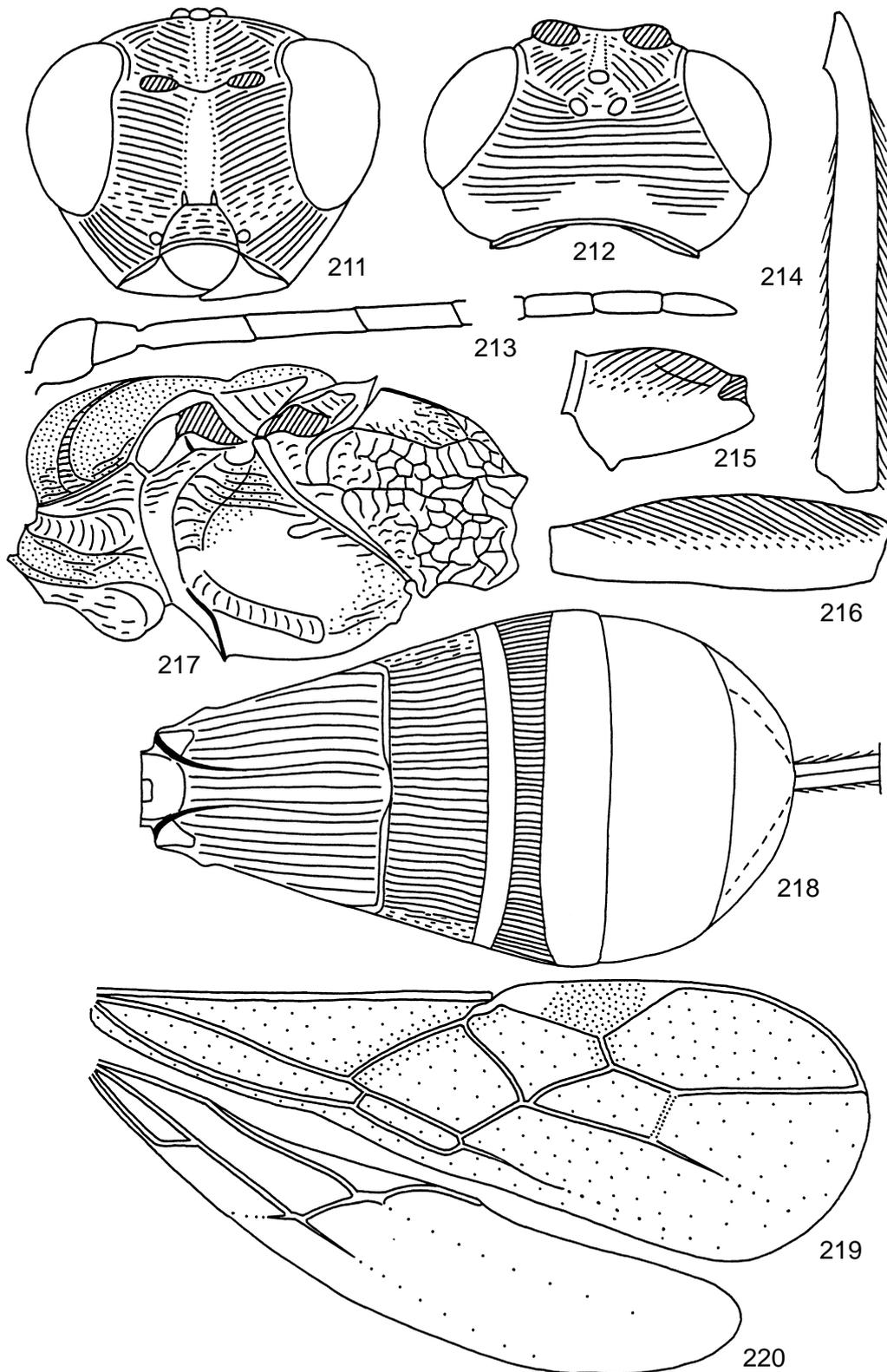
its apical width, a little shorter or as long as second segment. Penultimate segment 3.3–3.6 times longer than wide, 0.8–0.9 times as long as apical segment; the latter shortly pointed apically and without spine.

Mesosoma. Length 1.6–1.7 times its height. Pronotal carina fine, situated submedially on pronotum (dorsal view). Mesoscutum highly and almost perpendicularly elevated above pronotum. Notauli rather shallow, crenulate with granulation partly. Prescutellar depression deep and long, rugulose-striate, 0.3–0.4 times as long as scutellum. Sternauli rather deep, wide, coarsely crenulate, running along anterior half of lower part of mesopleuron, behind deep part of sternaulus towards middle coxa present shallow and rather narrow striate depression. Subalar depression crenulate. Metapleural flange long, with very dense, long and white pubescence. Propodeum roundly slanted toward apex (lateral view).

Wings. Length of fore wing 2.8–3.2 times its maximum width. Pterostigma 3.0–3.4 times longer than wide, 0.7–0.8 times as long as metacarpus. Radial vein arising from middle of pterostigma. Second radial abscissa 1.7–2.0 times longer than first abscissa, 0.3 times as long as third abscissa, 0.7–0.8 times as long as first radiomedial vein. Second radiomedial cell rather short, not widened distally, its length 2.3–2.5 times maximum width, 1.2–1.3 times length of brachial cell. Recurrent vein weakly antefurcal. Distance from nervulus to basal vein about equal to nervulus length. Brachial cell narrow. Parallel vein arising from anterior 0.25–0.3 of distal vein of brachial cell. Hind wing 4.5–4.7 times longer than wide. First abscissa of costal vein 0.6–0.7 times as long as second abscissa. First abscissa of mediocubital vein 0.8–0.9 times as long as second abscissa. Recurrent vein unsclerotised, curved, antefurcal.

Legs. Dorsal protuberances of all femora indistinct or small. Length of hind femur 3.5–4.0 times its width. Hind tarsus about 0.9 times as long as hind tibia. Hind basitarsus 0.7–0.75 times as long as 2nd–5th segments combined. Second tarsal segment 0.4–0.45 times longer than basitarsus, 1.1–1.2 times longer than fifth segment (without pretarsus).

Metasoma about as long as head and mesosoma combined. First tergite distinctly and almost linearly widened from base to apex, strongly widened in short basal part, without flanges in basal quarter, with small dorsope. Length of first tergite almost equal to or a little larger than its apical width; apical width about 3.0 times its minimum width. Median length of second tergite 0.4–0.45 times its basal width, 0.7–0.85 times length of third tergite. Transverse depression in basal 0.3 of third tergite shallow, rather wide and distinctly crenulate. Ovipositor sheath 1.0–1.1 times as long as metasoma, 1.4–1.6 times longer than mesosoma, 0.6–0.7 times as long as fore wing.



Figures 211–220. *Rhacontsira insulicola* sp. nov. (211) Head, front view; (212) head, dorsal view; (213) basal and apical segments of antenna; (214) hind tibia; (215) hind coxa; (216) hind femur; (217) mesosoma, lateral view; (218) metasoma, dorsal view; (219) fore wing; (220) hind wing.

Sculpture and pubescence. Vertex distinctly regularly transversely striate, anterior striae laterally curved forward, vertex posteriorly almost smooth. Frons striate usually distinctly and obliquely towards middle. Face rugulose-striate, narrowly smooth medially. Temple mostly smooth, vertically striate upper and sometimes finely along occipital carina. Mesoscutum densely granulate, with distinct and dense short rugae on median lobe and sides of lateral lobes, rugose-striate on area in medioposterior half. Scutellum densely granulate. Mesopleuron smooth medially or in lower 0.75. Propodeum with areas distinctly delineated by carinae; basolateral areas finely granulate or punctulate and with short or long distinct numerous striae and rugae along carinae; areola indistinct; rest part of propodeum coarsely reticulate-rugose. Hind coxa dorsally densely and finely striate or striate-rugulose, sometimes with fine granulation, smooth laterally. Hind femur distinctly striate mostly or in upper half. First and second metasomal tergites entirely and third in transverse furrow and laterally in basal 0.7 distinctly striate. Remainder tergites smooth. Vertex with short semi-erect sparse setae directed forwards. Mesonotum entirely with dense and semi-erect pale setae. Hind tibia with short semi-erect dense and pale setae, length of these setae dorsally 0.4 times maximum width of hind tibia.

Colour. Body black with sparse and small red spots on mesosoma or stripes in posterior half of metasoma; head reddish brown or dark reddish brown, almost black dorsally. Antennae brownish yellow, almost black apically. Palpi pale yellow. Legs yellow, brownish basally. Fore wing faintly infuscate especially along veins. Pterostigma brown medially, yellow in basal 0.3 and apically.

Male. Body length 2.5–2.7 mm; fore wing length 2.2 mm. Transverse diameter of eye about twice length of temple. Frons finely striate. Furrow behind sternauli very shallow. Recurrent vein sometimes almost interstitial. Length of hind femur about 3.0 times its width. Metasoma narrow. Length of first tergite 1.15–1.2 times its apical width. Length of second tergite 0.6–0.7 times its basal width, almost equal to or a little shorter than third tergite. Third tergite in basal half or 0.3 and fourth tergite in basal 0.25 striate; fifth tergite finely rugulose-coriaceous basally. Otherwise similar to female.

Diagnosis. This species is similar to *R. heterospiloides* (Belokobylskij) (Belokobylskij 1988), but differs by having the temple short, the first antennal segment long, the prescutellar depression sculptured between striae, the mesopleuron smooth in the lower half, the hind coxa and the first metasomal tergite short, the ovipositor sheath short, and the legs yellow. The new species differs from Vietnamese *R. sculpturator* Belokobylskij (Belokobylskij 1998a) by having the

vertex regularly striate and without ground rugulosity, the first flagellar segment short, the mesosoma and the second radial abscissa short, the mesopleuron smooth in the lower half, the parallel vein arising from anterior quarter of the distal vein of the brachial cell, the pterostigma yellow in the basal 0.3 and apically, the areola of propodeum indistinct, and the first metasomal tergite shorter.

Distribution. Japan (Honshu).

Rhacontsira toyota sp. nov.
(Figs 221–229)

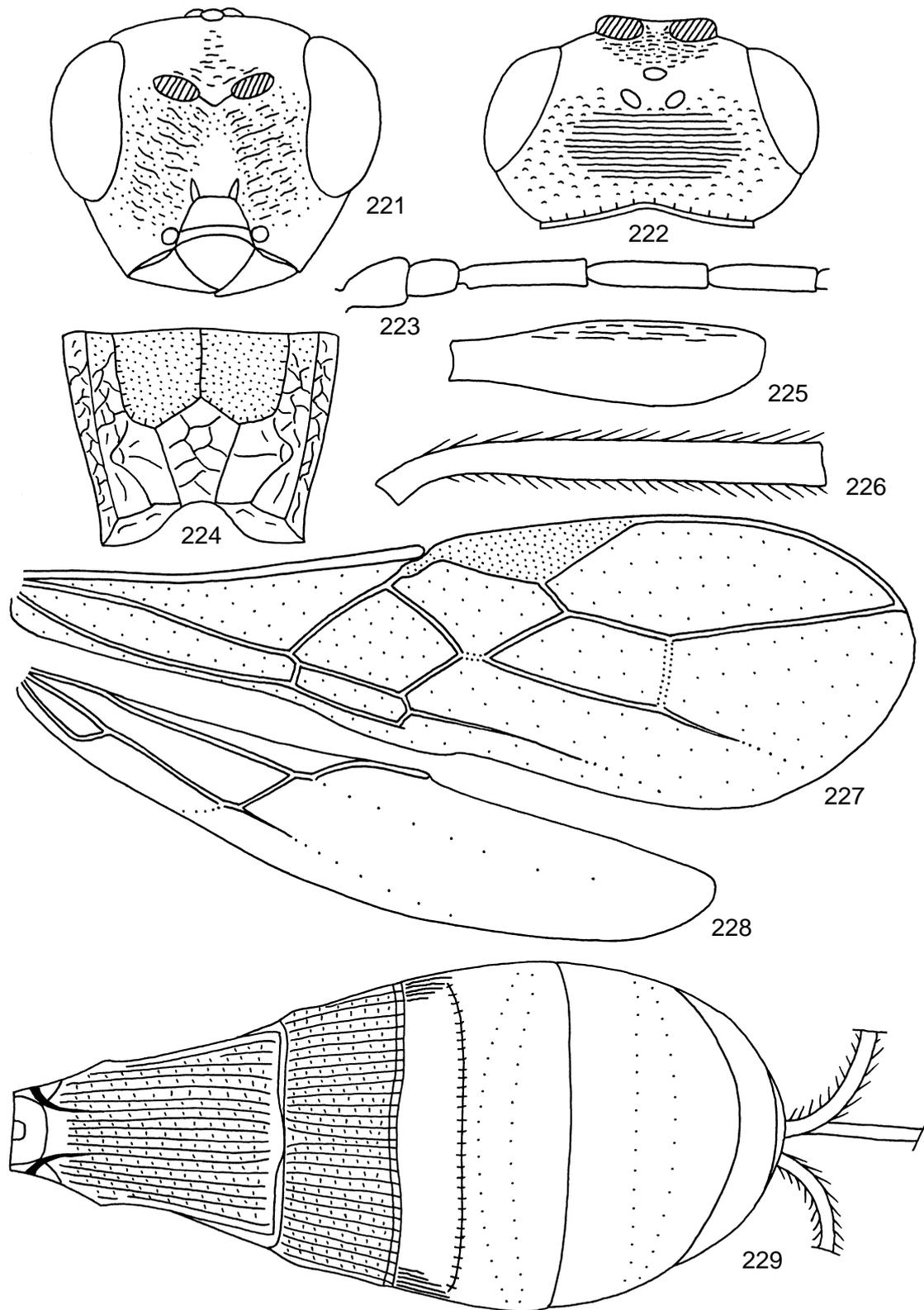
Type material. Holotype: female, “Japan: Aichi, Toyota, Sanage, (Evergreen frst), 10.VI–16.VI.2002, Mizue Kiyota; MT” (MUNJ).

Description. Female. Body length 2.4 mm; fore wing length 2.2 mm.

Head width 1.7 times its median length, 1.25 times width of mesoscutum. Temple distinctly and weakly-roundly narrowed behind eye (dorsal view); transverse diameter of eye twice length of temple. Ocelli medium-sized, arranged in triangle with base 1.1 times its sides; POL equal to Od, 0.3 times OOL; Od 0.3 times OOL. Eye 1.3 times as high as broad. Malar space height 0.4 times height of eye, equal to basal width of mandible. Face width 1.15 times height of eye and 1.2 times height of face and clypeus combined. Malar suture absent. Hypoclypeal depression round, its width 0.9 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina complete, fused with hypostomal carina near mandible. Head below eyes (front view) distinctly and weakly-roundly narrowed.

Antennae filiform, more than 18-segmented (apical segments missing). Scape 1.5 times longer than wide. First flagellar segment 4.6 times longer than its apical width, almost as long as second segment. Subapical segments 5.0 times longer than wide.

Mesosoma. Length 1.75 times its height. Pronotal carina rather distinct, situated submedially on pronotum (dorsal view). Mesoscutum highly and almost perpendicularly elevated above pronotum. Notauli rather deep complete, crenulate. Prescutellar depression deep and long, rather coarsely rugulose, with median carina, 0.4 times as long as scutellum. Sternauli rather deep, wide, coarsely and sparsely crenulate, running along anterior 0.6 of lower part of mesopleuron, behind deep part of sternaulus towards middle coxa present shallow and narrow depression with longitudinal striation. Subalar depression distinctly rugulose-striate with granulation. Metapleural flange rather long, with rather dense, more or less long and white pubescence. Propodeum weakly-roundly slanted toward apex (lateral view).



Figures 221–229. *Rhacontsira toyota* sp. nov. (221) Head, front view; (222) head, dorsal view; (223) five basal segments of antenna; (224) propodeum, dorsal view; (225) hind femur; (226) hind tibia; (227) fore wing; (228) hind wing; (229) metasoma, dorsal view.

Wings. Length of fore wing 3.0 times its maximum width. Pterostigma 3.4 times longer than wide, 0.75 times as long as metacarpus. Radial vein arising from middle of pterostigma. Second radial abscissa 2.3 times longer than first abscissa, 0.4 times as long as third abscissa, almost as long as first radiomedial vein. Second radiomedial cell rather long, weakly widened distally, its length 2.55 times maximum width, 1.5 times length of brachial cell. Recurrent vein rather distinctly antefurcal, 2.7 times longer than second medial abscissa. Distance from nervulus to basal vein 0.6 times nervulus length. Brachial cell rather narrow. Parallel vein arising from anterior 0.4 of distal vein of brachial cell. Hind wing 5.3 times longer than wide. First abscissa of costal vein 0.45 times as long as second abscissa. First abscissa of mediocubital vein 0.65 times as long as second abscissa. Recurrent vein unsclerotised, pigmented, curved, distinctly antefurcal.

Legs. Dorsal protuberances of all femora small. Length of hind femur 3.6 times its width. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.9 times as long as 2nd–5th segments combined. Second tarsal segment 0.3 times as long as basitarsus, almost as long as fifth segment (without pretarsus).

Metasoma 1.2 times longer than head and mesosoma combined. First tergite distinctly and almost linearly widened from base to apex, regularly widened in basal part, with short and wide flanges subbasally, with distinct dorsope. Length of first tergite 1.25 times its apical width; apical width 2.4 times its minimum width. Median length of second tergite half its basal width, 0.7 times length of third tergite. Transverse depression in basal 0.3 of third tergite shallow, narrow, almost straight, crenulate. Ovipositor sheath 1.35 times longer than metasoma, 2.15 times longer than mesosoma, 0.85 times as long as fore wing.

Sculpture and pubescence. Vertex finely striate-coriaceous, only coriaceous laterally, almost smooth in small anterolateral areas. Frons mostly smooth, finely and shortly rugulose-coriaceous medially and anteriorly. Face densely and rather coarsely granulate-reticulate, finely sculptured below. Temple smooth. Mesoscutum densely granulate, without rugae on median and lateral lobes, rugose on rather narrow area in medio-posterior half. Scutellum densely and distinctly granulate. Mesopleuron almost smooth medially, densely and distinctly granulate above, posteriorly and around sternauli. Propodeum with areas distinctly delineated by carinae; basolateral areas large, coarsely granulate and with short rugae along carinae; areola short and rather wide, 1.5 times longer than wide, rugose; rest part of propodeum reticulate-rugose, almost smooth in delineated posterolateral areas. Hind coxa dorsally densely and distinctly transversely striate with additional granulation basally, finely granulate to smooth laterally. Hind femur finely striate dorsally, smooth at

most part. First and second metasomal tergites entirely and distinctly striate with fine ground reticulation, third tergite shortly striate in narrow transverse furrow, but laterally narrowly and rather finely striate in basal 0.6. Remainder tergites smooth. Vertex almost entirely with short semi-erect and sparse setae directed forwards. Mesonotum entirely with rather short, dense and semi-erect yellow setae. Hind tibia with short semi-erect dense pale setae, length of these setae on dorsal surface of tibia 0.5–0.6 times maximum width of hind tibia.

Colour. Body black, head reddish brown above and behind eyes, face and malar space light reddish brown, metasoma in posterior half with transverse yellowish or reddish stripes. Antennae black, three basal segments reddish brown or (inner) yellowish brown. Palpi pale yellow. Legs yellow or brownish yellow, hind leg infusate. Fore wing evenly and faintly infusate. Pterostigma brown, faintly pale basally and apically.

Male unknown.

Diagnosis. This species is similar to *R. yamagishii* sp. nov., but differs by having the prescutellar depression coarsely sculptured, the basal carina of the propodeum long, the areola short, the mesoscutum narrow, and the first flagellar segment thick. The new species is similar to Vietnamese *R. sculpturator* Belokobylskij (Belokobylskij 1998a); the differences between these species are indicated in the key.

Distribution. Japan (Honshu).

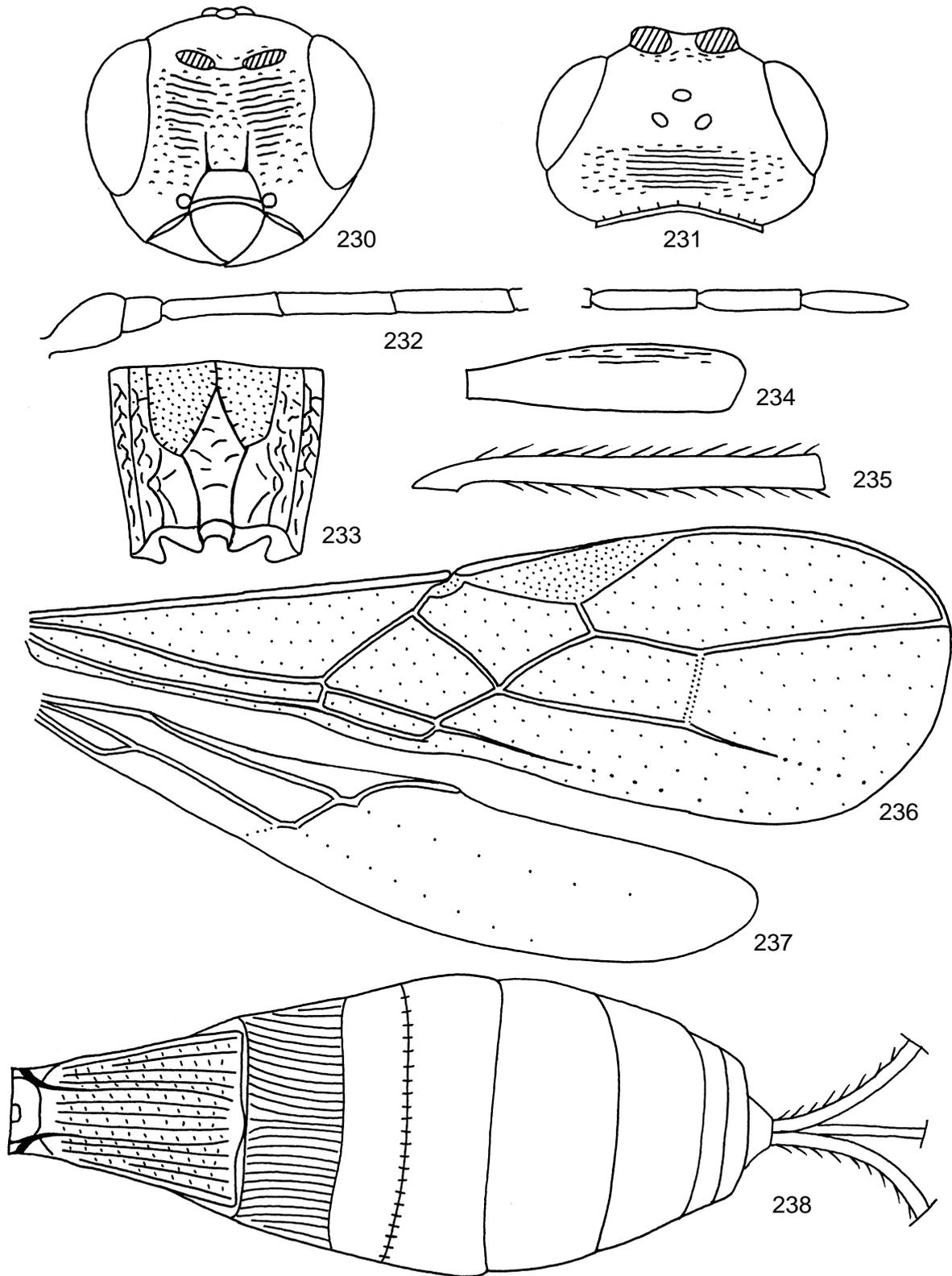
Rhacontsira yamagishii sp. nov.
(Figs 230–238)

Type material. Holotype: female, “Japan: Nagoya, Higashiyama pk., 19.IX–23.X.2000, M. Watanabe; MT” (MUNJ).

Paratypes. 2 females, “Japan: Nagoya, Higashiyama pk., M. Watanabe; MT” 21–31.VII. and 1–10.VIII. 2001 (MUNJ, ZISP); 1 female, “Japan: Aichi, Seto, Jokoji, (Evergreen), 30.IX.2000, M. Suzuki; YPT” (NIAES); 1 male, “Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 1–20.VI.1999, T. Murata; MT (A. Hanai)” (MUNJ).

Description. Female. Body length 1.6–2.0 mm; fore wing length 1.5–1.8 mm.

Head width 1.6–1.65 times its median length, 1.35–1.45 times width of mesoscutum. Temple distinctly and weakly-roundly narrowed behind eye (dorsal view); transverse diameter of eye 1.8–2.0 times length of temple. Ocelli medium-sized, arranged in triangle with base 1.1–1.15 times its sides; POL 0.85–1.5 times Od, 0.3–0.4 times OOL; Od 0.25–0.3 times OOL. Eye 1.2 times as high as broad. Malar space height 0.35–0.4 times height of eye, 0.7–1.0 times basal width of mandible. Face width 1.0–1.15 times height of eye and 1.2–1.4 times height of face and clypeus combined.



Figures 230–238. *Rhacontsira yamagishii* sp. nov. (230) Head, front view; (231) head, dorsal view; (232) basal and apical segments of antenna; (233) propodeum, dorsal view; (234) hind femur; (235) hind tibia; (236) fore wing; (237) hind wing; (238) mesosoma, lateral view.

Malar suture absent. Hypoclypeal depression round, its width 0.8–1.0 times distance from edge of depression to eye, 0.4–0.45 times width of face. Occipital carina complete, fused with hypostomal carina near mandible. Head below eyes (front view) distinctly and almost linearly narrowed.

Antennae filiform, 17–22-segmented, 1.2–1.3 times longer than body. Scape 1.5–1.7 times longer than wide. First flagellar segment 5.0–6.0 times longer than its apical width, a little shorter or as long as second segment. Penultimate segment 5.0–5.5 times longer than wide, 0.9 times as long as apical segment; the latter shortly pointed apically and without spine.

Mesosoma. Length 1.7–1.75 times its height. Pronotal carina rather distinct, situated submedially or rarely more closely to posterior margin of pronotum (dorsal view). Mesoscutum highly and almost perpendicularly elevated above pronotum. Notauli rather deep, shallow posteriorly, crenulate and partly with granulation. Prescutellar depression deep and long, smooth or finely coriaceous, with high median carina, 0.35–0.45 times as long as scutellum. Sternauli rather deep, wide, finely crenulate, running along anterior 0.6 of lower part of mesopleuron, behind deep part of sternaulus towards middle coxa present shallow and narrow longitudinally striate depression. Subalar depression finely rugulose-striate, at least partly with granulation. Metapleural flange rather long, with rather sparse, long and white pubescence. Propodeum weakly-roundly slanted toward? apex (lateral view).

Wings. Length of fore wing 2.8–3.0 times its maximum width. Pterostigma 3.5–4.0 times longer than wide, 0.75–0.8 times as long as metacarpus. Radial vein arising from or a little behind middle of pterostigma. Second radial abscissa 2.3–2.9 times longer than first abscissa, 0.4–0.45 times as long as third abscissa, 1.0–1.2 times as long as first radiomedial vein. Second radiomedial cell rather long, not or weakly widened distally, its length 2.7–3.0 times maximum width, 1.4–1.7 times length of brachial cell. Recurrent vein weakly antefurcal. Distance from nervulus to basal vein 0.2–0.5 times nervulus length. Brachial cell narrow. Parallel vein arising from anterior 0.2–0.3 of distal vein of brachial cell. Hind wing 5.2–5.7 times longer than wide. First abscissa of costal vein 0.45–0.5 times as long as second abscissa. First abscissa of medio-cubital vein 0.5–0.6 times as long as second abscissa. Recurrent vein unsclerotised, curved, distinctly antefurcal.

Legs. Dorsal protuberances of all femora small. Length of hind femur 3.6–3.8 times its width. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.8–0.9 times as long as 2nd–5th segments combined. Second tarsal segment 0.3–0.35 times as long as basitarsus, 0.8–0.9 times as long as fifth segment (without pretarsus).

Metasoma 1.0–1.1 times as long as head and mesosoma combined. First tergite distinctly and almost linearly widened from base to apex, regularly widened in basal part, with more or less distinct flanges in basal quarter, with distinct dorsope. Length of first tergite 1.25–1.3 times its apical width; apical width 2.0–2.3 times its minimum width. Median length of second tergite 0.45–0.5 times its basal width, 0.7–0.8 times length of third tergite. Transverse depression in basal 0.3 of third tergite shallow, rather wide, weakly curved, crenulate. Ovipositor sheath 1.3–1.5 times longer than metasoma, 2.0–2.2 times longer than mesosoma, 0.8–0.9 times as long as fore wing.

Sculpture and pubescence. Vertex in small specimens mostly smooth, finely rugulose in narrow median part; in large specimens finely or more or less distinctly widely striate medially and densely reticulate-coriaceous laterally; shortly and finely or distinctly crenulate along occipital carina. Frons mostly smooth, finely and shortly rugulose anteriorly. Face densely and finely or distinctly rugulose-striate and partly with reticulation, sometimes sparsely coriaceous medially. Temple smooth, rarely finely reticulate posteriorly in upper 0.3. Mesoscutum densely granulate, sometimes with fine rugulosity anteriorly, without rugae on median and lateral lobes, rugulose-striate on narrow area in medio-posterior half. Scutellum densely and rather finely granulate. Mesopleuron mostly smooth, in large specimens rather densely and distinctly reticulate-coriaceous upper and posteriorly. Propodeum with areas distinctly delineated by carinae; basolateral areas distinctly granulate and with short rugae along carinae; areola long and rather narrow or wide, 1.4–2.2 times longer than wide, rugulose; rest part of propodeum reticulate-rugose, almost smooth in delineated posterolateral areas. Hind coxa dorsally densely and distinctly striate, sometimes with granulation at least basally, finely rugulose or coriaceous to smooth laterally. Hind femur finely or very finely striate in upper half, almost smooth in lower half. First and second metasomal tergites entirely and third in narrow transverse furrow (but laterally in basal 0.6–0.8) distinctly striate, usually with fine or very fine ground reticulation. Remainder tergites smooth. Vertex with short semi-erect and sparse setae directed forwards, glabrous in medioanterior half. Mesonotum entirely with rather short, dense and semi-erect whitish setae. Hind tibia with short semi-erect dense pale setae, length of these setae on dorsal surface of tibia 0.45–0.7 times maximum width of hind tibia.

Colour. Body dark reddish brown or reddish brown, face and malar space usually paler, light reddish brown, brownish yellow or yellow; metasoma posteriorly yellowish brown or at least paler, sometimes almost entirely light reddish brown and brownish yellow posteriorly, rarely with transverse yellowish reddish stripe

on third tergite. Antennae almost black, 3–4 basal segments yellowish brown. Palpi pale yellow. Legs yellow, faintly infusate basally. Fore wing evenly and faintly infusate. Pterostigma brown, pale in basal 0.25 and apically.

Male. Body length 1.8 mm; fore wing length 1.5 mm. Transverse diameter of eye 1.6 times length of temple. Vertex almost entirely smooth. Penultimate segment 4.7 times longer than wide. Mesopleuron granulate-coriaceous upper and posteriorly. Propodeum finely reticulate-rugose. Length of hind femur 3.4 times its width. Length of first tergite 1.55 times its apical width; apical width 1.7 times its minimum width. Median length of second tergite 0.6 times its basal width. Otherwise similar to female.

Diagnosis. This species is very similar to *R. nana* Belokobylskij (Belokobylskij 1998a), but differs by having the ocelli not arranged an equilateral triangle, the first tergite short, and the ovipositor long.

Distribution. Japan (Honshu, Yakushima I.).

A key to species of the genus *Rhacontsira* Belokobylskij

1. Head less distinctly and convex-roundly narrowed behind eyes. Temple longer, transverse diameter of eye 1.6 times longer than temple. Occipital carina fused with hypostomal carina by additional rugae. First flagellar segment 0.8–0.85 times as long as second segment. [Prescutellar depression with long median and two short lateral carinae and with fine sparse rugulosity between their. Second radial abscissa 0.85 times as long as first radiomedial vein. Body length 2.1 mm. – Japan (Honshu), Russia (Primorskij kraj)] *heterospiloides* (Belokobylskij)
- Head rather strongly and weakly-roundly or almost linearly narrowed behind eyes (Figs 212, 222, 231). Temple shorter, transverse diameter of eye 1.8–2.2 times longer than temple (Figs 212, 222, 231). Occipital carina directly fused with hypostomal carina. First flagellar segment almost as long as or a little shorter than second segment (Figs 213, 223, 232) **2**
2. Frons with distinct and dense oblique striae (Figs 211, 212). First flagellar segment thick, 3.8–4.3 times longer than apical width (Fig. 213). Metapleural flange with very dense pubescence posteriorly. Second radiomedial cell 1.2–1.3 times longer than brachial cell (Fig. 219). Second radial abscissa 0.7–0.8 times as long as first radiomedial vein (Fig. 219). First metasomal tergite of female almost as long as apical width (Fig. 218). Areola of propodeum indistinctly delineated. [Ocelli in almost equilateral triangle. Mesosoma 1.6–1.7

times longer than high (Fig. 217). Pterostigma brown, yellow in basal 0.3 and apically (Fig. 219). Body length 2.5–3.0 mm. – Japan (Honshu)] *insulicola* sp. nov.

- Frons mostly smooth, if sculptured, then partly or entirely rugulose-reticulate with punctulation (Figs 221, 222, 230, 231). First flagellar segment slender, 4.6–6.0 times longer than apical width (Figs 223, 232). Metapleural flange with less dense pubescence posteriorly. Second radiomedial cell 1.5–1.8 times longer than brachial cell (Figs 227, 236). Second radial abscissa 1.0–1.2 times as long as first radiomedial vein (Figs 227, 236). First metasomal tergite of female 1.2–1.5 times longer than apical width (Figs 229, 238). Areola of propodeum distinctly delineated (Figs 224, 233) **3**
3. Frons entirely or at least laterally and anteriorly densely striate or rugulose-reticulate with punctulation (Fig. 222). Prescutellar depression distinctly sculptured. Parallel vein arising almost from middle of distal vein of brachial cell (Fig. 227). Hind femur 3.3–3.6 times longer than wide (Fig. 225) **4**
- Frons mostly smooth, anteriorly with narrow and fine sculpture (Fig. 231). Prescutellar depression smooth or almost smooth. Parallel vein arising from anterior 0.2–0.3 of distal vein of brachial cell (Fig. 236). Hind femur 3.6–4.0 times longer than wide (Fig. 234) **5**
4. Vertex entirely coarsely undulately striate with dense and distinct ground reticulation. Frons entirely densely rugulose-reticulate with striation laterally. Temple almost entirely rugulose-reticulate. Mesopleuron finely but distinctly reticulate-coriaceous medially. First flagellar segment 5.5 times longer than its apical width. Prescutellar depression polished. Recurrent vein almost interstitial. Third metasomal tergite widely striate in subbasal transverse furrow, laterally coarsely and widely striate in basal 0.7–0.8. Fourth and fifth tergites laterally distinctly widely striate in basal 0.5–0.6. Body length 2.9 mm. – Vietnam *sculpturator* Belokobylskij
- Vertex finely striate-coriaceous, only coriaceous laterally, almost smooth in small anterolateral areas (Fig. 222). Frons mostly smooth, finely and narrowly rugulose-coriaceous medially and anteriorly (Fig. 222). Temple smooth. Mesopleuron almost smooth medially. First flagellar segment 4.6 times longer than its apical width (Fig. 223). Prescutellar depression matt. Recurrent vein rather distinctly antefurcal (Fig. 227). Third tergite very shortly striate in subbasal transverse furrow, laterally narrowly and rather finely striate in basal 0.6 (Fig. 229). Fourth and fifth tergites laterally smooth (Fig. 229). Body length 2.4 mm. –

- Japan (Honshu) *toyota* sp. nov.
5. Ovipositor sheath shorter, as long as metasoma, 1.3 times longer than mesosoma, half as long as fore wing. Length of first tergite of female 1.5 times its apical width. Body length 1.7 mm. – Vietnam *nana* Belokobylskij
- . Ovipositor sheath longer, 1.3–1.5 times longer than metasoma, twice longer than mesosoma, 0.8–0.85 times as long as fore wing. Length of first tergite of female 1.25–1.3 times its apical width (Fig. 238). Body length 1.6–2.0 mm. – Japan (Honshu, Yakushima) *yamagishii* sp. nov.

Spathiomorpha Tobias, 1976

This genus was originally described from North Caucasus with type species *S. varinervis* Tobias, 1976 (Tobias 1976). Two additional species of this genus, *S. longipalpis* Belokobylskij, 1985 (*S. furnata* Papp, 1987) and *S. enderleini* Belokobylskij, 1996, were described from the East Palaearctic (Russian Far East and Korea) (Belokobylskij 1985, Papp 1987) and the North-East of the Oriental (Taiwan) (Belokobylskij 1996) Regions. Recently, one species of this genus, *S. tasmanica* Belokobylskij, Iqbal and Austin, 2004, was recorded from Australia (Belokobylskij *et al.* 2004). The new Japanese species described below is very similar to *S. longipalpis*, but the complex of characters displayed clearly show it represent a separate species.

Spathiomorpha japonica sp. nov.
(Figs 239–251)

Type material. Holotype. female, “Mt. Sobosan (1600–1750), Oita Pref., 23–24.VII.1978, K. Maeto leg” (NIAES).

Paratypes. 1 female, “Sapporo, Hokkaido, 10–VI 1958, K. Kamijo” (EIHU); 1 male, “Apoidake, Hokkaido, 21.VI.1958, K. Kamijo” (ZISP); 1 female, “Japan: Aichi, Mt. Sanage, 21–27.VIII.1992, T. Kanbe; Maq.Tr. Evergr. forest” (NIAES); 1 female, “Japan: Aichi, Mt. Sanage, 7–13.VIII.1992, K. Shima; Em. Tr., Decid. forest” (MUNJ); 1 female, “Japan: Aichi, Inuyama, Kurisu, 9–16.V.1996, T. Mabuchi; EMT” (ZISP); 1 female, “Japan: Aichi, Toyota, Sanage, (Evergreen frst), 30.IV–6.V.2002, Mizue Kiyota; MT” (MUNJ); 1 female, “Yunoyama, Mie Pref., 28 V 1969, T. Okadome leg.” (MUNJ); 3 females, “Japan: Honshu, Ibaraki Pref., 15 km NW Kitaibaraki, 28.viii.1999, S. Belokobylskij” (NIAES, ZISP); 1 female, “Japan: Honshu, Ibaraki, Tsukuba, Mt. Tsukuba, 25.09.1999, S. Belokobylskij” (ZISP); 1 female, “Sarugajo, Kitaibaraki-shi, Ibaraki Pref. [Japan: Honshu], “18/19.VI–2/3.VII.2002, H. Goto leg., Malaise trap” (KBUJ); 1 female, “Japan: Honshu,

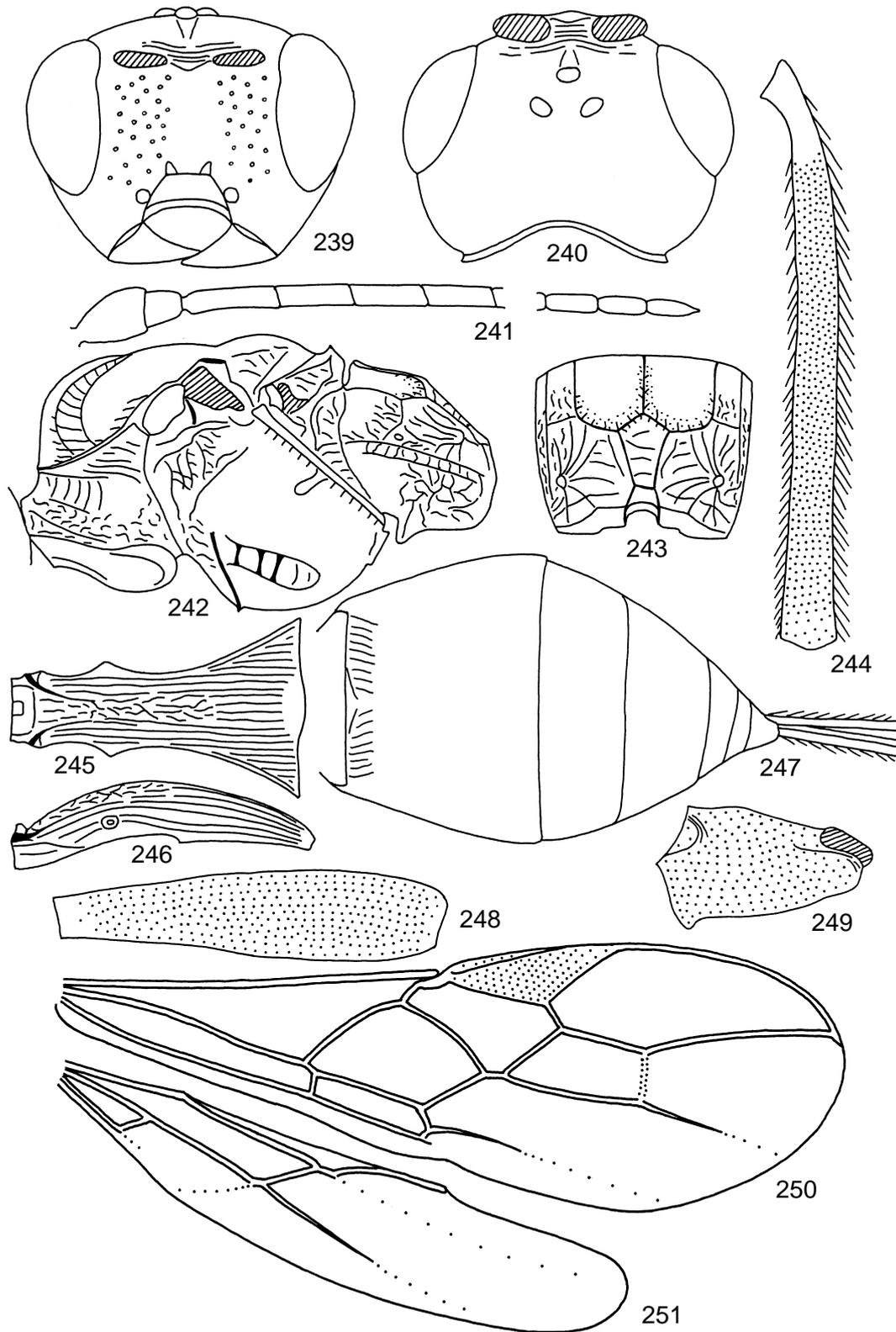
Hyogo Pref., Kobe, 28.08.2005, S. Belokobylskij” (ZISP); 1 female, “Nachi, Wakayama, Honshu, 21.IX.1965, H. Takada” (EIHU); 1 female, “Takao, 19/VII 1903” (without collector) (EIHU); 1 male, “Taishaku, Tojo, Hiroshima Pref., Japan, 9.VIII.1978, K. Maeto leg.” (NIAES); 1 female (without head), “Hikosan. Kyushu, 20.v.1959, K. Kamijo” (EIHU); 1 female, “Hikosan. Kyushu, 7.VI.1965, H. Takada” (EIHU); 2 females, 1 female, “Mt. Tachibana, Fukuoka City, 14.VII.1979, K. Maeto leg.” (NIAES, ZISP); 1 male, “Hikosan. Kyushu, 4.IX.1958, K. Kamijo” (EIHU); 1 female, “Hino-kuchi, Is. Yaku-shima, Kagoshima Pref., 27–30.III.1971, K. Yamagishi leg.” (MUNJ); 1 male, “Kurio, Is. Yaku-shima, Kagoshima Pref., 1–4.IV.1971, K. Yamagishi leg.” (MUNJ); 1 female, “Japan: Kyushu, Is. Yaku-shima, Shiratani, 600 m, 6.V–20.VI.2000, T. Murata; MT (K. Nojima)” (ZISP); 1 female, “Japan: Kyushu, Is. Yaku-shima, Miyanoura (Mt), 18.X–30.XI.1999, T. Murata; MT (S. Miyashita)” (MUNJ).

Description. Female. Body length 4.0–6.8 mm; fore wing length 3.4–5.3 mm.

Head width 1.5–1.6 times its median length, 1.15–1.3 times width of mesoscutum. Frons without carina, with rather shallow (but distinct) median furrow. Head behind eyes (dorsal view) distinctly roundly narrowed; transverse diameter of eye 1.2–1.6 times longer than temple. Ocelli medium-sized, arranged in triangle with base 1.1–1.2 times its sides. POL 0.85–1.0 times Od, 0.4–0.5 times OOL. Eye glabrous, with very shallow emargination opposite antennal socket, 1.2–1.25 times as high as broad. Malar space height 0.3–0.4 times height of eye, 0.6–0.8 times basal width of mandible. Face along eyes without carinae, with distinct small shallow elongate depressions above clypeus; width of face 1.0–1.15 times height of eye and 1.2–1.5 times height of face and clypeus combined. Diameter of antennal socket 0.75–1.0 times distance between sockets and 1.4–1.8 times distance between socket and eye. Malar suture absent. Clypeal suture distinct and complete. Hypoclypeal depression round, its width 1.3–1.6 times distance from edge of depression to eye, about half width of face. Occipital carina below fused with hypostomal carina upper base of mandible. Palpi long, length of maxillary palpi 1.4–1.7 times head height.

Antennae rather thick, weakly setiform, 38–45-segmented, 1.2–1.4 times longer than body. Scape 1.5–1.6 times longer than its maximum width. First flagellar segment 3.5–4.2 times longer than its apical width, 1.1–1.25 times longer than second segment. Penultimate segment 2.6–3.2 times longer than wide, 0.4–0.5 times as long as first flagellar segment, 0.7–0.9 times as long as apical segment; the latter pointed apically and with long spine.

Mesosoma. Length 1.6–1.8 times its height. Pronotum not convex dorsally, with distinct pronotal carina



Figures 239–251. *Spathiomorpha japonica* sp. nov. (239) Head, front view; (240) head, dorsal view; (241) basal and apical segments of antenna; (242) mesosoma, lateral view; (243) propodeum, dorsal view; (244) hind tibia; (245) petiole, dorsal view; (246) petiole, lateral view; (247) metasoma without petiole, dorsal view; (248) hind femur; (249) hind coxa; (250) fore wing; (251) hind wing.

in anterior 0.4. Median lobe of mesoscutum not strongly protruding forwards, with fine or very fine median evaluation. Notauli deep, wide and coarsely crenulate with rugosity partly. Prescutellar depression rather deep, with 1–3 carinae, smooth or finely rugulose partly between carinae, 0.35–0.45 times as long as scutellum. Scutellum convex and without lateral carinae. Metanotal tooth short and pointed. Subalar depression rather shallow, more or less narrow, coarsely rugose-reticulate. Sternauli shallow, straight, oblique, coarsely or sometimes rather finely crenulate or crenulate-rugulose, connected with prepectal carina anteriorly, running along anterior 0.55–0.6 of lower part of mesopleuron. Metapleural flange rather long, wide, rounded apically, with coarse carina laterally. Propodeum with distinct, rather long and thick lateral tubercles.

Wings. Fore wing 2.9–3.1 times longer than its maximum width. Radial vein arising behind middle of pterostigma (from apical (0.38) 0.4–0.45). Radial cell not shortened; metacarpus 1.2–1.4 times longer than pterostigma. First radial abscissa 0.6–0.8 times as long as maximum width of pterostigma. Second radial abscissa 3.0–4.2 (very rarely 2.6) times longer than first abscissa, 0.5–0.6 times as long as the straight third abscissa, 1.2–1.5 (very rarely 1.15) times longer than first radiomedial vein. Second radiomedial cell 2.0–2.7 times longer than its maximum width, 1.1–1.3 times longer than brachial cell. First medial abscissa weakly or distinctly S-shaped. Mediocubital vein weakly curved. Recurrent vein 3.8–6.0 times second abscissa of medial vein. Distance from nervulus to basal vein 0.3–0.7 times nervulus length. Parallel vein arising from posterior 0.25 of distal margin of brachial cell. Hind wing 4.4–4.8 times longer than maximum width. First costal abscissa 0.75–0.9 times as long as second abscissa. First abscissa of mediocubital vein 0.9–1.0 times as long as second abscissa. Mediocubital cell large, distinctly widened toward apex, 6.0–7.0 times longer than wide, 0.43–0.48 times as long as wing. Recurrent vein weakly and uniformly curved, subinterstitial or weakly antefurcal, pigmented.

Legs. Fore tibia with rather numerous slender spines arranged in narrow stripe. Hind femur rather narrow, 4.0–4.5 times longer than wide. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.7–0.8 times as long as 2nd–5th segments combined. Second segment of hind tarsus 0.45–0.5 times as long as basitarsus, 1.35–1.7 times longer than fifth segment (without pretarsus).

Metasoma 1.1–1.2 times longer than head and mesosoma combined. First tergite rather thick, with small dorsope sublaterally, with large or small spiracular tubercles in basal 0.3, distinctly and almost linearly widened from base to apex. Maximum width of first tergite 1.5–1.9 times its width at level of spiracles, 2.2–2.8 times its minimum width; length 1.45–1.75 times its

apical width, 1.45–1.8 times length of propodeum. Second suture absent. Length of second and third tergites combined 1.0–1.2 times basal width of second tergite, 0.7–0.9 times their maximum width. Ovipositor sheath 0.6–0.8 times as long as body, 1.1–1.5 times longer than metasoma, 1.6–2.0 times longer than mesosoma, 0.7–0.9 times as long as fore wing.

Sculpture and pubescence. Vertex entirely smooth; frons smooth posteriorly and rather distinctly shortly or sometimes widely striate anteriorly; face smooth or with fine punctulation laterally, rather widely rugulose-punctulate or only punctulate medially; temple entirely smooth. Sides of pronotum coarsely rugose-striate entirely, with coarsely crenulate oblique wide median depression. Mesoscutum finely punctulate, smooth posteriorly, coarsely and narrowly rugose or rugose-striate in medioposterior 0.3. Scutellum smooth. Mesopleuron smooth almost entirely. Propodeum with areas distinctly delineated by carinae; basolateral areas rather large, smooth in anterior 0.6–0.8 or almost entirely and usually rugose in posterior 0.2–0.4; areola long and narrow; dorsal carina rather long, 1.5–2.0 times longer than anterior fork of areola; posterior half of propodeum coarsely rugose-striate. Hind coxae finely or very finely and sparsely rugulose-punctulate or punctulate in basal 0.3–0.5, smooth or sparsely punctulate in apical 0.5–0.7. Hind femur smooth with rather fine and sparse punctulation. First tergite densely, coarsely and more or less linearly striate, medially coarsely or finely and densely rugose-reticulate or rugulose in basal 0.25–0.3. Second tergite smooth at most part, with rather long or sometimes short striation baso-laterally. Remainder tergites smooth. Vertex with rather dense, short and semi-erect setae directed forwards; mesoscutum entirely with dense, rather short and semi-erect or almost erect pale setae. Hind tibia dorsally with rather short, very dense and almost erect setae, length of these setae 0.4–0.55 times maximum width of hind tibia.

Colour. Body black, metasoma in posterior half and sometimes head anteriorly and below with reddish tint. Antennae brown, almost black apically, two basal segments brownish yellow, sometimes infuscate, reddish brown, rarely dark reddish brown. Palpi yellow or brownish yellow. Legs reddish brown or dark reddish brown, rarely paler, sometimes most part of hind femur and apical 0.3–0.4 of hind tibia almost black, all tibiae basally yellow, hind coxa entirely reddish brown or dark reddish brown, all tarsi more or less infuscate. Ovipositor sheath brown, black apically. Fore wing faintly infuscate. Pterostigma dark brown, shortly paler basally and apically.

Male. Body length 3.5–3.7 mm; fore wing length 2.7–3.1 mm. Frons without distinct median furrow. Antennae 35–37-segmented. First flagellar segment thick, 2.4–2.8 times longer than its apical width.

Penultimate segment 2.2–2.8 times longer than wide, 0.6–0.7 times as long as first flagellar segment. Fore wing 2.7–2.9 times longer than its maximum width. Radial vein arising about from apical 0.45 of pterostigma. Second radial abscissa 2.8–3.7 times longer than first abscissa. Hind femur 3.4–4.0 times longer than wide. Second suture of metasoma more or less distinct. Hind coxa almost entirely smooth. Second metasomal tergite often striate on long distance. Sometimes legs brownish yellow, hind coxa light reddish brown. Otherwise similar to female.

Diagnosis. The new species is very similar to *S. longipalpis* Belokobylskij; the differences between these species are shown in the key.

Distribution. Japan (Hokkaido, Honshu, Kyushu).

A key to Asian species of the genus *Spathiomorpha* Tobias

1. Ovipositor short, its sheath 0.3 times as long as body, 0.7 times as long as metasoma, 0.4 times as long as fore wing. Metapleuron mostly smooth with fine punctulation, rugose only posteriorly. [Body length 3.9 mm. – China (Taiwan)] *enderleini* Belokobylskij
- . Ovipositor long, its sheath 0.7–0.9 times as long as body, 1.4–1.7 times longer than metasoma, 0.8–1.0 times as long as fore wing. Metapleuron mostly punctulate-rugose, sometimes anteriorly with fine rugae 2
2. Antennae setiform (Fig. 241). Penultimate segment of female slender, 2.6–3.2 times longer than wide (Fig. 241). Second radial abscissa longer, (2.5) 3.0–4.2 times longer than first abscissa, 0.5–0.6 times as long as third abscissa, (1.15) 1.2–1.5 times longer than first radiomedial vein. Second radiomedial cell 2.0–2.7 times longer than its maximum width (Fig. 250). Second tergite always with rather long or sometimes short striation baso-laterally (Fig. 247). Hind coxa entirely reddish brown or dark reddish brown (Fig. 249). Radial vein arising usually less distinctly behind middle of pterostigma (from apical (0.38) 0.4–0.45) (Fig. 250). Body length 3.5–6.8 mm. – Japan (Hokkaido, Honshu, Kyushu) *japonica* sp. nov.
- . Antennae filiform. Penultimate segment of female thicker, 2.0–2.2 times longer than wide. Second radial abscissa shorter, 2.0–2.6 times longer than first abscissa, 0.45–0.5 times as long as third abscissa, 1.0–1.2 times as long as first radiomedial vein. Second radiomedial cell about twice longer than its maximum width. Second tergite usually without basal striation or rarely with short striae. Hind coxa entirely yellowish brown or light

reddish brown, rarely shortly infusate basally. Radial vein arising distinctly behind middle of pterostigma (from apical 0.33–0.4). Body length 3.3–5.5 mm. – Russia (Primorskij kraj), North and South Korea *longipalpis* Belokobylskij

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