

CHINESE SPECIES OF THE GENUS *NEUROCRASSUS* ŠNOFLAK, 1945 (HYMENOPTERA: BRACONIDAE: DORYCTINAE), WITH A KEY TO ASIAN SPECIES

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Abstract.— The Chinese species of the genus *Neurocrassus* Šnoflak, 1945 are reviewed. Four new species, *N. densipilosus* sp. nov., *N. elongatus* sp. nov., *N. flaviceps* sp. nov., and *N. ontsiroides* sp. nov., are described and illustrated. *Neurocrassus opis* (Belokobylskij, 1998) and *N. pseudopalliatus* Belokobylskij and Maeto, 2009 are recorded in the fauna of China for the first time. A revised key to Asian species of the genus *Neurocrassus* is provided.



Key words.— Ectoparasitoids, Doryctinae, new species, new records, key for determination

INTRODUCTION

The genus *Neurocrassus* Šnoflak, 1945 is a small and taxonomically difficult taxon of the subfamily Doryctinae (Braconidae). Originally this genus was described for a single male of *N. tesari* Šnoflak (type species) from Central Europe (Šnoflak 1945), but in a current review (Belokobylskij and Maeto 2009) it includes already twelve species in the Eastern Palaearctic. All valid members of *Neurocrassus* have been recorded mainly from the Palaearctic and Oriental regions (Belokobylskij and Maeto 2009), but Whitfield (1988) reported a male belonging to an undescribed species of this genus for North America. Moreover, an additional new species of *Neurocrassus* from the Afrotropical region has been recently examined by the senior author.

Neurocrassus is very closely related to *Ontsira* Cameron, 1900 (Belokobylskij 1998b; Zaldívar-Riverón

et al. 2008), and several species of the first genus previously belonging to *Ontsira* have been recently transferred to *Neurocrassus* (for current opinion see: Belokobylskij and Maeto 2009). The main morphological difference between these two taxa is the presence in *Neurocrassus* of distinct (large, with maximum diameter about 0.5–0.8 times, or small, about 0.1–0.3 times as wide as antennal socket, respectively) upper tentorial pits on the posterolateral margins of antennal sockets, which are completely absent in *Ontsira*. Another diagnostic character of *Neurocrassus* originally mentioned by Šnoflak (1945) is the present of a sclerotised enlargement of the veins of the male forewing. However, variability of size of this feature, from large and bean-shaped to completely absence in several cases, has been observed within *Neurocrassus*. Some other characters for generic diagnosis also vary in this genus, namely the position of the recurrent vein in the fore wing and the type and distribution of

sculpture on the meso- and metasoma. Obvious morphological variability within the genus *Neurocrassus*, however, compel us to be careful in species interpretations and require additional molecular studies for understanding the correct species composition of this genus.

Only two species of *Neurocrassus*, *N. palliatus* (Cameron, 1881) and *N. hakonensis* (Ashmead, 1906), have been earlier recorded from China (Fahringer 1930, Shenefeld and Marsh 1976, Belokobylskij 1996, Chen and Shi 2004). During an ongoing study of Chinese Braconidae, we discovered four new species as well as two species, *N. opis* (Belokobylskij, 1998) and *N. pseudopalliatus* Belokobylskij and Maeto, 2009, which are recorded for the first time for the fauna of China. As a result, an updated key to the Asian species of the genus *Neurocrassus* is provided.

MATERIAL AND METHODS

This study is mainly based on specimens deposited in the Parasitic Hymenoptera Collection of the Institute of Insect Sciences, Zhejiang University (ZJUH), and the Institute of Zoology of the Chinese Academy of Sciences, Beijing (IZAS).

The terms of wing venation are used as defined by Belokobylskij and Maeto (2009). The following abbreviations are used for morphology:

POL – postocellar line,

OOL – ocular-ocellar line,

Od – maximum diameter of lateral ocellus.

All descriptions and measurements were made under an MC-2 ZOOM stereomicroscope and all figures were made by a digital microscope (VHX-2000C, KEYENCE, Osaka, Japan). Type specimens and other materials are deposited in the Parasitic Hymenoptera Collection of the Zhejiang University, Hangzhou, China (ZJUH) and (one paratype) in the Zoological Institute, Russian Academy of Science, St. Petersburg, Russia (ZISP).

REVIEW OF SPECIES

Neurocrassus densipilosus sp. nov.

(Fig. 1)

Diagnosis. This new species is very similar to *N. palliatus* (Cameron, 1881), but differs in having the second tergite long and without a basal area delineated by a furrow (distinctly short and with a basal area in *N. palliatus*), the first tergite narrow and long (wide and short in *N. palliatus*), and the hind femur slender (distinctly thick in *N. palliatus*). *Neurocrassus densipilosus* sp. nov. is also similar to *N. pseudopalliatus*

Belokobylskij and Maeto, 2009, though it differs in having the first tergite narrow, rather long and with almost straight sides (wide, short and with curved sides in *N. pseudopalliatus*), the hind femur slender (wide in *N. pseudopalliatus*), and the vertex entirely densely setose (sparsely setose and with distinct glabrous area in *N. pseudopalliatus*).

Description. Female. Body length 4.5–5.6 mm; fore wing length 3.5–4.6 mm.

Head width 1.5 times its median length, 1.10–1.25 times as wide as mesoscutum. Frons without carina, often with shallow median furrow. Head behind eyes (dorsal view) rather distinctly roundly narrowed. Transverse diameter of eye 1.6–1.8 times longer than temple. Ocellar triangle situated weakly before middle of head (dorsal view), anterior ocellus situated distinctly before middle level of eyes. Ocelli medium-sized, in triangle with base 1.20–1.25 times its sides. POL 1.0–1.5 times Od, 0.4–0.6 times OOL. Eye glabrous, with very shallow emargination opposite antennal socket, 1.10–1.15 times as high as broad. Malar space 0.40–0.45 times height of eye, 0.9–1.0 times basal width of mandible. Face along eyes with fine or very fine carina, with more or less distinct shallow elongate depressions above clypeus; width of face 1.15–1.20 times height of eye and 1.20–1.35 times height of face and clypeus combined. Diameter of antennal socket 1.3–1.5 times distance between sockets and 1.3–1.6 times distance between socket and eye. Malar suture indistinct. Clypeus with wide lower flange. Clypeal suture distinct and complete, without carina. Hypoclypeal depression round, its width 0.80–0.95 times distance from edge of depression to eye, 0.35–0.45 times width of face. Occipital carina ventrally fused with hypostomal carina upper base of mandible. Palpi long, length of maxillary palpi 1.3–1.5 times head height (without mandible).

Antennae rather slender, almost filiform, 34–38-segmented, about 1.2 times longer than body. Scape 1.6–1.8 times longer than its maximum width. First flagellar segment 4.8–5.3 times longer than its apical width, 1.2–1.4 times longer than second segment. Penultimate segment 4.0 times longer than wide, 0.4 times as long as first flagellar segment, 0.8 times as long as apical segment; the latter distinctly pointed apically.

Mesosoma. Length 1.8–1.9 times its height. Pronotum weakly convex dorsally (lateral view), submedially with distinct pronotal carina, with small or indistinct pronope. Mesoscutum 1.10–1.15 times as wide as median length. Median lobe of mesoscutum rather distinctly protruding forward, rounded anteriorly (dorsal view), with very shallow median furrow. Notauli deep anteriorly and shallow posteriorly, rather narrow, coarsely crenulate-rugulose. Prescutellar depression deep, with high median carina and two fine lateral striae, mainly

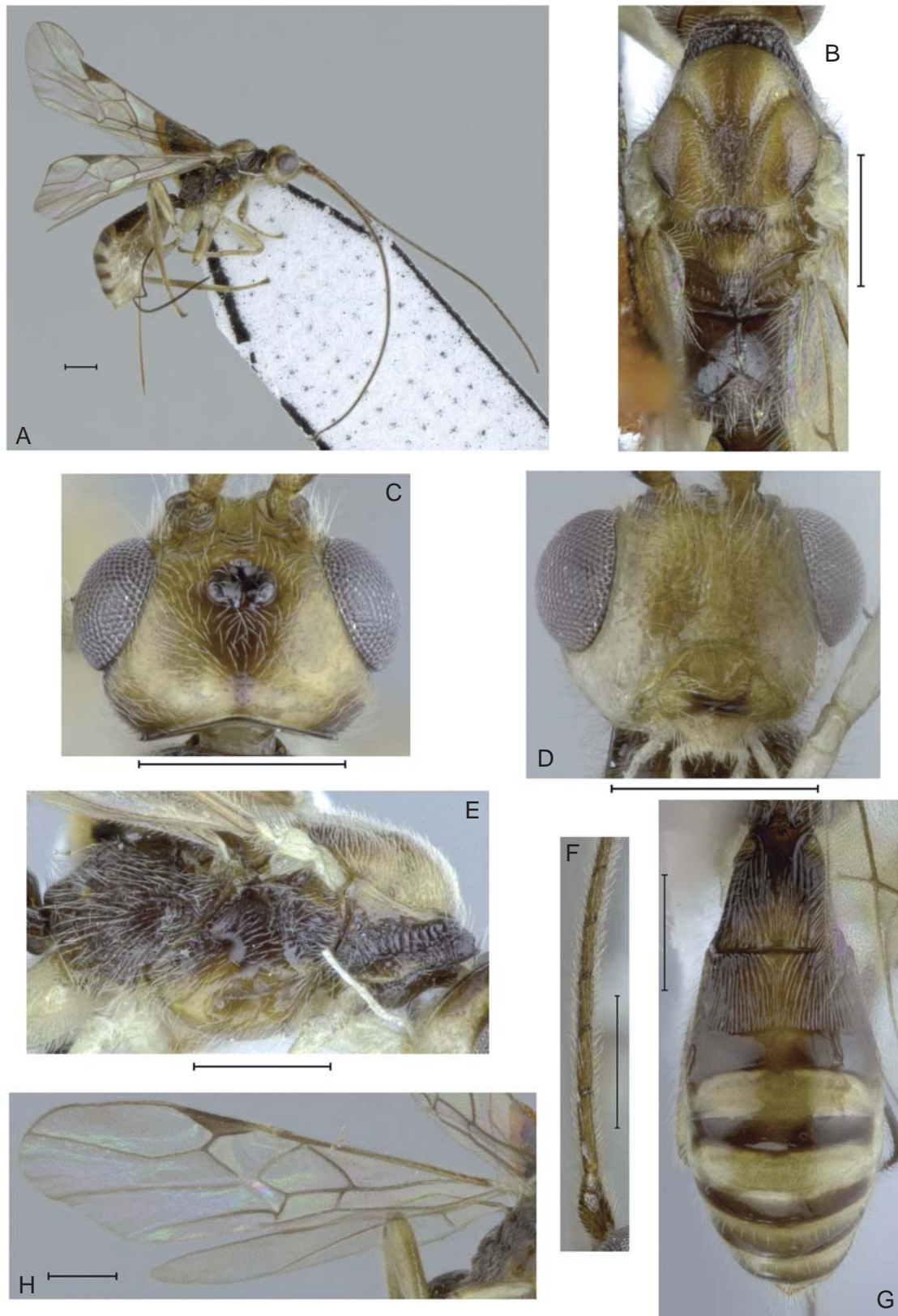


Figure 1. Morphological features of *Neurocrassus densipilosus* sp. nov. (A) Habitus, lateral view; (B) Mesosoma, dorsal view; (C) Head, dorsal view; (D) Head, front view; (E) Mesosoma, lateral view; (F) Basal segments of antenna; (G) Metasoma, dorsal view; (H) Fore wing. Scale bar 0.5 mm.

smooth, 0.30–0.35 times as long as scutellum. Scutellum convex and without lateral carinae. Metanotum with two strongly convergent lateral carinae, fused posteriorly with protuberance, with rather fine median carinae (dorsal view); with short wide and rounded metanotal tooth (lateral view). Subalar depression rather shallow, wide, coarsely rugose-reticulate. Sternaulus shallow anteriorly and deep posteriorly, straight, oblique, smooth or almost smooth, running along anterior 0.55–0.60 of lower part of mesopleuron. Metapleural flange rather long, wide, rounded apically. Propodeum with distinct, short, thick lateral tubercles.

Wings. Fore wing 2.9–3.3 times longer than its maximum width. Radial cell not shortened; metacarp 1.3–1.5 times longer than pterostigma. Radial vein arising behind middle of pterostigma. First radial abscissa 0.5–0.7 times as long as maximum width of pterostigma. Second radial abscissa 3.2–4.3 times longer than first abscissa, 0.45–0.55 times as long as the straight third abscissa, 1.0–1.2 times as long as first radiomedial vein. Second radiomedial cell 2.4–2.6 times longer than its maximum width, 1.2–1.4 times longer than brachial cell. First medial abscissa sinuate. Mediocubital vein weakly curved distally. Recurrent vein ante-furcal, 3.2–5.5 times longer than second abscissa of medial vein. Nervulus oblique towards apex of wing, curved posteriorly; distance from nervulus to basal vein 0.3–0.8 times nervulus length. Parallel vein arising from posterior 0.25–0.30 of distal margin of brachial cell. Hind wing 4.4–4.7 times longer than maximum width. First costal abscissa 0.7 times as long as second abscissa. First abscissa of mediocubital vein 1.2–1.4 times longer than second abscissa. Radial cell weakly narrowed posteriorly. Mediocubital cell large, widened toward apex, 5.7–6.3 times longer than wide, 0.45 times as long as wing. Recurrent vein almost straight, oblique, weakly postfurcal, pigmented.

Legs. Fore tibia with rather numerous slender spines arranged in almost single row. Hind coxa without dorsal tooth, 1.4–1.6 times longer than wide (with tubercle). Hind femur 3.7 times longer than wide. Hind tarsus 0.9–1.0 times as long as hind tibia. Hind basitarsus 0.70–0.75 times as long as second-fifth segments combined (without pretarsus). Second segment of hind tarsus 0.40–0.45 times as long as basitarsus, 1.1–1.2 times longer than fifth segment (without pretarsus).

Metasoma 0.9–1.3 times as long as head and mesosoma combined. First tergite with large dorsope, with small or distinct spiracular tubercles in basal 0.25–0.30, rather weakly and almost linearly or weakly curvedly widened from base to apex. Maximum width of first tergite about twice its minimum width; length almost equal to its apical width. Second tergite without basomedian area delineated by furrow, but with rather distinct semi-round basomedian protuberance; length

of tergite 0.50–0.55 times its basal width, 0.8–0.9 times length of third tergite. Suture between second and third tergites distinct, almost straight. Third tergite with distinct submedian transverse furrow. Ovipositor sheath 0.25–0.30 times as long as body, 0.5–0.7 times as long as metasoma, 0.8–1.0 times as long as mesosoma, 0.35–0.40 times as long as fore wing.

Sculpture and pubescence. Vertex smooth; frons coarsely rugose or rugose-striate in anterior 0.3–0.8, smooth or almost smooth posteriorly; face distinctly and rather densely transverse striate, with fine and dense rugulosity between striae, distinctly and rather sparsely punctate or almost smooth laterally and below; temple smooth. Sides of pronotum coarsely striate-rugose, coarsely crenulate on median furrow, narrowly smooth dorsally and ventrally. Mesoscutum densely and finely or very finely punctate, sometimes rugulose-punctate anteriorly, coarsely and densely rugose in narrow medioposterior half. Scutellum smooth, sometimes finely punctate posteriorly. Mesopleuron almost entirely smooth. Propodeum with areas distinctly delineated by carinae; basolateral areas rather large, smooth or finely coriaceous, rugose posteriorly along carina for short or rather long distance; areola short and narrow, sometimes indistinctly delineated, 1.4–1.8 times longer than wide; dorsal carina long, 1.5–1.8 times longer than anterior fork of areola. Hind coxa rugose dorsally, finely punctate to smooth on remaining part. Hind femur finely punctate, almost smooth. First tergite densely, coarsely and linearly or curvedly striate, without or with very fine additional rugulosity, almost smooth or finely coriaceous-rugulose in mediobasal 0.2–0.3. Second tergite entirely densely striate, with almost smooth mediobasal convex area, striae curved laterally. Remaining tergites smooth. Vertex with dense, rather short and semi-erect setae. Mesoscutum entirely with dense, short and semi-erect pale setae. Hind tibia dorsally with rather short, very dense and semi-erect setae, length of these setae 0.4–0.7 times maximum width of hind tibia.

Colour. Head yellowish brown or yellow, vertex medially in narrow triangle or wide subsquare area, temple behind eye in posterior half along occipital carina, usually most of occiput and sometimes face widely medially brown to dark brown or black. Mesosoma black, mesoscutum (sometimes only along notauli and lateroventrally), scutellum in basal half or apically, mesopleuron in lower half and sometimes metanotum yellowish brown or light reddish brown, rarely mesosoma along notauli and posteriorly and scutellum posteriorly yellow. Metasoma black, reddish brown or dark reddish brown, sometimes first tergite medioposteriorly or in posterior quarter and second tergite in narrow or wide median area light reddish brown; third-seventh tergites in apical halves and laterally paler to yellow. Antennae dark reddish brown to black, sometimes

flagellum in basal 0.25 faintly paler, two basal segments yellowish on inner side and reddish brown on outer side. Palpi pale yellow. Legs brownish yellow or yellow, pale yellow basally (coxae, trochanters and trochantelli), all tibiae basally infuscate to dark brown for short distance, reddish brown or brown submedially or in distal half. Ovipositor sheath black. Fore wing faintly infuscate. Pterostigma brown or dark brown, paler on basal 0.25–0.30.

Male. Unknown.

Material examined. Holotype: female, China, Guangdong, Fuyuan, Nanlingensis, 4.VIII.2004 (Xu Zai-fu), N 20049958 (ZJUH).

Paratypes. China: 1 female, Guangdong, Fuyuan, Nanlingensis, 4.VIII.2004 (Xu Zaifu), N 20049962 (ZJUH); 1 female, same label, N 20049881 (ZISP); 2 females, Zhejiang, Linan, Qingliangfeng, 9.VIII.2005 (Shi Min), Nos 200607221, 200607223 (ZJUH); 1 female, Fujian, Wuyishan, 22–25.VIII.2007 (Zeng Jie), N 200607223 (ZJUH).

Distribution. China (Zhejiang, Fujian, Guangdong).

Neurocrassus elongatus sp. nov.
(Fig. 2)

Diagnosis. This new species is similar to *N. hypodoryctoides* Belokobylskij and Maeto, 2006, but differs in having the upper tentorial pits very small (medium size in *N. hypodoryctoides*), the first flagellar segment almost as long as second segment (distinctly longer in *N. hypodoryctoides*), mesosoma long about twice as long as high (short, 1.75–1.85 times longer than high in *N. hypodoryctoides*), width of mesoscutum almost equal to its median length (larger in *N. hypodoryctoides*), recurrent vein distinctly postfurcal (antefurcal in *N. hypodoryctoides*), parallel vein arising from the middle of posterior margin of brachial cell (distinctly behind middle in *N. hypodoryctoides*), mesoscutum entirely densely granulate (punctate-rugulose to punctate in *N. hypodoryctoides*), scutellum finely and densely granulate (almost smooth in *N. hypodoryctoides*), vertex covered by rather dense and long setae (covered by sparse and short setae in *N. hypodoryctoides*), dorsal margin of hind tibia covered by sparse long and dense short (only in anterior half) setae (covered entirely by short and very dense setae in *N. hypodoryctoides*).

Description. Male. Body length 3.7 mm; fore wing length 3.2 mm.

Head width (dorsal view) 1.3 times its median length, 1.2 times width of mesoscutum. Head behind eyes (dorsal view) regularly and distinctly roundly narrowed. Transverse diameter of eye 1.6 times longer

than temple. Ocelli medium-sized, arranged in triangle with base 1.15 times its sides; POL equal to Od, 0.4 times OOL. Dorsal tentorial pits near antennal sockets very small, almost indistinct. Eye glabrous, 1.2 times as high as broad. Malar space 0.4 times height of eye, 0.8 times basal width of mandible. Face width almost equal to height of eye and 1.2 times height of face and clypeus combined. Malar suture absent. Hypoclypeal depression subround, its width 0.9 times distance from edge of depression to eye, 0.4 times width of face. Occipital carina ventrally not joined with hypostomal carina near base of mandible.

Antennae rather slender, almost filiform, more than 26-segmented (apical segments missing). First flagellar segment 5.8 times longer than its apical width, as long as second segment.

Mesosoma. Length 2.0 times its height. Pronotum weakly convex dorsally (lateral view), submedially with high pronotal carina, without pronope. Mesoscutum (lateral view) highly and roundly elevated above pronotum, its width equal to median length. Notauli deep anteriorly and shallow posteriorly, narrow, coarsely crenulate anteriorly, rugose-crenulate in posterior half. Median lobe of mesoscutum (dorsal view) convex anteriorly, without median furrow. Prescutellar depression rather deep, with five carinae, finely rugulose between carinae, 0.4 times as long as convex scutellum. Subalar depression shallow, wide, coarsely rugose-striate. Sternaulus shallow, but deep posteriorly in subround area, entirely smooth, running along anterior 0.7 of lower part of mesopleuron. Metanotal tooth short but distinct and pointed. Metapleural flange rather short, wide, rounded apically. Propodeum with distinct, short, thick lateral tubercles.

Wings. Fore wing 3.2 times longer than its maximum width. Radial cell not shortened; metacarp 1.3 times longer than pterostigma. Radial vein arising from middle of pterostigma. Second radial abscissa 4.8 times longer than first abscissa, 0.7 times as long as third abscissa, 1.5 times longer than first radiomedial vein. Small sclerotised enlargement present on basal part of first medial abscissa. Second radiomedial cell 3.4 times longer than its maximum width, 2.2 times longer than brachial cell. Recurrent vein distinctly postfurcal. Distance from nervulus to basal vein 0.8 times nervulus length. Parallel vein arising from middle of posterior margin of brachial cell. Hind wing 5.0 times longer than maximum width. First costal abscissa 0.7 times as long as second abscissa. Medial cell wide, 8.8 times longer than wide, 0.4 times as long as wing. First abscissa of mediocubital vein 0.6 times as long as second abscissa. Recurrent vein more or less distinctly and uniformly curved, distinctly antefurcal, unsclerotised.

Legs. Fore tibia with numerous slender spines arranged in almost single row. Hind femur 4.1 times longer than wide. Hind tarsus 1.15 times longer than

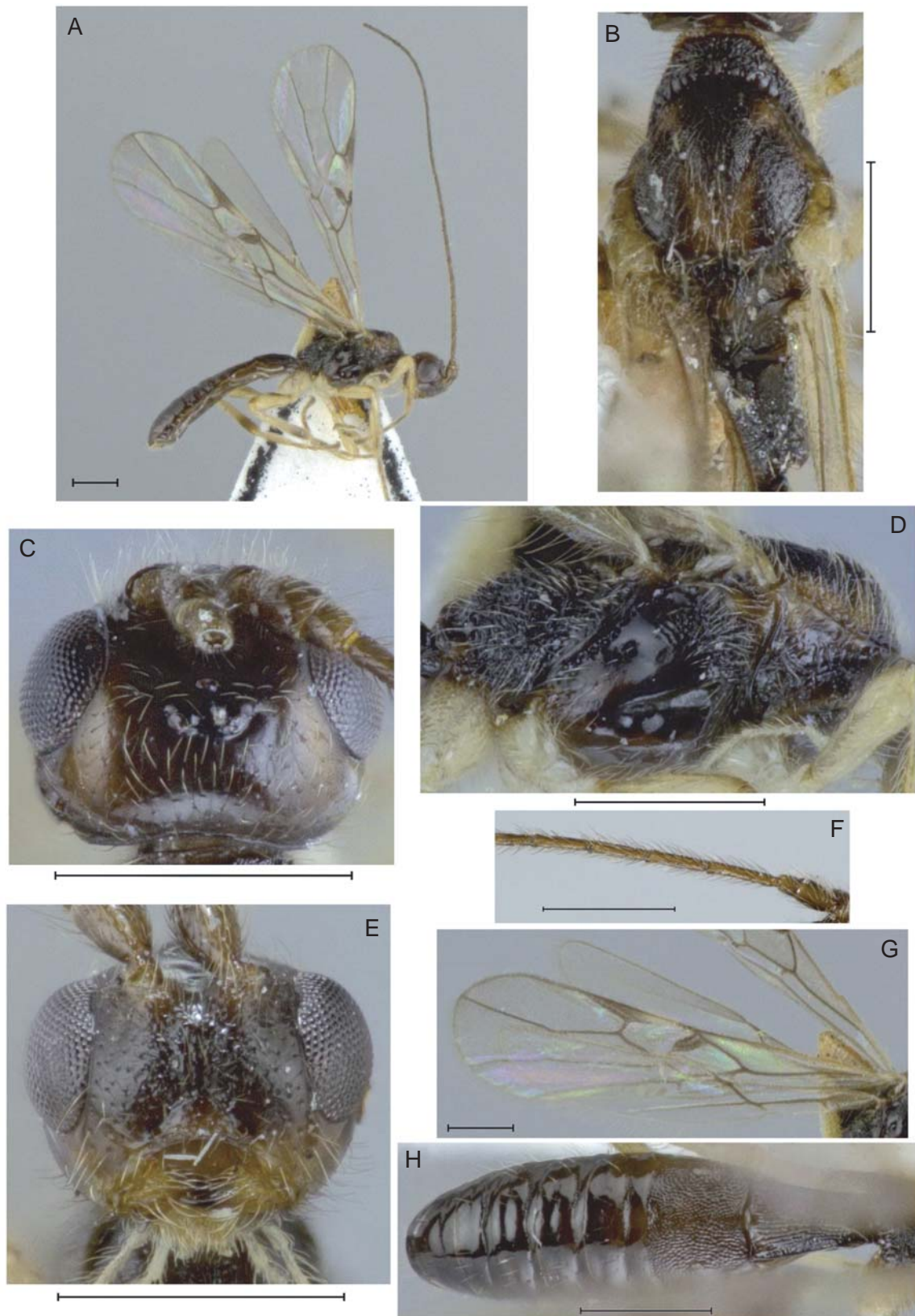


Figure 2. Morphological features of *Neurocrassus elongatus* sp. nov. (A) Habitus, lateral view; (B) Mesosoma, dorsal view; (C) Head, dorsal view; (D) Mesosoma, lateral view; (E) Head, frontal view; (F) Basal segments of antenna; (G) Fore wing; (H) Metasoma, dorsal view. Scale bar 0.5 mm.

hind tibia. Hind basitarsus 0.8 times as long as second-fifth segments combined. Second segment of hind tarsus 0.4 times as long as basitarsus, 1.7 times longer than fifth segment (without pretarsus).

Metasoma 1.1 times longer than head and mesosoma combined. First tergite with small spiracular tubercles in basal 0.3, almost linearly widened from base to apex, with distinct, almost complete and subparallel dorsal carinae. Length of first tergite 1.5 times its apical width; maximum width 1.8 times its minimum width. Length of second tergite 1.05 times its basal width, 1.5 times length of third tergite. Suture between second and third tergites almost straight, but weakly curved laterally, complete. Third tergite with shallow transverse furrow. Length of second and third tergites combined 1.7 times basal width of second tergite, 1.2 times their maximum width.

Sculpture and pubescence. Vertex, temple and frons smooth; face finely transversely striate medially, widely smooth laterally. Mesoscutum entirely densely granulate, with two distinct and posteriorly strongly convergent striae and rugulosity in medioposterior area. Scutellum finely and densely granulate. Mesopleuron mostly smooth. Propodeum with areas distinctly delineated by carinae; basolateral areas large, granulate in anterior half and rugulose in posterior half; areola long and narrow, petiolar area short; basal carina long, 1.8 times longer than anterior fork of areola. Hind coxa rather coarsely striate in dorsal half, smooth on ventral part. Hind femur entirely smooth. First tergite densely, coarsely and almost linearly striate with additional fine rugulosity between striae. Second tergite almost entirely and rather finely striate, with fine rugulosity between striae. Remaining tergites smooth. Vertex with rather dense and long setae; mesoscutum almost entirely with dense, short and semi-erect pale setae. Hind tibia dorsally with sparse long and very dense short (in anterior half) setae, length of these setae 0.5–1.0 times maximum width of hind tibia.

Colour. Body black; head reddish brown, infuscate dorsally, face infuscate in upper 0.7; mesosoma along sutures, mesoscutum along notauli and on medioposterior 0.4, areas around bases of wings and mesopleuron around and below sternaulus reddish brown or light reddish brown; metasoma reddish brown medially. Antennae yellowish brown. Palpi yellow. Legs yellow, distally partly faintly infuscate, hind femur infuscate basally in dorsal part, all tibiae basally pale yellow. Fore wing very faintly infuscate. Pterostigma brown, pale basally.

Female. Unknown.

Material examined. Holotype: male, China, Zhejiang, Qingyuan, Baishanzu, 1856 m, 13.VIII.2003 (Yu Xiaoxia), N 20034773 (ZJUH).

Distribution. China (Zhejiang).

Neurocrassus flaviceps sp. nov.
(Fig. 3)

Diagnosis. This new species is similar to *N. tentorialis* Belokobylskij, 1993, but differs in having the upper tentorial pits large (smaller in *N. tentorialis*), head brownish yellow (mainly dark reddish brown in *N. tentorialis*), mesoscutum distinctly and densely granulate (finely punctate and with very fine to almost indistinct granulation in *N. tentorialis*), and pterostigma brown, but pale basally and apically (entirely and evenly light brown in *N. tentorialis*).

Description. Female. Body length 3.4–3.7 mm; fore wing length 2.8–3.0 mm.

Head width 1.4 times its median length, 1.1 times maximum width of mesoscutum. Head behind eyes (dorsal view) weakly convex anteriorly, roundly narrowed posteriorly. Transverse diameter of eye 1.8 times longer than temple. Ocellar triangle situated weakly before middle of head (dorsal view), anterior ocellus situated distinctly before middle level of eyes. Ocelli medium-sized, in triangle with base 1.2–1.3 times its sides. POL 1.2 times Od, 0.5–0.6 times OOL. Dorsal tentorial pits near antennal sockets rather large and oval. Eye glabrous, 1.3 times as high as broad. Malar space 0.4 times height of eye, 0.9 times basal width of mandible. Malar suture absent. Width of face almost equal to height of eye, 1.3 times height of face and clypeus combined. Occipital carina ventrally not joined with hypostomal carina being obliterated at short distance near base of mandible.

Antenna rather slender, weakly setiform, 29-segmented. Scape 1.7–1.8 times longer than its maximum width. First flagellar segment 4.3–4.5 times longer than its apical width, 1.2–1.3 times longer than second segment. Penultimate segment 2.8 times longer than maximum width, 0.5 times as long as first flagellar, 0.8 times as long as apical segment; the latter with distinct apical spine.

Mesosoma. Length 1.9–2.0 times height. Pronotum weakly convex dorsally (lateral view), with rather distinct pronotal carina in anterior 0.4, without pronope. Mesoscutum (lateral view) highly and roundly elevated above pronotum. Median lobe of mesoscutum convex anteriorly, without median furrow. Notauli deep anteriorly and rather shallow posteriorly, narrow, densely rugulose-crenulate. Prescutellar depression deep, almost smooth, with distinct median carina, 0.4 times as long as scutellum. Mesopleuron smooth. Subalar depression rather shallow, wide, rugose-striate. Precoxal sulcus shallow anteriorly and deep posteriorly, short, smooth, running along anterior 0.6 of lower part of mesopleuron. Propodeum without lateral tubercles.

Wings. Fore wing 2.9 times longer than its maximum width. Radial cell not shortened; metacarp 1.3–1.5 times longer than pterostigma. Radial vein arising from

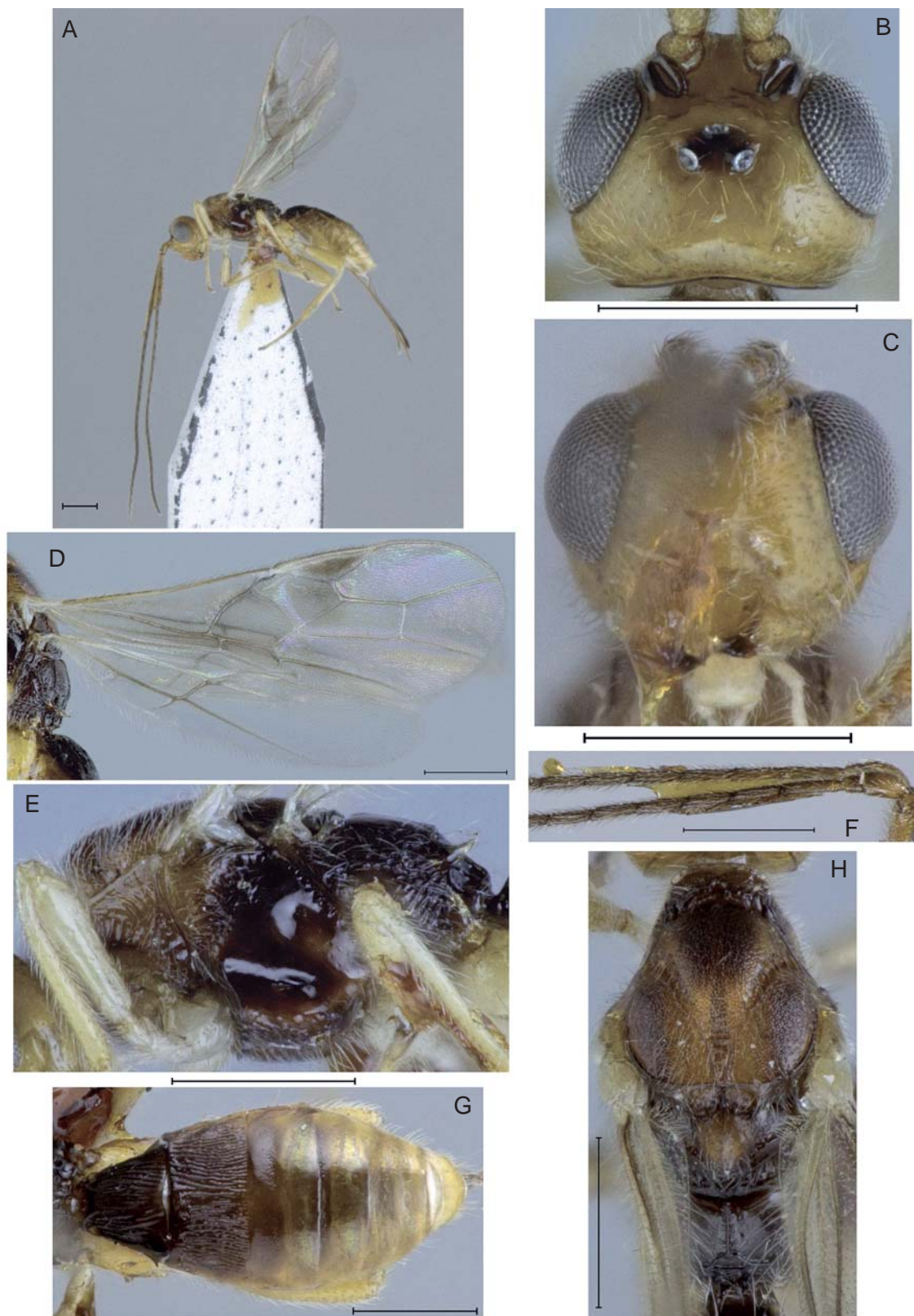


Figure 3. Morphological features of *Neurocrassus flaviceps* sp. nov. (A) Habitus, lateral view; (B) Head, dorsal view; (C) Head, frontal view; (D) Fore wing; (E) Mesosoma, lateral view; (F) Basal segments of antenna; (G) Metasoma, dorsal view; (H) Mesosoma, dorsal view. Scale bar 0.5 mm.

middle of pterostigma. First radial abscissa 0.5–0.7 times as long as maximum width of pterostigma. Second radial abscissa 4.2–4.5 times longer than first abscissa, 0.5–0.6 times as long as the straight third abscissa, 1.1–1.2 times longer than first radiomedial vein. Second radiomedial cell 2.5 times longer than its maximum width, 1.7 times longer than brachial cell. First medial abscissa weakly sinuate. Mediocubital vein weakly curved distally. Parallel vein arising from middle of distal margin of brachial cell. Hind wing 4.5–4.7 times longer than maximum width. First costal abscissa 0.7 times as long as second abscissa. First abscissa of mediocubital vein 1.1 times longer than second abscissa. Radial cell weakly narrowed posteriorly. Recurrent vein almost straight, oblique, weakly post-furcal, pigmented.

Legs. Fore tibia with numerous slender spines arranged in almost single vertical row. Hind femur 3.5 times longer than maximum width. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.7 times as long as second-fifth segments combined; second segment of hind tarsus 0.4 times as long as basitarsus, 1.2 times longer than fifth segment (except pretarsus).

Metasoma almost equal to mesosoma and head combined. First tergite with small spiracular tubercles in basal third, distinctly and almost linearly widened from subbase to apex, with distinct and almost complete dorsal carinae. Maximum width of first tergite about twice its minimum width; its length almost equal to maximum subapical width. Median length of second tergite 0.6 times its basal width, equal to length of third tergite. Suture between second and third tergites shallow, narrow, almost straight. Third tergite with very shallow transverse furrow in basal 0.4. Length of second and third tergites combined 1.2 times basal width of second tergite, 0.9 times their maximum width. Ovipositor sheath 0.8 times as long as metasoma, 1.1 times longer than mesosoma, 0.5 times as long as forewing.

Sculpture and pubescence. Vertex entirely smooth; frons almost smooth; face distinctly punctate laterally, finely rugulose dorso-medially; temple smooth. Sides of pronotum coarsely striate-rugose, coarsely crenulate on median furrow, narrowly smooth dorsally and ventrally. Mesoscutum entirely with very fine and distinct granulation, with two distinct and posteriorly strongly convergent striae and distinct rugulosity in medioposterior area. Scutellum finely granulate. Mesopleuron smooth. Propodeum with areas distinctly delineated by carinae; basolateral areas rather large, smooth or finely coriaceous, shortly rugose posteriorly along carina; areola short and rather narrow, 1.4–1.8 times longer than wide; dorsal carina rather long, 1.6–1.8 times longer than areola fork. Hind coxa curvedly striate dorsally, smooth on remaining part. Hind femur smooth. First and second tergites entirely distinctly and rather

densely striate, with fine rugulosity between striae, first tergite smooth on small medioapical area. Remaining tergites smooth. Vertex with dense, long and semi-erect setae. Mesoscutum entirely with short, dense and semi-erect setae. Hind tibia dorsally with long, dense and semi-erect setae, length of these setae 0.5–0.8 times maximum width of hind tibia.

Colour. Head brownish yellow. Mesosoma dark reddish brown; mesoscutum narrowly along notauli and scutellum partly brownish yellow; lower 0.3–0.5 of mesopleuron reddish brown. First and second metasomal tergites dark reddish brown, following tergites darker basally, brownish yellow apically. Antennae almost black, four basal segments paler. Palpi pale yellow. Legs yellow. Ovipositor sheath black, paler basally. Wings faintly infusate. Pterostigma brown, pale yellow in basal 0.3 and apically.

Male. Unknown.

Material examined. Holotype: 1 female, China, Zhejiang, Linan, Qingliangfeng, 10.VIII.2005 (Shi Min), N 200607375 (ZJUH).

Paratypes. China: 1 female, Hainan, Jianfengling, 7.VI.2007 (Liu Jingxian), N 200702405 (ZJUH); 1 female, Zhejiang, Qingyuan, Baishanzu, 10.VIII.2005 (Wu Hong), 29.X.1993, N 945918 (ZJUH).

Distribution. China (Zhejiang, Hainan).

Neurocrassus hakonensis (Ashmead, 1906)

Ischiogonus hakonensis Ashmead, 1906: 199; Fahringer 1930: 155; Watanabe 1937: 40.

Ontsira hakonensis: Shenefelt & Marsh 1976: 1323; Belokobylskij 1998a: 56; Chen and Shi 2004: 29; Zaldivar-Riverón *et al.* 2008: 348.

Neurocrassus hakonensis: Belokobylskij and Maeto 2009: 322.

Material examined. China: 1 female, Yunnan, Ruili, Mengxiu, 2–6.V.1981 (He Junhua), N 813134 (ZJUH); 1 female, Hainan, Jianfengling, 6.VI.2007 (Liu Jingxian), N 200703718 (ZJUH).

Distribution. China (Jiangsu, Yunnan, Hainan); Russia, Japan.

Neurocrassus ontsiroides sp. nov.

(Fig. 4)

Diagnosis. This new species is similar to Japanese *N. ibarakius* Belokobylskij and Maeto, 2006, but differs in having the upper tentorial pits very small (medium-sized in *N. ibarakius*), parallel vein of fore wing arising behind middle of distal margin of brachial cell (from middle in *N. ibarakius*), first tergite long and narrow (short and wide in *N. ibarakius*), second tergite entirely smooth (distinctly striate in basal 0.3 in *N. ibarakius*), and basolateral areas of propodeum entirely densely granulate-rugose (smooth to finely

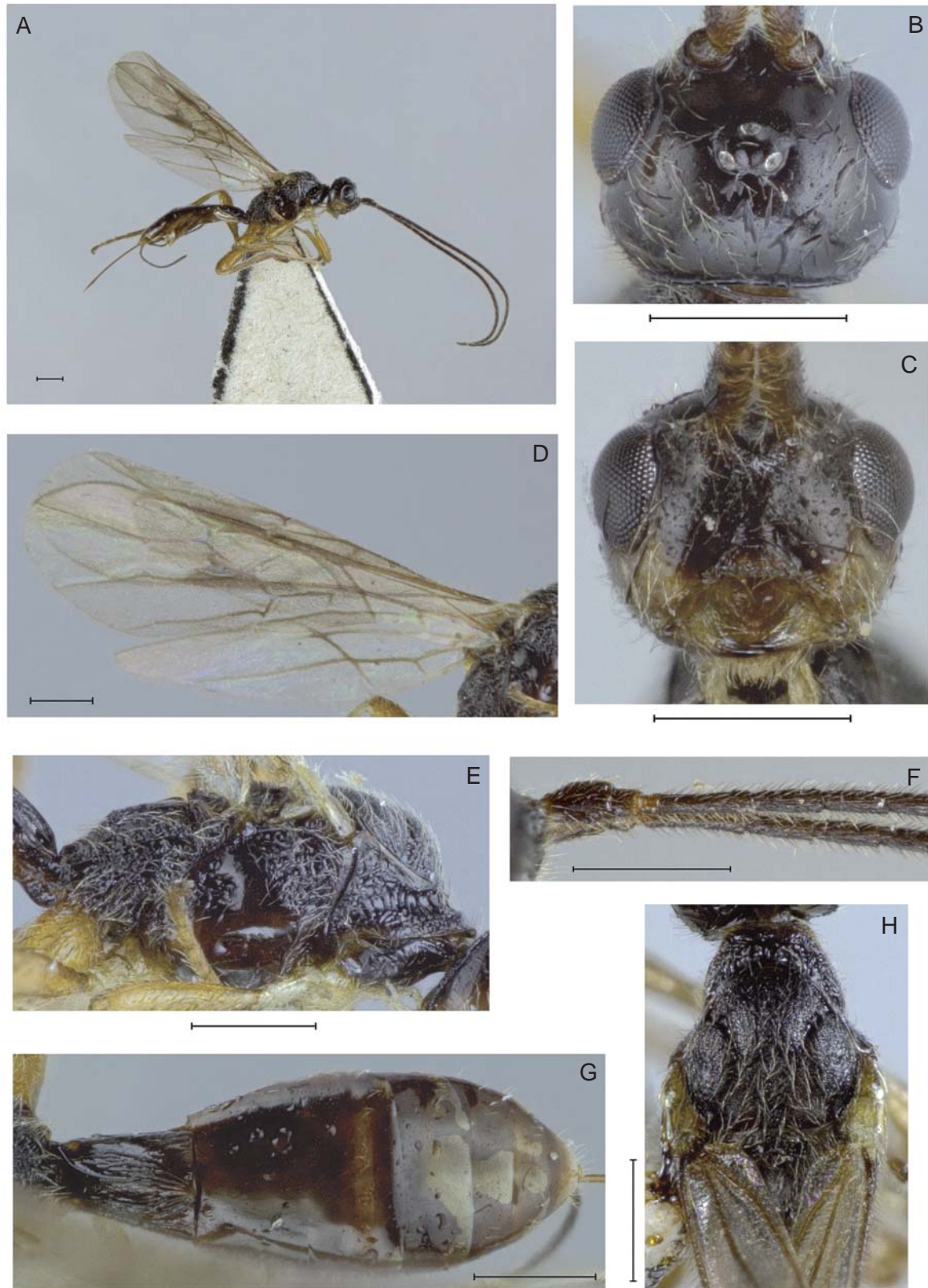


Figure 4. Morphological features of *Neurocrassus ontsiroides* sp. nov. (A) Habitus, lateral view; (B) Head, dorsal view; (C) Head, frontal view; (D) Fore and hind wings; (E) Mesosoma, lateral view; (F) Basal segments of antenna; (G) Metasoma, dorsal view; (H) Mesosoma, dorsal view. Scale bar 0.5 mm.

coriaceous in *N. ibarakius*). *Neurocrassus ontsiroides* sp. nov. is superficially similar to *Ontsira gratia* Belokobylskij, 1996 from Taiwan, but differs in having the small upper tentorial pits present (completely absent in *O. gratia*), parallel vein of fore wing arising from posterior 0.3 of distal margin of brachial cell (almost from middle in *O. gratia*), first tergite almost smooth in lateroapical quarters (entirely striate in *O. gratia*), malar space widely brownish yellow (dark reddish brown in *O. gratia*), radial vein arising from the middle of pterostigma (distinctly behind middle in *O. gratia*), second radiomedial cell and second radial abscissa short (long in *O. gratia*).

Description. Female. Body length 4.6 mm; fore wing length 3.4 mm.

Head width (dorsal view) 1.4 times its median length, 1.1 times width of mesoscutum. Head behind eyes (dorsal view) almost parallel-sided anteriorly and roundly narrowed posteriorly. Transverse diameter of eye 1.2 times longer than temple. Ocelli rather small, arranged in triangle with base 1.1 times its sides; POL 1.4 times Od, 0.4 times OOL. Dorsal tentorial pits near antennal sockets rather small. Eye glabrous, 1.2 times as high as broad. Malar space 0.5 times eye height, 1.1 times basal width of mandible. Face width 1.1 times eye height and 1.2 times height of face and clypeus combined. Malar suture absent. Hypoclypeal depression suboval, its width almost equal to distance from edge of depression to eye, 0.5 times width of face. Occipital carina ventrally not joined with hypostomal carina being obliterated at short distance near base of mandible.

Antennae rather slender, almost filiform, 30-segmented, 1.2 times longer than body. Scape 1.6 times longer than wide. First flagellar segment 4.5 times longer than its apical width, 1.1 times longer than second segment. Penultimate segments 3.5 times longer than wide, 0.6 times as long as first flagellar segment, as long as apical segment.

Mesosoma. Length 2.0 times its height. Pronotum almost flat dorsally (lateral view), with distinct pronotal carina submedially, without pronope. Pronotal lateral depression delineated by carinae, wide, more or less shallow, coarsely and densely crenulate. Mesoscutum highly and roundly elevated above pronotum. Notauli deep anteriorly and more or less shallow posteriorly, wide, complete, densely and distinctly crenulate. Prescutellar depression deep, rather long, with three carinae, more or less distinctly rugulose between carinae, 0.4 times as long as scutellum. Scutellum weakly convex, with fine lateral carinae. Metanotum (lateral view) with short, rather slender and subpointed dorsal tooth. Subalar depression shallow, wide, distinctly rugose-striate, partly with granulation. Sternaulus shallow anteriorly, rather deep posteriorly, wide, more or less straight, finely crenulate, running along anterior 0.5 of lower part of mesopleuron. Metapleural

flange rather narrow and short. Propodeum with very short and thick lateral tubercles.

Wings. Fore wing 2.9 times longer than wide. Radial cell not shortened; metacarp 1.2 times longer than pterostigma. Radial vein arising from middle of pterostigma. Second radial abscissa 4.2 times longer than first abscissa and forming with it distinct obtuse angle, 0.5 times as long as straight third abscissa, as long as first radiomedial vein. Second radiomedial cell not narrowed distally, its length 2.4 times maximum width, 1.4 times length of brachial cell. First medial abscissa weakly sinuate. Recurrent vein antefurcal. Distance from nervulus to basal vein 1.5 times nervulus length. Parallel vein arising from posterior 0.3 of distal margin of brachial cell. Hind wing 5.0 times longer than wide. First abscissa of costal vein 0.5 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 vertical row. Hind femur 3.9 times longer than wide. Hind tarsus 0.9 times as long as hind tibia. Hind basitarsus 0.7 times as long as second-fifth segments combined. Second segment of hind tarsus 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 tergite 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 1.25 times its apical width; apical width 2.0 times its minimum width. Second tergite length 0.8 times its basal width, 1.3 times length of third tergite. Suture between second and third tergites 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 0.7 times as long as metasoma, 0.9 times as long as mesosoma, 0.4 times as long as fore wing.

Sculpture and pubescence. Head smooth, face narrowly and finely rugulose medially in upper half. Mesoscutum finely and densely granulate, with two distinct and posteriorly strongly convergent striae and fine rugulosity in medioposterior area. Scutellum smooth. Mesopleuron smooth in lower 0.8. Metapleuron distinctly rugose-reticulate. Propodeum with areas distinctly delineated by carinae, basolateral areas entirely densely granulate-rugose, remaining part of propodeum rugose-reticulate; areola finely rugulose, short and narrow; basal carina 2.0 times longer than anterior fork of areola. Hind coxa and femur smooth. First metasomal tergite distinctly and rather sparsely striate medially, with very fine rugulosity between striae,

almost smooth in lateroapical quarters. Remaining tergites smooth. Vertex almost entirely with sparse, short and semi-erect setae. Mesoscutum entirely with rather dense short semi-erect pale setae. Mesopleuron medially widely glabrous. Hind tibia dorsally with rather long, more or less dense 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. Palpi yellow. Legs brownish yellow, all tibiae pale yellow basally. Ovipositor sheath black. Fore wing very faintly infuscate. Pterostigma entirely brown.

Material examined. Holotype: female, China, Shaanxi, Ningshan, Xunyangzhen, 6.VI.1998 (Ma Yun), N 928841 (ZJUH).

Distribution. China (Shaanxi).

Neurocrassus opis (Belokobylskij, 1998)

Ontsira opis Belokobylskij, 1998b: 469.

Neurocrassus opis: Belokobylskij and Maeto 2009: 338; Yu *et al.* 2012.

Material examined. China: 1 female, Guangdong, Longmen, Nankunshan, 7.VIII.2004 (Liu Jingxian), N 200703718 (ZJUH); 1 female, Guangdong, Shixing, Chebaling, 21.VIII.2003 (Xu Zaifu), N 20052285 (ZJUH); 1 female, Fujian, Nanjing, 18.VII.1988 (Lin Xiaolin), N 20005847 (ZJUH); 1 female, Fujian, Jiangle, Longqishan, 16.VII.1991 (Liu Changming), N 20007154 (ZJUH).

Distribution. China (Fujian, Guangdong) (**new record**); Japan, Vietnam.

Neurocrassus palliatus (Cameron, 1881)

Monolexis palliatus Cameron, 1881: 560.

Doryctes palliatus: Nixon 1939: 488.

Ipodoryctes palliatus: Granger 1949: 106.

Ontsira palliata: Shenefelt & Marsh 1976: 1326; Belokobylskij 1998b: 473.

Neurocrassus palliatus: Belokobylskij & Maeto 2009: 341; Yu *et al.* 2012.

Doryctes picticeps Kieffer, 1921: 135; Nixon 1939: 488 (as synonym of *O. palliata*).

Doryctes nixonii Watanabe, 1952: 25; Shenefelt and Marsh, 1976: 1289; Belokobylskij 1998a: 56; Belokobylskij and Maeto 2009: 341 (as synonym of *O. palliata*).

Ontsira anoplophorae Kusigemati et Hashimoto, 1993: 187; Belokobylskij 1998b: 473 (as synonym of *O. palliata*).

Material examined. China: 1 female, Henan, Jigongshan, 11.VII.1997 (Chen Xuexin), N 973754 (ZJUH); 1 female, Henan, Jigongshan, 12.VII.1997 (Chen Xuexin), N 975033 (ZJUH); 1 female, Zhejiang, Xitianmushan, Xianrending, 29.VII.1998 (Zhao Mingshui), N 993287 (ZJUH); 1 female, Zhejiang, Xitianmushan, Xianrending, 25.VI.2003 (Shi Weibing),

N 20038089 (ZJUH); 1 female, Zhejiang, Xitianmushan, 9.VI.1992 (Chen Xuexin), N 922326 (ZJUH); 1 female, Fujian, Fuzhou, 17.IV.1991 (Liu Changming), N 366535 (ZJUH); 1 female, Fujian, Fuzhou, 17.IV.1991 (Liu Changming), N 366535 (ZJUH); 2 females, Fujian, Jinghong, 10.V.1978 (Zhao Xiufu), N 20004242, 20004243 (ZJUH); 1 female, Hainan, Jianfengling, Tianchi, 12–15.VII.2006 (Liu Jingxian), N 200803686 (ZJUH); 7 females 4 males, Guangdong, Huachuan, 16.III.1981, ex *Semanotus sinoauster* (Gressiti) (Zhang Lianqin), N 810377(11), (ZJUH); 35 females 4 males, Guangdong, Huachuan, 16.VIII.1981 (Zhang Lianqin), N 810377(39) (ZJUH); 6 females 2 males, Guangdong, Guangzhou, 1985, ex *Semanotus sinoauster* (Gressiti) (Zhang Lianqin), Nos. 850082(8), (ZJUH); 14 females 1 male, Guangdong, Guangzhou, XI.1985, ex *Semanotus sinoauster* (Gressiti) (Zhang Lianqin), N 860621(15) (ZJUH); 1 female, Guangdong, Huachuan, 15.III.1986 (Zhang Lianqin), N 200011400 (ZJUH); 1 female, Guangdong, Huaxian, VI.1976, ex *Semanotus sinoauster* (Gressiti) (Liu Youqiao), N 760715 (ZJUH); 1 female, Guangdong, Fogang, Guanyinshan, 15–16.IX.2007 (Xu Zaifu), N 2007115351 (ZJUH); 1 female, Guangxi, Nanning, Xixiangtang, 25.V.1982 (He Junhua), N 822444 (ZJUH); 1 female, Guangxi, Nanning, 11.V.1982 (He Junhua), N 821525 (ZJUH); 1 female, Yunnan, Funing, 200 m, 16.IV.1998 (Qiao Gexia), N 200104994 (IZAS).

Hosts. *Anoplophora malasiaca* (Thomson), *Chlorophorus annularis* (Fabricius), *Ch. japonicus* (Chevrolat), *Neoclytarus* sp., *N. chenopodii* Perkins, *Niphona furcata* (Bates), *Plagithmysus* sp., *P. bilineatus* Sharp, *P. concolor munroi* Sharp, *P. fragilis* (Sharp), *P. indecens* (Perkins), *P. molokaiensis* Perkins, *P. pulverulentus* (Motschulsky), *Prosoplus bankii* (Fabricius), *Semanotus sinoauster* (Gressiti), *Xylotrechus pyrrhoderus* Bates, *X. quadripes* Chevrolat (Cerambycidae); *Syagrius fulvitaris* Pascoe (Curculionidae) (Belokobylskij and Maeto, 2009).

Distribution. China (Henan, Zhejiang, Fujian, Hunan, Guangdong, Guangxi, Hainan, Yunnan, Taiwan); Russia, Japan, Hawaii, Seychelles, Vanuatu, Cook Is., Guam, Philippines, Malaysia, Vietnam, India, Nepal.

Neurocrassus pseudopalliatus Belokobylskij et Maeto, 2009

Neurocrassus pseudopalliatus Belokobylskij and Maeto, 2009: 346.

Material examined. China: 1 female, Zhejiang, Gutianshan, 18.VII.1992 (Chen Xuexin), N 923512 (ZJUH); 1 female, Zhejiang, Suchang, Jiulongshan, 18.VIII.1994 (Xu Zaifu), N 944464 (ZJUH).

Distribution. China (Zhejiang) (**new record**); Japan.

Key for determination of Asian species of the genus *Neurocrassus* Šnoflak

(updated from Belokobylskij and Maeto, 2009)

1. Second tergite without basomedian area (Fig. 3G). Body usually without contrasting dark and pale colouration (Fig. 3A) **2**
- Second tergite with smooth basomedian area delineated by furrow or different type of sculpture (Fig. 1F). Body usually with contrasting dark and pale colouration **13**
2. Female **3**
- Male **11**
3. Dorsal tentorial pit near antennal sockets large and oval, its maximum diameter larger than half of maximum diameter of antennal socket (Fig. 3B) **4**
- Dorsal tentorial pit near antennal sockets small (sometimes very small) and subround, its maximum diameter distinctly not larger than half of maximum diameter of antennal socket **6**
4. Scutellum smooth. Mesoscutum finely and rather sparsely punctate with very fine and partly indistinct granulation. Parallel vein of fore wing arising distinctly behind middle of distal margin of brachial cell. Recurrent vein distinctly antefurcal. [Second tergite entirely coarsely and regularly striate. Body length 4.1–4.9 mm. – Japan] *miyanourus* Belokobylskij et Maeto, 2006
- Scutellum rather distinctly granulate. Mesoscutum distinctly, densely and almost entirely granulate. Parallel vein of fore wing arising from or weakly before middle of distal margin of brachial cell (Fig. 3D). Recurrent vein of female interstitial or almost interstitial (Fig. 3D) **5**
5. Head mainly black or dark reddish brown. Upper tentorial pits medium sized, its maximum diameter weakly larger than half of maximum diameter of antennal socket. Basal areas of propodeum smooth in anterior 0.7–0.8 and distinctly rugulose posteriorly. Pterostigma entirely evenly light brown or brown. Second tergite finely and less regularly striate. Mesoscutum slightly punctate, almost without granulation. Body length 2.6–4.9 mm. – Japan, Russia (Far East), Vietnam (See also couplet 9) *tentorialis* Belokobylskij, 1993
- Head brownish yellow. Upper tentorial pits large, its maximum diameter distinctly larger than half of maximum diameter of antennal socket. Basal areas of propodeum entirely smooth or partly finely coriaceous. Pterostigma dark brown, pale basally and apically. Second tergite coarsely and regularly striate. Mesoscutum distinctly granulate, with fine punctation. Body length 3.4–3.7 mm. – China (Zhejiang, Hainan) *flaviceps* sp. nov.

- 6(3). First tergite 1.45–1.55 times longer than its apical width. Length of second tergite 1.10–1.15 times its basal width. Ovipositor sheath 1.1–1.4 times longer than body, distinctly longer than fore wing. First flagellar segment 5.5–6.2 times longer than its apical width. [Body length 3.1–4.7 mm. – Japan (Honshu)] *hypodoryctoides* Belokobylskij et Maeto, 2006
- First tergite 1.00–1.25 times as long as its apical width (Fig. 4G). Length of second tergite 0.5–0.8 times its basal width (Fig. 4G). Ovipositor sheath distinctly shorter than body (Fig. 4A), shorter than fore wing. First flagellar segment 4.0–4.8 times longer than its apical width (Fig. 4F) . . . **7**
7. Second metasomal tergite entirely or mostly (sculptured only basally) smooth. Ovipositor sheath long, 0.40–0.45 times as long as fore wing. Hind femur narrow, 3.9–4.0 times longer than wide . . . **8**
- Second metasomal tergite entirely or almost entirely sculptured. Ovipositor sheath usually short (except for *N. sanageensis*), 0.25–0.35 times as long as fore wing. Hind femur wide, 2.9–3.6 times longer than wide **9**
8. Upper tentorial pits less larger, its maximum diameter weakly less than half of maximum diameter of antennal socket. Parallel vein of fore wing arising from middle of distal margin of brachial cell. First tergite shorter, 1.1 times longer than apical width. Second tergite distinctly striate in basal 0.3. Basolateral areas of propodeum mainly smooth, with fine reticulation posteriorly. Body length 2.6 mm. – Japan *ibarakius* Belokobylskij et Maeto, 2006
- Upper tentorial pits very small, its maximum diameter about 0.2 of maximum diameter of antennal socket. Parallel vein of fore wing arising from posterior 0.3 of distal margin of brachial cell. First tergite longer, 1.25 times longer than apical width. Second tergite entirely smooth. Basolateral areas of propodeum entirely densely granulate-rugose. Body length 4.6 mm. – China (Shaanxi) *ontsiroides* sp. nov.
- 9(7). 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. Third tergite entirely smooth. Hind coxa dorsally smooth. [Body length 3.6 mm. – Japan] *sanageensis* Belokobylskij et Maeto, 2006
- Ovipositor short, ovipositor sheaths 0.6–0.8 times as long as metasoma, 0.25–0.40 times as long as fore wing. Nervulus distinctly postfurcal, distance from nervulus to basal vein 1.0–2.0 times nervulus length. Third tergite usually with sculptured subbasal transverse area. Hind coxa dorsally usually at least partly striate **10**

10. Head more transverse, 1.7 times as wide as median length, strongly and weakly-roundly narrowed behind eyes. Hind femur 2.9 times longer than maximum width. Mesosoma longer, 1.9 times longer than high. Mesoscutum finely granulate. Radial vein arising before middle of pterostigma. Parallel vein arising from middle of distal margin of brachial cell. First metasomal tergite shorter, as long as its apical width. Body length 2.8 mm. – Japan *hinoematus* Belokobylskij et Maeto, 2006
- Head less transverse, 1.4–1.5 times as wide as median length, not strongly and roundly narrowed behind eyes. Hind femur 3.3–3.8 times longer than maximum width. Mesosoma shorter, 1.6–1.7 times longer than high. Mesoscutum distinctly granulate. Radial vein arising from or weakly behind middle of pterostigma. Parallel vein arising at least weakly behind middle of distal margin of brachial cell. First metasomal tergite longer, 1.1–1.2 times longer than apical width. Body length 1.8–3.3 mm. – Japan, Vietnam, Russia (Far East), Abkhazia, Ukraine *rarus* (Belokobylskij, 1982)
- 11(2). Dorsal tentorial pit near antennal sockets large, narrowly oval, its maximum diameter weakly larger than half of maximum diameter of antennal socket. Head more transverse, 1.7 times as wide as median length. [Fore wing with rather small and almost round enlargement on first abscissa of medial vein. First metasomal tergite 1.4 times longer than its apical width. Head strongly and weakly-roundly narrowed behind eyes. Body length 2.3 mm. (See also couplet 4)] *tentorialis* Belokobylskij, 1993
- Dorsal tentorial pit near antennal sockets small or very small, subround, its maximum diameter 0.1–0.2 of maximum diameter of antennal socket. Head less transverse, 1.3–1.4 times as wide as median length **12**
12. Fore wing with large and bean-like enlargement on anterior part of basal and first abscissa of medial vein. First metasomal tergite almost as long as its apical width. Length of second tergite 0.75 times its basal width. Hind femur thick, 3.4 times longer than maximum width. Recurrent vein of fore wing distinctly postfurcal. Body length 2.4 mm. – Russia (Far East) *fabimaculatus* Belokobylskij, 1993
- Fore wing with narrow and long enlargement on anterior part of basal and more than basal half of first abscissa of medial vein (Fig. 2G). First metasomal tergite 1.5 times longer than its apical width (Fig. 2H). Length of second tergite 1.05 times its basal width. Hind femur slender, 4.1 times longer than maximum width. Recurrent vein of fore wing weakly antefurcal. Body length 3.7 mm. – China (Zhejiang) . . . *elongatus* sp. nov.
- 13(1). Ovipositor sheath 0.4–0.8 times as long as metasoma, 0.3–0.5 times as long as fore wing. First metasomal tergite usually wide, weakly rounded laterally (except for *N. densipilosus* sp. nov.), not longer than its apical width. Hind femur 3.0–3.7 times longer than wide **14**
- Ovipositor sheath 1.2–1.7 times longer than metasoma, 0.7–1.1 times as long as fore wing. First metasomal tergite narrow, almost straight laterally, more or less longer than its apical width. Hind femur 3.8–4.5 times longer than wide. [Second tergite rather long, 0.45–0.60 times as long as basal width, 0.9–1.0 times as long as third tergite] **16**
14. Second tergite with basomedian smooth area distinctly delineated by furrow; tergite short, 0.3–0.4 times as long as basal width, 0.60–0.75 times as long as third tergite. [Body length 3.5–6.2 mm. – China (Henan, Zhejiang, Fujian, Hunan, Guangdong, Guangxi, Hainan, Yunnan, Taiwan); Hawaii, Seychelles, Vanuatu, Cook Is., Guam, Philippines, Malaysia, Vietnam, Japan, Russia (Far East), India, Nepal] *palliatus* (Cameron, 1881)
- Second tergite with basomedian smooth area not delineated by furrow; tergite long, 0.45–0.55 times as long as basal width, 0.8–0.9 times as long as third tergite **15**
15. Vertex not entirely and sparsely setose (Fig. 1C). Hind femur thick, 3.0–3.2 times longer than maximum width. First tergite wide and short, with distinctly curved lateral sides (Fig. 1G). Body length 2.5–5.2 mm. – China (Zhejiang); Japan *pseudopalliatus* Belokobylskij et Maeto, 2009
- Vertex entirely densely setose (Fig. 1C). Hind femur slender, 3.7 times longer than maximum width. First tergite narrow and rather long, with almost straight lateral sides (Fig. 1G). Body length 4.5–5.6 mm. – China (Zhejiang, Guangdong, Fujian) . . . *densipilosus* sp. nov.
- 16(13). Second tergite with indistinct basomedian area delineated only by different type of sculpture. Penultimate segment of antenna 2.3–2.8 times longer than its width. Head mainly dark reddish brown. Body length 4.5–7.7 mm. – China (“Jiangsu”, Yunnan, Hainan); Japan; Russia (Far East) *hakonensis* (Ashmead, 1906)
- Second tergite with distinct basomedian area delineated by distinct furrow. Penultimate segment of antenna 3.0–3.6 times longer than its width. Head mainly yellow or pale yellow. Body length 4.7–7.3 mm. – China (Guangdong, Fujian); Japan, Vietnam *opis* (Belokobylskij, 1998)

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