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Title	A PRELIMINARY REVISION OF THE SUBGENUS NETELIA OF THE GENUS NETELIA FROM JAPAN (HYMENOPTERA, ICHNEUMONIDAE, TRYPHONINAE)
Author(s)	KONISHI, Kazuhiko; Konishi, Kazuhiko
Citation	Insecta matsumurana. New series : journal of the Faculty of Agriculture Hokkaido University, series entomology, 62, 45-121
Issue Date	2005-12
Doc URL	http://hdl.handle.net/2115/10525
Type	bulletin (article)
File Information	Konishi.pdf

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INSECTA MATSUMURANA

NEW SERIES 62: 45–121 DECEMBER 2005

A PRELIMINARY REVISION OF THE SUBGENUS NETELIA OF THE GENUS NETELIA FROM JAPAN (HYMENOPTERA, ICHNEUMONIDAE, TRYPHONINAE)

By KAZUHIKO KONISHI

Abstract

KONISHI, K. 2005. A preliminary revision of the subgenus *Netelia* of the genus *Netelia* from Japan (Hymenoptera, Ichneumonidae, Tryphoninae). *Ins. matsum. n. s*. 62: 45–121.

Japanese species of the genus *Netelia* the subgenus *Netelia* are revised by mainly re-examining the specimens, which were used by previous authors and preserved in Systematic Entomology, Hokkaido University, to confirm the species records from Japan. New species found among those specimens are described and unrecorded species from Japan found not only in the collection of Hokkaido University but also in the major ichneumonid collections in Japan are recorded. Twenty-five species are recognized. Seven new species, *N*. (*N*.) *amamiensis*, *N*. (*N*.) *gotoi*, *N*. (*N*.) *kusigematii*, *N*. (*N*.) *kyushuensis*, *N*. (*N*.) *nigritarsalis*, *N*. (*N*.) *nomurai* and *N*. (*N*.) *oharai*, are described. Ten species, *N*. (*N*.) *atlantor* Aubert, 1971, *N*. (*N*.) *atra* Tolkanitz, 1999, *N*. (*N*.) *denticulator* Aubert, 1968, *N*. (*N*.) *facialis* Kaur & Jonathan, 1979, *N*. (*N*.) *fulvator* Delrio, 1971, *N*. (*N*.) *infractor* Delrio, 1971, *N*. (*N*.) *melanura* (Thomson, 1888), *N*. (*N*.) *rapida* Tolkanitz, 1981, *N*. (*N*.) *silantjewi* (Kokujev, 1899) and *N*. (*N*.) *vegeta* Tolkanits, 1981 are recorded from Japan for the first time and redescribed based on Japanese specimens. Male genitalia of *N*. (*N*.) *formosana* (Matsumura, 1912), *N*. (*N*.) *nigrinota* (Uchida, 1928), *N*. (*N*.) *takaozana* (Uchida, 1928) and *N*. (*N*.) *unicolor* (Smith, 1874) are figured and described for the first time. One new synonymy of species proposed is *Paniscus testaceus* var. *nigronotatus* Uchida, 1928 under *N*. (*N*.) *melanura*. Four species, *N*. (*N*.) *ocellaris* (Thomson, 1888), *N*. (*N*.) *opacula* (Thomson, 1888), *N*. (*N*.) *testacea* (Gravenhorst, 1829) and *N*. (*N*.) *vinulae* (Scopoli, 1763) are redescribed based on Japanese specimens. *N*. (*N*.) *dilatata* (Thomson, 1888), *N*. (*N*.) *fuscicornis* (Holmgren, 1860), *N*. (*N*.) *grumi* (Kokujev, 1906) and *N*. (*N*.) *nigriventris* (Brullé, 1846) are excluded from Japanese fauna. A key to 25 Japanese species is given.

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Introduction

The majority of the genus *Netelia* are uniformly brownish yellow insects and closely similar in appearance (Fig. 1). This similarity led several early authors to misidentification and confusion. Townes (1938) showed that *Netelia* species can be best distinguished by specialized structure on median surface of male clasper, revised the Nearctic species and divided the genus into 8 subgenera, *Paropheltes*, *Parabates*, *Toxochilus*, *Apatagium*, *Monomacrodon*, *Prosthodocis*, *Netelia* and *Parabatus* (=*Bessobates*). Since then, the European (Delrio, 1978), Russian (Tolkanitz, 1974, 1981a and 1981b), Oriental (Kaur & Jonathan, 1979) and Korean (Cha & Lee, 1988) species were revised by using the characters of male genitalia and 3 subgenera, *Toxochiloides*, *Longiterebates* and *Protonetelia*, were added (Tolkanitz, 1974; Kaur & Jonathan, 1979; Konishi, 1986b). In Japan, seven subgenera, *Paropheltes*, *Parabates*, *Apatagium*, *Prosthodocis*, *Netelia*, *Bessobates* and *Toxochiloides*, have been recorded (Townes, Momoi & Townes, 1965; Konishi, 1985; Konishi, 1996b). Among them, five subgenera have been already revised by using the characters of male genitalia, *i.e.*, *Parabates* by Konishi (1985), *Apatagium* by Konishi (1986a and 1996b), *Prosthodocis* by Konishi (1991 and 1992), *Paropheltes* by Konishi (1996a) and *Toxochiloides* by Konishi (1996b).

The subgenus *Netelia* is the largest subgenus in the genus, known from 198 species and distributed in the all-zoogeographical regions.

The first species of the subgenus *Netelia* recorded and described from Japan was *Paniscus unicolor* Smith, 1874. Matsumura (1912) recorded *P. unicolor* from

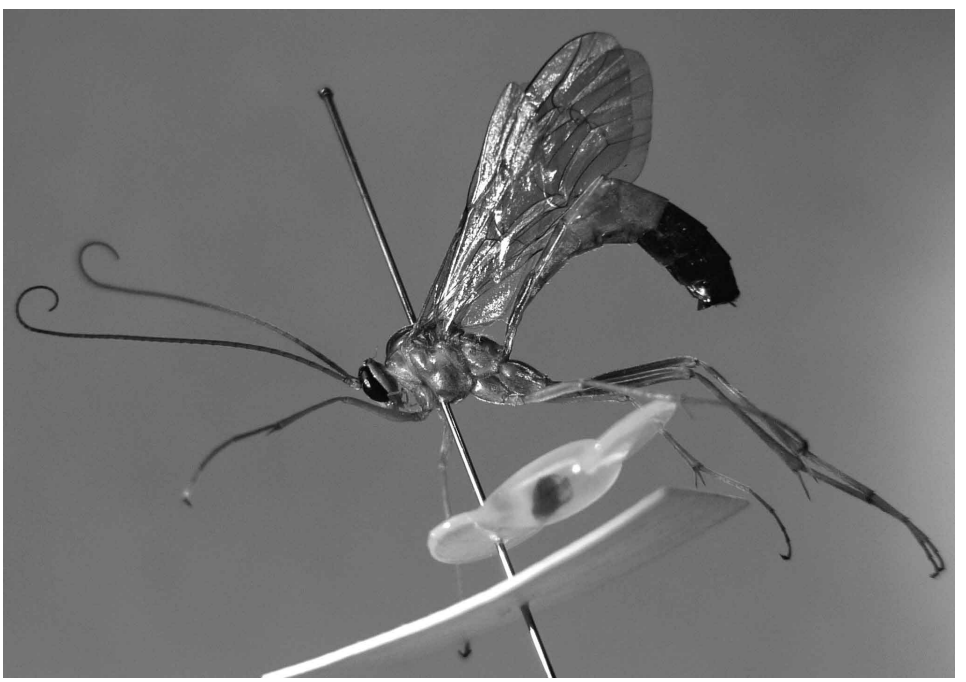

Fig. 1. *Netelia* (*Netelia*) *melanura* (Thomson, 1888), ♂. The male genitalia is preserved in glycerol in polyethylene tube attached to the pin.

Hokkaidou, Honshu and Kyushu and Matsumura & Uchida (1926) recorded *P. orientalis* from Okinawa-hontô Is. Uchida (1928) studied species of the subgenus *Netelia* under the name *Paniscus* and recorded following 10 species from Japan:

Paniscus cephalotes Holmgren, 1860 (= *vinulae* Scopoli, 1763);
Paniscus takaozanus Uchida, 1928;
Paniscus unicolor Smith, 1874;
Paniscus grumi Kokujev, 1906;
Paniscus testaceus Gravenhorst, 1829;
Paniscus testaceus var. *nigrinotatus* Uchida, 1928;
Paniscus testaceus var. *nigrinotus* Uchida, 1928;
Paniscus ocellaris Thomson, 1888;
Paniscus gracilipes Thomson, 1888 (= *fuscicornis* Holmgren, 1860);
Paniscus capito Kokujev, 1899 (= *dilatatus* Thomson, 1888);
Paniscus opacula Thomson, 1888;
Paniscus orientalis Cameron, 1905.

Later, *Paniscus takaozanus* was synonymized with *Paniscus unicolor* by Uchida (1940), *Netelia* (*Netelia*) *ocellaris formosana* (Matsumura, 1912) was recorded by Uchida (1956) and *Netelia* (*Netelia*) *nigriventris* (Brullé, 1846) was recorded by Iwata (1960). In their catalogue of the Eastern Palearctic Ichneumonidae, Townes, Momoi & Townes (1965) treated two varieties of *testaceus, nigrinotatus* and *nigrinotus*, as species and *takaozanus* as distinct species from *unicolor*. Consequently, 14 species have been recognized from Japan without examining the male genitalia, hence there has been possibility that some of these records were based on misidentification. Actually, Konishi (1996) re-examined the specimens, which were recorded as *Paniscus orientalis*, identified them as *Neteila* (*Toxochiloides*) *latro* and *N.* (*T.*) *hayashii*, and excluded *N.* (*N.*) *orientalis* from Japanese fauna. Therefore, it is needed to confirm the records of species from Japan by examining the male genitalia of the specimens, which were used by previous Japanese authors, for revising Japanese species of the subgenus *Netelia*. In this paper, the species records from Japan were confirmed by re-examining the specimens used in the works by Uchida and preserved in the Hokkaido University Insect Collection and new species found among those specimens were described. In this occasion, unrecorded species from Japan found not only in Uchida collection but also in the major ichneumonid collections in Japan were recorded.

Material and methods

The specimens, which were studied by Matsumura & Uchida (1926) and Uchida (1928, 1934a, 1934b, 1940a, 1940b, 1942, 1952 and 1956), preserved in Systematic Entomology, Hokkaido University were examined. Japanese specimens in the following collections were also examined: Systematic Entomology, Hokkaido University, Sapporo, Japan; Laboratory of Insect Systematics, National Institute for Agro-Environmental Sciences Tsukuba, Japan; Entomological Laboratory, Meijo University, Nagoya, Japan; The Museum of Nature and Human Activities, Hyogo, Sanda, Japan; Tokushima Prefectural Museum, Tokushima, Japan; Entomological Laboratory, Kyushu University, Fukuoka, Japan; Entomological Laboratory, Kagoshima University, Kagoshima, Japan.

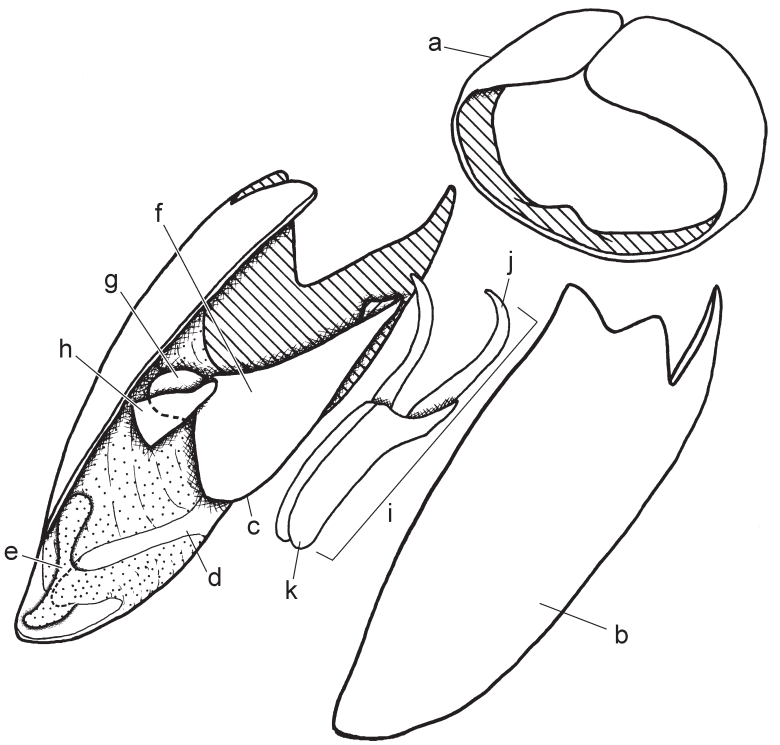

Fig. 2. Stylized male genitalia of *Netelia* (*Netelia*) to show terminology. a, Basal ring; b, paramere; c, volsella; d, brace; e, pad; f, lamina volsellaris; g, cuspis; h, digitus; i, aedeagus; j, basal apodeme of aedeagus; k, penis valve.

Type specimens of the European species, which were recorded from Japan by Uchida (1928 and 1934), were borrowed from the following institutes: Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia; Naturhistoriska Riksmuseet, Stockholm, Sweden; The Natural History Museum, London, England; Musé um National d'Histoire Naturelle, Paris, France.

Holotypes of the new species described in this paper are deposited in Laboratory of Insect Systematics, National Institute for Agro-Environmental Sciences, Tsukuba, Japan.

Morphological nomenclature in this work follows that of Richards (1956). Terminology for the male genitalia follows that of Snodgrass (1941) and Townes (1938) (Fig. 2).

Male material was put in a relaxing jar for about eight hours, after that the genitalia was picked off with a pair of forceps from the tip of metasoma. The genitalia was then dropped into ten percent potassium hydroxide and kept 60 degree C for about an hour. It was transferred to a laboratory dish of water and dissected by ripping membranes into three parts, a pair of claspers and aedeagus. The parts were then transferred to 70% ethyl alcohol in a laboratory dish and examined without mounting on microscope slide. After the examination, the materials were transferred to glycerol in polyethylene tube and the openings of the tube were closed with forceps by heating. The polyethylene tube

containing male genitalia was then attached to the pin of male material (Fig. 1).
The heads and the mesosomata were measured by the methods of Konishi (1985). The following indices (Gauld & Michell, 1981) are used:

$$\text{Geno-orbital index} = \frac{\text{maximum breadth of eye in profile}}{\text{maximum breadth of gena in same line}}$$

$$\text{Nervellar index of hindwing} = \frac{\text{length of Cu1 between cu-a and M}}{\text{length of cu-a}}$$

Taxonomy

Subgenus *Netelia* Gray

Paniscus of authors, not of Schrank.
Netelia Gray, 1860: 341. (Type species: *Paniscus inquinatus* Gravenhorst, 1829)
Bucheckerius Schulz, 1906: 280. (Type species: *Bucheckerius perforatus* Schulz, 1906)
Scammatonotum Enderlein, 1914: 231. (Type species: *Scammatonotus herero* Enderlein, 1914)

Description based on Japanese species: Head 1.6–1.8 times as wide as long; occiput and interocellar area smooth and polished, or interocellar area sometimes weakly sculptured; occipital carina present, usually obsolete at the midline; vertex in dorsal view weakly to strongly convex; vertex and gena subpolished, finely and minutely punctate; geno-orbital index 1.2–3.4; lateral ocellus touching or almost touching eye; upper face finely granulate or trans-striate; lower face 1.3–1.6 times as wide as long, rather strongly punctate than in vertex; groove between face and clypeus distinct; clypeus 1.7–2.4 times as wide as long, rather strongly punctate than in vertex and rather sparsely punctate than in lower face, with apical margin truncate and more or less concave medially; flagellum 42–60-segmented, 1st flagellomere 1.4–1.7 times as long as the 2nd, the 2nd 2.4–3.2 times as long as wide.

Mesosoma evenly and finely punctate; pronotum costulate laterally; mesoscutum 1.2–1.6 times as long as wide, with notaulus long, gradually evanescent posteriorly; mesoscutellum 1.4–2.1 times as long as distance between lateral carinae at its base, the lateral carina extending to apex of mesoscutellum; propodeum trans-striate, with a pair of post median transverse crest.

Fore leg with tibial spur 0.3–0.5 times as long as basitarsus, which 9.4–14.0 times as long as wide; tarsal claw with 12–19 (♀) and 14–48 (♂) pectines. Hind tarsal claw normal, with 8–34 pectines.

Forewing 6.4–16.7 mm long, 2.6–3.3 times as long as wide; 3r-m present; cu-a distad Rs+M, usually inclivous; cell 1M+Cu without hairs except front margin; cell A with band of hairs. Hind wing with 4–8 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum 3.3–5.3 times as long as apical width, 1.4–1.7 times as long as the 2nd; ovipositor about twice as long as apical depth of metasoma. Male hypopygium short to long, with apical margin pointed, rounded or truncate. Paramere without marginal spine, sometimes with marginal tooth, with brace and pad on median surface; digitus without teeth on ventro-apical corner and with dorso-apical corner pointed; membrane of median surface without sclerotized papillate area around pad;

brace narrow and twisted under pad and continued to sclerotized underside of pad; pad ovoid, D-shaped or produced apically and dorsally to form apical and dorsal lobes; median subapical sclerotized plate without overhang. Penis valve weakly curved ventrally; basal apodeme weakly curved dorsally.

Remarks. The subgenus *Netelia* can be easily distinguished from other subgenera of the genus by the following combination of characters: occipital carina present; ocellar area brown to black; mesoscutellum with lateral carina extending to apex of it; propodeum with a pair of lateral crest; forewing with 3r-m present; forewing with cu-a distad Rs+M; ovipositor about twice as long as apical depth of metasoma. Townes (1938) divided this subgenus to five species groups, the *unguicularis*, the *leo*, the *emorsa*, the *idioctenus* and the *geminata* groups, based on Nearctic species. As the Oriental species (Kaur & Jonathan, 1979), the Japanese species could not be assigned under these groups. Thus, phylogenetic analysis of the world species should be needed to subdivide this subgenus to the species groups.

Key to Japanese species of *Netelia*

1. Vertex in dorsal view (Fig. 35A) strongly convex; geno-orbital index 1.2–1.5. …….. ……...…..... *vinulae* (Scopoli)
- Vertex in dorsal view moderately convex; geno-orbital index 1.7–3.4. …..……....…….. 2
2. Fore and mid tarsi brown. …..…….……...…… *nigritarsalis* n. sp.
- Fore and mid tarsi brownish or reddish yellow. ..……..…. 3
3. Mesoscutum entirely brown, or at least median and lateral lobes light brown to brown ……..... 4
- Mesoscutum entirely brownish or reddish yellow ……...……. 12
4. Metasoma with 1st–4th terga reddish yellow except posterior 3/4 of 1st tergum and sometimes 2nd tergum brown, and with 5th–8th terga blackish brown, color of 3rd and 4th terga well contrast with that of 5th–8th terga; dorso-apical margin of paramere not emarginate ……. *melanura* (Thomson)
- Metasoma entirely brownish yellow, light brown or brown, sometimes with 3rd and 4th terga paler but not contrast with posterior terga; dorso-apical margin of paramere emarginate or not …….…… 5
5. Mesoscutum 1.4–1.5 times as long as wide; paramere with dorso-apical margin emarginate; metasomal terga entirely brown and sometimes with 3rd and 4th targa paler, or entirely reddish yellow …….…. 6
- Mesoscutum 1.2–1.4 times as long as wide; paramere with dorso-apical margin not emarginate; metasomal terga entirely brown and sometimes with 3rd and 4th targa paler, or entirely reddish yellow except 1st and 2nd terga light brown to brown …… 8
6. Metasomal terga entirely reddish yellow ……..……..…. *vegeta* Tolkanitz
- Metasoma terga light brown to brown ……..…….. 7
7. Geno-orbital index 1.9–2.2; pad produced both baso-dorsally and apico-ventrally (Fig. 6A) ……. *atra* Tolkanitz
- Geno-orbital index 2.9–3.4; pad produced only baso-dorsally (Fig. 19F) ……..... …….……..…… *nigrinota* (Uchida)
8. Metasoma reddish yellow except 1st and 2nd terga light brown to brown …. *rapida* Tolkanitz
- Metasoma brown to blackish brown, sometimes with 3rd and 4th terga brownish or reddish yellow …… 9
9. Paramere with dorso-apical margin emarginate; pad crescent-shaped, strongly produced apically and dorsally (Fig. 29F); male hypopygium moderate length, with apical margin weakly convex (Fig. 29E) …… *silantjewi* (Kokujev)
- Paramere with dorso-apical margin not emarginate; pad semicircular, D-shaped or produced

apically and dorso-basally; male hypopygium long, with apical margin strongly convex and truncate, or moderate length …….. 10

10. Apical half of dorsal margin of pad concave (Fig. 13F); male hypopygium long with apical margin strongly convex; geno-orbital index 2.2–2.8 …… *gotoi* n. sp.

- Dorsal margin of pad convex (Figs. 22F, 30F); male hypopygium long or moderate length, with apical margin strongly or weakly convex; geno-orbital index 1.8–3.0 ……..… 11

11. Pad strongly produced basally (Fig. 30F); male hypopygium moderate length, with apical margin weakly convex; geno-orbital index 1.9–3.0 ……. ……... *takaozana* Uchida (strongly pigmented specimen)

- Pad less strongly produced basally (Fig. 22F); male hypopygium long, with apical margin strongly convex; geno-orbital index 1.8–2.1 ……..……. *nomurai* n. sp.

12. Forewing with cu-a distad Rs+M by 5/7–5/6 of cu-a length (Fig. 8A); dorso-apical margin of paramere strongly emarginate and pad ovoid (Fig. 7F) …… *denticulator* Aubert

- Forewing with cu-a distad Rs+M by 1/5–1/2 of cu-a length; dorso-apical margin of paramere weakly to strongly emarginate or not; pad ovoid or with dorsal margin concave …… 13

13. Dorso-apical margin of paramere emarginate ……..……..……..…… 14

- Dorso-apical margin of paramere not emarginate ……..……. 18

14. Brace strongly curved at its base and transverse to paramere; pad situated near volsella and produced basally (Fig. 17F) ……..……..……. *kyushuensis* n. sp.

- Brace almost straight and oblique to paramere; pad situated equidistance from volsella and apex of paramere and produced dorsally or baso-dorsally ……... 15

15. Pad strongly produced dorsally to form a long and narrow foot-shaped lobe (Figs 9F, 9G) ……..……. *facialis* Kaur & Jonathan

- Pad moderately produced dorsally or baso-dorsally to form a rounded lobe ……...…… 16

16. Geno-orbital index 3.0–3.8; pad weakly produced ventro-apically and moderately produced dorsally (Fig. 25F) ……...…...…….. *oharai* n. sp.

- Geno-orbital index 2.3–2.9; pad moderately produced apically and baso-dorsally ……... 17

17. Pad with apical lobe smaller than dorsal lobe (Fig. 14F); apical lobe of pad with margin rounded (Fig. 14F); 1st metasomal tergum 3.8–3.9 times as long as wide (Fig. 14C) …….. ……. *infractor* Delrio

- Pad with apical lobe about same size with dorsal lobe; apical lobe of pad with margin pointed apically (Fig. 5F); 1st metasomal tergum 4.0–4.8 times as long as wide (Fig. 5C) …….… *atlantor* Aubert

18. Metasoma reddish brown with 1st and 2nd terga light brown ……... *testacea* (Gravenhorst)

- Metasoma entirely reddish brown ……..……... 19

19. Metasomal tergum 1 2.8–4.0 times as long as wide (Figs. 11C, 33C); lateral carina of scutellum weak, sometimes not extending to hind margin of scutellum …….. 20

- Metasomal tergum 1 slender, 3.8–5.3 times as long as wide (Figs 279, 291, 295); lateral carina of scutellum sharp, always extending to hind margin of scutellum ……... 21

20. Pad large and ovoid (Fig. 340) ……..……..……. *fulvator* Delrio

- Pad medium sized and D-shaped (Fig. 359) ……...……..……... *unicolor* (Smith)

21. Smaller sized species, length of forewing 7.0–11.7 mm; pad ovoid (Fig. 15F) ……... ……..… *kusigematii* n. sp.

- Larger sized species, length of forewing 10.9–16.7 mm; pad long, strongly produced basally or dorso-basally (Figs 3F, 10F, 23F, 26F, 30F) …… 22

22. Pad situated near dorsal margin of paramere; dorsal margin of pad slightly to distinctly convex (Figs. 3F, 30F) ……..……... 23

- Pad situated about equidistant between dorsal and ventral margins of paramere; dorsal margin of pad concave (figs 10F, 23F, 26F) ……. 24

23. Pad long and narrow; brace short and base of pad long (Fig. 3F) …...…… *amamiensis* n. sp.

- Pad D-shaped; brace long and base of pad short (Fig. 30F) ……..…
….....……. *takaozana* (Uchida) (weakly pigmented specimen)

24. Brace short, about half as long as distance from base of brace to apex of paramere; base of pad long; dorsal lobe of pad reaching level of digitus (Fig. 26F) …..…... *opacula* (Thomson)
- Brace long, about 2/3 as long as distance from base of brace to apex of paramere; base of pad short; dorsal lobe of pad not reaching to level of digitus ……..……..… 25

25. Pad crescent-shaped; dorsal lobe of pad almost same length as apical lobe (Fig. 10F) ……....
……. *formosana* (Matsumura)
- Dorsal lobe of pad elongate, longer than apical lobe (Fig. 23F) ……. *ocellaris* (Thomson)

Netelia (*Netelia*) *amamiensis* n. sp.
(Figs. 3A–G, 4A–B)

Netelia (*Netelia*) *ocellaris formosana*: Uchida, 1956: 99.

♂. Head (Figs. 3A, 3B) 1.6–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view weakly convex; interocellar area smooth or sometimes weakly sculptured; geno-orbital index 2.5–2.9; upper face finely granulate on upper half and weakly trans-striate on lower half; lower face 1.4–1.5 times as wide as long; clypeus 1.8–2.0 times as wide as long; flagellum 50–60–segmented; 1st flagellomere 1.5–1.7 times as long as the 2nd, the 2nd 2.9–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.4–1.5 times as long as wide; mesoscutellum 1.7–1.9 times as long as distance between lateral carinae at its base, with lateral carina sharp and extending to posterior margin; metapleuron puncto-striate to strongly striate; propodeum trans-striate on anterior 4/5 and with longitudinal striae on posterior 1/5; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.3–13.5 times as long as wide; fore tarsal claw with 28–40 pectines; hind tarsal claw with 21–34 pectines. Forewing (Fig. 4A) 2.8–3.0 times as long as wide; cu-a distad Rs+M by 1/5–2/5 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 4B) with 5–8 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 3C, 3D) 4.0–4.4 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 3E) short, with apical margin weakly convex; paramere (Fig. 3F) with apical portion of dorsal margin not emarginate; brace oblique, almost parallel sided and curved; pad long, produced apically and basally, situated near dorsal margin; aedeagus (Fig. 3G) with penis valve slender.

Head yellow; interocellar area brown to blackish brown; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker; mesoscutum light brown in some specimens. Wings hyaline; vein C and stigma brownish yellow; other veins brown.
Length of forewing: 11.7–16.7 mm.

♀. Unknown.

Holotype: ♂, Mt. Yuidake, Amamiôshima Is., Kagoshima Pref., 14. v. 1983 (S. Yoshimatsu & S. Nomura, at light).

Paratypes: [Kyushu] Fukuoka Pref.- 1 ♂ (30. viii. 1983, K. Ôhara) & 1 ♂ (22. ix. 1983, M. T. Chûjô), Mt. Hikosan, (at light). Kumamoto Pref.- 1 ♂, Mt. Asosan, 20–29. vi. 1978 (K. Yamagishi, light trap); 1 ♂, Mt. Shiragadake, Ue, 5. ix. 1992 (R. Noda, at light). Miyazaki Pref.- 1

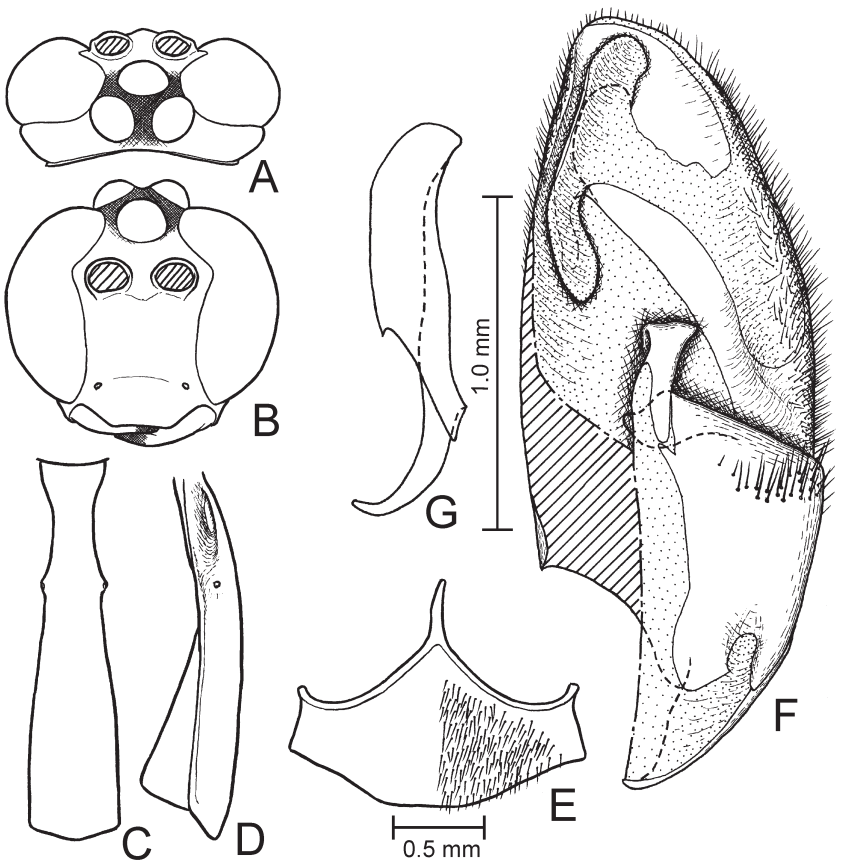

Fig. 3. *Netelia* (*Netelia*) *amamiensis* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

♂ , Kurusonkyo, 20. v. 1977 (K. Ôhara). Kagoshima Pref.- 1 ♂ , Mt. Hoyoshidake, Kouyama, 12–14. vii. 1991 (R. Noda, at light); 3 ♂ (30. iv. 1966, A. Tanaka) & 4 ♂ (18. v. 1966, K. Kusigemati), Cape Satamisaki. [Amami-ôshima Is.] 1 ♂ (27. iv. 1953, T. Shiraki), 1 ♂ (7. xi. 1962, Y. Miyatake) & 1 ♂ (22. iii. 1980, H. Makihara, at light), Naze; 1 ♂ , Koshuku, 9. v. 1987 (T. Yasunaga); 1 ♂ , Shinmura, 10. v. 1953 (T. Shiraki); 1 ♂ , Sinmura, 7. iv. 1954 (T. Kumata), recorded as *Netelia* (*Netelia*) *ocellaris formosana* by Uchida (1956); 1 ♂ , Kinase, 20. v. 1953 (T. Shiraki); 1 ♂ , Ukenson, 11. v. 1987 (T. Yasunaga); 1 ♂ (11. v. 1983, S. Yoshimatsu *et al*.) & 1 ♂ (1. ix. 1983, R. Noda *et al*., at light), Mt. Yuwandake; 1 ♂ (29. iv. 1953) & 2 ♂ (2. v. 1953), Yuwan, (T. Shiraki); 2 ♂ , Nishinakama, 2. v. 1977 (H. Takizawa); 4 ♂ , Mt. Yuidake, 14. v. 1983 (S. Yoshimatsu *et al*., t light); 2 ♂ (6. v. 1966), 1 ♂ (8. v. 1966), 2 ♂ (9. v. 1966) & 2 ♂ (10. v. 1966), (K. Kusigemati); 1 ♂ , 18. iii. 1964 (H. Takada).

Distribution. Japan (Kyushu, Amami-ôshima Is.).

Remarks. This species resembles *Netelia* (*Netelia*) *dolabra* Kaur & Jonathan, 1979 in the shapes of paramere and brace, but differs from the latter in the shapes of pad.

Netelia (*Netelia*) *atlantor* Aubert
(Figs. 4C–D, 5A–G)

Netelia maltractatus atlantor Aubert, 1971: 71.
Netelia (*Netelia*) *atlantor*: Delrio, 1975: 44.

♂. Head (Figs. 5A, 5B) 1.6–1.7 times as wide as long; occipital carina in the mid dorsal area arched upward, weak or obsolete at the mid line; vertex in dorsal view moderately convex; interocellar area smooth or weakly sculptured; geno-orbital index 2.3–2.9; upper face polished and trans-striate; lower face 1.3–1.5 times as wide as long; clypeus 1.9–2.1 times as wide as long; flagellum 47–49–segmented; 1st flagellomere 1.5 –1.6 times as long as the 2nd, the 2nd 2.8–2.9 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.5 times as long as wide; mesoscutellum 1.6–1.7 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron faintly puncto-striate on ventral half, or entirely distinctly striate in some specimens; propodeum trans-striate on anterior 4/5 and smooth on posterior 1/5; lateral crest of propodeum weak in some specimens.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 9.5–11.1 times as long as wide; fore tarsal claw with 23–28 pectines; hind tarsal claw with 18–21 pectines.

Forewing (Fig. 4C) 2.8–3.0 times as long as wide; cu-a distad Rs+M by about 1/3 of cu-a length, inclivous and slightly curved; hindwing (Fig. 4D) with 5–6 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 5C, 5D) 4.0–4.8 times as long as apical width and

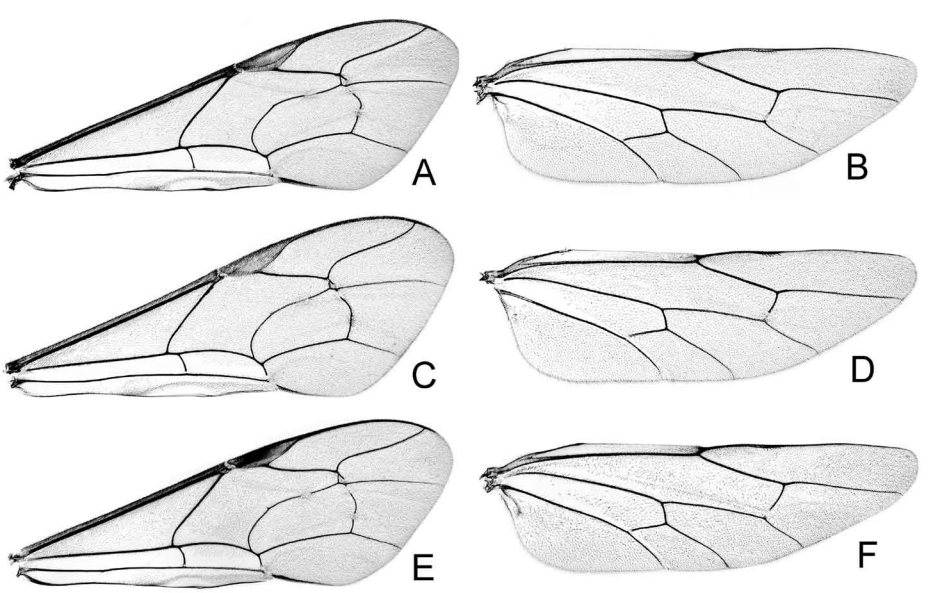

Fig. 4. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *amamiensis* n. sp.; C & D, *N.* (*N.*) *atlantor* Aubert, 1971; E & F, *N.* (*N.*) *atra* Tolkanitz, 1999.

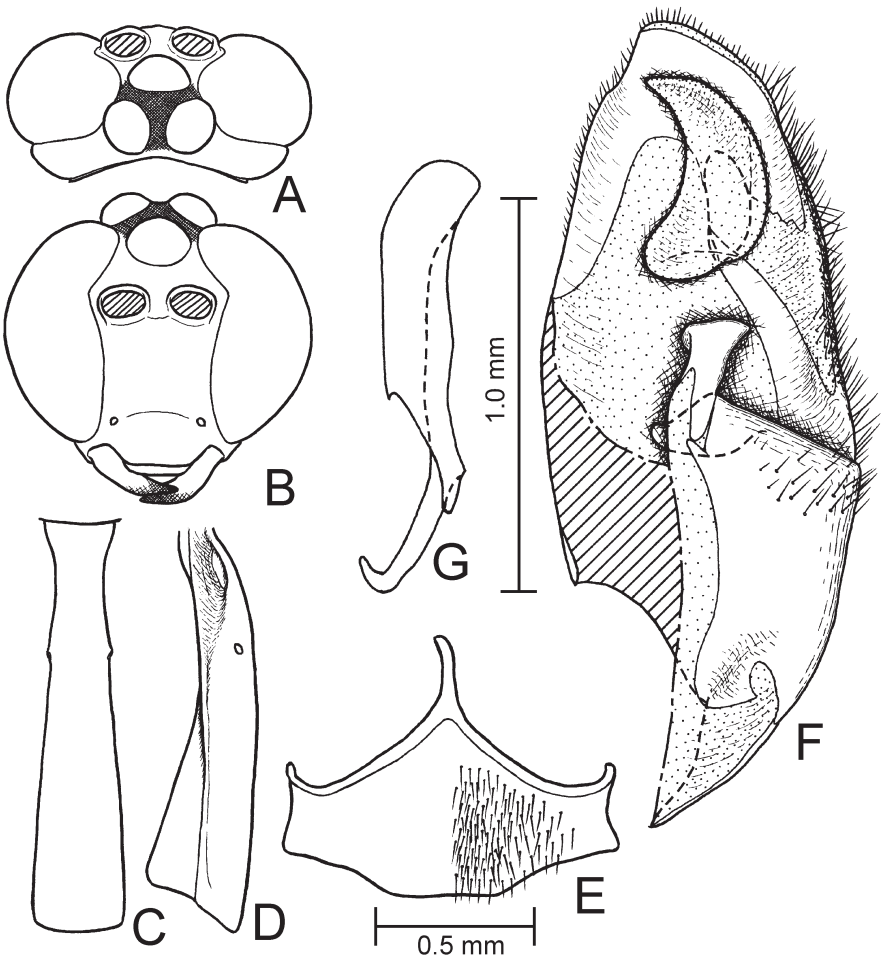

Fig. 5. *Netelia* (*Netelia*) *atlantor* Aubert, 1971, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

1.6–1.7 times as long as the 2nd; hypopygium (Fig. 5E) moderate length, with apical margin moderately convex and truncate; paramere (Fig. 5F) with apical portion of dorsal margin slightly emarginate; brace oblique, tapering toward apex and slightly curved; pad crescent-shaped, produced dorso-apically and dorso-basally, situated near ventral margin; aedeagus (Fig. 5G) with penis valve slender.

Head yellow; occiput and antenna brownish yellow; interocellar area brown to blackish brown. Meso-, metasomata and legs reddish or brownish yellow; mesoscutum, hind coxa and femur and metasoma darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 9.5–12.1 mm.

♀ . Not examined.

Specimens examined. [Rishiri Is.] 1 ♂ , Kutsugata, (Doi). [Honshu] Aomori Pref.- 1 ♂ ,

Sakaimatsu, Aomori, 16. ix. 1993 (T. Ichita). Iwate Pref.- 1 ♂ (26–31. viii. 1971) & 1 ♂ (1–5. ix. 1971), Morioka, (T. Oku). Fukushima Pref.- 1 ♂ , Ohdaki, Hirono, 23. viii. 1987 (S. Saito); 1 ♂ , Kawairi, nr. Iide Mts., 27–30. vi. 1987 (K. Konishi, at light); 1 ♂ (6. vii. 1985, K. Konishi *et al*.) & 1 ♂ (12. vii. 1985, K. Hirano), Iitate, Abukuma Mts., (at light). Saitama Pref.- 1 ♂ , Iruma, 22. v –27. vi. 1972 (M. Shimoda). Hiroshima Pref.- 1 ♂ , Ohtagawa, 8. x. 1998 (S. Nakamura). [Tsushima Is.] 1 ♂ , Mt. Ôhoshiyama, 5–8. vii. 1983 (H. Makihara, at light). [Kyushu] Fukuoka Pref.- 1 ♂ (12. v. 1969, K. Kanmiya), 1 ♂ (3. vii. 1969, K. Kanmiya), 1 ♂ (5. ix. 1969, K. Kanmiya), 1 ♂ (6. ix. 1969, K. Kanmiya), 1 ♂ (27. vii. 1970, K. Takeno), 1 ♂ (5. vii. 1983, R. Noda, at light), 1 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (30. viii. 1983, K. Ôhara, at light), 1 ♂ (6. ix. 1983, M. T. Chûj ô, at light), 1 ♂ (27. vii. 1984, K. Konishi, at light) & 1 ♂ (24–25. vi. 1985, N. Kôda, at light), Mt. Hikosan. Oita Pref.- 1 ♂ , Yufuin, 4. vii. 1981 (S. Yoshimatsu).

Distribution. Japan (Rishiri Is., Honshu, Tsushima Is., Kyushu), Azores, India, Pakistan.

Remarks. This is the first record of this species from Japan.

Netelia (*Netelia*) *atra* Tolkanitz
(Figs. 4E–F, 6A–G)

Paniscus grumi: Uchida, 1928: 190 (in part).
Paniscus (*Paniscus*) *grumi*: Uchida, 1934a: 109 (in part).
Netelia (*Netelia*) *atra* Tolkanitz, 1999: 633.

♂ . Head (Figs 6A, 6B) 1.6–1.7 times as wide as long; occipital carina in mid dorsal area horizontal; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 1.9–2.2; upper face finely granulate with weak trans-striae, or strongly trans-striate in some specimens; lower face 1.4–1.6 times as wide as long; clypeus 2.1–2.4 times as wide as long; flagellum 47–55–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.4–2.8 times as long as wide.

Mesosoma: Mesoscutum 1.4–1.5 times as long as wide; mesoscutellum 1.5–1.8 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly puncto-striate; propodeum trans-striate on anterior 5/6 and with weak longitudinal striae on posterior 1/6; lateral crest of propodeum weak to distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.0–12.4 times as long as wide; fore tarsal claw with 27–39 pectines; hind tarsal claw with 15–27 pectines. Forewing (Fig. 4E) 2.9–3.3 times as long as wide; cu-a distad Rs+M by 1/4–2/5 of cu-a length, inclivous and weakly curved; hindwing (Fig. 4F) with 5–8 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 6C, 6D) 4.5–4.8 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 6E) long, with apical margin strongly convex and truncate; paramere (Fig. 6F) with apical portion of dorsal margin emarginate; brace oblique, tapering toward apex and slightly curved; pad weakly produced apico-ventrally and strongly produced baso-dorsally, situated at about middle; aedeagus (Fig. 6G) with penis valve slender.

Weakly pigmented specimens (most of the specimens from Kyushu and all specimens from Ryukyus): Head yellow; interocellar area black; occiput, posterior portion of vertex and upper margin of upper face yellowish brown; antenna yellowish

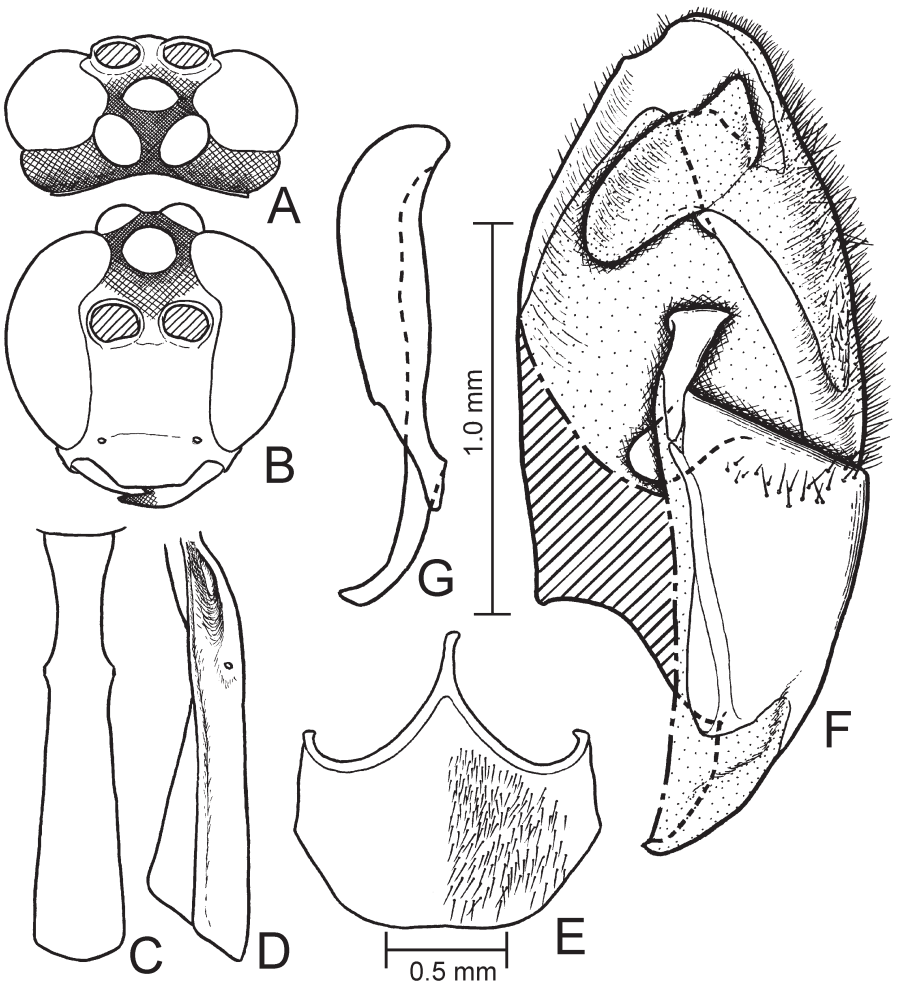

Fig. 6. *Netelia* (*Netelia*) *atra* Tolkanitz, 1999, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

to reddish brown. Mesosoma brownish yellow; mesoscutum except anterior and lateral margins, scutellum except lateral carinae and dorsal surface of propodeum brown; mesopleuron sometimes with brown markings. Legs brownish yellow; hind coxa usually with a longitudinal light brown line on latero-dorsal surface; hind trochanter and hind femur light brown to brown; hind tarsus yellow. Wings hyaline, tinged with grayish yellow; vein C and stigma of forewing brownish yellow; other veins brown. Metasoma brown to blackish brown; 3rd to 5th terga light brown to brown with posterior margins paler; epipleura and sterna brownish yellow.

Strongly pigmented specimens (all specimens from Honshu and Shikoku, and one from Kyushu): Head yellow; interocellar area black; occiput, vertex, posterior portion of gena and upper face brown to blackish brown; antenna yellowish brown to brown.

Mesosoma blackish brown to black; posterior margin of pronotum, all margins of mesopleuron and posterior margin of axilla brownish yellow; tegula yellowish brown. Legs brownish yellow; dorsal surface of fore and mid coxae, and hind coxa, trochanter and femur brown; hind tarsus yellow. Wings hyaline, slightly tinged with grayish yellow; vein C and stigma of forewing brownish yellow; other veins brown. Metasoma blackish brown to black; epipleura, sterna and posterior margins of 3rd to 5th terga paler.

Length of forewing: 9.8–13.5 mm.

♀. Not examined.

Specimens examined. [Hokkaido] 1 ♂, Mt. Daisetsu, 4–10. viii. 1926 (Uchida & Kono), recorded as *Paniscus grumi* by Uchida (1928); 1 ♂, Nopporo, Ebetsu, 29. vi–4. vii. 1992 (K. Konishi, Malaise trap); 1 ♂, Garugawa, 7. vi. 1923 (T. Uchida), recorded as *Paniscus grumi* by Uchida (1928); 1 ♂, Maruyama, Sapporo, 25. vi. 1918 (Matsumura), recorded as *Paniscus grumi* by Uchida (1928). [Honshu] Aomori Pref.- 4 ♂, Taisawa, Aomori, 13. vi. 1991 (T. Ichita). Iwate Pref.- 1 ♂, Kadoma, Mt. Hayachine, 17. vii. 1985 (K. Konishi *et al*., at light). Fukushima Pref.- 2 ♂, Mt. Seaburi, Aizuwakamatsu, 18. vi. 1988 (K. Konishi); 1 ♂, Hinoemata, 29. vi. 1991 (K. Konishi); 1 ♂, Nojionsen, 25. vii (F. Scriba), recorded as *Paniscus grumi* by Uchida (1928); 1 ♂, Mt. Tashiroyama, Tateiwa, 25. vi. 1983 (H. Makihara). Fukui Pref.- 1 ♂, Sukawa, Ohno, 22. vi. 1997 (Y. Haneda). Tochigi Pref.- 4 ♂, Nikkozawa, 21. vii. 1986 (H. Makihara, at light); 2 ♂, Okukinu, 21. vii. 1987 (H. Makihara, at light); 2 ♂, Hacchônoyu, 10–12. vii. 1984 (H. Makihara). Nagano Pref.- 1 ♂, Futamata, Shimashimadani, 30. vi. 1982, (Y. Yoshida *et al*., at light); 1 ♂, Karuizawa, 12. vi. 1971 (I. Hattori); 1 ♂, Hoppo, Shiga, 26. vii. 1976 (Y. Asano). Gifu Pref.- 1 ♂, Hikagedaira, Takayama, 22. vii. 1981 (T. Tanabe). Yamanashi Pref.- 1 ♂, Kiyosato, Ôizumi, 19. vii. 1984 (S. Nomura *et al*., at light); 2 ♂, Daibosatsu-tôge, 12. vii. 1969 (H. Takizawa); 3 ♂, Masutomi, Kanayama, 30. vi. 1975 (J. Emoto, Malaise trap). Osaka Pref.- Mt. Minoo, 11. vi. 1930 (C. Teranishi), recorded as *Paniscus* (*Paniscus*) *grumi* by Uchida (1934). Tottori Pref.- 1 ♂, Mt. Daisen, 29. v. 1983 (S. Yoshimatsu *et al*., at light). [Shikoku] Tokushima Pref.- 1 ♂, Mt. Tsurugi, 10. vii. 1993 (I. Yamashita, at light). Ehime Pref.- 1 ♂, Mt. Odamiyama, 26. vi. 1995 (E. Yamamoto, at light). Kochi Pref.- 2 ♂ (1. vii. 1995, K. Konishi *et al*.) & 2 ♂ (1. vii. 2000, I. Yamashita), Teragawa, Hongawa, at light; 1 ♂, Nishikuma, Mononobe, 9. vii. 2000 (I. Yamashita, at light). [Kyushu] Fukuoka Pref.- 2 ♂, Mt. Hômanzan, 6. vi. 1982 (Y. Nakata). Oita Pref.- 1 ♂, Mt. Katamuki, 6. vi. 1992 (R. Noda, at light). Miyazaki Pref.- 7 ♂ (16. v. 1983) & 1 ♂ (17. v. 1983), Miike, (K. Konishi *et al*., at light). Kagoshima Pref.- 1 ♂, Shiroyama, Kagoshima, 28. iv. 1977 (K. Kusigemati). [Amami-ôshima Is.] 1 ♂ (10. iv. 1980, K. Kusigemati) & 2 ♂ (28. iii. 1982, S. Horiguchi), Naze; 1 ♂, Mt. Yuwandake, 3. iv. 1989 (Y. Takematsu); 1 ♂, Mt. Yuidake, 1. iv. 1989 (Y. Takematsu). [Okinawa-hontô Is.] 1 ♂ (21. ii. 1973) & 1 ♂ (31. iii. 1973), Yona, (H. Hasegawa); 25 ♂, Nishimedake, 20–22. iii. 2002 (T. Yoshida, Malaise trap).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Amami-ôshima Is., Okinawa-hontô Is.), Russia (Primorsky Krai).

Remarks. This is the first record of this species from Japan.
This species seems to be closely related to *nigrinota* and *vegeta* in the structure of median surface of paramere.

Netelia (*Netelia*) *denticulator* Aubert
(Figs. 7A–G, 8A–B)

Netelia denticulator Aubert, 1968: 98.
Netelia (*Netelia*) *denticulator*: Tolkanitz, 1974: 391; Delrio, 1975: 44; Tolkanitz, 1981b: 108.

♂. Head (Figs. 7A, 7B) 1.6–1.7 times as wide as long; occipital carina obsolete at

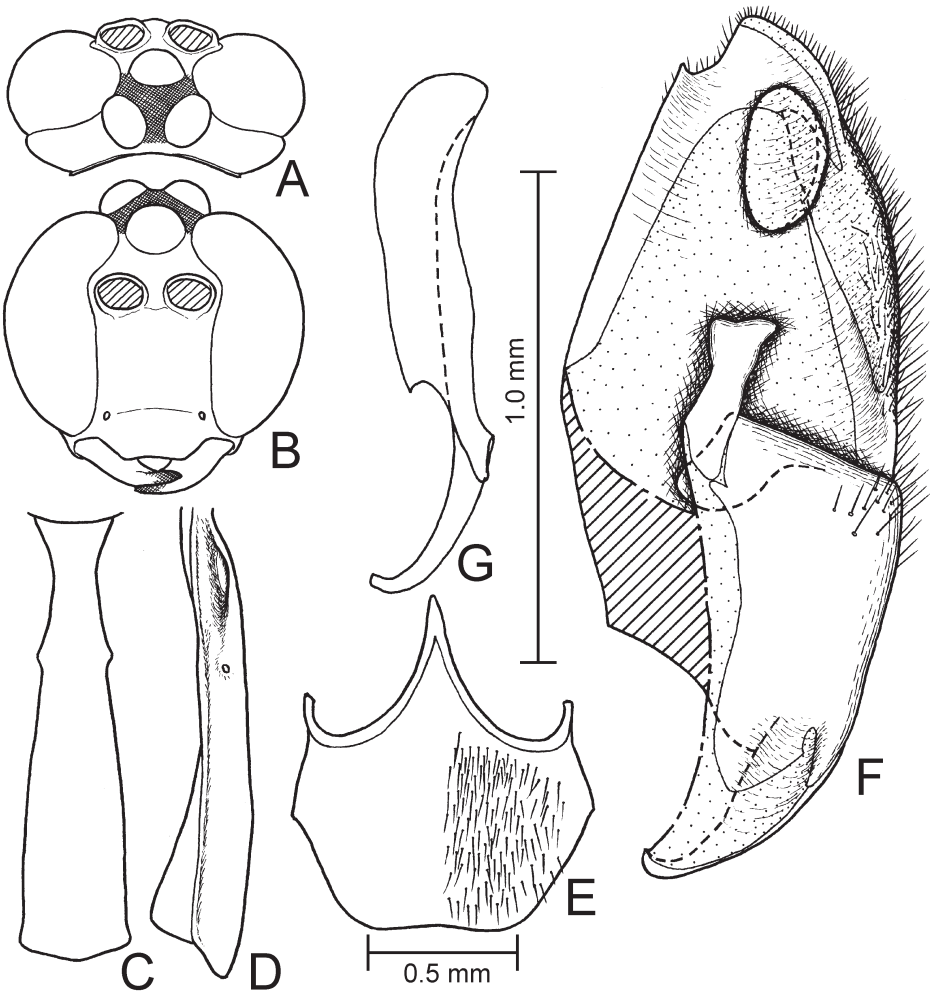

Fig. 7. *Netelia* (*Netelia*) *denticulator* Aubert, 1968, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 1.9–2.5; upper face trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.9–2.1 times as wide as long; flagellum 55–56–segmented; 1st flagellomere 1.6–1.7 times as long as the 2nd, the 2nd 2.9–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.4 times as long as wide; mesoscutellum 1.7–1.9 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron trans-striate on ventral 1/3; propodeum trans-striate on anterior 5/6 and with weak longitudinal striae on posterior 1/6; lateral crest of propodeum weak.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 11.6–13.3 times as long as wide; fore tarsal claw with 15–17 pectines; hind tarsal claw with 12–13 pectines.

Forewing (Fig. 8A) 2.9–3.0 times as long as wide; cu-a distad Rs+M by 5/7–5/6 of cu-a length, weakly inclivous and slightly curved; hindwing (Fig. 8B) with 5–6 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 7C, 7D) 4.3–5.1 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 7E) long, with apical margin strongly convex and truncate; paramere (Fig. 7F) with apical portion of dorsal margin strongly emarginate and with distinct marginal tooth; brace oblique, narrow, tapering toward apex and almost straight; pad small and ovoid, situated near ventral margin; aedeagus (Fig. 7G) with penis valve slender.

Head yellow; interocellar area blackish brown to black; occiput brownish yellow; antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker. Wings hyaline; vein C and stigma of forewing Brownish yellow; other veins brown.

Length of forewing: 10.0–11.9 mm.

♀. Not examined.

Specimens examined. [Honshu] 1 ♂ (15. vii. 1967), 2 ♂ (20. vii. 1967), 1 ♂ (1. vii. 1968) & 1 ♂ (8. vii. 1968), Mt. Iwamuro, Shizuoka Pref., (T. Maenami); 1 ♂, Mt. Oginosen, Hyogo Pref., 20. vii. 1962 (A. Nakanishi). [Kyushu] 1 ♂ (6. ix. 1969, K. Kanmiya) & 1 ♂ (6. vii. 1983, R. Noda, at light), Mt. Hikosan, Fukuoka Pref.

Distribution. Japan (Honshu, Kyushu), Europe.

Remarks. This is the first record of this species from Japan. This species can be easily distinguished from other Japanese species of the subgenus by the strongly emarginated dorso-apical margin of paramere and the relatively small and circular pad.

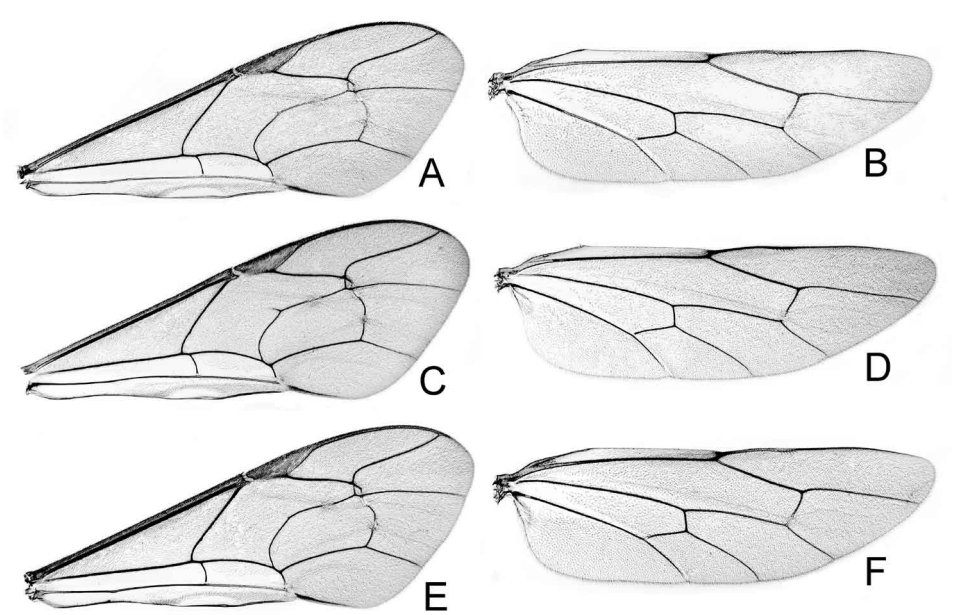

Fig. 8. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *denticulator* Aubert, 1968; C & D, *N.* (*N.*) *facialis* Kaur & Jonathan, 1979; E & F, *N.* (*N.*) *formosana* (Matsumura, 1912).

Netelia (*Netelia*) *facialis* Kaur & Jonathan
(Figs. 8C–D, 9A–H)

Paniscus ocellaris: Uchida, 1928: 191 (in part).
Netelia (*Netelia*) *facialis* Kaur & Jonathan, 1979: 159.

♂. Head (Figs. 9A, 9B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; interocellar area smooth; geno-orbital index 2.0–2.3; upper face trans-striate; lower face 1.5–1.6 times as wide as long; clypeus 2.0–2.1 times as wide as long; flagellum 52–59–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 3.0–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.4 times as long as wide; mesoscutellum 1.5–1.7 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly puncto-striate; propodeum trans-striate on anterior 5/6 and with weak longitudinal striae on posterior 1/6; lateral crest of propodeum weak to distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 12.0–12.4 times as long as wide; fore tarsal claw with 26–34 pectines; hind tarsal claw with 19–28 pectines. Forewing (Fig. 8C) 2.7–3.0 times as long as wide; cu-a distad Rs+M by 2/5–1/2 of cu-a length, weakly to strongly inclivous and weakly curved; hindwing (Fig. 8D) with 5–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 9C, 9D) 4.6–4.9 times as long as apical width and 1.4–1.5 times as long as the 2nd; hypopygium (Fig. 9E) moderately long, with apical margin moderately convex; paramere (Figs. 9F, 9G) with apical portion of dorsal margin emarginate; brace oblique, almost parallel sided and almost straight; pad produced apically and strongly produced baso-dorsally into a long foot-shaped protrusion, situated near ventral margin; aedeagus (Fig. 9H) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum and metasoma somewhat darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 11.1–13.8 mm.

♀. Not examined.

Specimens examined. [Hokkaido] 1 ♂, Jozankei, Sapporo, 20–31. vii. 1989 (K. Maeto *et al*., Malaise trap) 1 ♂, Otaru, 18. vii. 1923 (T. Uchida), recorded as *Paniscus ocellaris* by Uchida (1928). [Honshu] Iwate Pref.- 1 ♂, Kawaranobo, Mt. Hayachine, 16. vii. 1995 (K. Konishi *et al*., at light). Fukushima Pref.- 1 ♂, Kawairi, nr. Mts. Iide, 27–28. vi. 1987 (K. Konishi, at light). Niigata Pref.- 1 ♂, Senami, 20. viii. 1982 (K. Baba). Tochigi Pref.- 1 ♂, Okukinu, 21. vii. 1987 (S. Nomura); 1 ♂, Kiyotaki, Nikko, -8. vii. 1977 (at light). Gunma Pref.- 1 ♂, Kuni, 10. viii. 1992 (K. Konishi, at light). Ibaraki Pref.- 1 ♂, NIAES, Tsukuba, 15–26. vi. 1989 (Malaise trap). Tokyo- 2 ♂ (H. Nagaoka) & 1 ♂ (S. Saito), Yazawa, Hinoharamura, 13. vii. 1998 (at light). Yamanashi Pref.- 1 ♂, Kiyosato, Oizumi, , 19. vii. 1984 (S. Nomura *et al*., at light); 1 ♂, Yokote, Hakushu, 14. vii. 1984 (S. Nomura *et al*., at light); 1 ♂, Masutomi, 9. vii. 1967 (H. Takizawa). Aichi Pref.- 1 ♂, Uradani, Kitashitara, 27. vi. 1970 (S. Ohkusa). Hiroshima Pref.- 1 ♂, Honmuramachi, Syobara, 31. v. 1999 (B. Maeto). [Shikoku] Tokushima Pref.- 1 ♂, Mt. Tsurugisan, 10. vii. 1993 (I. Yamashita, at light). [Kyushu] Fukuoka Pref.- 2 ♂ (13. vi. 1966, K. Kusig.), 1 ♂ (5. ix. 1969, K. Kanmiya), 1 ♂ (5. vii. 1983, R. Noda, at light), 1 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (6. ix. 1984, K. Konishi, at light) & 1 ♂ (24–25. vi. 1985, N. Kôda, at light), Mt. Hikosan. Oita Pref.- 1 ♂, Mt. Kuju, 8. vii. 1977 (K.

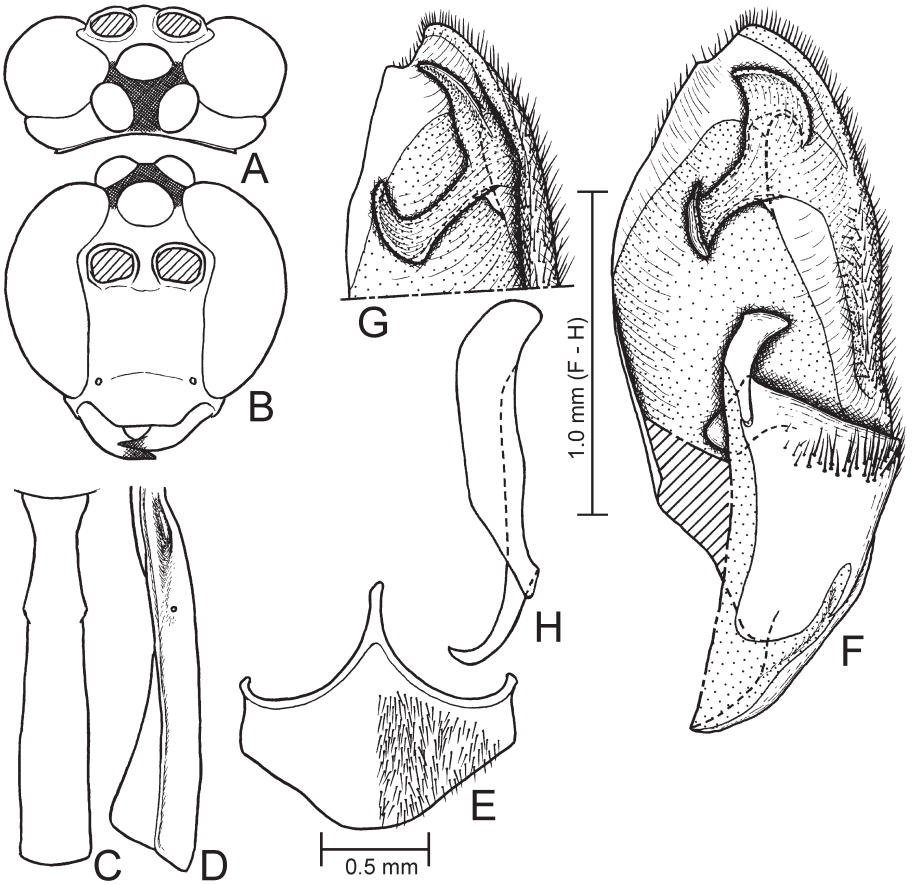

Fig. 9. *Netelia* (*Netelia*) *facialis* Kaur & Jonathan, 1979, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, ditto in ventro-median view; H, aedeagus in lateral view.

Ôhara); 1 ♂ (29. v. 1982) & 1 ♂ (3. x. 1983), Mt. Kurodake, Mts. Kuju, (R. Noda *et al*., at light). Kumamoto Pref.- 1 ♂ (17. vi. 1978, H. Makihara), 3 ♂ (18. vi. 1978, H. Makihara), 14 ♂ (20–29. vi. 1978, K. Yamagishi) & 2 ♂ (10–19. vii. 1978, K. Yamagishi), Mt. Asosan, (at light); 3 ♂ (19. vii. 1983, N. Kôda *et al*.) & 2 ♂ (6. vii. 1991, R. Noda), Mt. Shiratoriyama, Izumi, (at light).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu), India.

Remarks. This is the first record of this species from Japan. This species can be easily distinguished from other Japanese species of the subgenus by the strongly elongate and foot shaped dorsal lobe of pad.

Netelia (*Netelia*) *formosana* (Matsumura)
(Figs. 8E–F, 10A–G)

Paniscus formosanus Matsumura, 1912: 115.
Netelia (*Netelia*) *formosana*: Townes, Townes & Gupta, 1961: 98 (in part).

♂. Head (Figs. 10A, 10B) 1.6 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.5–3.4; upper face polished and weakly trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.7–1.9 times as wide as long; flagellum 50–56–segmented; 1st flagellomere 1.6–1.7 times as long as the 2nd, the 2nd 2.7–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.4–1.6 times as long as wide; mesoscutellum 1.7–1.8 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly puncto-striate; propodeum trans-striate on anterior 5/6 and weakly sculptured or almost smooth on posterior 1/6; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.3–12.1 times as long as wide; fore tarsal claw with 29–34 pectines; hind tarsal claw with 21–32 pectines. Forewing (Fig. 8E) 3.0–3.2 times as long as wide; cu-a distad Rs+M by 2/5–1/2 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 8F) with 6–7 distal hamuli; nervellar index 0.5.

Metasoma with 1st tergum (Figs. 10C, 10D) 4.1–4.9 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 10E) moderately long, with apical margin strongly convex and truncate; paramere (Fig. 10F) with apical portion of dorsal margin not emarginate; brace oblique, tapering toward apex and slightly curved; pad crescent-shaped, produced apically and dorso-basally, situated at about middle; aedeagus (Fig. 10G) with penis valve slender.

Head yellow; interocellar area blackish brown to black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind leg except tarsus and metasoma somewhat darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 13.0–15.2 mm.

♀. Unknown.

Specimens examined. JAPAN: [Kyushu] 1 ♂, Shiiyatôge, Kumamoto Pref., 26. vii. 1985 (K. Konishi *et al*., at light); 1 ♂, Mt. Shiratoriyama, Kumamoto Pref., 10. vii. 1977 (T. Saigusa). [Amami-ôshima Is.] 1 ♂, Chûôrindô, 19. ix. 1993 (M. Yoshida, at light). [Okinawa-hontô Is.] 1 ♂, Yona, 31. iii. 1973 (T. Teruya). TAIWAN: 1 ♂ (holotype), Gyochi, 5. viii. 1908 (Matsumura).

Distribution. Japan (Kyushu, Amami-ôshima Is., Okinawa-hontô Is.), Taiwan.

Remarks. Uchida (1956) recorded *Netelia* (*Netelia*) *ocellaris formosana* from Amami-ôshima Is. based on a male, which is a paratype of *amamiensis* as mentioned above. Thus, this is the first reliable record of *formosana* from Japan. This species resembles *atlantor* in the crescent-shaped pad, but can be distinguished from the latter by the dorso-apical margin of paramere, which is not emarginate. This is the first description and illustration of the male genitalia of *formosana*.

Netelia (*Netelia*) *fulvator* Delrio
(Figs. 11A–G, 12A–B)

Netelia fulvator Delrio, 1971: 68.

Netelia (*Netelia*) *fulvator*: Delrio, 1975: 48; Kaur & Jonathan, 1979: 124; Tolkanitz, 1981a: 36; Tolkanitz, 1981b: 111.

♀♂. Head (Figs. 11A, 11B) 1.7–1.8 times as wide as long; occipital carina obsolete

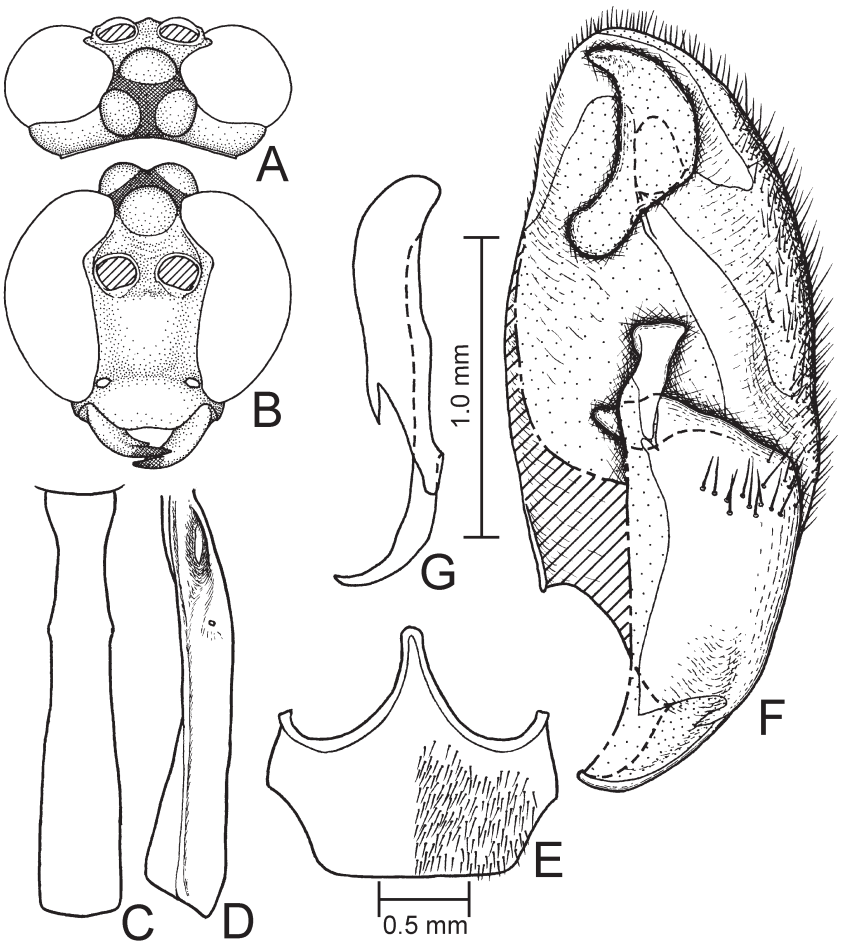

Fig. 10. *Netelia* (*Netelia*) *formosana* (Matsumura, 1912), ♂ . A, head of holotype in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere of holotype in median view; G, aedeagus of holotype in lateral view.

at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.0–2.2 (♀) and 2.2–3.1 (♂); upper face finely granulate or weakly to distinctly trans-striate; lower face 1.4–1.6 times as wide as long; clypeus 1.9–2.1 times as wide as long; flagellum 40–50–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.5–2.9 times as long s wide;

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.6–1.7 (♀) and 1.8–1.9 (♂) times as long as distance between lateral carinae at its base, with lateral carina weak and extending to or fading out near posterior end; metapleuron weakly puncto-striate or striate; propodeum trans-striate on anterior 5/6–6/7 and smooth or with weak longitudinal striae on posterior 1/7–1/6; lateral crest of propodeum distinct.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 8.0–9.3 (♀) and 10.8–12.4 (♂) times as long as wide; fore tarsal claw with 13–14 (♀) and 21–35 (♂)

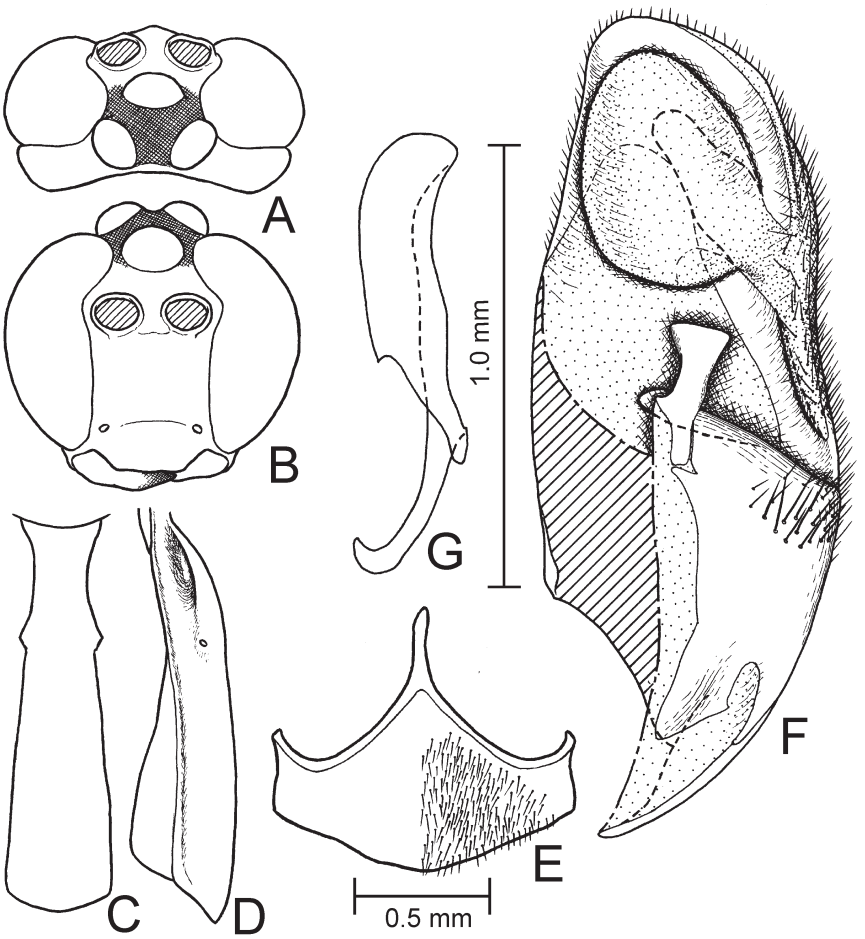

Fig. 11. *Netelia* (*Netelia*) *fulvator* Delrio, 1971, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

pectines; hind tarsal claw with 11–14 (♀) and 16–32 (♂) pectines.

Forewing (Fig. 12A) 2.7–3.1 times as long as wide; cu-a distad Rs+M by 1/3–2/5 of cu-a length, vertical or weakly inclivous, and weakly curved; hindwing (Fig. 12B) with 5 –8 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 11C, 11D) 3.1–4.0 times as long as apical width and 1.4–1.6 times as long as the 2nd; male hypopygium (Fig. 11E) moderate length, with apical margin moderately convex; paramere (Fig. 11F) with apical portion of dorsal margin not emarginate; brace oblique, tapering toward apex and slightly curved; pad large and ovoid, situated at about middle; aedeagus (Fig. 11G) with penis valve moderate width.

Head yellow; interocellar area light brown to blackish brown; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow or sometimes brownish yellow; mesoscutum, hind leg except tarsus and metasoma darker. Wings hyaline; vein C

and stigma of forewing brownish yellow; other veins brown.

Ovarian egg 0.7 mm long and 0.3 mm high, with a stalk on its posterior end.

Length of forewing: 7.1–15.0 mm.

Specimens examined. [Hokkaido] 1 ♂, Shin-okushibetsu, Kamikawa, 20. viii. 1981 (I. Kanazawa, at light); 6 ♀ 10 ♂, Tokyo Univ. Exp. Forest, Furano, v. 1989 (K. Matsumoto, reared from *Clostera anachoreta*); 2 ♂ (em. i. 1964), 2 ♂ (7. viii. 1962, em. 8. ii. 1964), 2 ♂ (12. ix. 1963, em. 8. ii. 1964), 1 ♂ (24. ix. 1964, em. 25. iii. 1965), 1 ♂ (30. ix. 1964, em. 24. iii. 1965) & 5 ♂ (24. iii. 1965), Bibai, (K. Kamijo, reared from *Clostera anachoreta*); 1 ♂, Soranuma, Sapporo, 19. viii. 1964 (S. Suzuki); 1 ♂, Usubetsu, Jozankei, Sapporo, 9. ix. 1970 (T. Kumata); 2 ♂, Mt. Chisenupuri, Shiribeshi, 12. viii. 1975 (A. Yoshida). [Honshu] Aomori Pref.- 1 ♂, Sakaimatsu, Aomori, 25. viii. 1993 (T. Ichita); 1 ♂, Kôsai-rindô, Shirakami, 7. viii. 1987 (T. Ichita). Iwate Pref.- 1 ♂, Chausudake, Hachimantai, 11–12. viii. 1979 (I. Kanazawa); 1 ♂, Mt. Hayachine, 23. vii. 1973 (Y. Yoshiyasu). Miyagi Pref.- 1 ♂, Futakuchikeikoku, Akiu, 12. vii. 1985 (K. Konishi *et al*., at light). Fukuzhima Pref.- 1 ♂, Kawairi, nr. Mts. Iide, 27–30. vi. 1987 (K. Konishi, at light); 1 ♂, Ohdaki, Hirono, 23. viii. 1987 (S. Saito); 1 ♂, Hinoemata, 16–18. viii. 1999 (K. Konishi, at light); 1 ♂, Mt. Tashiroyama, Tateiwa, 29. viii. 1992 (M. Yoshida, at light). Niigata Pref.- 1 ♂, Niitsu, 22. vii. 1974 (S. Sakurai); 1 ♂, Gosen, 7. v. 1994 (S. Sakurai); 3 ♂, Mikura, Tsunan, 3. ix. 1994 (S. Sakurai). Tochigi Pref.- 1 ♂, Kawamata, Kuriyama, 29. vii. 1995 (M. Yoshida, at light). Gunma Pref.- 1 ♂, Mt. Shiranesan, 22. v. 1971 (H. Fuse); 1 ♂, Hatomachi pass, 19. viii. 1967 (K. Ogura); 1 ♂, Tokura, 21. ix. 1955 (K. Sadanaga). Tokyo- 1 ♂, Mt. Syotosan, Hinohara, 1–2. vi. 1988 (S. Saito). Nagano Pref.- 1 ♂, Kiriake, Sakae, 25. vii. 1996 (S. Sakurai, at light); 1 ♂, Norikura-kô gen, 31. vii. 1980 (K. Maeto); 1 ♂, Sugadaira, 15. vii. 1934 (Mizutani). Yamanashi Pref.- 1 ♂, Mitsutôge, 20. viii. 1938 (T. Ishii). Shizuoka Pref.- 1 ♂ (3. viii. 1947), 1 ♂ (22. iv. 1948) & 1 ♂ (6. v. 1952), Kanaya, (J. Minamikawa); 1 ♂ (15. ix. 1966, T. Maenami), 1 ♂ (14. vi. 1967, T. Maenami),

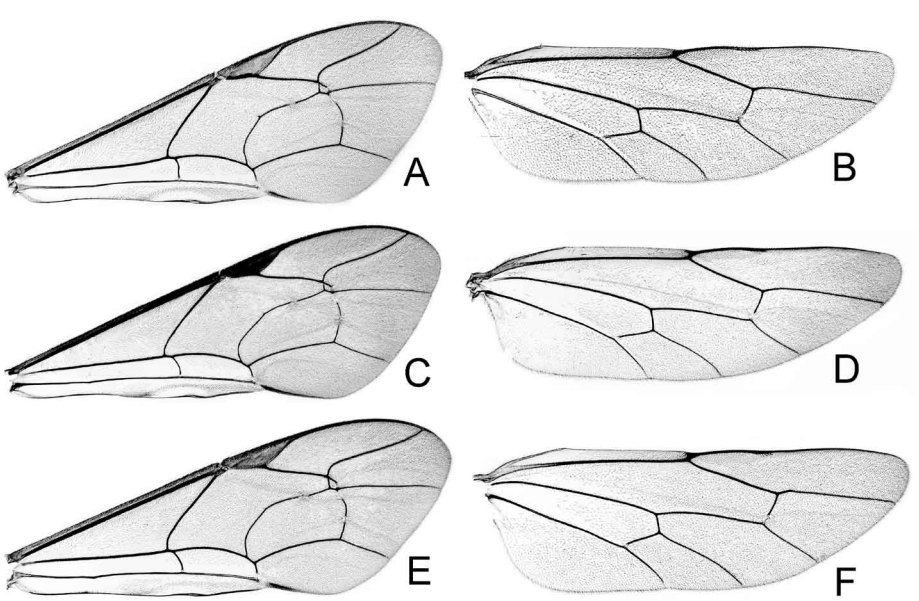

Fig. 12. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *fulvator* Delrio, 1971; C & D, *N.* (*N.*) *gotoi* n. sp.; E & F, *N.* (*N.*) *infractor* Delrio, 1971.

1 ♂ (21. vi. 1967, T. Maenami), 8 ♂ (16. viii. 1967, T. Maenami) & 1 ♂ (25. viii. 1967, K. Ogura), Mt. Iwamuro, Izu. Aichi Pref.- 1 ♂ (31. v. 1975, J. Yokoi) & 1 ♂ (27. v. 1977, J. Emoto), Uradani, Kitashitara; 1 ♂ , Mt. Rokushosan, 29. iv. 1976 (J. Emoto, at light). Hyogo Pref.- 1 ♂ , Tando onsenchô, 11. viii. 1982 (Y. Yoshida *et al*., at light). Hiroshima Pref.- 1 ♂ , Takano, 25. vii. 1995 (S. Nakamura); 1 ♂ , Syobara, 23. vii. 1998 (B. Maeto). [Shikoku] Tokushima Pref.- 1 ♂ , Mt. Takashiroyama, Kisawa, 24. vii. 1986 (K. Ôhara *et al*., at light); 1 ♂ , Mt. Tsurugisan, 18. vi. 1981 (I. Kanazawa, at light). Kochi Pref.- 1 ♂ , Teragawa, Hongawa, 1. vii. 1985 (K. Konishi *et al*., at light). [Kyushu] Fukuoka Pref.- 6 ♂ , Nokonoshima Is., Fukuoka, 18. vi. 1983 (S. Yoshimatsu *et al*., at light); 1 ♂ (16. v. 1939, H. Hori), 1 ♂ (29. vii. 1970, K. Nozato), 1 ♂ (13. v. 1975, Y. Yoshiyasu *et al*., at light), 4 ♂ (16. vi. 1982, K. Konishi, at light), 16 ♂ (3. v. 1983, K. Konishi *et al*., at light), 1 ♂ (20–21. x. 1983, M. T. Chûjô, at light), 1 ♂ (6. ix. 1984, K. Konishi, at light), 2 ♂ (3 –4. ix. 1986, M. Abe, at light), 1 ♂ (19. v. 1987, T. Yasunaga, at light) & 1 ♂ (24. iv–14. v. 1989, M. T. Chûjô, Malaise trap), Mt. Hikosan. Oita Pref.- 6 ♂ , Chojabaru, Mts. Kuju, 22. v. 1983 (Y. Abe *et al*., at light); 2 ♂ (18. v. 1982, N. Kôda), 2 ♂ (10. vii. 1982, K. Konishi) & 1 ♂ (13. x. 1984, Y. Nakata), Mt. Kurodake, Mts. Kuju, (at light). Kumamoto Pref.- 7 ♂ (26. vii. 1985, K. Konishi *et al*.) & 2 ♂ (23. vii. 1986, S. Urushiyama), Shiiya-tôge, (at light); 1 ♂ , Nigô, Gokanosho, 24. v. 1980 (K. Ôhara); 1 ♂ (12. v. 1983, K. Ôhara) & 1 ♂ (6. vii. 1991, R. Noda), Mt. Shiratoriyama, (at light). [Yakushima Is.] 1 ♂ , Anbô-rindô (alt. 350 m), 22. vii. 1982 (K. Konishi *et al*., at light).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Yakushima Is.), Europe, Algeria, Israel, India.

Host. *Acronicta rumicis* (Linnaeus, 1758), *Clostera curtula* (Linnaeus, 1758) and *Cucullia verbasci* (Linnaeus, 1758) (Lepidoptera, Notodontidae) have been recorded from Europe by Delrio (1971). In Japan, this species was reared from *Clostera anachoreta* (Denis & Schiffermüller, 1775).

Remarks. This is the first record of this species from Japan.

Netelia (*Netelia*) *gotoi* n. sp.
(Figs. 12C–D, 13A–G)

Paniscus grumi: Uchida, 1928: 190 (in part).

♂. Head (Figs. 13A, 13B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.2–2.8; upper face finely granulate with a few trans-striae; lower face 1.3–1.5 times as wide as long; clypeus 1.8–2.0 times as wide as long; flagellum 49–55–segmented; 1st flagellomere 1.6–1.7 times as long as the 2nd, the 2nd 2.7–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.6–1.8 times as long as distance between lateral carinae at its base, with lateral carina weak or sharp and extending to posterior margin; metapleuron striate; propodeum trans-striate on anterior 3/4–4/5 and sometimes with weak longitudinal striae on posterior 1/5–1/4; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.1–12.1 times as long as wide; fore tarsal claw with 30–33 pectines; hind tarsal claw with 17–25 pectines. Forewing (Fig. 12C) 2.8–2.9 times as long as wide; cu-a distad Rs+M by 1/3–1/2 of cu-a length, inclivous and slightly curved; hindwing (Fig. 12D) with 6–8 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 13C, 13D) 3.7–4.7 times as long as apical width

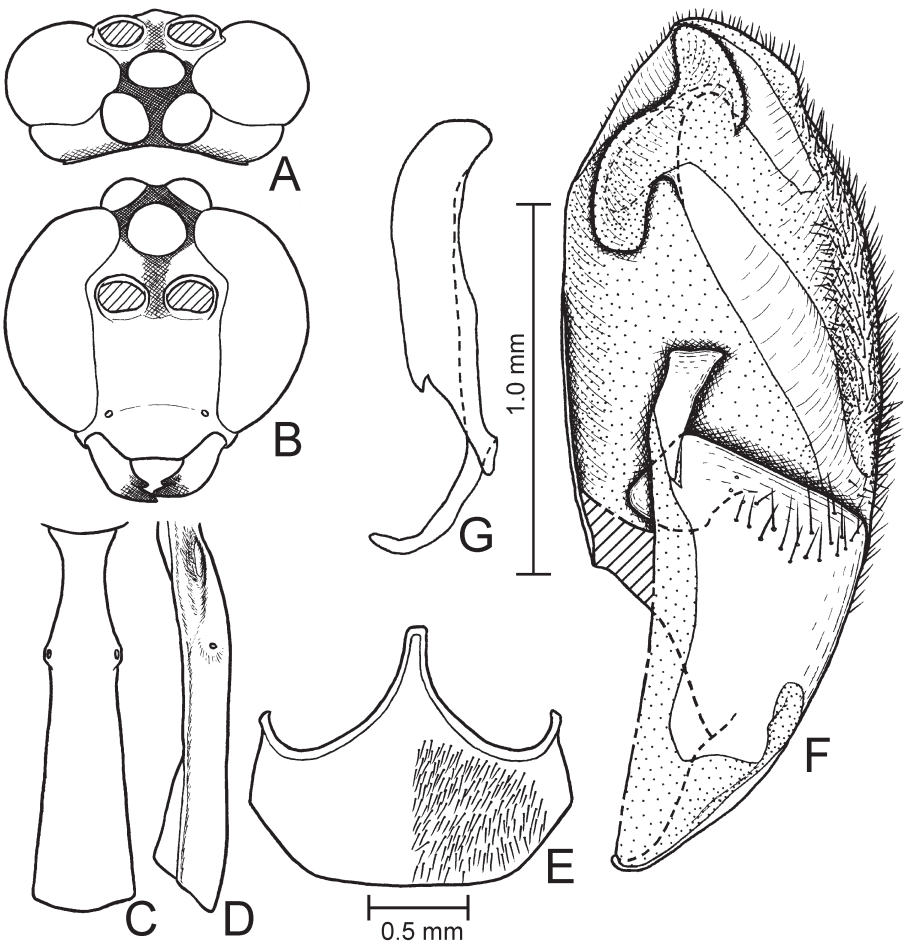

Fig. 13. *Netelia* (*Netelia*) *gotoi* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 13E) moderately long, with apical margin strongly convex and truncate; paramere (Fig. 13F) with apical portion of dorsal margin not emarginate; brace oblique, relatively broad, almost parallel sided and almost straight; pad weakly produced apically and strongly produced dorso-basally, situated near dorsal margin; aedeagus (Fig. 13G) with penis valve slender.

Head yellow; interocellar area black; occiput and posterior half of vertex light to blackish brown; upper face with a median longitudinal brown marking or entirely brown; antenna reddish yellow, or light brown in some specimens. Mesosoma and legs reddish yellow; mesoscutum and dorsal surface of propodeum brown to blackish brown; scutellum light brown to brown; pronotum and mesopleuron with brown markings in darker specimens; fore and mid coxae light brown in darker specimens; hind coxa, trochanter and femur light brown to brown. Metasoma brown to blackish brown; anterior 1/4–1/3 of 1st tergum reddish yellow to light brown; anterior 1/5–1/2 of 2nd and 3rd

terga reddish yellow to light brown; 1st to 3rd epipleura reddish yellow. Wings hyaline, tinged with yellowish grey; vein C and stigma of forewing light brown; other veins brown.

Length of forewing: 12.0–16.7 mm.

♀. Unknown.

Holotype: ♂, Mt. Shiratoriyama (1300 m), Izumi-mura, Kumamoto Pref., 12. v. 1983 (N. Kôda, T. Gotô, T. Hirowatari, at light).

Paratypes: [Honshu] Niigata Pref.- 1 ♂, Mt. Kurokura, Itakura, 27. vii. 1984 (K. Baba); 1 ♂, Gomizawa, Irihirose, 4. viii. 1984 (K. Baba). Tochigi Pref.- 1 ♂, Chuzenji, Nikko, 15. ix. 1913 (E. Gallois), recorded as *Paniscus grumi* by Uchida (1928); 1 ♂, Yaita, 28. vii–11. viii. 1989 (K. Konishi, Malaise trap). Tokyo- 1 ♂, Mt. Takaosan, 26. viii. 1926 (Hirayama), recorded as *Paniscus grumi* by Uchida (1928). Shizuoka Pref.- 1 ♂ (8. x. 1966) & 1 ♂ (13. vii. 1968), Mt. Iwamuro, Izu, (T. Maenami). Hiroshima Pref.- 1 ♂, Honmura, Syobara, 18. ix. 1998 (B. Maeto). [Shikoku] Tokushima Pref.- 1 ♂, Nikubuchidani, Kisawa, 23. vii. 1986 (K. Ôhara *et al*., at light); 1 ♂, Mt. Takashiroyama, Kisawa, 24. vii. 1986 (K. Ôhara *et al*., at light); 2 ♂, Minokoshi, Mt. Tsurugisan, 17. viii. 1986 (K. Ôhara *et al*., at light); 1 ♂, Mt. Tsurugisan, 10. vii. 1993 (I. Yamashita, at light). Kochi Pref.- 1 ♂, Teragawa, Hongawa, 1. vii. 1995 (K. Konishi *et al*., at light). [Kyushu] Fukuoka Pref.- 1 ♂ (20. vii. 1964, M. Shiga), 1 ♂ (9. vi. 1973, K. Takeno, Malaise trap) & 1 ♂ (3. v. 1983, K. Konishi *et al*., at light), Mt. Hikosan. Oita Pref.- 1 ♂, Daisen-rindô, Mts. Kuju, 31. v. 1981 (F. Sugita). Miyazaki Pref.- 1 ♂, Kunimigaoka, Takachiho, 3. x. 1970 (H. Inoue). Kagoshima Pref.- 1 ♂, Mt. Kurinodake, 23. vi. 1973 (K. Ôhara); 1 ♂, Terayama, 1. v. 1970 (K. Kusigemati); 7 ♂, Mt. Hoyoshidake, 12–14. vii. 1991 (R. Noda, at light); 2 ♂, Mt. Inaodake, 10. x. 1985 (K. Kusigemati, at light). [Yakushima Is.] 1 ♂, Shirataniunsuikyo, 14. v. 1983 (K. Konishi *et al*., at light).

Distribution. Japan (Honshu, Shikoku, Kyushu, Yakushima Is.).

Remarks. This species superficially resembles darker colored species, such as *atla*, *nigrinota* and *nomurai* and darker specimens of *takaozana*, but can be easily distinguished from them by the bilobed pad of the male genitalia.

Netelia (*Netelia*) *infractor* Delrio
(Figs. 12E–F, 14A–H)

Netelia infractor Delrio, 1971: 69.

Netelia (*Netelia*) *infractor*: Delrio, 1975: 53; Tolkanitz, 1981b: 112; Kolarov, 1994: 95.

♂. Head (Figs. 14A, 14B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.6–2.9; upper face weakly to distinctly trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.8–2.0 times as wide as long; flagellum 47–52–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.7–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.7–1.8 times as long as distance between lateral carinae at its base, with lateral carina weak, varying from extending to posterior end to fading out at about mid length; metapleuron distinctly striate; propodeum trans-striate on anterior 4/5–5/6 and almost smooth on posterior 1/6–1/5; lateral carina of propodeum distinct.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 11.2–12.0 times as long as wide; fore tarsal claw with 20–31 pectines; hind tarsal claw with 15–22 pectines.

Forewing (Fig. 12E) 2.9–3.2 times as long as wide; cu-a distad Rs+M by 2/5–1/2 of cu-a length, weakly inclivous and slightly curved; hindwing (Fig. 12F) with 6–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 14C, 14D) 3.8–3.9 times as long as apical width and 1.5–1.7 times as long as the 2nd; hypopygium (Fig. 14E) moderate length, with apical margin moderately convex and rounded; paramere (Figs. 14F, 14G) with apical portion of dorsal margin weakly emarginate; brace oblique, tapering toward apex and slightly curved; pad produced apically and dorso-basally, situated at about middle; aedeagus (Fig. 14H) with penis valve robust.

Head yellow; interocellar area brown to black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum and metasoma darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 8.7–14.3 mm.

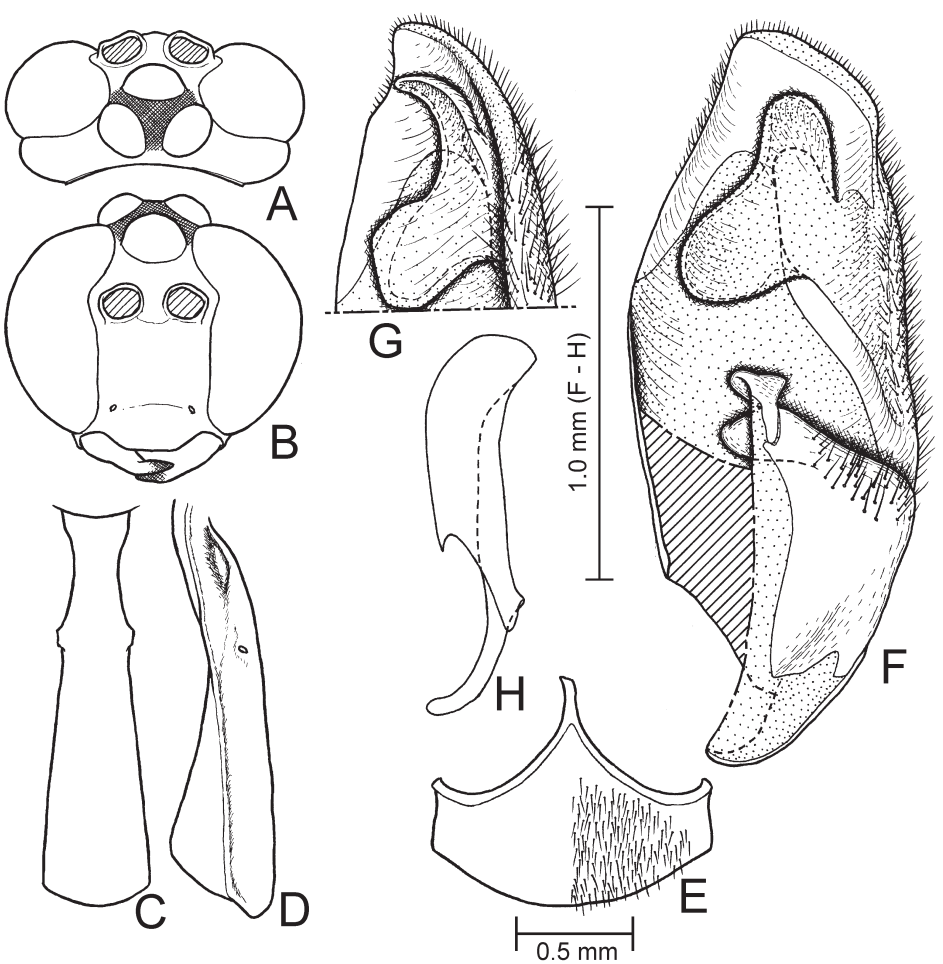

Fig. 14. *Netelia* (*Netelia*) *infractor* Delrio, 1971, ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, ditto in ventro-median view; H, aedeagus in lateral view.

Specimens examined. [Hokkaido] 1 ♂ , Mt. Furanodake, 30. viii. 1975 (M. Suwa, at light); 1 ♂ , Ashorobuto, 27. v. 1957 (M. Takahashi); 1 ♂ , Bibai, 30. vi. 1963 (K. Kamijo, reared from *Ipimorpha subtusa* on *Populus nigra* Linn. var. *italica* Koehne). [Honshu] Aomori Pref.- 1 ♂ (14. v. 1991), 1 ♂ (20. v. 1991), 2 ♂ (21. v. 1991) & 1 ♂ (25. v. 1994), Sakaimatsu, Kuroishi, (T. Ichita). Fukushima Pref.- 1 ♂ , Kawairi, nr. Mts. Iide, 27–28. vi. 1987 (K. Konishi); 1 ♂ , Ohdaki, Hirono, 23. viii. 1987 (S. Saito). Niigata Pref.- 1 ♂ , Ushigashima, Kawaguchi, 22. vi. 1995 (S. Sakurai). Tochigi Pref.- 2 ♂ , Kawamata, Kuriyama, 29. vii. 1995 (M. Yoshida, at light). Gunma Pref.- 1 ♂ , Shimo-Hino, 2. vii. 1971 (H. Fuse). Tokyo- 2 ♂ , Yazawa, Hinoharamura, 13. vii. 1998, (H. Nagaoka, at light); 1 ♂ , Mt. Takao, 23. viii. 1984 (H. Makihara). Nagano Pref.- 2 ♂ (16. viii. 1970, A. Miyata, at light), 4 ♂ (17. viii. 1970, A. Miyata, at light), 1 ♂ (18. viii. 1970, A. Miyata, at light), 1 ♂ (22. viii. 1970, A. Miyata, at light), 1 ♂ (19. viii. 1982, E. Nishida) & 2 ♂ (20. viii. 1982, E. Nishida), Sugadaira. Yamanashi Pref.- 1 ♂ , Kiyosato, Oizumi, 19. vii. 1974 (S. Nomura *et al*., at light). Shizuoka Pref.- 1 ♂ (6. v. 1948), 1 ♂ (1. vi. 1948), 3 ♂ (18. vi. 1948), 1 ♂ (20. vi. 1948), 1 ♂ (21. vi. 1948), 2 ♂ (24. iv. 1949), 1 ♂ (27. iv. 1949), 2 ♂ (6. v. 1949), 1 ♂ (11. v. 1949), 6 ♂ (28. vi. 1949), 1 ♂ (23. vii. 1949), 1 ♂ (24. iv. 1953) & 1 ♂ (28. iv. 1957), Kanaya, (J. Minamikawa); 1 ♂ (11. x. 1966, T. Maenami), 1 ♂ (15. x. 1966, T. Maenami), 1 ♂ (13. vi. 1967, T. Maenami), 1 ♂ (14. vi. 1967, T. Maenami), 2 ♂ (21. vi. 1967, T. Maenami), 5 ♂ (23. vi. 1967, T. Maenami), 1 ♂ (29. vi. 1967, T. Maemani), 2 ♂ (7. vii. 1967, K. Ogura), 1 ♂ (20. vii. 1967, T. Maenami), 1 ♂ (23. vii. 1967, T. Maenami), 1 ♂ (9. viii. 1967, K. Ogura), 1 ♂ (23. viii. 1967, K. Ogura), 1 ♂ (7. vii. 1968, T. Maenami) & 1 ♂ (16. vii. 1968, T. Maenami), Mt. Iwamuro, Izu. Hiroshima Pref.- 1 ♂ , Mt. Azumayama, Hiwa, 23. ix. 1984 (K. Konishi, at light); 1 ♂ , Honmura, Syobara, 15. viii. 1998 (B. Maeto). [Sado Is.] 1 ♂ , Ogi, 24. x. 1976 (A. Seino). [Kyushu] Fukuoka Pref.- 1 ♂ , Kugumiya, Haki, 12. vii. 1942 (N. G.); 1 ♂ (16. vii. 1939, M. Fujino), 1 ♂ (11. v. 1967, S. Kimoto), 2 ♂ (13. ix. 1969, K. Kanmiya), 1 ♂ (29. vii. 1970, K. Kanmiya), 1 ♂ (3. v. 1983, K. Konishi, at light), 1 ♂ (5. vii. 1983, R. Noda, at light), 5 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (7–8. vii. 1983, O. Tadauchi *et al*., at light), 1 ♂ (29. viii. 1983, K. Ôhara, at light), 1 ♂ (23. iv. 1985, M. Abe, at light) & 2 ♂ (3–4. ix. 1986, M. Abe, at light), Mt. Hikosan. Oita Pref.- 2 ♂ , Mt. Kurodake, Mts. Kuju, 17. viii. 1985 (R. Noda *et al*., at light). Kumamoto Pref.- 1 ♂ (17. vi. 1978, H. Makihara) & 2 ♂ (20–29. vi. 1978, K. Yamagishi), Mt. Asosan, (at light); 1 ♂ , Shiiya-tôge, 26. vii. 1985 (K. Konishi *et al*., at light); 1 ♂ (1. vi. 1980, T. Saigusa) & 1 ♂ (9. vii. 1983, N. Kôda, at light), Mt. Shiratoriyama. Miyazaki Pref.- 1 ♂ , Kunimigaoka, Takachiho, 30. x. 1970 (H. Inoue). Kagoshima Pref.- 2 ♂ , Kurinodake-onsen, Mts. Kirishima, 20–21. vii. 1983 (N. Kôda *et al*., at light); 1 ♂ , Yunono, Kirishima, 29. vi. 1963 (K. Hashimoto).

Distribution. Japan (Hokkaido, Honshu, Sado Is., Kyushu), Europe.

Host. *Acronicta psi* (Linnaeus, 1758) (Lepidoptera, Noctuidae) was recorded from France by Aubert (1973). As mentioned in the 'Specimens examined', one male was reared from *Ipimorpha subtusa* (Denis & Schiffermüller, 1775) (Lepidoptera, Noctuidae) in Hokkaido.

Remarks. This is the first record of this species from Japan.

Netelia (*Netelia*) *kusigematii* n. sp.
(Figs. 15A–G, 16A–B)

Paniscus unicolor: Uchida, 1928: 189 (in part).

♂ . Head (Figs. 15A, 15B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; interocellar area smooth; vertex in dorsal view convex; geno-orbital index 1.8–2.9; upper face finely granulate, sometimes with weak trans-striae; lower face

1.4–1.5 times as wide as long; clypeus 1.9–2.2 times as wide as long; flagellum 44–51–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 3.0–3.2 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.6–1.7 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly puncto-striate on ventral 1/3; propodeum trans-striate on anterior 3/4–4/5; lateral crest of propodeum weak.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 10.9–12.3 times as long as wide; fore tarsal claw with 18–30 pectines; hind tarsal claw 12–18 pectines.

Forewing (Fig. 16A) 2.6–2.9 times as long as wide; cu-a distad Rs+M by 1/3–1/2 of cu-a length, slightly to strongly inclivous and slightly curved; hindwing (Fig. 16B) with 4–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 15C, 15D) 4.0–4.6 times as long as apical width

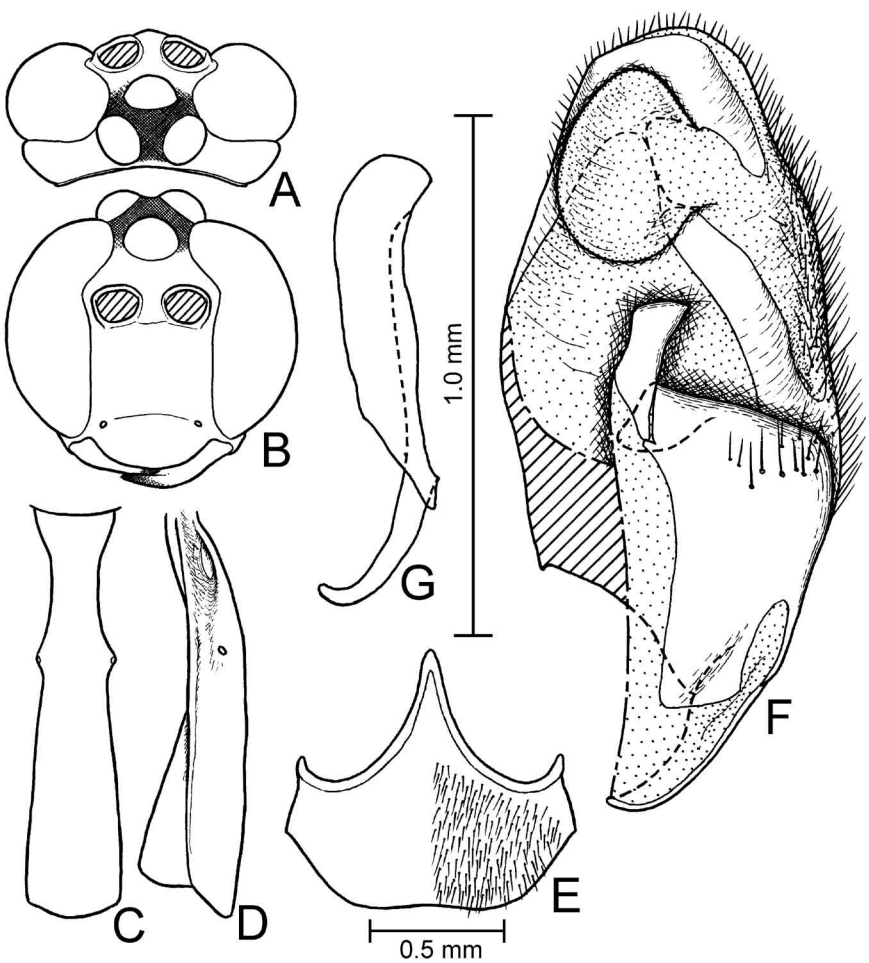

Fig. 15. *Netelia* (*Netelia*) *kusigematii* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 15E) moderately long, with apical margin strongly convex and truncate; paramere (Fig. 15F) with apical portion of dorsal margin not emarginate; brace oblique, almost parallel sided and weakly curved; pad circular and produced dorsally, situated near dorsal margin; aedeagus (Fig. 15G) with penis valve slender.

Head yellow; interocellar area blackish brown to black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum with median lobe light brown; metasoma and hind femur somewhat darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 7.0–11.7 mm.

♀. Unknown.

Holotype: ♂, Mt. Hikosan, Fukuoka Pref., 16. vi. 1982 (K. Konishi, at light).

Paratypes: [Hokkaido] 1 ♂, Wassakanai, Toyotomi, 11. vii. 1980 (K. Maeto). [Honshu] Ishikawa Pref.- 1 ♂, Nabetani, Tatsukuchi, 8. vii. 1990 (Y. Sugie). Fukui Pref.- 1 ♂, Kono, 30. v. 1991 (M. Hashimoto). Gunma Pref.- 1 ♂, Mt. Tanigawadake, 9. x. 1971 (H. Fuse). Ibaraki Pref.- 5 ♂, Shishizuka-oike, Tsuchiura, 27. x–13. xi. 1989 (M. Sharkey, Malaise trap); 1 ♂ (13. v. 1989) & 2 ♂ (14–25. vi. 1989), Yukarinomori, Tsukuba, (M. Sharkey, Malaise trap); 1 ♂, NIAES, Tsukuba, 17–26. vii. 1989 (M. Sharkey, Malaise trap). Saitama Pref.- 1 ♂, Hatoyama, 6. xi. 1984 (T. Ohkouchi); 1 ♂, Saitama, 5. v. 1924 (T. Uchida), recorded as *Paniscus unicolor* by Uchida (1928). Tokyo- 1 ♂, Yokosawairi, Itsukaichi, 27. viii. 1994 (S. Kubota); 1 ♂ (2. iv. 1928), 1 ♂ (22. v. 1953, S. Kato), 1 ♂ (3. v. 1964, J. Minamikawa) & 1 ♂ (7. x. 1967, T. Kocha), Mt. Takaosan. Shizuoka Pref.- 1 ♂, Mt. Iwamuro, Izu, 23. vi. 1967 (T. Maenami). Gifu Pref.- 1 ♂, Akechi, 13. v. 1975 (J. Yokoi). Aichi Pref.- 1 ♂, Mt. Sanage, 4–10. vi. 1993 (T. Kanbe, Malaise trap). Kyoto Pref.- 1 ♂, Kibune, ix. 1944 (K. M.). Okayama Pref.- 1 ♂, Kanba, 8. vi. 1947 (J. Minamikawa). Hiroshima

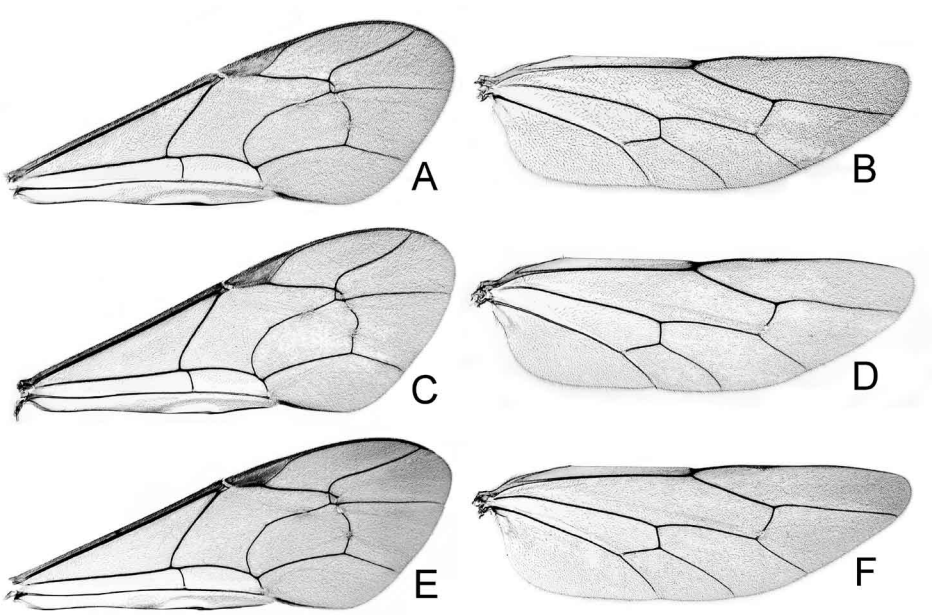

Fig. 16. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *kusigematii* n. sp.; C & D, *N.* (*N.*) *kyushuensis* n. sp.; E & F, *N.* (*N.*) *melanura* (Thomson, 1888).

Pref.- 1 ♂ , Honmura, Syobara, 31. v. 1999 (B. Maeto). [Shikoku] Kochi Pref.- 1 ♂ , Mt. Eboshi, Kochi, 26. vi. 1994 (I. Yamashita). [Tsushima Is.] 3 ♂ , Meboro, 18. x. 1983 (K. Konishi *et al*., at light); 1 ♂ , Kisaka, Mine, 23. viii. 1978 (R. Noda); 1 ♂ , Tsutsu, 26. iv. 1977 (Y. Suzuki); 1 ♂ , Izuhara, 21. v. 1968 (M. Honda). [Kyushu] Fukuoka Pref.- Mt. Joyama, 22. v. 1985 (M. Abe); 1 ♂ , Mt. Tachibanayama, 17. v. 1974 (K. Yamagishi); 1 ♂ , Hirao, Fukuoka, 21. v. 1930 (Esaki *et al*.); 1 ♂ , Mt. Wakasugiyama, 8. vi. 1975 (Y. Yoneda); 1 ♂ (14. v. 1975, S. Yoshiyasu), 1 ♂ (12–13. v. 1977, K. Setoya), 1 ♂ (3. v. 1983, K. Konishi), 2 ♂ (29. viii. 1983, K. Ôhara), 1 ♂ (22. ix. 1983, M. T. Chûjô) & 1 ♂ (20–21. x. 1983, M. T. Chûjô), Mt. Hikosan, (at light). Oita Pref.- 1 ♂ , Yabakei, 29. x. 1933 (Takenouchi *et al*.); 1 ♂ , Mt. Katamukiyama, Ogata, 6. vi. 1992 (R. Noda, at light). Kumamoto Pref.- 1 ♂ , Mt. Asosan, 13. vi. 1978 (H. Makihara, at light); 1 ♂ , Gokanosho, 17. x. 1976 (K. Ôhara); 1 ♂ , Naidaijin, 3. vi. 1976 (K. Ôhara); 1 ♂ , Mt. Shiratoriyama, Izumi, 12. v. 1983 (N. Kôda *et al*., at light). Kagoshima Pref.- 1 ♂ , Kurinodake-onsen, Mts. Kirishima, 20–21. vii. 1983 (N. Kôda *et al*., at light); 1 ♂ , Jusantsukabaru, 19. vii. 1974 (K. Kusigemati); 1 ♂ , Hirakawa, 7. vi. 1976 (K. Ôhara); 1 ♂ , Fujino, Sakurajima, 20. viii. 1974 (K. Kusigemati).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Tsushima Is., Kyushu).

Remarks. This is a small to medium sized species in the subgenus *Netelia* and superficially resembles *oharai*, but can be distinguished from the latter by the rounded pad and the dorso-apical margin of paramere, which is not emarginate.

Netelia (*Netelia*) *kyushuensis* n. sp.
(Figs. 16C–D, 17A–G)

Paniscus testaceus var. *nigrinotus* Uchida, 1928: 191 (in part).

♂ . Head (Figs. 17A, 17B) 1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area weakly sculptured and subpolished; geno-orbital index 2.2; upper face weakly trans-striate; lower face 1.4 times as wide as long; clypeus 1.9 times as wide as long; flagellum 48-segmented; 1st flagellomere 1.7 times as long as the 2nd, the 2nd 3.0 times as long as wide.

Mesosoma: Mesoscutum 1.3 times as long as wide; mesoscutellum 1.7 times as long as distance between lateral carinae at its base, with lateral carina weak and fading out before reaching posterior margin; metapleuron faintly puncto-striate; propodeum trans-striate on anterior 3/4 and with weak longitudinal striae on posterior 1/4; lateral crest of propodeum absent.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 13.0 times as long as wide; fore tarsal claw with 32 pectines; hind tarsal claw with 27 pectines.

Forewing (Fig. 16C) 2.9 times as long as wide; cu-a distad Rs+M by 2/5 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 16D) with 6 distal hamuli; nervellar index 0.6.

Metasoma with 1st tergum (Figs. 17C, 17D) 4.4 times as long as apical width and 1.5 times as long as the 2nd; hypopygium (Fig. 17E) short, with apical margin weakly convex; paramere (Fig. 17F) short and robust, with apical portion of dorsal margin emarginate; brace transverse, almost parallel sided and curved; pad long, weakly produced apically and strongly produced basally, situated near dorsal margin; aedeagus (Fig. 17G) with penis valve slender.

Head yellow; interocellar area brown; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker;

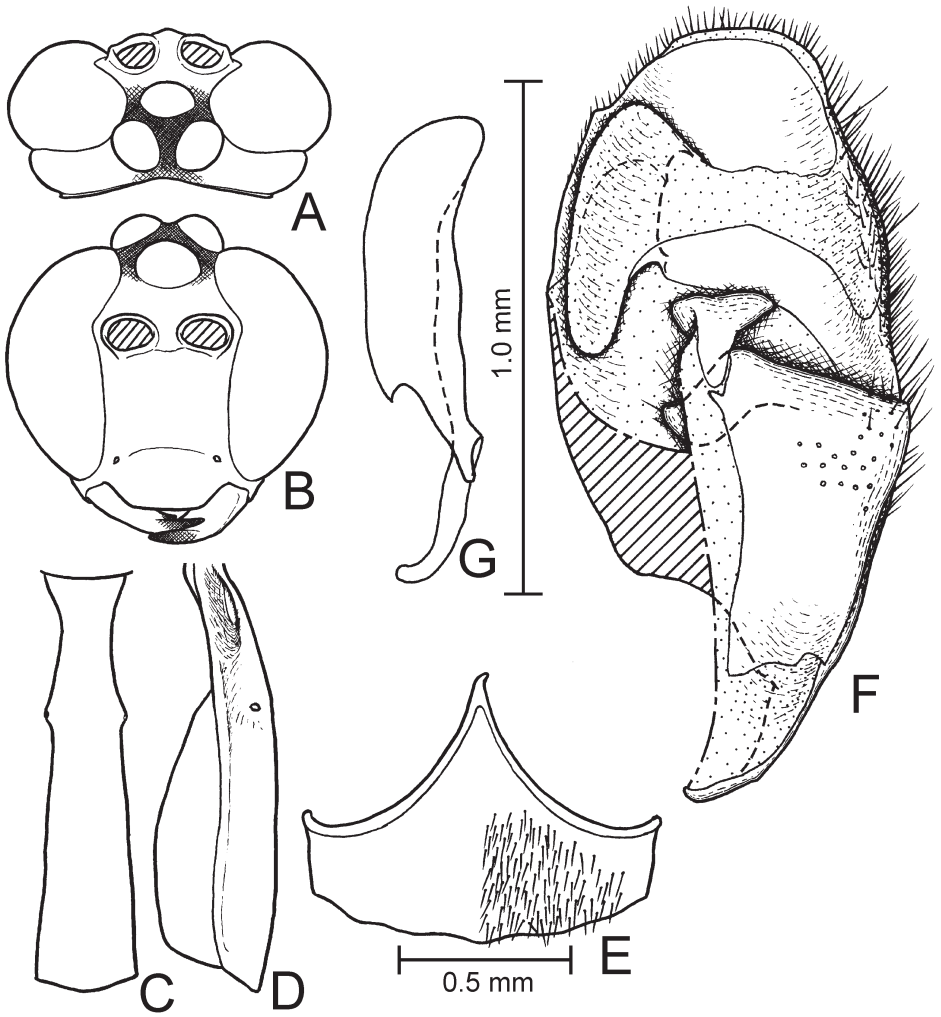

Fig. 17. *Netelia* (*Netelia*) *kyushuensis* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

hind tarsus yellow. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 12.4 mm.

♀ . Unknown.

Holotype: ♂ , Mt. Shiratoriyama, Izumi-mura, Kumamoto Pref., 19. vii. 1983 (N. Kôda, K. Konishi, S. Yoshimatsu *et al*., at light).

Paratype: [Kyushu] Fukuoka Pref.- 1 ♂ , Mt. Wakasugi, 12. viii. 1927 (K. Yasumatsu), recorded as *Paniscus testaceus* var. *nigrinotus* by Uchida (1928).

Distribution. Japan (Kyushu).

Remarks. This species can be easily distinguished from other Japanese species of

the subgenus *Netelia* by the brace, which is transverse to paramere.

Netelia (*Netelia*) *melanura* (Thomson)
(Figs. 1, 16E–F, 18A–G)

Paniscus melanurus Thomson, 1888: 1199

Paniscus testaceus: Uchida, 1928: 191 (in part)

Paniscus testaceus var. *nigronotatus* Uchida, 1928: 191 (in part including the lectotype), **new synonymy**.

Paniscus (*Paniscus*) *testaceus*: Uchida, 1934a: 110

Paniscus (*Paniscus*) *testaceus* f. *nigrinotatus*: Uchida, 1934a: 110

Netelia (*Netelia*) *testacea*: Tolkanitz, 1974: 384, 392 (in part); Tolkanitz, 1981a: 36; Tolkanitz, 1981b: 115.

Netelia (*Netelia*) *melanurus*: Delrio, 1975: 54.

♀♂. Head (Figs. 17A, 17B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.2–2.9; upper face finely granulate with a few weak trans-striae; lower face 1.3–1.6 times as wide as long; clypeus 1.8–2.0 times as wide as long; flagellum 48–56–segmented; 1st flagellomere 1.5–1.7 times as long as the 2nd, the 2nd 2.7–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.5–1.8 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron striate; propodeum trans-striate on anterior 3/4 and smooth or with weak longitudinal striae on posterior 1/4; lateral crest of propodeum distinct.

Fore tibial spur 0.3–0.5 times as long as the 1st tarsomere, which 9.4–10.1 (♀) and 11.5–13.7 (♂) times as long as wide; fore tarsal claw with 15–19 (♀) and 25–41 (♂) pectines; hind tarsal claw with 14–16 (♀) and 16–28 (♂) pectines.

Forewing (Fig. 16E) 2.8–3.1 times as long as wide; cu-a distad Rs+M by 1/5–1/2 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 16F) with 5–7 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 18C, 18D) 3.8–4.3 (♀) and 4.3–5.0 (♂) times as long as apical width and 1.5–1.7 times as long as the 2nd; male hypopygium (Fig. 18E) moderately long, with apical margin moderately convex and truncate; paramere (Fig. 18F) with apical portion of dorsal margin not emarginate; brace oblique, tapering toward apex and slightly curved; pad ovoid, situated at about middle; aedeagus (Fig. 18G) with penis valve slender.

Head yellow; interocellar area black; antenna reddish yellow; occiput reddish yellow to light brown; upper face with a median longitudinal light brown to brown marking in darker specimens. Mesosoma and legs reddish yellow to brownish red; mesoscutum with lobes light brown in the most weakly pigmented specimens and entirely blackish brown in the most strongly pigmented specimens; scutellum, propodeum and markings on mesopleuron brown in darker specimens; hind femur light brown to brown in darker specimens. Metasoma brownish red; 1st tergum light brown to blackish brown on posterior 3/4; 2nd metasomal tergum brown in darker specimens; 5th–8th metasomal segments blackish brown. Wings hyaline; vein C and stigma of forewing brownish

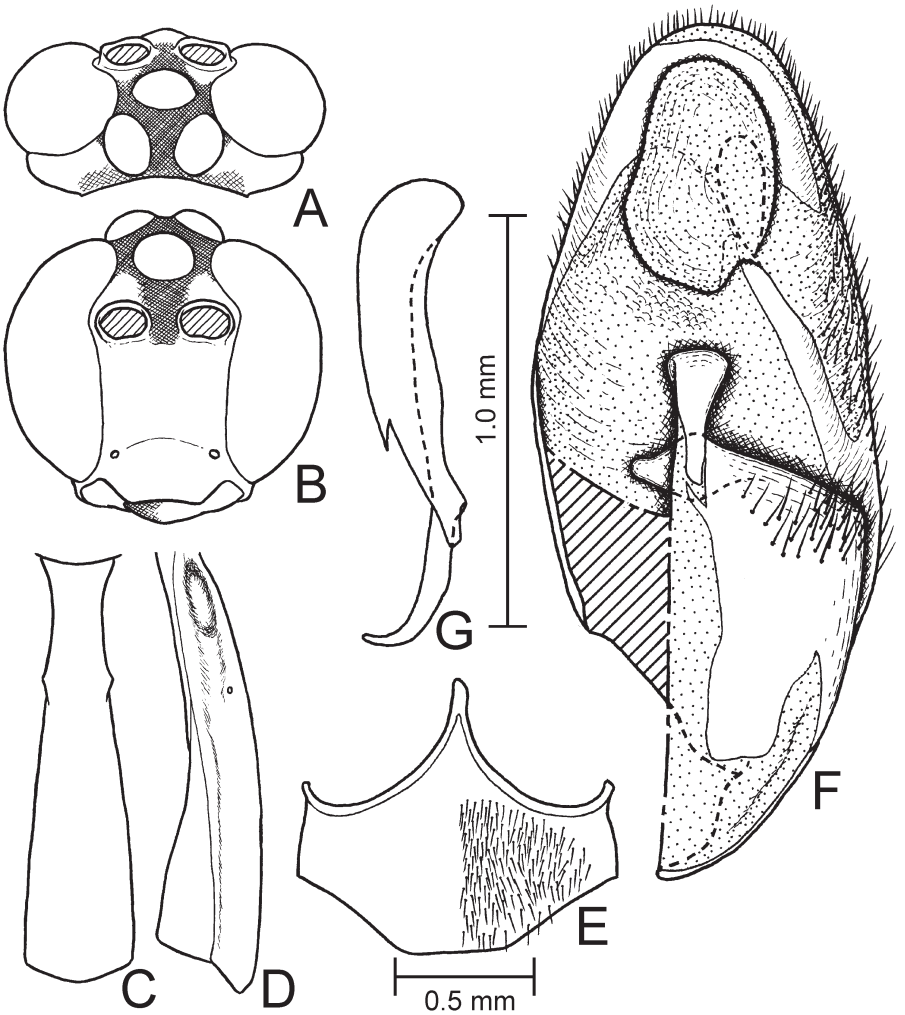

Fig. 18. *Netelia* (*Netelia*) *melanura* (Thomson, 1888), ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

yellow; other veins brown.

Ovarian egg 0.8–0.9 mm long and 0.4 mm high, with a stalk on its posterior end.

Length of forewing: 9.7–15.4 mm.

Specimens examined. JAPAN: [Hokkaido] 1 ♂ (16. vii. 1964, K. Kusigemati), 2 ♂ (27. vi. 1980, K. Maeto) & 1 ♂ (2. vii. 1986, M. Rut), Ashoro; 1 ♂, (30. vi. 1980, K. Maeto), 1 ♂, (3. vii. 1980, K. Maeto), 2 ♂ (29. vi. 1986, M. Rut) & 1 ♂ (5. vii. 1989, K. Maeto), Nukabira; 1 ♂, Kotoshibetsu, 6. vii. 1986 (M. Abe); 1 ♂, Tomuraushi Spa, 6 - 8. vii. 1988 (K. Konishi); 2 ♂, Nissho-tôge, 1. viii. 1986 (S. Nomura, at light); 1 ♂ (5. vii. 1942, T. Uchida) & 1 ♂ (28. vi. 1967, K. Kusigemati), Apoi; 1 ♂, Tenninkyo, 23. vi. 1986 (M. Abe); 1 ♂, Sounkyo, 11. vii. 1986 (M. Rut); 1 ♀ (30. viii. 1975, M. Suwa, at light) & 1 ♂ (23 - 26. viii. 1993, K. Suzuki *et al*.), Furano; 1

♂ , Akan, 15. vii. 1981 (R. Noda); 1 ♂ , Toro-ko, 26. vii. 1986 (S. Nomura); 1 ♂ , Kamishunbetsu, 5. vii. 1986 (M. Rut); 1 ♂ , Bekkai, 29. vii. 1964 (S. Yamane); 1 ♂ , Tomakomai, 6. vii. 1989 (K. Maeto); 1 ♂ , Shirikishinai, 17. ix. 1966 (S. Yamane); 1 ♂ (10. vii. 1926, Uchida), 1 ♂ (14. vii. 1929, T. Uchida), 1 ♂ (21. ix. 1966, K. Kusigemati), 1 ♂ (9. ix. 1970, T. Kumata), 1 ♂ (5. ix. 1964, S. Yamane) & 1 ♂ (6. ix. 1964, S. Yamane), Sapporo; 1 ♂ (14. vii. 1923) & 2 ♀ (15. ix. 1927), Maruyama, Sapporo, (T. Uchida), recorded as *Paniscus testaceus* by Uchida (1928); 1 ♀ , Nopporo, 2. ix. 1926 (T. Yoshida), recorded as *Paniscus testaceus* by Uchida (1928). [Honshu] Aomori Pref.- 1 ♂ , Aomori City, 1. viii. 1992 (T. Ichita). Iwate Pref.- 1 ♂ (21. vi. 1980. S. Naomi) & 10 ♂ (15 - 16. vii. 1985, K. Konishi *et al*., at light), Mt. Hayachine. Fukushima Pref.- 2 ♂ , Kawairi, Mts. Iide, 27 - 30. viii. 1987 (K. Konishi); 2 ♂ , Mt. Tashiroyama, 29. viii. 1992 (M. Yoshida, at light). Tochigi Pref.- 1 ♂ , Yunoko, Nikko, 17–22. vi. 2000 (K. Uesugi, Malaise trap); 1 ♀ , Chuzenji, Nikko, ix. 1926 (Minowa), recorded as *Paniscus testaceus* by Uchida (1928); 1 ♂ , Okukinu, 12. ix. 1987 (K. Konishi, at light); 1 ♂ , Yaita, 22. viii. 1989 (K. Konishi, Malaise trap). Ibaraki Pref.- 3 ♂ (3. viii. 1991, S. Yoshimatsu), 1 ♂ (3. viii. 1991, M. Yoshida) & 1 ♀ 22 ♂ (22. viii. 1992, K. Konishi), Mt. Yamizosan, (at light); 2 ♂ (1–8. viii. 1989) & 2 ♂ (8–14. viii. 1989), Mt. Tsukubasan (M. Sharkey, Malaise trap). Gunma Pref.- 1 ♂ , Mt. Hotaka, 13. vii. 1991 (M. Yoshida, at light). Saitama Pref.- 1 ♂ , Chichibu, 25. x. 1982 (H. Hasegawa). Tokyo- 1 ♂ , Mt. Takao, 29. iv. 1927. Niigata Pref.- 1 ♂ , Shiraike, 18. vii. 1966 (M. Honda). Ishikawa Pref.- 1 ♂ (17. vi. 1992) & 1 ♂ (4. vii. 1993), Mt. Hakusan (I. Togashi). Nagano Pref.- 1 ♀ (lectotype of *Paniscus testaceus* var. *nigronotatus* Uchida, 1928), Nakabusa, 29. vii. 1924 (Kono); 1 ♂ , Mt. Hakubadake, 7. vii. 1982 (Y. Yoshida *et al*., at light); 3 ♂ , Nakawa, 8. ix. 1958 (K. Kamijo); 1 ♂ , Kiso-gun (K. Tsukamoto). Yamanashi Pref.- 1 ♂ , Kiyosato, 19. vii. 1984 (S. Nomura, at light); 1 ♂ , Mt. Gosyo-yama, 24. vii. 1935; 1 ♂ (24. vi. 1975, at light), 1 ♂ , (30. vi. 1975, Malaise trap) & 1 ♂ (30. vi. 1975, at light), Kanayama (J. Emoto). Shizuoka Pref.- 1 ♂ (3. ix. 1948), 5 ♂ (22. x. 1948), 1 ♂ (24. x. 1948), 2 ♂ (19. iv. 1949), 1 ♂ (12. v. 1949), 1 ♂ (19. v. 1951), 7 ♂ (6. v. 1952), 1 ♂ (7. v. 1954) & 1 ♂ (19. v. 1954), Kanaya (J. Minamikawa). Gifu Pref.- 1 ♀ 1 ♂ (11. x. 1982, at light) & 2 ♂ (12. x. 1982), Hirayu (K. Konishi); 1 ♂ , Hikagedaira, 22. vii. 1981; 1 ♂ , Gifu, 25. iv. 1950 (J. Sonan). Aichi Pref.- 1 ♂ (31. v. 1975, H. Yamada) & 1 ♂ (27. v. 1977, J. Emoto, at light), Uradani; 1 ♂ , Mt. Chausu-yama, 10 - 11. ix. 1974 (S. Ueda). Nara Pref.- 1 ♂ (2. vi. 1983, E. Nishida), 2 ♂ (13 - 14. vii. 1983, S. Ito) & 1 ♂ (25. vi. 1984, K. Konishi, at light), Odaigahara. Hyogo Pref.- 3 ♂ , Akazai-keikoku, 23. vi. 1984 (K. Konishi, at light). [Shikoku] Tokushima Pref.- 1 ♂ , Mt. Tsurugi-san, 18. vi. 1981 (I. Kanazawa, at light); 2 ♂ (24. vii. 1986) & 1 ♂ (14. viii. 1986), Mt. Takashiroyama, (K. Ôhara *et al*., at light); 1 ♂ , Mt. Koutsu-san, 9. vi. 1985 (K. Ôhara). Ehime Pref.- 1 ♀ , Matsuyama, vii. 1911 (T. Uchida), recorded as *Paniscus testaceus* by Uchida (1928). Kochi Pref.- 1 ♂ (22. v. 1990, I. Yamashita), 1 ♂ (25. vii. 1991, I. Yamashita) & 1 ♂ (1. vii. 1995, K. Konishi, at light), Hongawa-mura; 1 ♂ , Kochi City, 9. v. 1969 (J. Yukawa). [Kyushu] Fukuoka Pref.- 1 ♂ (4. viii. 1937, Hori *et al*.), 2 ♂ (12 - 13. vi. 1966, K. Kusigemati), 5 ♂ (5. vii. 1983, R. Noda, at light) & 2 ♂ (7 - 8. vii. 1983, O. Tadauchi, at light), Mt. Hikosan. Oita Pref.- 1 ♂ (19. vii. 1978, K. Setoya), 20 ♂ (29. v. 1982, R. Noda *et al*., at light), 2 ♀ (7 - 10. viii. 1982, K. Hirano), 3 ♀ 3 ♂ (6 - 10. viii. 1982, R. Noda), 1 ♀ 11 ♂ (22. v. 1983, Y Abe *et al*., at light), 3 ♀ 4 ♂ (5 - 7. viii. 1983, R. Noda, at light) & 1 ♀ 2 ♂ (5 - 7. viii. 1983, K. Hirano), Mts. Kuju. Kumamoto Pref.- 7 ♂ (12 - 13. vi. 1978, H. Makihara, at light) & 11 ♂ (20 - 29. vi. 1978, K. Yamagishi, light trap), Mt. Asosan; 3 ♀ (15. vi. 1985) and 1 ♂ (21. vii. 1985), Shiiya-tôge, (K. Konishi, at light); 1 ♂ (10. vii. 1977, T. Saigusa, at light), 1 ♂ (19. vii. 1977, K. Ôhara, at light), 3 ♂ (8 - 9. vii. 1978, A. Nagatomi), 1 ♂ (9 - 10. vii. 1978, K. Maeto), 2 ♀ 1 ♂ (12 - 13. v. 1983, N. Kôda *et al*., at light), 7 ♂ (9. vii. 1983, N. Kôda, at light), 2 ♂ (19. vii. 1983, N. Kôda *et al*., at light), 1 ♂ (20. vii. 1983, K. Konishi), 3 ♂ (26. viii. 1983, N. Kôda *et al*., at light), 1 ♂ (26. viii. 1983, K. Konishi), 3 ♂ (26.

viii. 1987, R. Noda, at light) & 1 ♂ (19. ix. 1992, R. Noda, at light), Mt. Shiratoriyama. Miyazaki Pref.- 1 ♀ , Shiiya-toge, 15 - 16. vi. 1985 (K. Konishi); 1 ♂ , Mt. Takachihonomine, 22. vii. 1933 (Hori & Fujino). Kagoshima Pref.- 1 ♂ (10. v. 1967, M. Suwa), 1 ♂ (19. v. 1982, K. Konishi *et al*., at light) & 1 ♂ (20 - 21. vii. 1983, N. Kôda *et al*., at light), Kurinodake. [Yakushima Is.] 1 ♂ , 11. vii. 1935 (A. Umeno). RUSSIA: 1 ♂ (15. viii. 1927) & 1 ♀ (30. ix. 1927), Konuma, Sakhalin, (K. Tamanuki), recorded as *Paniscus testaceus* by Uchida (1928).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Yakushima Is.), Europe, Russia.

Host. Uchida (1928) recorded *Dendrolimus spectabilis* (Butler, 1877), *Laothoe amurensis* (Staudinger, 1892), *Acronicta psi* (Linnaeus, 1758), *Cucullia elongata* Butler, 1880 and *Cimbex femorata* (Linnaeus, l758) as hosts of *Paniscus testaceus*. Because most of the specimens which were recorded as *Paniscus testaceus* by Uchida (1928) are *melanura*, the host records are thought to be for *melanura*. As the specimens with host data were not found in Uchida collection, the records could not be confirmed.

Netelia (*Netelia*) *nigrinota* (Uchida)
(Figs. 19A–H, 20A–B)

Paniscus testaceus var. *nigrinotus* Uchida, 1928: 191 (in part).
Paniscus ocellaris: Uchida, 1928: 191 (in part).
Netelia (*Netelia*) *testaceus nigrinotus*: Townes, 1938: 194.
Netelia (*Netelia*) *nigrinotus*: Townes, Momoi & Townes, 1965: 90.

♂. Head (Figs. 19A, 19B) 1.6–1.8 times as wide as long; occipital carina obsolete at the mid line or in the mid dorsal area weak and horizontal; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.9–3.4; upper face weakly to distinctly trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.8–2.1 times as wide as long; flagellum 48–54–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.7–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.4–1.5 times as long as wide; mesoscutellum 1.5–2.0 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly to distinctly striate; propodeum trans-striate on anterior 5/6 to almost all over; lateral crest of propodeum weak or distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 12.0–14.0 times as long as wide; fore tarsal claw with 26–48 pectines; hind tarsal claw with 20–34 pectines. Forewing (Fig. 20A) 2.9–3.1 times as long as wide; cu-a distad Rs+M by 1/4–1/2 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 20B) with 5–7 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 19C, 19D) 4.4–5.0 times as long as apical width and 1.5–1.7 times as long as the 2nd; hypopygium (Fig. 19E) long, with apical margin strongly convex and truncate; paramere (Figs. 19F, 19G) with apical portion of dorsal margin weakly emarginate; brace oblique, almost parallel sided and curved; pad produced dorso-basally and not or very weakly produced apico-ventrally, situated near dorsal margin; aedeagus (Fig. 19H) with penis valve slender.

Head yellow; interocellar area black; antenna reddish or brownish yellow; occiput and vertex brownish yellow, or occiput, vertex and median portion of upper face brown

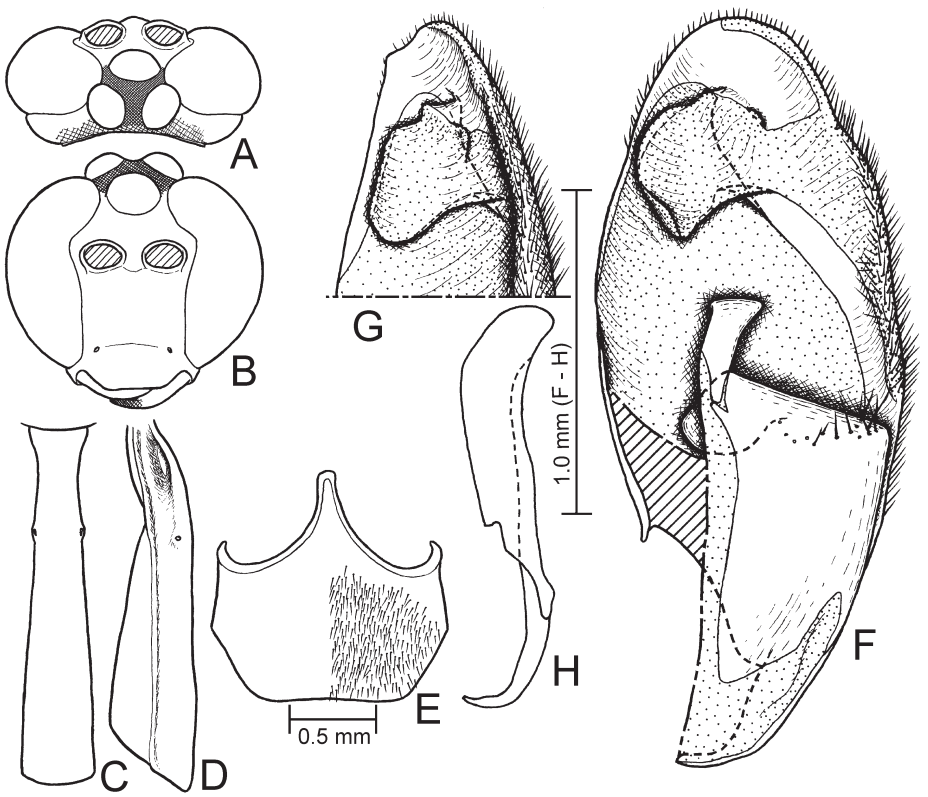

Fig. 19. *Netelia* (*Netelia*) *nigrinota* (Uchida, 1928), ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, ditto in ventro-median view; H, aedeagus in lateral view.

in darker specimens. Mesosoma brownish yellow; pronotum sometimes light brown on dorsal half, or entirely brown in darker specimens; mesoscutum light brown to blackish brown; meso- and metapleura with or without brown markings, or entirely brown except margins in darker specimens; scutellum and dorsal surface of propodeum light brown to blackish brown in darker specimens. Legs brownish yellow; hind tarsus yellow; hind coxa, trochanter and femur light brown to brown in darker specimens. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown. Metasoma reddish yellow with 1st and 2nd terga except basal portions and 6th to 8th segments light brown to brown, or metasoma entirely brown to blackish brown in darker specimens.

Length of forewing: 8.3–14.6 mm.

♀ . Not examined.

Specimens examined. [Hokkaido] 1 ♂ , Asyoro, Tokachi, 24. vii. 1967 (A. Nakanishi); 1 ♂ (lectotype) & 1 ♂ (recorded as *Paniscus ocellaris* by Uchida, 1928), Garugawa, Sapporo, 7. vi. 1923 (T. Uchida). [Honshu] Aomori Pref.- 1 ♂ (16. vii. 1990) & 1 ♂ (29. vi. 1992), Aomori City (T. Ichita). Iwate Pref.- 1 ♂ (15. vii. 1985) & 2 ♂ (16. vii. 1985), Mt. Hayachine (K. Konishi *et al*., at light). Fukushima Pref.- 5 ♂ , Kawairi nr. Mt. Iide, 27 - 30. vi. 1987 (K. Konishi, at light); 1 ♂ (7. vii. 1985) & 1 ♂ (8. vii. 1985), Iitate-mura (K. Konishi *et al*., at light); 9 ♂ , Hirono-machi, 23.

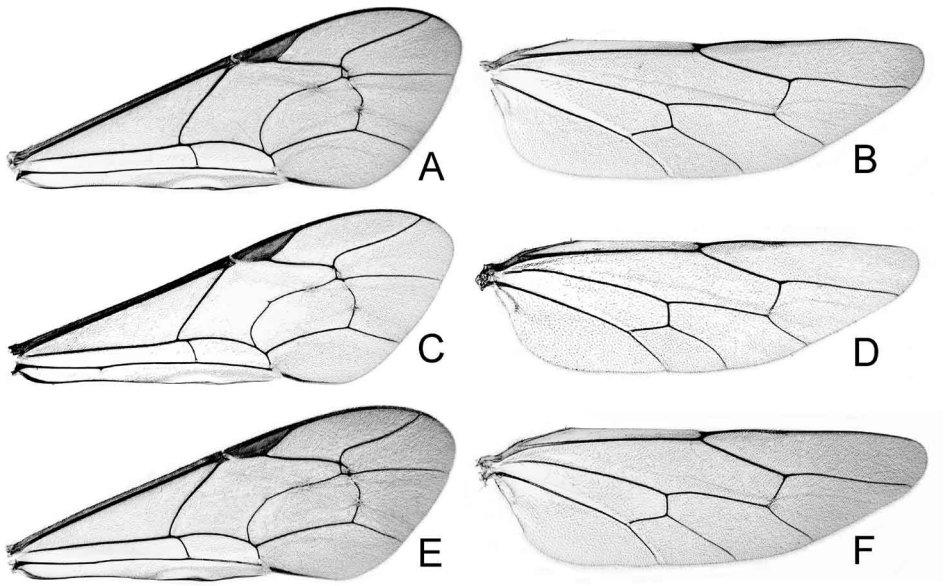

Fig. 20. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *nigrinota* (Uchida, 1928); C & D, *N.* (*N.*) *nigritarsalis* n. sp.; E & F, *N.* (*N.*) *nomurai* n. sp.

viii. 1987 (S. Saito). Niigata Pref.- 1 ♂ (20. vi. 1981), 1 ♂ (20. viii. 1982) & 1 ♂ (16. viii. 1983), Senami (K. Baba); 1 ♂ , Sakasamaki, 17 - 18. viii. 1981 (K. Baba); 1 ♂ , Mt. Shinbo-dake, Asahi-mura, 5. vi. 1980 (K. Maeto). Ishikawa Pref.- 1 ♂ , Oshimizu-machi, 16. vi. 1990 (I. Togashi). Tochigi Pref.- 1 ♂ , Sakuhara, Tanuma, 24. v. 1998 (T. Matsumura); 7 ♂ (21. vii. 1987, H. Makihara) & 2 ♂ (12. ix. 1987, K. Konishi), Okukinu, (at light); 1 ♂ , Yunishigawa, 20. viii. 1988 (M. Hayashi *et al*., at light); 3 ♂ (8. vii. 1977, at light) & 1 ♂ (16. ix. 1986, I. Hattori), Nikko; 1 ♂ , Utsunomiya, 6. v. 1968 (H. Takizawa). Ibaraki Pref.- 3 ♂ (8 - 14. viii. 1989) & 1 ♂ (14 - 25. viii. 1989), Mt. Tsukubasan (M. Sharkey, Malaise trap). Gunma Pref.- 2 ♂ , Mt. Hotaka, 13. vii. 1991 (M. Yoshida, at light); 2 ♂ , Kirizumi, 13. vi. 1973 (N. Fukuhara). Saitama- 1 ♂ (22. v - 27. vi. 1972) & 1 ♂ (11. viii - 30. ix. 1972), Iruma (M. Shimoda); 1 ♂ , Hatoyama, 24. viii. 1984 (T. Ohkuchi *et al*.); 1 ♂ , Irikawa, Okuchichibu, 1. vii. 1982 (M. Hayashi *et al*). Tokyo- 1 ♂ (28. v. 1930) and 1 ♂ (30. v. 1930); 62 ♂ (H. Nagaoka) & 23 ♂ (S. Saito), Yazawa, Hinohara, 13. vii. 1998, (at light); 1 ♂ (15. viii. 1987) & 4 ♂ (24. v. 1988), Oume (S. Saito); 1 ♂ (9. ix. 1949, S. Kato), 2 ♂ (9. ix. 1963, J. Minamikawa), 1 ♂ (13. x. 1963, J. Minamikawa), 3 ♂ (10. x. 1965, J. Minamikawa), 2 ♂ (30. v. 1966, J. Minamikawa), 3 ♂ (19. vi. 1966, J. Minamikawa) & 1 ♂ (15. ix. 1971, J. Minamikawa), Mt. Takaosan; 3 ♂ , Asakawa, 19. viii. 1987 (K. Konishi); 2 ♂ (12. viii. 1987), 1 ♂ (13. viii. 1987) & 1 ♂ (26. v. 1988), Machida, (S. Saito); 1 ♂ , Kodaira, 5. vi. 1969 (N. Shimizu); 1 ♂ , Itsukaichi, 28. v. 1994 (S. Kubota). Kanagawa Pref.- 1 ♂ , Miyanoshita, Hakone, 18. vi. 1938 (M. Higashino); 2 ♂ (11. vi. 1987) & 1 ♂ (30. vi. 1987), Odawara (H. Makihara). Nagano Pref.- 2 ♂ , Hakubajiri, 27. vii. 1979 (K. Ôhara, at light); 1 ♂ , Oneyama nr. Usui Pass, 14. vi. 1973 (A. Kawada *et al*., at light). Yamanashi Pref.- 1 ♂ , Hirogawara, Ashiyasu, 20. viii. 1987 (S. Nomura); 1 ♂ , Kiyosato, Oizumi, 19. vii. 1984 (S. Nomura, at light); 1 ♂ (24. vii. 1964, A. Nakanishi) and 1 ♂ (9. vii. 1967, H. Takizawa), Masutomi. Shizuoka Pref.- 1 ♂ (4. viii. 1949) & 1 ♂ (30. v. 1954), Kanaya (J. Minamikawa); 5 ♂ (11. ix. 1966, T. Maenami), 7 ♂ (15. ix. 1966, T. Maenami),

2 ♂ (16. ix. 1966, T. Maenami), 1 ♂ (8. x. 1966, T. Maenami), 1 ♂ (14. vi. 1967, T. Maenami), 2 ♂ (23. vi. 1967, T. Maenami), 1 ♂ (7. vii. 1967, T. Maenami), 3 ♂ (9. viii. 1967, K. Ogura), 53 ♂ (16. viii. 1967, T. Maenami), 1 ♂ (17. viii. 1967, T. Maenami), 11 ♂ (22. viii. 1967, T. Maenami), 6 ♂ (23. viii. 1967, K. Ogura), 23 ♂ (25. viii. 1967, K. Ogura), 3 ♂ (5. ix. 1967, T. Maenami), 1 ♂ (5. v. 1968, T. Maenami), 1 ♂ (12. v. 1968, T. Maenami), 1 ♂ (25. v. 1968, T. Maenami), 1 ♂ (5. viii. 1968, T. Maenami), 1 ♂ (24. viii. 1968, T. Maenami) & 1 ♂ (23 - 25. vi. 1970, M. Ohrui), Mt. Iwamuro, Izu; 1 ♂ , Ito, Izu, 25. viii. 1969 (M. Ohmori). Gifu Pref.- 1 ♂ (22. vii. 1981) & 1 ♂ (23. vii. 1981), Hikagedaira, Takayama (T. Tanabe). Aichi Pref.- 1 ♂ , Uradani, Kitashitara, 13. vi. 1973 (S. Ohkusa). Mie Pref.- 1 ♂ , Hirakura, 14 - 17. x. 1983 (A. Saito). Kyoto Pref.- 1 ♂ , Kifune, vii. 1944; 1 ♂ , Kyoto, 15. v. 1985. Hyogo Pref.- 1 ♂ , Mt. Rokkosan, 24. viii. 1984 (I. Kojima). Tottori Pref.- 1 ♂ (12. vi. 1963, A. Nakanishi) & 1 ♂ (6. vii. 1966, T. Okadome), Mt. Daisen. Hiroshima Pref.- 1 ♂ , Mt. Garyu-zan, 27. vi. 1987 (S. Nomura); 1 ♂ , Mt. Shinnyusan, 2. vi. 1983 (S. Yoshimatsu *et al*., at light); 2 ♂ , Mt. Azumayama, 23. ix. 1984 (K. Konishi *et al*., at light). [Izu-shichito Isls.] 4 ♂ (11. v. 1969) & 2 ♂ (14. v. 1969), Mikurajima Is. (S. Katsuya *et al*.); 1 ♂ , Hachijo-jima Is., 21. v. 1909 (Arakawa). [Shikoku] Tokushima Pref.- 1 ♂ (17. x. 1980, K. Maeto) & 1 ♂ (10. vii. 1993, I. Yamashita, at light), Mt. Tsurugisan. Kochi Pref.- 3 ♂ , Tengu-kôgen, Hiogashitsuno, 21. viii. 1999 (I. Yamashita, at light); 1 ♂ , Nishikuma, Mononobe, 9. vii. 2000 (I. Yamashita, at light); 1 ♂ (vii. 1933, H. Wada), 1 ♂ (22. vii. 1989, I. Yamashita, at light), 2 ♂ (11. ix. 1989, I. Yamashita), 1 ♂ (3. vii. 1994, I. Yamashita), 3 ♂ (1. vii. 1995, K. Konishi *et al*., at light) & 3 ♂ (1. vii. 2000, I. Yamashita, at light), Hongawa. [Kyushu] Fukuoka Pref.- 1 ♂ , Mt. Fukuchiyama, 19. v. 1969 (H. Makihara); 1 ♂ (28 -29. v. 1930, Hori *et al*.), 1 ♂ (20 - 21. vi. 1938, Hori *et al*.) & 1 ♂ (12. v. 1969, M. Honda), Mt. Wakasugiyama; 1 ♂ , Mt. Tachibanayama, 1. ix. 1927 (K. Yasumatsu); 1 ♂ (9. vi. 1936, Hori *et al*.) & 1 ♂ (24. iv. 1959, Y. Maeta), Kashii, Fukuoka; 1 ♂ , Mt. Homanzan, 11. v. 1977 (K. Maeto); 2 ♂ , Mt. Sefurisan, 15. ix. 1984 (K. Konishi *et al*., at light); 1 ♂ , Mt. Innakiyama, 20. v. 1976 (Y. Yoneda); 1 ♂ (19. viii. 1935, T. Esaki), 1 ♂ (27. viii. 1935, T. Esaki), 1 ♂ (5. ix. 1958, K. Kamijo), 4 ♂ (12. vi. 1966, K. Kusig.), 1 ♂ (25. vi. 1966, A. Nakanishi), 1 ♂ (26. vi. 1966, H. Shima), 1 ♂ (26. viii. 1968, K. Kanmiya), 1 ♂ (26. v. 1969, K. Takeno, Malaise trap), 1 ♂ (14. vi. 1969, K. Kanmiya, at light), 1 ♂ (18. vi. 1969, K. Takeno, Malaise trap), 1 ♂ (23. vi. 1969, K. Takeno, Malaise trap), 1 ♂ (1. ix. 1969, K. Takeno, Malaise trap), 1 ♂ (3. ix. 1969, K. Takeno, Malaise trap), 1 ♂ (5. ix. 1969, K. Kanmiya, at light), 2 ♂ (6. ix. 1969, K. Kanmiya, at light), 2 ♂ (13. ix. 1969, K. Kanmiya, at light), 1 ♂ (2. vii. 1970, K. Nozato, at light), 2 ♂ (3. ix. 1970, K. Takeno, at light), 1 ♂ (25. viii. 1971, K. Takeno), 1 ♂ (14. viii. 1973, Y. Yoneda), 1 ♂ (11. x. 1980, K. Konishi, at light), 3 ♂ (16. vi. 1982, K. Konishi, at light), 19 ♂ (5. vii. 1983, R. Noda, at light), 13 ♂ (6. vii. 1983, R. Noda, at light), 2 ♂ (7 - 8. vii. 1983, O. Tadauchi *et al*., at light), 5 ♂ (18 - 19. viii. 1983, N. Kôda, at light), 3 ♂ (29. viii. 1983, K. Ôhara, at light), 5 ♂ (30. viii. 1983, K. Ôhara, at light), 1 ♂ (31. viii. 1983, K. Ôhara, at light), 1 ♂ (7. ix. 1983, M. T. Chûjô, at light), 3 ♂ (13. ix. 1983, M. T. Chûjô, at light), 2 ♂ (6. ix. 1984, K. Konishi, at light) & 5 ♂ (24 - 25. vi. 1985, N. Kôda, at light), Mt. Hikosan. Saga Pref.- 1 ♂ (19. v. 1973) & 1 ♂ (5. vi. 1973), Kamiozoegawa, Fuji. Nagasaki Pref.- 1 ♂ , Mts. Unzen, 24. ix. 1983 (K. Konishi *et al*., at light). Oita Pref.- 1 ♂ , Kuju Mts., 24. vii. 1977 (R. Noda). Kumamoto Pref.- 2 ♂ (13. vi. 1978, H. Makihara), 2 ♂ (17. vi. 1978, H. Makihara), 3 ♂ (18. vi. 1978, H. Makihara), 6 ♂ (20 - 29. vi. 1978, K. Yamagishi) & 1 ♂ (10. vii. 1983, H. Harada *et al*.), Mt. Asosan, (at light); 1 ♂ , Shiiya-tôge, 26. vii. 1985 (K. Konishi *et al*., at light); 2 ♂ (9. vii. 1983, N. Kôda), 1 ♂ (19. vii. 1983, N. Kôda *et al*.) & 1 ♂ (25. viii. 1983, K. Konishi), Mt. Shiratoriyama, Izumi, (at light); 1 ♂ , Nihonsugi, Izumi, 7. vi. 1983 (Y. Yoshida *et al*., at light). Miyazaki Pref.- 4 ♂ (16. v. 1983) & 1 ♂ (17. v. 1983), Miike (K. Konishi *et al*., at light). Kagoshima Pref.- 1 ♂ , Izumi, 4. v. 1969 (S. Hashimoto); 1 ♂ , Mt. Eboshidake, 9. v. 1964 (K. Hashimoto); 1 ♂ (5. vi. 1965, A. Tanaka) & 1 ♂

(25. v. 1966, K. Kusig.), Mt. Kirishima; 1 ♂, Mt. Takachihonomine, 7. vi. 1966 (A. Nakanishi); 1 ♂, Mt. Araseyama, 23. v. 1978 (K. Kusigemati); 1 ♂, Mt. Takakumayama, 30. viii. 1970 (K. Kusigemati). [Yakushima Is.] 1 ♂ (5. vi. 1970, K. Hashimoto), 2 ♂ (6. v. 1972, K. Kusigemati), 1 ♂ (31. v. 1974, K. Hashimoto) & 3 ♂ (24. v. 1974, K. Kusigemati), Miyanoura; 1 ♂, Kusukawa, 23. iv. 1967 (T. Kocha); 1 ♂ (26. vii. 1967) & 1 ♂ (24. v. 1968), Kurio (A. Tanaka); 1 ♂, Hanayama, 23. v. 1968 (A. Mori); 1 ♂, Shiratani-unsuikyo, 26. vii. 1982 (K. Konishi *et al*., at light); 2 ♂, Anbo, 11. v. 1981 (Sk. Yamane); 1 ♂, Anbo-rindô, 22. vii. 1982 (K. Konishi *et al*., at light); 6 ♂, Nagata, 5. v. 1973 (K. Kusigemati). [Tokara Isls.] 2 ♂, Nakanoshima Is., 1. v. 1987 (S. Nomura).

Distribution. Japan (Hokkaido, Honshu, Izu-shichitô Isls., Shikoku, Kyushu, Yakushima Is., Tokara Isls.).

Remarks. This is the first description and illustration of the male genitalia of *nigrinota*.

Netelia (*Netelia*) *nigritarsalis* n. sp.
(Figs. 20C–D, 21A–H)

Paniscus grumi: Uchida, 1928: 190 (in part).

♂. Head (Figs. 21A, 21B) 1.7 times as wide as long; occipital carina complete, with mid-dorsal area horizontal; vertex in dorsal view convex; interocellar area weakly sculptured or sometimes smooth; geno-orbital index 2.0–2.6; upper face finely granulate with weak to distinct trans-striae; lower face 1.4–1.6 times as wide as long; clypeus 2.0–2.2 times as wide as long; flagellum 45–55–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.6–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.5–1.8 times as long as distance between lateral carinae at its base, with lateral carina weak to sharp and extending to posterior margin; metapleuron puncto-striate on ventral 1/3–1/2, or sometimes strongly striate on ventral 1/3 and puncto-striate on median 1/3; propodeum trans-striate on anterior 1/2–4/5, posterior 1/5–1/2 with weak longitudinal striae; lateral crest of propodeum absent, weak or distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 10.7–12.1 times as long as wide; fore tarsal claw with 21–32 pectines; hind tarsal claw 14–22.

Forewing (Fig. 20C) 2.8–3.0 times as long as wide; cu-a distad Rs+M by 1/4–2/3 of cu-a length, weakly to strongly inclivous and slightly curved; hindwing (Fig. 20D) with 5–7 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 21C, 21D) 3.6–4.5 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 21E) long, with apical margin strongly convex and truncate; paramere (Figs. 21F, 21G) with apical portion of dorsal margin weakly emarginate; brace oblique, almost parallel sided and weakly curved; pad subtriangular, situated at about middle; aedeagus (Fig. 21H) with penis valve slender.

Head yellow; interocellar area black; occiput reddish yellow; antenna brown. Mesosoma and legs reddish yellow; mesoscutum, scutellum and dorsal surface of propodeum reddish brown to brown; fore and mid tibiae and tarsi reddish brown to brown, tarsi darker than tibiae; hind leg brown except tarsus yellow. Wings hyaline; vein C and stigma of forewing light brown; other veins brown. Metasoma light brown to brown.

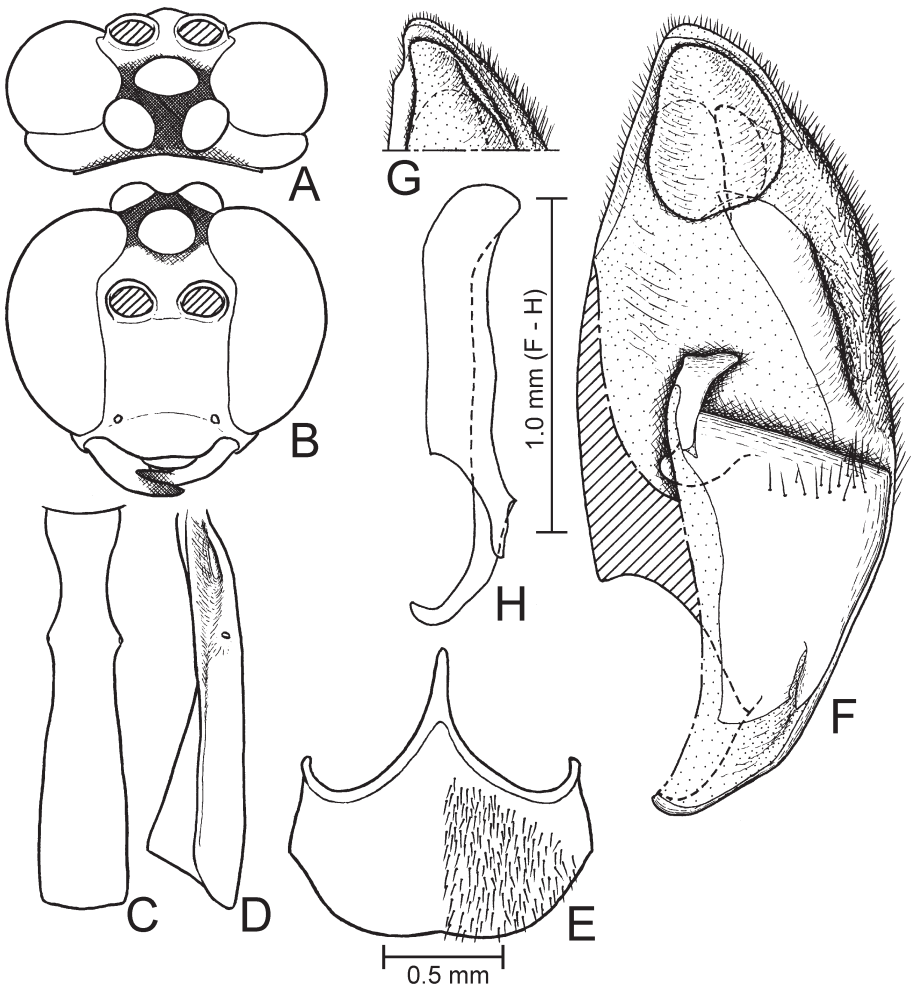

Fig. 21. *Netelia* (*Netelia*) *nigritarsalis* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, ditto in ventro-median view; H, aedeagus in lateral view.

Length of forewing: 8.8–12.3 mm.

♀ . Unknown.

Holotype: ♂ , Naze, Amamiôshima Is., Kagoshima Pref., 22. iii. 1980 (S. Yoshimatsu).

Paratypes: [Hokkaido] 1 ♂ , Sapporo, 9. ix. 1968 (T. Kocha). [Honshu] Tokyo- 1 ♂ , Mt. Takaosan, 3. v. 1963 (J. Minamikawa); 1 ♂ , Imperial Palace, 1. v. 1997 (A. Shinohara). Shizuoka Pref.- 1 ♂ , Kanaya, 25. iv. 1949 (J. Sonan). Gifu Pref.- 1 ♂ , Gifu, 27. iv. 1924 (M. Yanagiwara), recorded as *Paniscus grumi* by Uchida (1928). Kyoto Pref.- 1 ♂ , Takaraike, 20. iv. 1959 (T. Ono). Hyogo Pref.- 1 ♂ , Nakatsugawa, Awajishima, 3. v. 1975 (K. Tobi). [Tsushima Is.] 1 ♂ (M. T. Chû jô) & 1 ♂ (H. Shima), Mt. Ariakeyama, 22. v. 1968. [Kyushu] Kagoshima Pref.- 1 ♂ , Shiroyama, Kagoshima, 28. iv. 1963 (A. Tanaka); 1 ♂ , Kagoshima, 29. iv. 1963 (K. Kusigemati); 3 ♂ (27. iv. 1970) & 2 ♂ (8. v. 1970), Terayama, (K. Kusigemati).

Distribution. Japan (Hokkaido, Honshu, Tsushima Is., Kyushu, Amami-ôshima Is.).

Remarks. This species can be easily distinguished from any other Japanese species of the genus *Netelia* by the brown fore and mid tarsi.

Netelia (*Netelia*) *nomurai* n. sp.
(Figs. 20E–F, 22A–G)

Paniscus testaceus var. *nigrinotus* Uchida, 1928: 191 (in part).

♂. Head (Figs. 22A, 22B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area weakly sculptured or smooth; geno-orbital index 1.8–2.1; upper face finely granulate with a few trans-striae; lower face 1.4–1.6 times as wide as long; clypeus 1.9–2.3 times as wide as long; flagellum 49–55–segmented; 1st flagellomere 1.6–1.7 times as long as the 2nd, the 2nd 2.8 –3.2 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.5–1.7 times as long as distance between lateral carinae at its base, with lateral carina weak to strong and usually extending to posterior margin; metepleuron without striae or weakly to strongly puncto-striate; propodeum trans-striate on anterior 4/5–5/6, sometimes with weak longitudinal striae on posterior 1/5–1/6; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.0–13.3 times as long as wide; fore tarsal claw with 21–37 pectine; hind tarsal claw with 13–24 pectines. Forewing (Fig. 20E) 2.8–3.0 times as long as wide; cu-a distad Rs+M by 2/9–1/2 of cu-a length, weakly to strongly inclivous and slightly curved; hindwing (Fig. 20F) with 5–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 22C, 22D) 3.7–4.6 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 22E) long, with apical margin strongly convex and truncate; paramere (Fig. 22F) with apical portion of dorsal margin not emarginate; brace oblique, relatively long, almost parallel sided and almost straight; pad D-shaped, situated near dorsal margin; aedeagus (Fig. 22G) with penis valve slender.

Head yellow; interocellar area black; occiput reddish yellow, reddish brown or brown; upper face with a median longitudinal brown marking in darker specimens; antenna reddish yellow to brown. Mesosoma reddish yellow except mesoscutum light brown in most weakly pigmented specimens; mesosoma blackish brown except tegula, axilla, anterior and posterior margins of mesopleuron, lateral portion of metanotum, posterior margins of propodeum and metapleuron reddish yellow in most strongly pigmented specimens. Legs reddish yellow; hind coxa and femur darker reddish yellow to brown; hind tarsus yellow. Wings hyaline; vein C and stigma of forewing brownish yellow, light brown or brown; other veins blackish brown. Metasoma darker reddish yellow; 1st and 2nd terga light brown to blackish brown except anterior portions; 3rd and 4th terga reddish brown and 5th to 8th segments blackish brown in strongly pigmented specimens.

Length of forewing: 11.0–14.1 mm.

♀. Unknown.

Holotype: ♂, Kiyosato, Ôizumi-mura, Yamanashi Pref., 19. vii. 1984 (S. Nomura *et al*., at light).

Paratypes: [Hokkaido] 1 ♂ (4–10. viii. 1926, Uchida & Kono, recorded as *Paniscus testaceus*

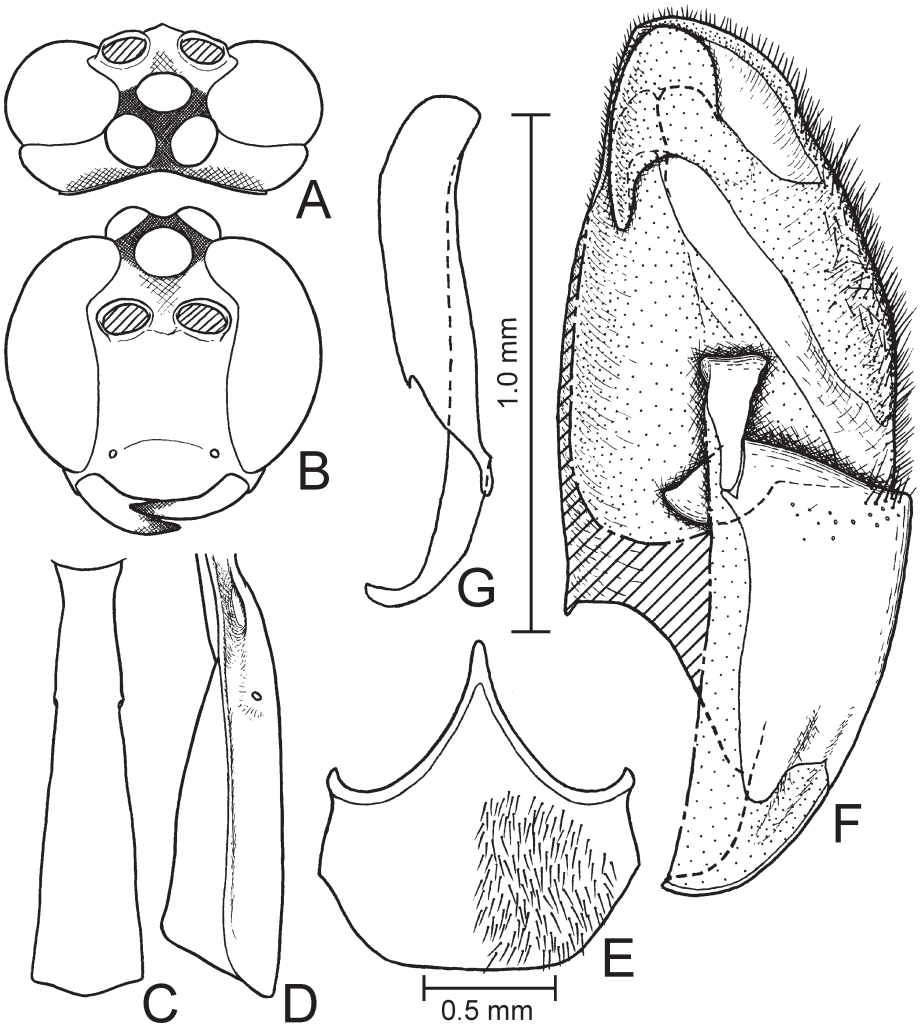

Fig. 22. *Netelia* (*Netelia*) *nomurai* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

var. *nigrinotus* by Uchida (1928)) & 1 ♂ (30. vii. 1967, K. Kusigemati), Mt. Daisetsu; 1 ♂ , Nopporo, Ebetsu, 17. vii. 1980 (K. Maeto); 1 ♂ (27. vii. 1965, K. Kusigemati) & 1 ♂ (2. viii. 1967, S. Takagi), Mt. Soranuma; 1 ♂ , Mt. Moiwayama, Sapporo, 2. vi. 1964 (K. Kusigemati); 3 ♂ , Mt. Tarumaesan, 21–26. vii. 1998 (K. Konishi, Malaise trap). [Honshu] Aomori Pref.- 1 ♂ , Yokouchi–Yaegiku, Aomori, 5–19. ix. 1992 (T. Ichita, sticky trap). Iwate Pref.- 1 ♂ (15. vii. 1985) & 6 ♂ (16. vii. 1985), Kawaranobo, Mt. Hayachine, (K. Konishi *et al*., at light). Miyagi Pref.- 1 ♂ , Futakuchikeikoku, Akiu, 12. vii. 1985 (K. Konishi *et al*., at light). Yamagata Pref.- 1 ♂ (3. viii. 1966, A. Nakanishi) & 1 ♂ (19. vii. 1975, O. Yata), Mt. Iide. Fukushima Pref.- 1 ♂ , Kawairi, nr. Mt. Iide, 24. vii. 1993 (K. Konishi, at light); 1 ♂ (7. vii. 1985) & 1 ♂ (8. vii. 1985), Iitate, Mts. Abukuma, (K. Konishi *et al*., at light); 1 ♂ , Akayu-onsen, Fukushima, 3. viii. 1996 (S. Sakurai,

at light); 1 ♂, Hinoemata, 30. viii. 1986 (S. Yoshimatsu *et al*., at light). Gunma Pref.- 1 ♂, Mt. Hotaka, 13. vii. 1991 (M. Yoshida, at light). Saitama Pref.- 1 ♂, Kuriyama, Ogawa, 18. ix. 1993 (T. Nambu, at light). Tokyo- 1 ♂, Ogikubo, 9. vi. 1939 (M. Kawai); 1 ♂, Suginami, 26. vii. 1955 (N. Fukuhara); 1 ♂, Mt. Takaosan, 10. x. 1965 (J. Minamikawa). Kanagawa Pref.- 1 ♂, Oiso, 28. iv. 1935 (H. Yuasa); 1 ♂, Odawara, 11. vi. 1987 (H. Makihara). Gifu Pref.- 1 ♂, Hikagedaira, Takayama, 22. vii. 1981 (T. Tanabe); 1 ♂, Harayama, Takayama, 19. viii. 1976 (K. Ueda, at light). Shizuoka Pref.- 1 ♂, Mt. Iwamuro, 21. vi. 1967 (T. Maenami); 1 ♂, Mt. Amagi, 30. viii. 1966 (M. Suwa). Aichi Pref.- 1 ♂, Mt. Sanage, 18–24. ix. 1992 (T. Kanbe, Malaise trap). Nara Pref.- 1 ♂, Odaigahara, 25. vi. 1984 (K. Konishi, at light). Hyogo Pref.- 1 ♂, Mt. Ohginosen, 20. vii. 1962 (A. Nakanishi). Hiroshima Pref.- 1 ♂, Honmura, Syobara, 16. viii. 1998 (B. Maeto). [Shikoku] Tokushima Pref.- 3 ♂, Mt. Tsurugisan, 10. vii. 1993 (I. Yamashita, at light). Kochi Pref.- 1 ♂, Jigokudani, Kochi, 28. vi. 1992 (I. Yamashita, at light). [Tsushima Is.] 2 ♂, 16–18. vi. 1975 (H. Makihara, Malaise trap). [Kyushu] Fukuoka Pref.- 1 ♂ (19. v. 1939, H. Hori) & 1 ♂ (3–4. ix. 1986, M. Abe, at light), Mt. Hikosan. Oita Pref.- 1 ♂, Mt. Kurodake, Mts. Kuju, 29. v. 1982 (K. Hirano). Kumamoto Pref.- 1 ♂, Mt. Shiratoriyama, Izumi, 19. vii. 1983 (N. Kôda et al., at light). Miyazaki Pref.- 1 ♂, Miike, 28. vii. 1976 (T. Shiba). Kagoshima Pref.- 1 ♂ (11. vi. 1975, T. Shiba) & 1 ♂ (10. vi. 1980, K. Kusigemati), Mt. Takachihonomine, Mts. Kirishima. [Yakushima Is.] 1 ♂, Kusukawa–Shiratani, 16. vi. 1980 (M. Suwa); 1 ♂, Miyanoura, 6. v. 1972 (K. Kusigemati); 1 ♂, Yodogawagoya, 20. vii. 1982 (K. Konishi *et al*., at light); 5 ♂, Anbou-rindô, 12. v. 1983 (K. Konishi *et al*., at light); 1 ♂ (M. Suwa) & 1 ♂ (K. Kusigemati), Mt. Miyanouradake, 18. vi. 1980.

Distribution. Japan (Hokkaido, Honshu, Shikoku, Tsushima Is., Kyushu, Yakushima Is.).

Remarks. This species resembles *takaozana* in the shapes of pad, brace and paramere, but differs from the latter in having the long male hypopygium and the less strongly produced pad.

Netelia (*Netelia*) *ocellaris* (Thomson)
(Figs. 23A–G, 24A–B)

Paniscus ocellaris Thomson, 1888: 1199.
Paniscus cephalotes: Uchida, 1928: 188 (in part).
Paniscus ocellaris: Uchida, 1928: 191 (in part).
Paniscus (*Paniscus*) *ocellaris*: Uchida, 1934a: 110 (in part).
Netelia (*Netelia*) *ocellaris*: Townes, Momoi & Townes, 1965: 90; Delrio, 1975: 57.

♂. Head (Figs. 23A, 23B) 1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.8 –3.0; upper face weakly sculptured, faintly trans-striate with fine weak granulae; lower face 1.4–1.5 times as wide as long; clypeus 1.9–2.0 times as wide as long; flagellum 48–52–segmented; 1st flagellomere 1.4–1.6 times as long as the 2nd, the 2nd 2.7–2.9 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.5–1.7 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron puncto-striate on antero-ventral half; propodeum trans-striate on anterior 4/5–5/6 and smooth on posterior 1/6–1/5; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.2–12.5 times as

long as wide; fore tarsal claw with 25–34 pectines; hind tarsal claw with 13–25 pectines.

Forewing (Fig. 24A) 2.7–3.0 times as long as wide; cu-a distad Rs+M by 1/4–1/3 of cu-a length, weakly inclivous and weakly curved; hindwing (Fig. 24B) with 5–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 23C, 23D) 3.8–4.5 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 23E) long, with apical margin strongly convex and truncate; paramere (Fig. 23F) with apical portion of dorsal margin not emarginate; brace oblique, almost parallel sided and almost straight; pad produced apically and strongly produced dorso-basally into a long protrusion, situated at about middle; aedeagus (Fig. 23G) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind leg except tarsus and metasoma

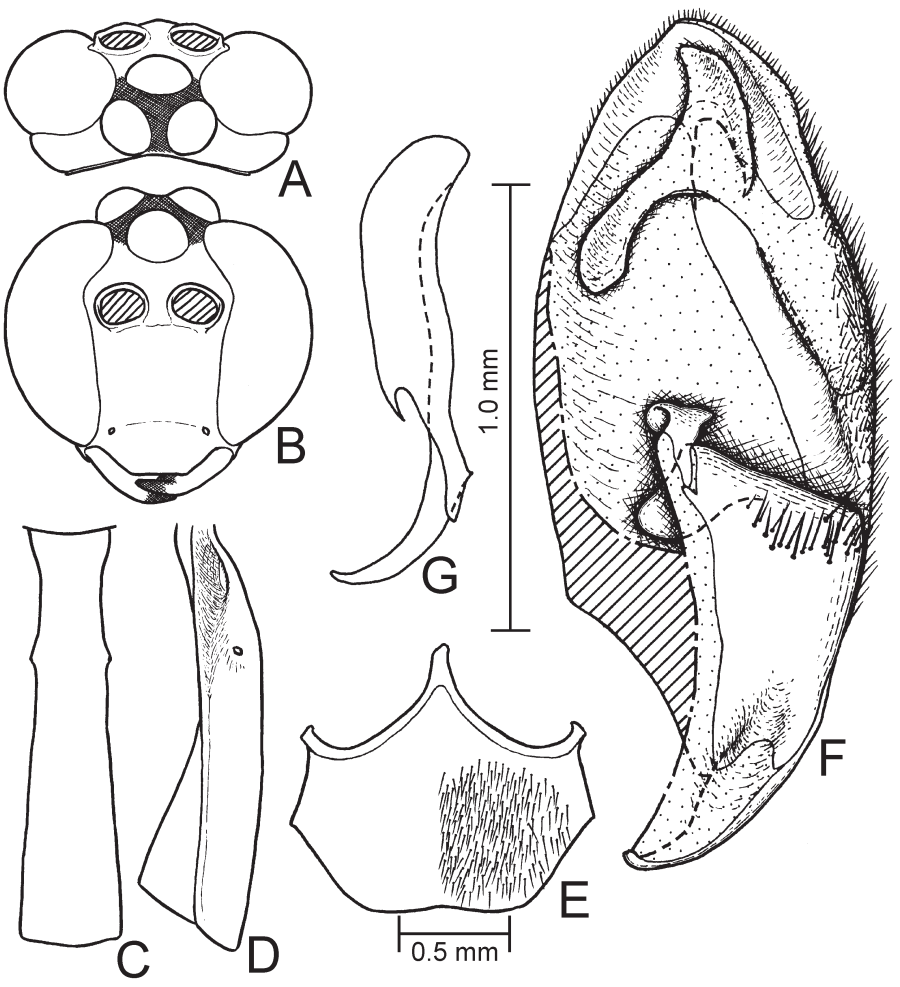

Fig. 23. *Netelia* (*Netelia*) *ocellaris* (Thomson, 1888), ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

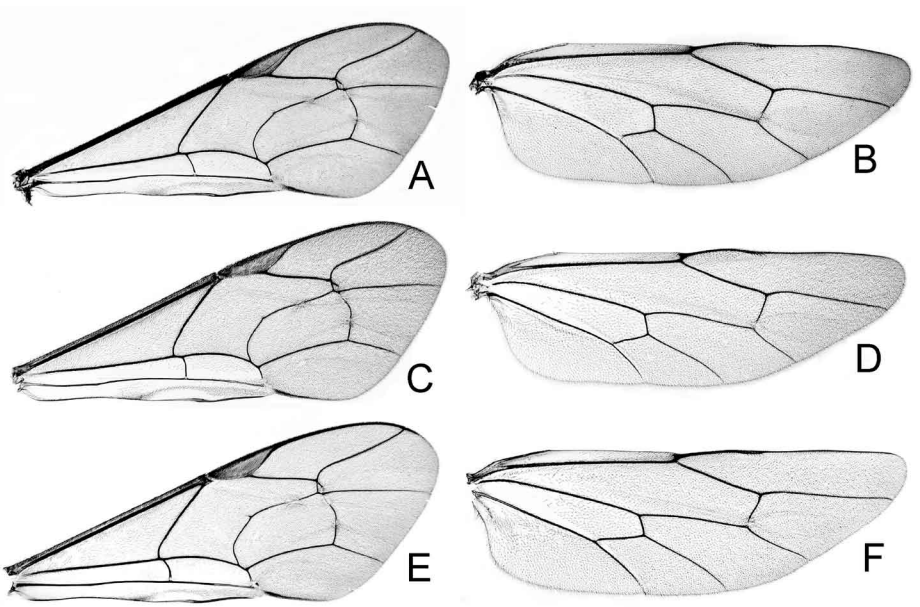

Fig. 24. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *ocellaris* (Thomson, 1888); C & D, *N.* (*N.*) *oharai* n. sp.; E & F, *N.* (*N.*) *opacula* (Thomson, 1888).

somewhat darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 10.9–13.4 mm.

♀. Not examined.

Specimens examined. [Honshu] Fukushima Pref.- 2 ♂, Ohdaki, Hirono, 23. viii. 1987 (S. Saito). Gunma Pref.- 1 ♂, Mt. Mikaboyama, 21. viii. 1971 (H. Fuse). Saitama Pref.- 1 ♂, Saitama, 21. vi (T. Uchida), recorded as *Paniscus cephalotes* by Uchida (1928). Yamanashi Pref.- 1 ♂, Yokote, Hakushu, 14. vii. 1984 (S. Nomura *et al*., at light); 1 ♂, Masutomi, Kanayama, 19–20. vi. 1975 (J. Emoto, Malaise trap). Shizuoka Pref.- 2 ♂ (8. x. 1966), 1 ♂ (25. vii. 1967), 3 ♂ (16. viii. 1967) & 1 ♂ (17. v. 1968), Mt. Iwamuro, Izu, (T. Maenami); 1 ♂ (14. vii. 1947) & 1 ♂ (25. vii. 1947), Kanaya, (J. Minamikawa). Mie Pref.- 1 ♂, Toba, 27. vi. 1922 (M. Yanagiwara), recorded as *Paniscus ocellaris* by Uchida (1926). Kyoto Pref.- 1 ♂, Kyoto, 14. v. 1930 (K. Takeuchi). Tottori Pref.- 1 ♂, Mt. Daisen, 12. vi. 1963 (A. Nakanishi). Shimane Pref.- 1 ♂, Ichibata, Hirata, 4. vi. 1967 (T. Maenami). Hiroshima Pref.- 1 ♂, Honmura, Syobara, 15. vii. 1998 (B. Maeto). [Shikoku] Tokushima Pref.- 3 ♂, Nikubuchidani, Ichinomori, Kisawa, 23. viii. 1986 (K. Ôhara *et al*., at light); 1 ♂, Minaminoma, 20. vii. 1952 (S. Miyamoto). Ehime Pref.- 1 ♂, Mt. Mizunashiyama, Mts. Odamiyama, 25. viii. 1995 (E. Yamamoto, at light); 3 ♂, Hontani, Mts. Odamiyama, 3. ix. 1994 (E. Yamamoto, at light); 1 ♂, Mt. Takataruyama, Mts. Odamiyama, 12. vii. 1994 (E. Yamamoto, at light); Kochi Pref.- 1 ♂ (22. vii. 1989, at light) & 1 ♂ (11. ix. 1989), Teragawa, Hongawa, (I. Yamashita). [Kyushu] Fukuoka Pref.- 1 ♂, Hirao, Fukuoka, 29. iv. 1930 (Hori *et al*.); 1 ♂ (10. v. 1957, Y. Miyatake), 1 ♂ (12. vi. 1966, K. Kusig.), 1 ♂ (12–13. v. 1977, K. Setoya, at light), 1 ♂ (7–8. vii. 1983, O. Tadauchi *et al*., at light) & 1 ♂ (18–19. viii. 1983, N. Kôda, at light), Mt. Hikosan. Oita Pref.- 1 ♂, Chojabaru, Mts. Kuju, 22. v. 1983 (I. Kanazawa); 1

♂, Mt. Kurodake, Mts. Kuju, 31. v. 1986 (R. Noda, at light). Kumamoto Pref.- 1 ♂, Mt. Asosan, 10. viii. 1978 (K. Yamagishi, at light); 1 ♂, Naidaijin, 7. v. 1967 (A. Nakanishi). Kagoshima Pref.- 1 ♂, Kurinodake-onsen, Mts. Kirishima, 27. vii. 1963 (M. Higo); 2 ♂ (10. vii. 1969, N. Sakane) & 1 ♂ (11. vii. 1969, K. Sakamoto), Mt. Kurinodake, Mts. Kirishima; 7 ♂, Mt. Hoyoshidake, Kouyama, 12–14. vii. 1991 (R. Noda, at light). [Amami-ôshima Is.] 1 ♂, Mt. Yuidake, 14. v. 1983 (S. Yoshimatsu *et al*., at light); 1 ♂, Mt. Yuwandake, 11. v. 1983 (S. Yoshimatsu *et al*., at light). [Okinawa-hontô Is.] 1 ♂, Mt. Terukubi, 17. iii. 1986 (Y. Nakata, at light).

Distribution. Japan (Honshu, Shikoku, Kyushu, Amami-ôshima Is., Okinawa-hont ô Is.), Europe, Algeria, Egypt, Afghanistan, Pakistan, India, Sri Lanka, China, Korea, Taiwan.

Host. Though Uchida (1928) recorded *Dendrolimus spectabilis* (Butler, 1877), *Acronicta major* (Bremer, 1861), *A. psi* (Linnaeus, 1758), *Cucullia perforata* Bremer, 1861, *Mamestra brassicae* (Linnaeus, 1758), *Acanthoplusia agnata* (Staudinger, 1892) and *Pseudaletia separata* (Walker, 1865) as hosts of *ocellaris*, no specimens with host data were found in Uchida collection and these records could not be confirmed. Because most of the specimens which were recorded as *ocellaris* by Uchida (1928) are not *ocellaris* but *takaozana*, *opacula*, *facialis* or *infractor*, the host records are questionable.

Netelia (*Netelia*) *oharai* n. sp.
(Figs. 24C–D, 25A–G)

Paniscus unicolor: Uchida, 1928: 189 (in part).

♂. Head (Figs. 25A, 25B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view weakly convex; interocellar area smooth; geno-orbital index 3.0–3.8; upper face weakly trans-striate; lower face 1.3–1.5 times as wide as long; clypeus 1.8–2.1 times as wide as long; flagellum 43–51–segmented; 1st flagellomere 1.5 –1.6 times as long as the 2nd, the 2nd 2.9–3.2 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.5 times as long as wide; mesoscutellum 1.7–1.8 times as long as distance between lateral carinae at its base, with lateral carina weak and extending to posterior margin; metapleuron without striae or weakly to distinctly puncto-striate; propodeum trans-striate on anterior 4/5; lateral crest of propodeum distinct.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 10.9–12.2 times as long as wide; fore tarsal claw with 25–32 pectines; hind tarsal claw with 18–29 pectines.

Forewing (Fig. 24C) 2.7–3.1 times as long as wide; cu-a distad Rs+M by 1/4–2/5 of cu-a length, vertical or weakly to strongly inclivous, and slightly curved; hindwing (Fig. 24D) with 5–7 distal hamuli; nervellar index 0.5.

Metasoma with 1st tergum (Figs. 25C, 25D) 4.0–4.6 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 25E) short, with apical margin weakly convex; paramere (Fig. 25F) with apical portion of dorsal margin emarginate; brace oblique, relatively short and narrow, almost parallel sided and almost straight; pad strongly produced dorsally and weakly produced ventro-apically, situated at around middle; aedeagus (Fig. 25G) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker; hind tarsus yellow. Wings hyaline; vein C and stigma of forewing brownish yellow; other

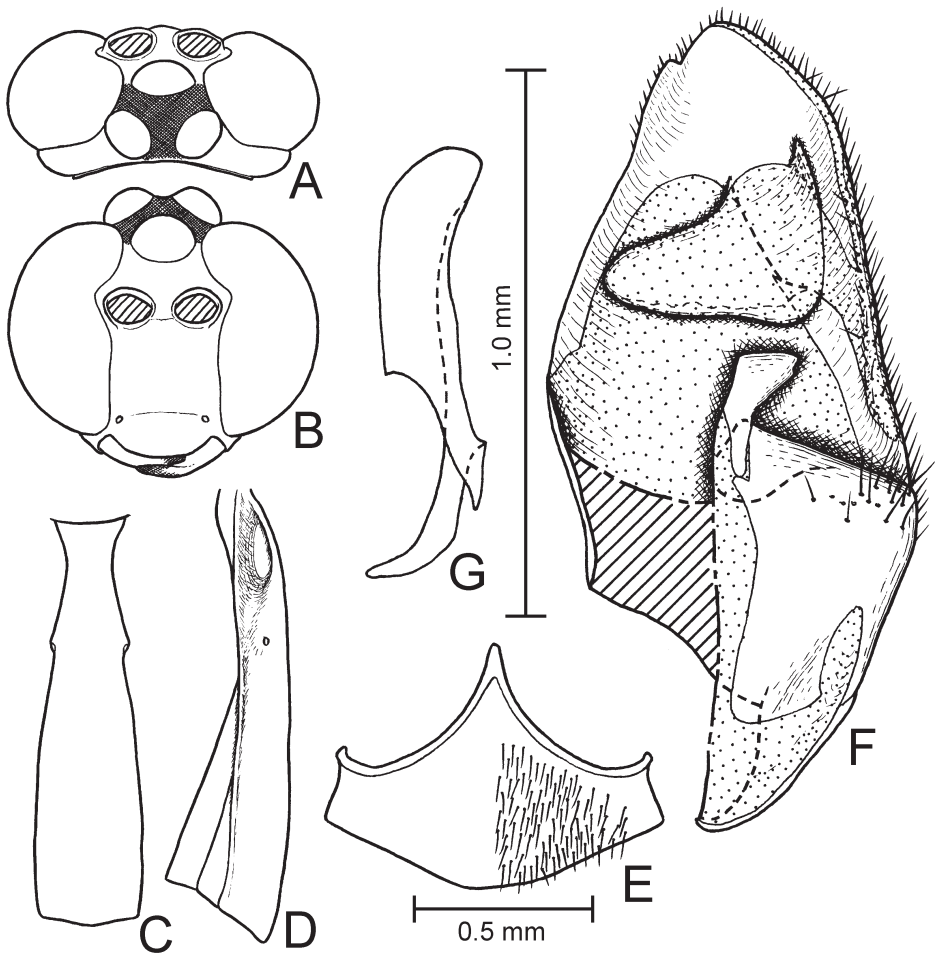

Fig. 25. *Netelia* (*Netelia*) *oharai* n. sp., ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

veins brown.

Length of forewing: 7.6–12.6 mm.

♀ . Unknown.

Holotype: ♂ , Mt. Hikosan, Fukuoka Pref., 31. vii. 1983 (K. Ôhara, at light).

Paratypes: [Hokkaido] 1 ♂ , Aizankei, Mt. Daisetsuzan, 19. vii. 1963 (F. Nakasuji); 1 ♂ , Nukabira, 5. vii. 1989 (K. Maeto); 1 ♂ , Maruyama, Sapporo, 30. vi. 1924 (T. Uchida), recorded as *Paniscus unicolor* by Uchida (1928); 1 ♂ , Hokkaido Univ. Exp. Forest, Tomakomai, 18–20. vi. 1980 (K. Maeto). [Honshu] Iwate Pref.- 1 ♂ , Kawaranobo, Mt. Hayachine, 16. vii. 1985 (K. Konishi *et al*., at light); 1 ♂ , Morioka, 21. v–9. vi. 1989 (M. Sharkey). Fukushima Pref.- 1 ♂ (7. vii. 1985) & 2 ♂ (8. vii. 1985), Iitate, Mts. Abukuma, (K. Konishi *et al*., at light); 2 ♂ , Ohdaki, Hirono, 23. viii. 1987 (S. Saito). Niigata Pref.- 1 ♂ , Miomote Dam, Asahi, 2. vii. 1985 (K. Baba *et al*., at light); 1 ♂ , Mikura, Tsunan, 3. ix. 1994 (S. Sakurai); 1 ♂ , Kessoku, Tsunan, 7. ix.

1996 (S. Sakurai, at light). Ishikawa Pref.- 1 ♂ , Sogo, Oshimizu, 21. vii. 1990 (I. Togashi); 1 ♂ , Yahata, Tsurugi, 9. ix. 1992 (I. Togashi). Tochigi Pref.- 1 ♂ , Miyama, Kuroiso, 30. viii. 1995 (S. Yoshimatsu, at light); 1 ♂ , Nishinasuno, 20. ix. 1995 (S. Yoshimatsu, at light). Gunma Pref.- 1 ♂ , Katashina, 12–13. vii. 1991 (S. Yoshimatsu, at light); 1 ♂ , Mt. Mikaboyama, 14. ix. 1969 (H. Inoue). Saitama Pref.- 2 ♂ , Ootaki, 8. vii. 2000 (T. Nambu, at light). Tokyo- 10 ♂ , Yazawa, Hinohara, 13. vii. 1988 (H. Nagaoka, at light). Shizuoka Pref.- 1 ♂ (9. ix. 1951, M. Osakabe) & 1 ♂ (16. x. 1951, J. Minamikawa), Kanaya; 1 ♂ (11. ix. 1966), 1 ♂ (15. ix. 1966), 1 ♂ (8. x. 1966), 1 ♂ (11. x. 1966), 1 ♂ (5. ix. 1967), 1 ♂ (14. vi. 1967), 1 ♂ (21. vi. 1967), 1 ♂ (20. vii. 1967), 2 ♂ (16. viii. 1967), 1 ♂ (5. ix. 1967) & 1 ♂ (7. vii. 1968), Mt. Iwamuro, Izu, (T. Maenami). Aichi Pref.- 1 ♂ (26. ix. 1971, A. Habuchi) & 1 ♂ (7. vii. 1972, H. Yamada), Uradani, Shitara. Osaka Pref.- 1 ♂ , Mt. Makiosan, 26. ix. 1981 (S. Tsukaguchi). Hiroshima Pref.- 1 ♂ , Hiwa, 22. ix. 1984 (K. Konishi *et al*., at light); 3 ♂ , Mt. Garyuzan, Geihoku, 27. vi. 1987 (S. Nomura). [Shikoku] Tokushima Pref.- 1 ♂ , Nikubuchidani, Kisawa, 23. vii. 1986 (K. Ôhara *et al*., at light). Ehime Pref.- 1 ♂ , Tsuchigoya, Mt. Ishizuchisan, 26. vii. 1971 (Y. Arita). Kochi Pref.- 1 ♂ , Mt. Eboshi, Haruno, 11. vii. 1991 (I. Yamashita); 1 ♂ , Mt. Eboshi, Kochi, 26. vi. 1994 (I. Yamashita). [Tsushima Is.] 2 ♂ (20. vii. 1983) & 1 ♂ (8. vii. 1984), Mt. Ohoshiyama, (R. Noda, at light). [Kyushu] Fukuoka Pref.- 1 ♂ , Mt. Sefurisan, 15. ix. 1984 (K. Konishi, at light); 1 ♂ , Mt. Sangunsan, Chikuho, 6. x. 1984 (K. Konishi *et al*., at light); 2 ♂ (13. ix. 1969, K. Kanmiya), 2 ♂ (2. vii. 1970, K. Nozato), 1 ♂ (8. vii. 1981, K. Konishi), 2 ♂ (16. vi. 1982, K. Konishi, at light), 2 ♂ (5. vii. 1983, R. Noda, at light), 3 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (30. viii. 1983, K. Ôhara, at light), 1 ♂ (31. viii. 1983, K. Ôhara, at light), 5 ♂ (6. ix. 1984, K. Konishi, at light), 1 ♂ (24–25. vi. 1985, N. Kôda, at light) & 1 ♂ (3–4. ix. 1986, M. Abe, at light), Mt. Hikosan. Nagasaki Pref.- 1 ♂ , Takahama, Nodasaki, 15. ix. 1990 (T. Yasunaga, at light). Oita Pref.- 2 ♂ , Mt. Kurodake, Mts. Kuju, 17. viii. 1985 (R. Noda *et al*., at light); 1 ♂ , Yufuin, 4. vii. 1981 (S. Yoshimatsu). Kumamoto Pref.- 1 ♂ (20–29. vi. 1978) & 1 ♂ (1–9. vii. 1978), Mt. Asosan, (K. Yamagishi, light trap); 1 ♂ (19. vii. 1977, T. Goto), 3 ♂ (9. vii. 1983, N. Kôda), 3 ♂ (19. vii. 1983, N. Kôda *et al*.) & 1 ♂ (6. vii. 1991, R. Noda), Mt. Shiratoriyama, Izumi, (at light) ; 2 ♂ , Shiiya-tôge, 26. vii. 1985 (K. Konishi *et al*., at light); 1 ♂ , Mt. Shiragadake, Ue, 5. ix. 1992 (R. Noda, at light). Miyazaki Pref.- 1 ♂ , Miike, Takaharu, 16. v. 1983 (K. Konishi *et al*., at light). Kagoshima Pref.- 1 ♂ , Kurinodake, 12. vii. 1969 (N. Sakane); 1 ♂ , Mt. Hoyoshidake, Kouyama, 12–14. vii. 1991 (R. Noda, at light). [Yakushima Is.] 1 ♂ , Anbou-rindô, 22. vii. 1982 (K. Konishi *et al*., at light).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Tsushima Is., Kyushu, Yakushima Is.).

Remarks. This is a small to medium sized species in the subgenus *Netelia* and superficially resembles *kusigematii*, but differs from the latter in having the emarginate doro-apical margin of paramere and the bilobed pad.

Netelia (*Netelia*) *opacula* (Thomson)
(Figs. 24E–F, 26A–G)

Paniscus opaculus Thomson, 1888: 1199.

Paniscus (*Paniscus*) *opaculus*: Kokujev, 1899: 149; Uchida, 1934a: 111; Uchida, 1940b: 28; Uchida, 1942: 133; Uchida, 1952: 55.

Paniscus opaculus: Kokujev, 1913: 164; Kokujev, 1915: 553; Uchida, 1928: 192; Meyer, 1930: 179.

Paniscus testaceus var. *opaculus*: Morley, 1913: 122.

Paniscus ocellaris: Uchida, 1928: 191 (in part).

Paniscus (*Paniscus*) *ocellaris*: Uchida, 1934a: 110 (in part).

Netelia (*Netelia*) *opacula*: Townes, Townes & Gupta, 1961: 101; Townes, Momoi & Townes, 1965: 92; Delrio, 1975: 59.

♂. Head (Figs. 26A, 26B) 1.6 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 2.0–2.6; upper face faintly to weakly trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.8–2.0 times as wide as long; flagellum 52–58–segmented; 1st flagellomere 1.6 times as long as the 2nd, the 2nd 2.7–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.5–1.6 times as long as wide; mesoscutellum 1.7–1.8 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron weakly and finely trans-striate; propodeum trans-striate on anterior 4/5–7/8 and with weak longitudinal striae on posterior 1/8–1/5; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.9–12.4 times as long as wide; fore tarsal claw 28–38 pectines; hind tarsal claw with 22–28 pectines.

Forewing (Fig. 24E) 2.9–3.1 times as long as wide; cu-a distad Rs+M by about 2/9 of cu-a length, weakly inclivous and curved; hindwing (Fig. 24F) with 6–8 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 26C, 26D) 4.6–5.0 times as long as apical width and 1.6–1.7 times as long as the 2nd; hypopygium (Fig. 26E) moderately long, with apical margin moderately convex and truncate; paramere (Fig. 26F) with apical portion of dorsal margin not emarginate; brace oblique, almost parallel sided and slightly curved; base of pad long; pad produced apically and dorso-basally, situated at about middle; aedeagus (Fig. 26G) with penis valve slender.

Head yellow; interocellar area blackish brown to black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; metasoma darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 13.9–15.9 mm.

♀. Not examined.

Specimens examined. [Hokkaido] 1 ♂ (2. ix. 1924) & 1 ♂ (7. vii. 1927), Jozankei, (T. Uchida), recorded as *Paniscus ocellaris* by Uchida (1928); 1 ♂, Maruyama, Sapporo, 15. vii. 1929 (Igarashi), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934); 1 ♂, Tomakomai, 29. vii. 1964 (T. Kumata); 1 ♂, Akan, 12. vii. 1928 (H. Kono & C. Watanabe), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934). [Honshu] Fukushima Pref.- 1 ♂, Kawairi, nr. Mts. Iide, 27–30. vi. 1987 (K. Konishi, at light). Ishikawa Pref.- 1 ♂, Mt. Hakusan, 28. vii. 1932 (Y. Murakami). Tochigi Pref.- 2 ♂, Numahara, Okukinu, 23. viii. 1986 (S. Yoshimatsu, at light). Ibaraki Pref.- 3 ♂ (22. viii. 1992, K. Konishi) and 1 ♂ (12. viii. 1993, M. Yoshida), Mt. Yamizosan, (at light). Yamanashi Pref.- 1 ♂, Mitsu-tôge, 20. viii. 1938 (Morishita). Hyogo Pref.- 1 ♂, Muraoka, 8. viii. 1983 (S. Yoshimatsu, at light). [Shikoku] Ehime Pref.- 1 ♂, Matsuyama, 1912 (T. Uchida), recorded as *Paniscus ocellaris* by Uchida (1928).

Distribution. Japan (Hokkaido, Honshu, Shikoku), Eulope, Afghanistan, India, China, Korea.

Remarks. Uchida (1928) recorded *Paniscus opaculus* from Gifu based on two females. Though these specimens were found in Uchida collection and examined, they could not be identified with any species.

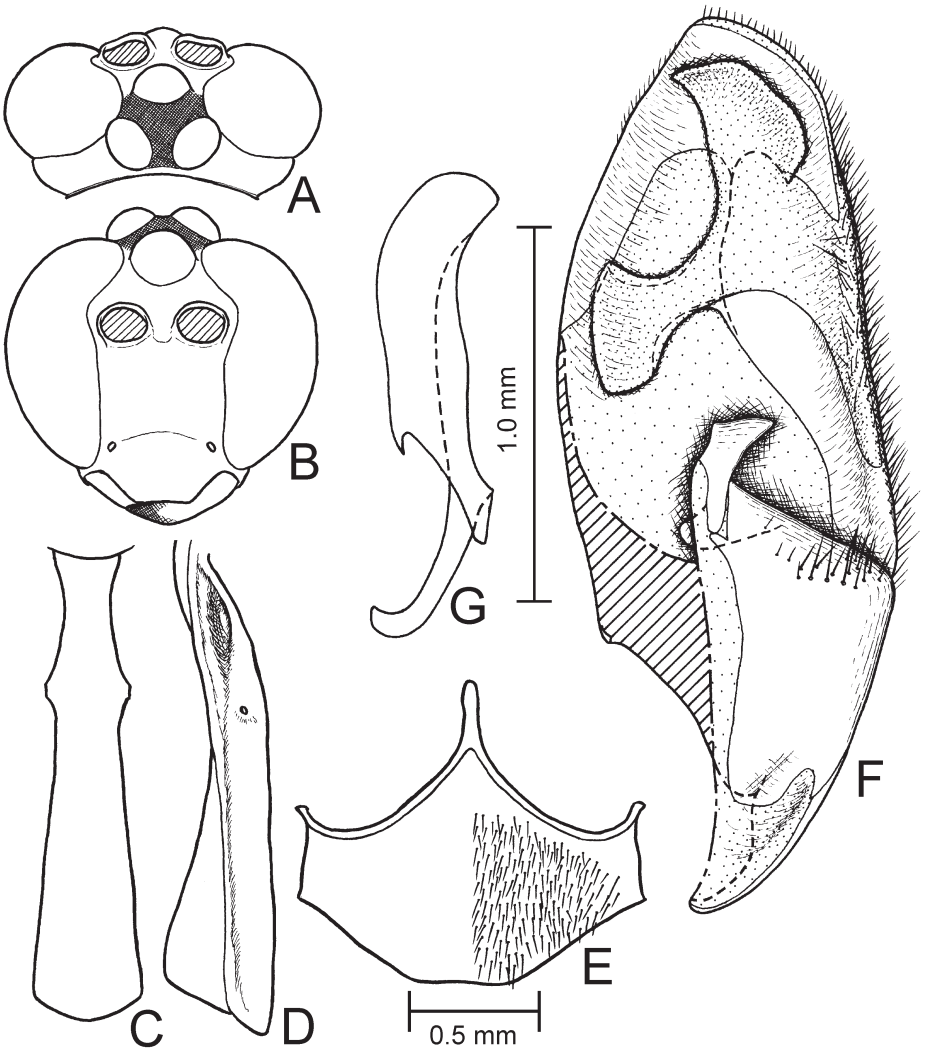

Fig. 26. *Netelia* (*Netelia*) *opacula* (Thomson, 1888), ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

Netelia (*Netelia*) *rapida* Tolkanitz
(Figs. 27A–G, 28A–B)

Paniscus unicolor: Uchida, 1928: 189 (in part).
Netelia (*Netelia*) *ocellaris*: Uchida, 1956: 99 (in part).
Netelia (*Netelia*) *rapida* Tolkanitz, 1981a: 37.

♂. Head (Figs. 27A, 27B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 1.7

–3.1; upper face finely granulate, sometimes with weak trans-striae on lower half; lower face 1.4–1.6 times as wide as long; clypeus 1.8–2.2 times as wide as long; flagellum 42–53–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.7–3.2 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.6–1.9 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron faintly trans-striate on ventral half in larger specimens; propodeum trans-striate on anterior 5/7–5/6 and smooth on posterior 1/6–2/7, sometimes with weak longitudinal striae on posterior 1/6–2/7 in larger specimens; lateral crest of propodeum usually distinct, weak and indistinct in some smaller specimens.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 10.3–13.3 times as long as wide; fore tarsal claw with 14–27 pectines; hind tarsal claw with 8–19 pectines.

Forewing (Fig. 28A) 2.7–3.0 times as long as wide; cu-a distad Rs+M by 1/7–5/8 of cu-a length, vertical or weakly inclivous, and slightly curved; hindwing (Fig. 28B) with 4–7 distal hamuli; nervellar index 0.3–0.5.

Metasoma with 1st tergum (Figs. 27C, 27D) 4.3–5.2 times as long as apical width and 1.4–1.7 times as long as the 2nd; hypopygium (Fig. 27E) moderately long, with apical margin moderately convex and truncate; paramere (Fig. 27F) with dorsal portion of apical margin weakly emarginate; brace oblique, almost parallel sided and almost straight; pad small and rounded, produced dorsally, situated near dorsal margin; aedeagus (Fig. 27G) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum with median lobe light brown, anterior portion of lateral lobe also light brown in some specimens; 1st and 2nd metasomal terga darker. Wings hyaline; vein C and stigma brownish yellow; other veins brown.

Length of forewing: 6.4–12.3 mm.

Specimens examined. [Hokkaido] 1 ♂, Nishitoyotomi, Toyotomi, 11. vii. 1980 (H. Takemoto); 1 ♂, Betsukari, Mashike, 20–23. viii. 1971 (K. Yamagishi); 1 ♂, Tenninkyo, Mts. Daisetsu, 27. vi. 1967 (T. Naito); 1 ♂, Bibai, 6. vi. 1985 (S. Suzuki); 1 ♂ (21. v. 1964, K. Kusige.) & 2 ♂ (20–31. vii. 1989, M. Sharkey *et al*., Malaise trap), Jozankei, Sapporo; 13 ♂, Moiwa, Sapporo, 2. vi. 1964 (K. Kusige.); 1 ♂, Mt. Soranuma, Sapporo, 8. vii. 1965 (K. Kusig.); 1 ♂ (18. vi. 1926, Takagi), 1 ♂ (18. vi. 1949, S. Kato), 1 ♂ (9. vi. 1965, K. Kusig.), 1 ♂ (24. vi. 1965, K. Kusig.), 1 ♂ (18. ix. 1966, K. Kusig.), 1 ♂ (21. ix. 1966, K. Kusig.), 1 ♂ (24. v. 1967, K. Kusigemati), 1 ♂ (2. vi. 1967, M. Suwa), 1 ♂ (6. vi. 1968, H. Torikura), 1 ♂ (10. vi. 1971, T. Kumata) & 1 ♂ (8. vi. 1967, M. Suwa), Sapporo; 1 ♂ (4. iv. 1923), 1 ♂ (5. iv. 1923), 1 ♂ (3. vi. 1923), 1 ♂ (21. vi. 1923), 1 ♂ (27. vi. 1923), 3 ♂ (30. v. 1924) & 1 ♂ (6. vi. 1925), Sapporo, (T. Uchida), recorded as *Paniscus unicolor* by Uchida (1928); 3 ♂ (13. vi. 1965), 1 ♂ (8. vii. 1965) & 2 ♂ (15. ix. 1967), Shimamatsu, (K. Kusigemati); 1 ♂, Ichankoppe-zawa, Eniwa, 21–31. vii. 1995 (T. Ito, Malaise trap); 1 ♂, Tomakomai, 29. vii. 1964 (T. Kumata); 1 ♂, Mt. Yubaridake, 15. vii. 1967 (A. Nakanishi); 1 ♂, Nukabira, Kamishihoro, 3. vii. 1980 (K. Maeto); 1 ♂, Ashoro, 16. vi. 1967 (T. Naito); 1 ♂, Shintoku, Tokachi, 1. ix. 1997 (Y. Sakamoto, at light); 1 ♂, Hyotan-numa, Akan, 4. vii. 1986 (M. Rut); 1 ♂ (Kamishunbetsu, 5. vii. 1986 (M. Rut); 1 ♂, Rausu-onsen, 9. vii. 1986 (M. Rut). [Honshu] Aomori Pref.- 1 ♂ (18–25. vii. 1992, sticky trap), 1 ♂ (29. viii–5. ix. 1992, yellow sticky trap) & 1 ♂ (5–19. ix. 1992, yellow sticky trap), Yokouchi–Yaegiku, Aomori, (T. Ichita); 1 ♂ (11. vii. 1992) & 1 ♂ (6. ix. 1992), Hibakozawa-rindô, Aomori, (T. Ichita); 1 ♂, Sakaimatsu, Aomori, 23. ix. 1993 (T. Ichita); 1 ♂, Sanaizawa, Ajigasawa, 4. ix. 1994 (T. Ichita); 1 ♂,

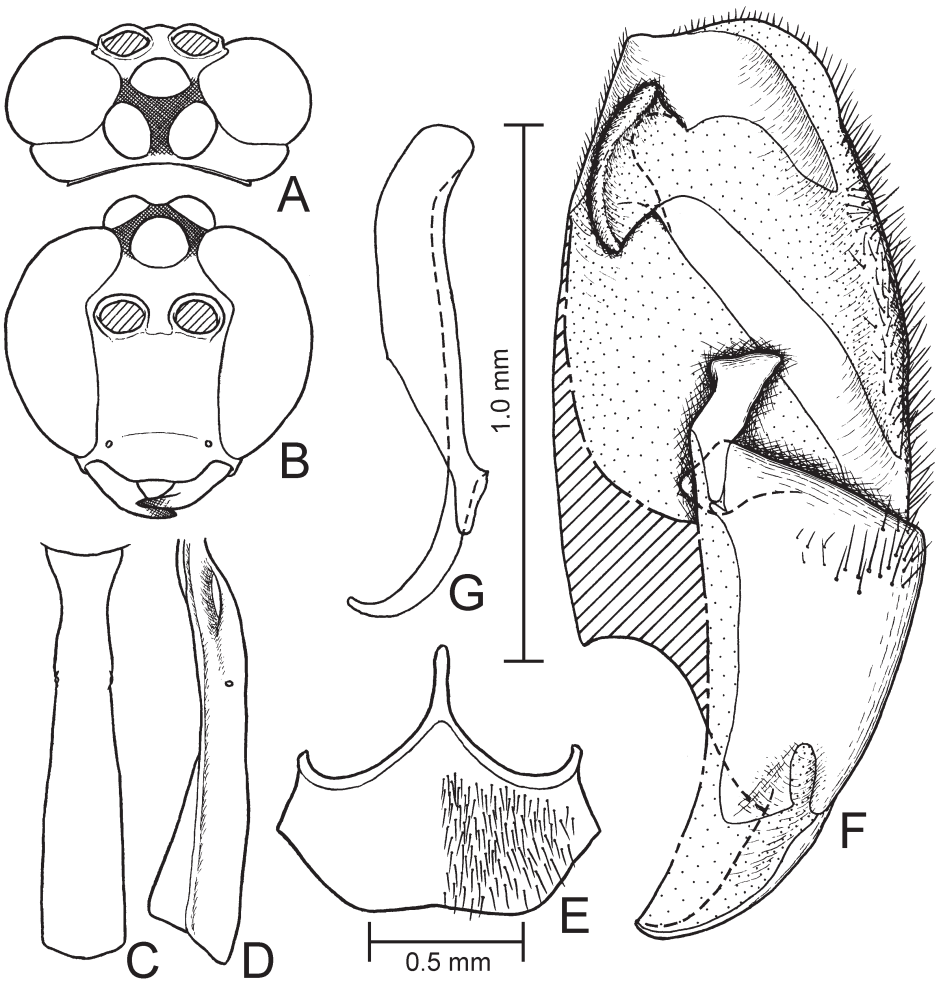

Fig. 27. *Netelia* (*Netelia*) *rapida* Tolkanitz, 1981, ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

Warisawa, Ikarigaseki, 15. viii. 1993 (T. Ichita). Iwate Pref.- 1 ♂ (29. v. 1969, K. Kanmiya) & 1 ♂ (3–10. ix. 1989, M. Sharkey *et al*., Malaise trap), Mt. Hayachine. Yamagata Pref.- 4 ♂, Mt. Funagata, 2. viii. 1991 (S. Katsuya). Miyagi Pref.- 1 ♂, Sakunami-onsen, 20. vii. 1973 (Y. Yoshiyasu, at light); 1 ♂, Mt. Iide, 3. viii. 1966 (A. Nakanishi). Fukushima Pref.- 1 ♂, Kawairi, nr. Mts. Iide, 27–30. vi. 1987 (K. Konishi, at light); 3 ♂ (7. vii. 1985) & 4 ♂ (8. vii. 1985), Iitate, Mts. Abukuma; 1 ♂, Mt. Aizukomagatake, 5. ix. 1987 (S. Saito, at light); 1 ♂ (14–15. vii. 1990, M. Yoshida) & 1 ♂ (16–18. viii. 1999, K. Konishi, at light), Hinoemata; 3 ♂, Mt. Tashiroyama, Tateiwa, 29. viii. 1992 (M. Yoshida, at light). Niigata Pref.- 1 ♂, Miomote Dam, Asahi, 2. vii. 1985 (K. Konishi *et al*., at light); 1 ♂, Kanomata-gawa, Kurokawa, 3. vii. 1985 (K. Konishi *et al*., at light); 1 ♂, Utsumata, Maki, 5. vii. 1997 (S. Sakurai); 1 ♂, Sakasamaki, 17–18. viii. 1981 (K. Baba); 1 ♂, Mt. Maruyama, Ojiya, 12. viii. 1972 (K. Yamagishi); 1 ♂, Kettou, Tsunan, 7. ix. 1996

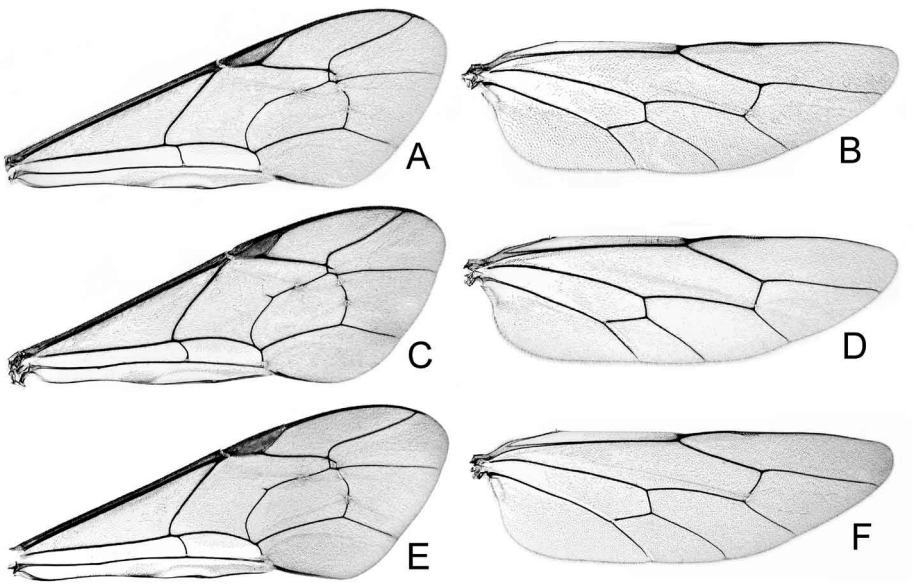

Fig. 28. Wings of *Netelia* (*Netelia*) spp. A, C & E, forewings; B, D & F, hindwings; A & B, *N.* (*N.*) *rapida* Tolkanitz, 1981; C & D, *N.* (*N.*) *silantjewi* (Kokujev, 1899); E & F, *N.* (*N.*) *takaozana* (Uchida, 1928).

(S. Sakurai, at light); 1 ♂ , Mt. Kurokura, Itakura, 27. vii. 1984 (K. Baba). Ishikawa Pref.- 1 ♂ , Aotani, Kanazawa, 12. xi. 1981 (I. Togashi). Fukui Pref.- 1 ♂ , Suwara, Ohno, 20. viii. 1997 (Y. Haneda). Tochigi Pref.- 1 ♂ , Miyama, Kuroiso, 30. viii. 1995 (S. Yoshimatsu, at light); 1 ♂ , Kawamata, Kuriyama, 29. vii. 1995 (M. Yoshida, at light); 1 ♂ , Yunishikawa, 14. viii. 1993 (M. Yoshida, at light); 1 ♂ , Nikkozawa, Okukinu, 12. ix. 1987 (K. Konishi, at light); 1 ♂ (21. vii. 1987, H. Makihara, at light) & 1 ♂ (21. vii. 1987, S. Nomura), Okukinu; 2 ♂ (15–28. vii. 1989) & 2 ♂ (22. viii–8. ix. 1989), Yaita, (K. Konishi, Malaise trap); 1 ♂ , Kiyotaki, Nikko, 23. vii. 1977 (at light). Ibaraki Pref.- 2 ♂ (3. viii. 1991, M. Yoshida), 3 ♂ (3. viii. 1991, S. Yoshimatsu) & 23 ♂ (22. viii. 1992, K. Konishi, at light), Mt. Yamizosan; 2 ♂ (7–26. vi. 1989), 1 ♂ (1–8. viii. 1989), 2 ♂ (8 –14. viii. 1989), 16 ♂ (14–25. viii. 1989) & 1 ♂ (25–31. viii. 1989), Mt. Tsukubasan, (M. Sharkey, Malaise trap); 1 ♂ , Kannondai, Tsukuba, 29. vii. 1991 (S. Yoshimatsu). Gunma Pref.- 1 ♂ , Hatomachi-tôge, 19. viii. 1967 (K. Ogura); 1 ♂ , Shirane-onsen, 10. viii. 1980 (K. Konishi, at light); 2 ♂ , Mt. Hotaka, Katashina, 13. vii. 1991 (M. Yoshida, at light); 1 ♂ , Osawa, Katashina, 21. vii. 1990 (K. Hirano); 1 ♂ , Tokura-onsen, 5. viii. 1970 (H. Inoue); 2 ♂ , Hagiwa-rindô, Kuni, 31. vii. 1992 (S. Yoshimatsu). Saitama Pref.- 1 ♂ , Shomaru-tôge, 15. v. 1971 (Y. Uemura); 1 ♂ , Ootaki, 8. vii. 2000 (T. Nambu, at light). Tokyo- 1 ♂ , Katsunuma, Oume, 15. viii. 1987 (S. Saito); 8 ♂ , Yazawa, Hinohara, 13. vii. 1988 (S. Saito, at light). Nagano Pref.- 1 ♂ , Shiga-kôgen, 26–27. vii. 1961 (J. Minamikawa); 1 ♂ (16. viii. 1970), 2 ♂ (18. viii. 1970) & 1 ♂ (22. viii. 1970), Sugadaira, (A. Miyata, at light); 1 ♂ , Mt. Taroyama, Ueda, 21. ix. 1978 (T. Hamaguchi); 1 ♂ , Kamikochi, 26. vi. 1966 (T. Naito); 2 ♂ (22–23. v. 1975, A. Nakanishi) & 1 ♂ (25. viii. 1978, K. Maeto), Shimashimadani; 1 ♂ , Kaida-kôgen, 12. vii. 1982 (S. Yoshimatsu). Gifu Pref.- 1 ♂ , Harayama, 19. viii. 1976 (K. Ueda, at light); 1 ♂ , Kamitakara, vii. 1987 (I. Sagara); 1 ♂ (21. vii. 1981) & 2 ♂ (22. vii. 1981), Hikagedaira, Takayama, (T. Tanabe). Yamanashi Pref.- 1 ♂ (23. viii. 1969, H. Inoue) & 4 ♂ (19. vii. 1984, S. Nomura *et al*., at light), Kiyosato, Oizumi; 1 ♂ , Yokote,

Hakushu, 14. vii. 1984 (S. Nomura *et al*., at light); 1 ♂ (21. v. 1969, K. Kanmiya) & 1 ♂ (4. vi. 1975, T. Saigusa), Masutomi; 1 ♂ , Mt. Nyugasa, 10. viii. 1961 (A. Nakanishi); 1 ♂ , Hirogawara, Hakuho, 20. viii. 1987 (S. Nomura). Shizuoka Pref.- 1 ♂ (11. ix. 1966, T. Maenami), 2 ♂ (8. x. 1966, T. Maenami), 1 ♂ (9. x. 1966, T. Maenami), 3 ♂ (15. x. 1966, T. Maenami), 1 ♂ (23. vi. 1967, T. Maenami), 1 ♂ (29. vi. 1967, T. Maenami), 7 ♂ (16. viii. 1967, T. Maenami), 1 ♂ (19. viii. 1967, K. Ogura), 1 ♂ (22. viii. 1967, T. Maenami), 1 ♂ (25. viii. 1967, K. Ogura) & 1 ♂ (5. ix. 1967, T. Maenami), Mt. Iwamuro, Izu. Aichi Pref.- 1 ♂ , Komagahara, Kitashitara, 22. v. 1968 (K. Ioki); 1 ♂ , Mt. Sanageyama, Toyota, 28. vi. 1970 (K. Yamagishi). Mie Pref.- 1 ♂ , Mt. Nonoboriyama, Kameyama, 7. viii. 1970 (Y. Higuchi); 1 ♂ , Hirakura, 6. vi. 1965 (A. Nakanishi). Kyoto Pref.- 1 ♂ , Hanase, 25. viii. 1981 (H. Takada). Nara Pref.- 2 ♂ , Odaigahara, 5. vi. 1981 (T. Goto). Hyogo Pref.- 2 ♂ (5. viii. 1983) & 1 ♂ (6. viii. 1983), Mt. Hyonosen, Sekinomiya, (S. Yoshimatsu, at light); 1 ♂ , Mt. Koganedake, Sasayama, 22. v. 1965 (A. Nakanishi); 1 ♂ , Hiranodani, Kobe, 15. viii. 1962 (A. Nakanishi). Tottori Pref.- 2 ♂ (1. vii. 1975) & 2 ♂ (26. vi. 1976), Mt. Daisen, (Y. Yoneda). Hiroshima Pref.- 1 ♂ , Takano, 25. vii. 1995 (S. Nakamura); 5 ♂ , Honmura, Syobara, 12. viii. 1998 (B. Maeto). [Shikoku] Tokushima Pref.- 4 ♂ , Nikubuchidani, Kisawa, 23. vii. 1986 (K. Ôhara *et al*., at light); 2 ♂ (24. vii. 1986), 3 ♂ (14. viii. 1986), 2 ♂ (15. viii. 1986), Mt. Takashiroyama, Kisawa, (K. Ôhara *et al*., at light); 4 ♂ , Minokoshi, Mt. Tsurugisan, 17. viii. 1986 (K. Ôhara *et al*., at light); 3 ♂ (3. vi. 1981, T. Goto) & 1 ♂ (10. vii. 1993, I. Yamashita, at light), Mt. Tsurugisan. Ehime Pref.- 1 ♂ , Jyojyusha, 1. vi. 1967 (H. Shima); 1 ♂ , Mt. Ishizuchi, 29–31. v. 1967 (A. Nakanishi); 2 ♂ , Tsuchigoya, Mt. Ishizuchi, 26. vii. 1971 (A. Arita). Kochi Pref.- 1 ♂ (22. vii. 1989) & 1 ♂ (29. vii. 1990), Teragawa, Hongawa, (I. Yamashita, at light). [Tsushima Is.] 1 ♂ , Mt. Ôhoshiyama, 21. vii. 1983 (R. Noda, at light). [Kyushu] Fukuoka Pref.- 1 ♂ , Kashii, Fukuoka, 23. v. 1981 (K. Maeto); 1 ♂ , Mt. Tachibanayama, Fukuoka, 5. v. 1979 (K. Maeto); 2 ♂ (28–29. v. 1930, Hori et al.) & 1 ♂ (21. viii. 1974, Y. Yoneda), Mt. Wakasugiyama; 6 ♂ , Mt. Sefurisan, 15. ix. 1984 (K. Konishi, at light); 1 ♂ , Mt. Inunaki, 3. v. 1969 (A. Nakanishi); 1 ♂ (4. viii. 1937, Hori *et al*.), 1 ♂ (19. vii. 1964, M. Shiga), 1 ♂ (27. vii. 1968, S. Miyamoto), 1 ♂ (26. viii. 1968, K. Kanmiya, at light), 1 ♂ (4. v. 1969, K. Takeno, Malaise trap), 2 ♂ (12. v. 1969, K. Kanmiya, at light), 1 ♂ (5. ix. 1969, K. Kanmiya, at light), 4 ♂ (6. ix. 1969, K. Kanmiya), 1 ♂ (2. vii. 1970, K. Nozato), 1 ♂ (2. v. 1971, K. Takeno, Malaise trap), 2 ♂ (5. v. 1973, K. Ueda), 2 ♂ (14. v. 1973, Y. Yoshiyasu, at light), 1 ♂ (6. v. 1974, M. Yamamoto), 1 ♂ (12. v. 1975, A. Nakanishi), 3 ♂ (13. v. 1975, A. Nakanishi), 1 ♂ (13–14. v. 1975, Y. Yoneda), 1 ♂ (23. v. 1975, Y. Yoneda), 1 ♂ (12. viii. 1975, Y. Yoneda), 1 ♂ (28. iv. 1976, Y, Yoneda), 1 ♂ (16. vi. 1982, K. Konishi), 5 ♂ (2. v. 1983, K. Konishi *et al*., at light), 1 ♂ (3. v. 1983, K. Kawase), 3 ♂ (3. v. 1983, K. Konishi, at light), 2 ♂ (5. vii. 1983, R. Noda, at light), 7 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (7–8. vii. 1983, O. Tadauchi *et al*., at light), 1 ♂ (29. vii. 1983, Y. Nakata, at light), 3 ♂ (29. viii. 1983, K. Ôhara, at light), 1 ♂ (29–30. viii. 1983, K. Ôhara, Malaise trap), 1 ♂ (30. viii. 1983, K. Ôhara, at light), 1 ♂ (1985, N. Kôda, at light), 1 ♂ (23. iv. 1985, M. Abe, at light) & 1 ♂ (24. iv–14. v. 1989, M. T. Chûjô, Malaise trap), Mt. Hikosan. Saga Pref.- 1 ♂ , Okuhiratani, Kashima, 17. viii. 1985 (S. Nomura); 1 ♂ , Mt. Kunimidake, 8. viii. 1947 (Esaki *et al*.). Nagasaki Pref.- 1 ♂ , Nita-tôge, Mts. Unzen, 24. ix. 1983 (K. Konishi *et al*., at light). Oita Pref.- 2 ♂ , Hacchobaru, Mts. Kuju, 14. vi. 1984 (S. Yoshimatsu, at light); 1 ♂ , Chojabaru, Mts. Kuju, 22. v. 1983 (Y. Abe *et al*., at light); 1 ♂ (11. v. 1982, R. Noda), 3 ♂ (25. viii. 1984, K. Konishi, at light), 1 ♂ (17. viii. 1985, R. Noda *et al*., at light), 3 ♂ (15. ix. 1985, at light, K. Konishi), 1 ♂ (12. v. 1985, M. Abe), 1 ♂ (27. v. 1986, M. Abe) & 1 ♂ (28. v. 1989, K. Konishi), Mt. Kurodake, Mts. Kuju; 1 ♂ , Ukenokuchi, Mts. Kuju, 18. viii. 1976 (Y. Yoshiyasu); 1 ♂ (23. vii. 1970, A. Nagatomi) & 2 ♂ (13–20. vii. 1979, R. Noda), Mt. Sobosan. Kumamoto Pref.- 3 ♂ (20–29. vi. 1978) & 3 ♂ (11 –24. viii. 1978), Mt. Asosan, (K. Yamagishi, light trap); 1 ♂ , Shiiya-tôge, 26. vii. 1985 (K.

Konishi *et al*., at light); 1 ♂ , Nakamichibashi, Gokanosho, 13. viii. 1976 (K. Ôhara); 1 ♂ (14. v. 1975, K. Kawase), 1 ♂ (19. vii. 1977, T. Goto, at light), 1 ♂ (29–30. vii. 1977, K. Ôhara), 1 ♂ (26 –27. v. 1978, K. Ôhara), 2 ♂ (8. vii. 1978, K. Maeto), 2 ♂ (9–11. vii. 1978, K. Maeto), 2 ♂ (5. v. 1979, T. Goto), 4 ♂ (14. v. 1980, K. Ôhara), 1 ♂ (5–6. vi. 1980, A. Nakanishi), 1 ♂ (5–6. vi. 1980, T. Saigusa), 1 ♂ (5–7. vi. 1980, Malaise trap), 1 ♂ (25. v. 1981, T. Goto), 9 ♂ (12. v. 1983, N. Kô da *et al*., at light), 3 ♂ (13. v. 1983, N. Kôda *et al*., at light), 3 ♂ (19. vii. 1983, N. Kôda *et al*., at light) & 1 ♂ (6. vii. 1991, R. Noda, at light), Mt. Shiratoriyama, Izumi; 2 ♂ , Mt. Ichifusayama, Mizukami, 4. viii. 1984 (K. Konishi *et al*., at light). Miyazaki Pref.- 4 ♂ , Kurusonkyo, Ebino, 22. v. 1982 (H. Takemoto); 1 ♂ , Mt. Osuzuyama, 22. v. 1966 (A. Tanaka); 1 ♂ , Miike, Takaharu, 16. v. 1983 (K. Konishi *et al*., at light); 1 ♂ , Mt. Wanizukayama, 23. v. 1966 (K. Kusig.). Kagoshima Pref.- 1 ♂ (7. iv. 1983, K. Konishi *et al*.) & 3 ♂ (20–21. vii. 1983, N. Kôda *et al*.), Kurinodake-onsen, Mts. Kirishima, (at light); 1 ♂ (25. v. 1966, K. Kusig.), 1 ♂ (10. v. 1967, H. Takizawa), 1 ♂ (8. vi. 1975, Y. Minami) & 1 ♂ (20. v. 1977, K. Ôhara), Mt. Kirishimayama; 1 ♂ , Mt. Hoyoshidake, Kouyama, 12–14. vii. 1991 (R. Noda, at light). [Yakushima Is.] 1 ♂ , Yodogawa-goya, 20. vii. 1982 (K. Konishi *et al*., at light). [Amami-ôshima Is.] 2 ♂ , 10. v. 1966 (K. Kusig.); 1 ♂ , Shinokawa, 15. v. 1953 (T. Shiraki); 1 ♂ , Mt. Yuidake, 2. ix. 1983 (R. Noda *et al*., at light); 1 ♂ , Koniya, 18. iv. 1954 (T. Oku), recorded as *Netelia* (*Netelia*) *ocellaris* by Uchida (1956).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Tsushima Is., Kyushu, Yakushima Is., Amami-ôshima Is.), Russia (Primorsky Krai).

Remarks. This is the first record of this species from Japan.

Netelia (*Netelia*) *silantjewi* (Kokujev)
(Figs. 28C–D, 29A–G)

Paniscus silantjewi Kokujev, 1899: 133, 138.

Paniscus rossicus Kokujev, 1899: 134, 139, 150.

Paniscus minor Szépligeti, 1899: 29.

Paniscus nigriventris: Uchida, 1928: 190.

Netelia (*Netelia*) *silantjewi*: Townes, Momoi & Townes, 1965: 93; Tolkanitz, 1974: 389; Delrio, 1975: 61; Kaur & Jonathan, 1979: 154; Tolkanitz, 1981a: 34; Tolkanitz, 1981b: 105.

♂ . Head (Figs. 29A, 29B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area weakly sculptured and subpolished; geno-orbital index 2.2–2.4; upper face trans-striate; lower face 1.4 –1.5 times as wide as long; clypeus 1.9–2.0 times as wide as long; flagellum 49–53–segmented; 1st flagellomere 1.6–1.7 times as long as the 2nd, the 2nd 2.7–2.9 times as long as wide.

Mesosoma: Mesoscutum 1.3 times as long as wide; mesoscutellum 1.7–1.9 times as long as distance between lateral carinae at its base, with lateral carina weak, fading out before reaching posterior margin; metapleuron weakly of distinctly striate; propodeum trans-striate on anterior 3/4–4/5 and smooth on posterior 1/5–1/4, sometimes with weak longitudinal striae on posterior 1/5–1/4; lateral crest of propodeum weak or distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.1–12.0 times as long as wide; fore tarsal claw with 22–29 pectines; hind tarsal claw with 16–22 pectines. Forewing (Fig. 28C) 2.8–3.0 times as long as wide; cu-a distad Rs+M by 1/3–2/5 of cu-a length, weakly to strongly inclivous and weakly curved; hindwing (Fig. 28D) with 5–7

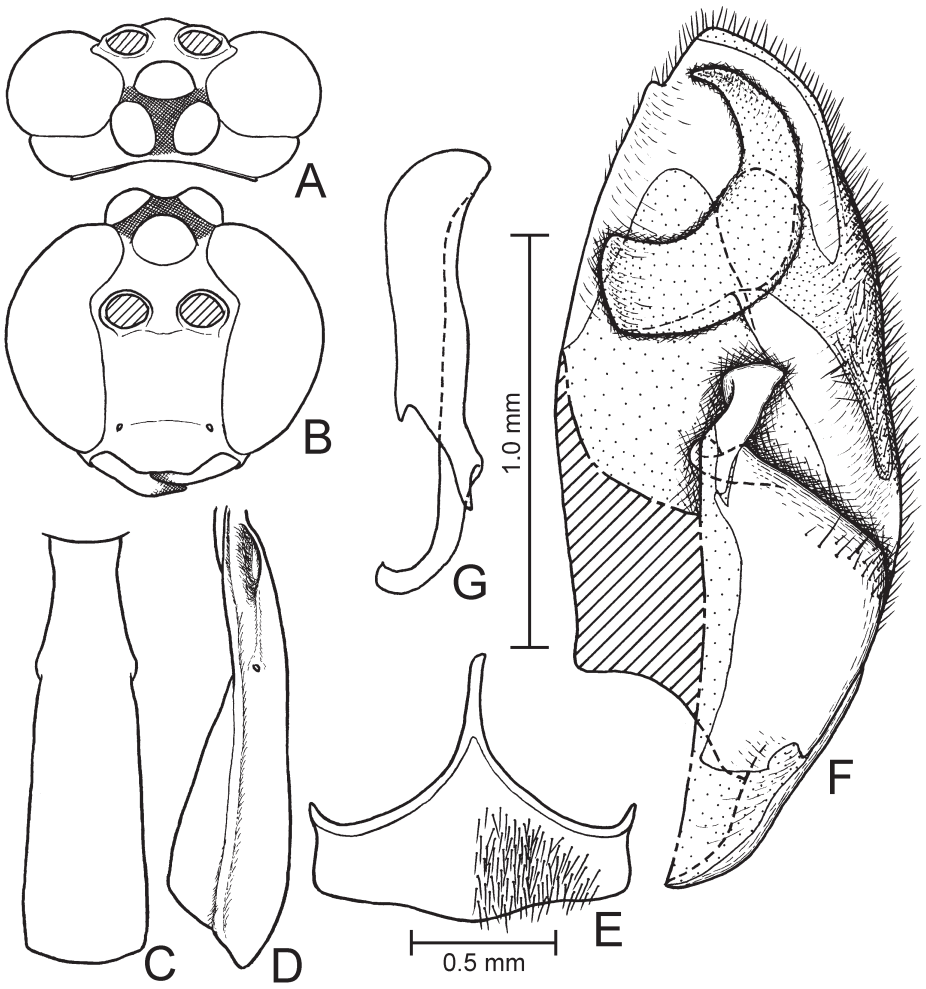

Fig. 29. *Netelia* (*Netelia*) *silantjewi* (Kokujev, 1899), ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 29C, 29D) 3.9–4.3 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 29E) short, with apical margin weakly convex; paramere (Fig. 29F) with apical portion of dorsal margin emarginate; brace oblique, relatively short, almost parallel sided and weakly curved; pad long and curved, crescent-shaped, produced apically and dorsally, situated at around middle; aedeagus (Fig. 29G) with penis valve slender.

Head yellow; interocellar area brown to blackish brown; occiput and antenna reddish yellow. Mesosoma and legs reddish or brownish yellow; median and lateral lobes of mesoscutum light brown to brown; hind tarsus yellow. Metasoma yellowish to reddish brown; anterior 1/4 of 1st tergum and 3rd and 4th terga paler. Wings hyaline, slightly

tinged with yellowish grey; vein C and stigma of forewing light brown or sometimes brownish yellow; other veins brown.

Length of forewing: 11.6–13.5 mm.

Specimens examined. JAPAN: [Honshu] Fukushima Pref.- 2 ♂, Iitate, Mts. Abukuma, 7. vii. 1983 (K. Konishi *et al*., at light). Tokyo- 1 ♂, Machida, 13. vii. 1987 (S. Saito). Yamanashi Pref.- 1 ♂, Kiyosato, Oizumi, 19. vii. 1984 (S. Nomura *et al*., at light). Hiroshima Pref.- Mt. Garyuzan, Geihoku, 27. iv. 1987 (S. Nomura). [Kyushu] Oita Pref.- 1 ♂, Chojabaru, Mts. Kuju, 18. vii. 1979 (I. Kanazawa, at light). TAIWAN: 1 ♂, "Horisha, 15. Jun. 1926, R. Saitô & K. Kikuchi", recorded as *Paniscus nigriventris* by Uchida (1928).

Distribution. Japan (Honshu, Kyushu), Taiwan, Afghanistan, India, Russia (Primorsky Krai), Europe.

Remarks. This is the first record of this species from Japan and Taiwan.

Netelia (*Netelia*) *takaozana* (Uchida)
(Figs. 28E–F, 30A–G)

Paniscus takaozanus Uchida, 1928: 89.
Paniscus testaceus: Uchida, 1928: 191 (in part)..
Paniscus testaceus var. *nigrinotus* Uchida, 1928: 191 (in part).
Paniscus ocellaris: Uchida, 1928: 191 (in part).
Paniscus (*Paniscus*) *takaozanus*: Uchida, 1934a: 109.
Paniscus (*Paniscus*) *ocellaris*: Uchida, 1934a: 110 (in part).
Netelia testacea f. *nigrinotus*: Ohmori, 1959: 33.
Netelia (*Netelia*) *takaozana*: Townes, Momoi & Townes, 1965: 94.

♂. Head (Figs. 30A, 30B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth; geno-orbital index 1.9–3.0; upper face trans-striate; lower face 1.4–1.6 times as wide as long; clypeus 1.8–2.2 times as wide as long; flagellum 48–56–segmented; 1st flagellomere 1.5–1.7 times as long as the 2nd, the 2nd 2.6–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.5–1.9 times as long as distance between lateral carinae at its base, with lateral carina distinct and extending to posterior margin; metapleuron trans-striate; propodeum trans-striate on anterior 4/5–5/6 and smooth on posterior 1/6–1/5, sometimes with weak longitudinal striae on posterior 1/6–1/5; lateral crest of propodeum distinct, or weak in some specimens.

Fore tibial spur 0.4–0.5 times as long as the 1st tarsomere, which 10.8–12.8 times as long as wide; fore tarsal claw 24–44 pectines; hind tarsal claw 16–27 pectines.
Forewing (Fig. 28E) 3.0–3.1 times as long as wide; cu-a distad Rs+M by 1/4–2/5 of cu-a length, vertical or weakly inclivous, and weakly curved; hindwing (Fig. 28F) with 5–7 distal hamuli; nervellar index 0.4–0.6.

Metasoma with 1st tergum (Figs. 30C, 30D) 4.0–5.3 times as long as apical width and 1.4–1.6 times as long as the 2nd; hypopygium (Fig. 30E) moderately long, with apical margin moderately convex and rounded; paramere (Fig. 30F) with apical portion of dorsal margin not emarginate; brace oblique, relatively long, almost parallel sided and weakly curved; pad long D-shaped, strongly produced dorso-basally, situated near dorsal margin; aedeagus (Fig. 30G) with penis valve slender.

Weakly pigmented specimens: Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; median and lateral lobes of mesoscutum light brown to brown; metasoma and hind femur darker; 1st and 2nd metasomal terga light brown in some specimens. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Strongly pigmented specimens: Head yellow; interocellar area black; occiput and vertex brown to blackish brown; upper face except lateral portion and dorso-median spot on lower face brown in some specimens; antenna brown. Mesosoma blackish brown; mesoscutum black; median portion of pronotum, tegula, margins of mesopleuron, metanotum except median portion and posterior margins of propodeum and metapleuron reddish yellow. Legs reddish yellow; fore and mid coxae light brown to brown; hind leg

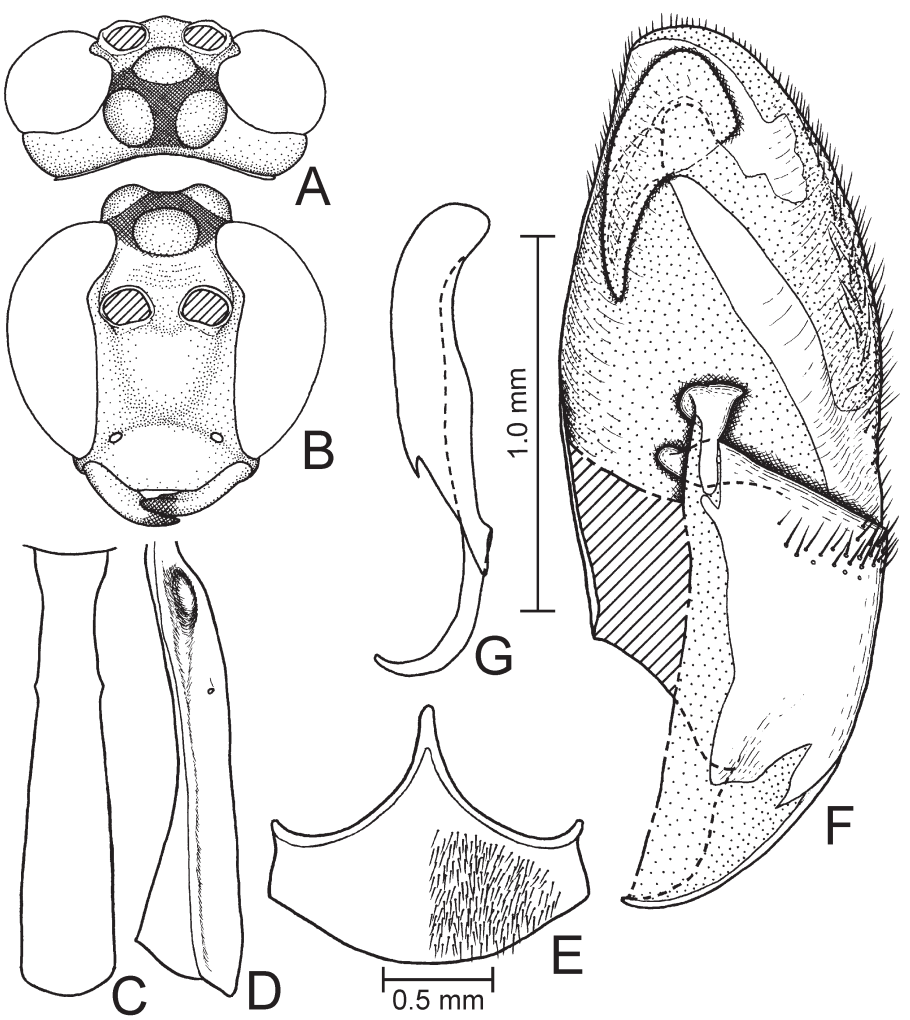

Fig. 30. *Netelia* (*Netelia*) *takaozana* (Uchida, 1928), ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

with coxa, trochanter and femur brown to blackish brown. Wings hyaline; vein C and stigma of forewing light brown; other veins brown. Metasoma brown to blackish brown.

Specimens examined. [Hokkaido] 1 ♂ , Aoyama, Tobetsu, 8. vi. 1924 (T. Uchida), recorded as *Paniscus ocellaris* by Uchida (1928); 1 ♂ (27. ix. 1910, Matsumura, recorded as *Paniscus testaceus* by Uchida (1928)), 1 ♂ (30. v. 1924, T. Uchida, recorded as *Paniscus ocellaris* by Uchida (1928)), 7 ♂ (6. vi. 1926, Takaki), 1 ♂ (8. vi. 1929, H. Yaku, recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934)), 1 ♂ (1. vi. 1932, Igarashi, recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934)), 6 ♂ (2. vi. 1964, K. Kusigemati), 2 ♂ (25. viii. 1965, K. Kusigemati), 1 ♂ (6. vi. 1966, Se. Yamane), 1 ♂ (12. vi. 1966, K. Hoshii), 1 ♂ (21. viii. 1966, T. Kocha), 1 ♂ (23. ix. 1966, K. Hoshii), 5 ♂ (24. v. 1967, K. Kusigemati), 1 ♂ (28. vii. 1970, A. Nakanishi), 1 ♂ (7. vi. 1992, Y. Sakamaki) & 1 ♂ (30. vi. 1992, K. Konishi), Sapporo; 4 ♂ (recorded as *Paniscus ocellaris* by Uchida (1928)) & 1 ♂ (recorded as *Paniscus testaceus* var. *nigrinotus* by Uchida (1928)), Mt. Moiwa, Sapporo, 6. vi. 1926 (Takaki); 1 ♂ , Kanazawa, 9. vi. 1968 (K. Kusigemati); 1 ♂ (13. vi. 1965, T. Kochya), 2 ♂ (10. vi. 1966, M. Suwa), 1 ♂ (23. v. 1967, K. Kusigemati) & 3 ♂ (26. v. 1967, K. Kusigemati), Jozankei; 1 ♂ (16. vi. 1961, H. Takada) and 1 ♂ (30. vi. 1966, K. Kusigemati), Shikotsu-ko; 1 ♂ , Higashikawa, Kamikawa, 26. viii. 1995 (T. Matsumura); 1 ♂ , Tenninkyo, 7. vii. 1986 (M. Abe); 1 ♂ , Furano, 25. vi. 1985, M. Abe; 1 ♂ , Shikaribetsu, 3. vii. 1980 (K. Maeto); 2 ♂ , Nukabira, 4. vii. 1986, M. Abe; 1 ♂ , Akan-ko, 3. vii. 1986 (M. Rut); 1 ♂ , Mt. Rausu-dake, 18. viii. 1979 (S. Ôhara). [Honshu] Aomori Pref.- 1 ♂ , Yokouchi–Yaegiku, Aomori, 5–19. ix. 1992 (T. Ichita, yellow sticky trap); 1 ♂ , Hibakozawa-rindô, Aomori, 7. vi. 1992 (T. Ichita); 1 ♂ , Moyasawa, 7. vi. 1992 (T. Ichita); 1 ♂ , Kayanochaya, Aomori, 1–8. viii. 1992 (T. Ichita, yellow sticky trap); 1 ♂ , Manodake, Aomori, 11. ix. 1991 (T. Ichita); 1 ♂ , Inayama, Aomori, 2. v. 1994 (T. Ichita); 1 ♂ , Okoppegawa, Ohma, 6. vi. 1992 (N. Nara *et al*.). Iwate Pref.- 2 ♂ , Mt. Hachimantai, 11–12. viii. 1977 (I. Kanazawa, at light); 1 ♂ , Mt. Hayachine, 29. v. 1969 (K. Kanmiya). Akita Pref.- 2 ♂ , Kuromori-tôge, Rokugo, 7. vi. 1978 (K. Baba *et al*.); 2 ♂ , Zenjin, Mt. Chokai, 13. viii. 1987 (S. Nomura). Yamagata Pref.- 1 ♂ , Mt. Funagata, 2. viii. 1961 (S. Katsuya). Fukushima Pref.- 1 ♂ , Mt. Azumayama, 10. viii. 1931 (S. Kato), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934); 2 ♂ (8. vii. 1985, K. Konishi *et al*.) & 1 ♂ (10. ix. 1986, K. Hirano), Iitate, Mts. Abukuma, (at light); 4 ♂ (5. ix. 1987), 1 ♂ (6. ix. 1987) & 5 ♂ (7. ix. 1987), Mt. Aizukomagatake, (S. Saito, at light); 1 ♂ (24. viii. 1984, M. Miyazaki) & 1 ♂ (30. viii. 1986, S. Yoshimatsu *et al*., at light), Hinoemata; 17 ♂ , Mt. Tashiroyama, Tateiwa, 29. viii. 1992 (M. Yoshida, at light); 5 ♂ , Mt. Yamizosan, 3. viii. 1991 (M. Yoshida, at light). Niigata Pref.- 1 ♂ , Mt. Shinbo, 21. v. 1977 (K. Baba); 1 ♂ , Senami, 6. v. 1982 (K. Baba); 1 ♂ (7. v. 1994) & 1 ♂ (13. v. 1994), Gosen, (S. Sakurai); 1 ♂ , Tsubame-onsen, 15. viii. 1981 (K. Baba). Ishikawa Pref.- 2 ♂ , Mt. Rokuman, Shiramine, 29. v. 1994 (I. Togashi); 1 ♂ , Shaka-dô, Mt. Hakusan, 4. ix. 1988 (I. Togashi); 1 ♂ , Chugu-onsen, Mt. Hakusan, 18. ix. 1977 (I. Togashi); 1 ♂ , Tsurugi, 26. v. 1985 (I. Togashi). Fukui Pref.- 3 ♂ , Suwara, Ohno, 25. viii. 1999 (Y. Haneda). Tochigi Pref.- 1 ♂ , Miyama, Kuroiso, 30. viii. 1995 (S. Yoshimatsu, at light); 88 ♂ , Nikkozawa, Okukinu, 12. ix. 1987 (K. Konishi, at light); 4 ♂ , Numahara, Okukinu, 23. viii. 1986 (S. Yoshimatsu, at light); 3 ♂ (21. vii. 1987, S. Nomura), 8 ♂ (21. vii. 1987, H. Makihara, at light), Okukinu; 3 ♂ , Numappara, Okunasu, 23. viii. 1987 (S. Yoshimatsu, at light); 1 ♂ , Shiobara, 12–13. viii. 1931 (Matsumura), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934); 1 ♂ , Senbonmatsu, Nishinasuno, 3. x. 1995 (S. Yoshimatsu, at light); 1 ♂ (11–22. viii. 1989) & 1 ♂ (22. viii–8. ix. 1989), Yaita, (K. Konishi, Malaise trap); 1 ♂ , Yumoto–Kawamata, 23. vii. 1923 (T. Esaki); 2 ♂ , Yumoto, Nikko, 10. viii. 1980 (K. Konishi, at light); 6 ♂ , Senjyogahara, Nikko, 16. ix. 1986 (M. Miyazaki); 1 ♂ , Kiyotaki, Nikko, 9. vii. 1977 (at light); 1 ♂ (20. vi .1930, A. Kawada) & 1 ♂ (6. x. 1967, K. Kusigemati), Nikko. Ibaraki Pref.- 3 ♂ (3. viii. 1991, S. Yoshimatsu) & 69 ♂ (22. viii. 1992, K.

Konishi), Mt. Yamizosan, (at light); 1 ♂ (7–26. vi. 1989), 2 ♂ (10–14. vii. 1989), 1 ♂ (14–25. vii. 1989) & 3 ♂ (25–31. vii. 1989), Mt. Tsukubasan, (M. Sharkey, Malaise trap). Gunma Pref.- 1 ♂ , Oze, 17. vii. 1950 (H. Hasegawa); 4 ♂ , Hatomachi-tôge, 19. viii. 1967 (k. Ogura); 1 ♂ , Mt. Hotaka, Katashina, 13. vii. 1991 (M. Yoshida, at light); 1 ♂ , Mt. Tanikawadake, 9. viii. 1966 (J. Minamikawa); 1 ♂ , Oneyama, nr. Usui-tôge, 14. vi. 1973 (A. Kawada, at light). Saitama Pref.- 1 ♂ , Syomaru-tôge, 15. v. 1971, Y. Uemura); 1 ♂ (22. v–27. vi. 1972), 1 ♂ (iv. 1972) & 1 ♂ (vii. 1972), Iruma, (M. Shimoda); 1 ♂ , Saitama, 5. v. 1924 (T. Uchida), recorded as *Paniscus ocellaris* by Uchida (1928). Tokyo- 159 ♂ (13. vii. 1998, H. Nagaoka) & 76 ♂ (13. vii. 1988, S. Saito), Yazawa, Hinohara, (at light); 1 ♂ (lectotype, vi. 1919, Teranishi), 1 ♂ (22. iv. 1948, J. Minamikawa), 1 ♂ (23. v. 1950, J. Minamikawa), 1 ♂ (24. vi. 1962, J. Minamikawa), 1 ♂ (24. iv. 1963, J. Minamikawa), 2 ♂ (3. v. 1964, J. Minamikawa), 1 ♂ (11. v. 1971, T. Kocha) & 1 ♂ (16. v. 1971, J. Minamikawa), Mt. Takaosan; 2 ♂ , Asakawa, 5. v. 1939; 1 ♂ , Okutama-ko, 14. v. 1967 (T. Kocha); 1 ♂ (18. v. 1952, T. Ishii) & 1 ♂ (6. xi. 1971, T. Kocha), Okutama; 1 ♂ , Fuchu, 5. iv. 1941 (K. O.). Kanagawa Pref.- 1 ♂ , Mukogaoka, 29. iv. 1928 (K. Sato), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934). Nagano Pref.- 1 ♂ , Mt. Yatsugatake, 30. vii. 1967 (H. Higuchi); Mt. Shiranekitadake, 29. vii. 1979 (K. Ôhara); 3 ♂ , Sarukura–Hakuba, 15–16. ix. 1966 (J. Minamikawa); 1 ♂ , Shiga-kôgen, 26–27. vii. 1961 (J. Minamikawa); 2 ♂ , nr. Shiga-kôgen, 28. viii. 1971 (M. Nagai); 8 ♂ (16. viii. 1970, A. Miyata, at light), 2 ♂ (17. viii. 1970, A. Miyata, at light), 1 ♂ (22. viii. 1970, A. Miyata, at light), 3 ♂ (25. viii. 1970, A. Miyata, at light), 1 ♂ (19. viii. 1982, E. Nishida) & 1 ♂ (20. viii. 1982, E. Nishida), Sugadaira; 1 ♂ , Kaida, 28. vii. 1973 (B. Tanaka); 1 ♂ , Nonomi, Sakae, 27. vii. 1972 (K. Yamagishi); 1 ♂ , Yarisawa, Kita Alps, 6. vii. 1964 (A. Nakanishi); 2 ♂ , Nakawa, 8. x. 1958 (K. Kamijo); 1 ♂ , Mt. Hakkaisan, Kurosawaguchi, Kiso-gun, 14. ix. 1975 (K. Tsukamoto). Gifu Pref.- 1 ♂ (20. vii. 1981), 3 ♂ (22. vii. 1981), 1 ♂ (23. vii. 1981) & 2 ♂ (28. vii. 1981), Hikagedaira, Takayama, (T. Tanabe); 1 ♂ , Minami nr. Mino, 5. v. 1970 (S. Ohkusa); 1 ♂ , Mt. Enasan, Nakatsugawa, 5–6. x. 1974 (J. Yokoi). Yamanashi Pref.- 2 ♂ , Daibosatsu, 5. viii. 1970 (H. Takizawa); 10 ♂ , Kiyosato, Oizumi, 19. vii. 1984 (S. Nomura *et al*., at light); 3 ♂ , Yokote, Hakushu, 14. vii. 1984 (S. Nomura *et al*., at light); 1 ♂ , Hinoharu, Nagasaka, 15. vii. 1984 (S. Nomura *et al*., at light); 1 ♂ , Nakamaru, Nagasaka, 17. vii. 1984 (S. Nomura *et al*., at light); 1 ♂ , Masutomi, Kanayama, 24–26. vi. 1975 (J. Emoto, Malaise trap); 3 ♂ , Mt. Nyugasa, 10. viii. 1961 (A. Nakanishi); 1 ♂ , nr. Sannose, Enzan, 1–3. viii. 1985 (A. Shimizu). Shizuoka Pref.- 1 ♂ (6. v. 1945, J. Sonan), 1 ♂ (21. iv. 1948, J. Sonan), 1 ♂ (22. iv. 1948, J. Minamikawa), 1 ♂ (3. v. 1948, J. Sonan), 1 ♂ (7. vi. 1948, J. Minamikawa), 3 ♂ (18. vi. 1948, J. Minamikawa), 1 ♂ (1. vii. 1948, J. Sonan), 1 ♂ (20. vi. 1949, J. Sonan), 2 ♂ (28. vi. 1949, J. Sonan), 1 ♂ (1. v. 1950, J. Sonan), 1 ♂ (22. vi. 1950, J. Sonan), 1 ♂ (6. v. 1952, J. Minamikawa), 1 ♂ (14. iv. 1955, J. Minamikawa), 1 ♂ (30. iv. 1955, J. Minamikawa) & 1 ♂ (10. viii. 1959, J. Minamikawa), Kanaya; 1 ♂ , Sasamado, 29. iv. 1954 (J. Minamikawa); 1 ♂ , Tani, Mikatahara, 20. v. 1958 (J. Minamikawa); 1 ♂ (7. x. 1966), 1 ♂ (21. x. 1966), 1 ♂ (22. x. 1966), 1 ♂ (23. x. 1966), 2 ♂ (23. vi. 1967), 2 ♂ (29. vi. 1967), 2 ♂ (20. vii. 1967), 1 ♂ (21. vii. 1967), 1 ♂ (31. vii. 1967), 3 ♂ (12. v. 1968), 8 ♂ (1. vii. 1968), 1 ♂ (7. vii. 1968), 1 ♂ (9. vii. 1968), 1 ♂ (13. vii. 1968) & 1 ♂ (24. vii. 1968), Mt. Iwamuro, Izu, (T. Maenami). Aichi Pref.- 1 ♂ (5. vii. 1972, H. Yamada), 1 ♂ (25. viii. 1973, B. Tanaka), 1 ♂ (31. v. 1975, J. Yokoi) & 1 ♂ (5. v. 1977, K. Ueda, at light), Uradani, Kitashitara; 1 ♂ , Danto–Uradani, 21–22. x. 1973 (S. Ohkusa); 1 ♂ , Nisshin, 10. v. 1970 (K. Yamagishi). Mie Pref.- 1 ♂ , Mt. Gozaisyoyama, 25. vii. 1957 (K. Yano). Nara Pref.- 1 ♂ , Mt. Yoshinoyama, 14. vii. 1972 (S. Ueda). Hyogo Pref.- 2 ♂ , Mt. Ohginosen, 17. vii. 1962 (A. Nakanishi); 1 ♂ , Akazaikeikoku, 1. vi. 1985 (Y. Syôno); 1 ♂ (20. v. 1967, M. Suwa) & 1 ♂ (24. viii. 1984, I. Kojima), Mt. Rokkosan, Kobe; 1 ♂ , Ikuha, Awajishima Is., 8. vii. 1930, recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934). Tottori Pref.- 1 ♂ , Mt. Oginosen, 12. viii. 1982 (S.

Yoshimatsu, at light). Hiroshima Pref.- 1 ♂ , Moriwaki, Hiwa, 27. vii. 1976 (K. Maeto); 1 ♂ , Mt. Azumayama, Hiwa, 23. ix. 1984 (K. Konishi *et al*., at light); 2 ♂ , Hiwa, 22. ix. 1984 (K. Konishi *et al*., at light). [Sado Is.] 1 ♂ , Mt. Kinpokusan, 7–8. vii. 1936 (K. Baba *et al*.), recorded as *Netelia testacea* f. *nigrinotus* by Ohmori (1959). [Izu-shichitô Isls.] 1 ♂ , Mikurajima Is., 18. v. 1969 (S. Katsuya *et al*.); 1 ♂ , Oshima Is., 2. iv. 1928 (K. Sato), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934). [Shikoku] Tokushima Pref.- 3 ♂ (4. viii. 1983, K. Konishi, at light), 2 ♂ (5. viii. 1983, K. Konishi, at light) & 1 ♂ (14. vii. 1985, K. Ôhara), Mt. Ishizuchisan. Kochi Pref.- 1 ♂ , Befu, Monobe, 4. vii. 1992 (I. Yamashita, at light); 15 ♂ (22. vii. 1989, I. Yamashita), 2 ♂ (11. ix. 1989, I. Yamashita), 1 ♂ , (25. vii. 1991) & 5 ♂ (1. vii. 1995, K. Konishi et al.), Teragawa, Hongawa, (at light). [Kyushu] Fukuoka Pref.- 1 ♂ , Ino, 8. iv. 1990 (M. Abe); 1 ♂ (27. iv. 1952, Y. Murakami) & 1 ♂ (12. viii. 1952, Y. Yamaguchi), Mt. Wakasugiyama; 5 ♂ , Mt. Sefuri-san, 15. ix. 1984 (K. Konishi *et al*., at light); 1 ♂ (10. iv. 1963, S. Ide) & 1 ♂ (11. vi. 1966, K. Kusigemati), Kurume; 1 ♂ (18. vii. 1929, T. Esaki *et al*.), 1 ♂ (3. viii. 1937, Hori *et al*.), 2 ♂ (4. viii. 1937, Hori *et al*.), 1 ♂ (28. iv. 1961, A. Nakanishi), 1 ♂ (30. vi. 1968, K. Kanmiya, at light), 2 ♂ (27. vii. 1968, S. Miyamoto), 2 ♂ (3. v. 1969, K. Takeno, Malaise trap), 1 ♂ (7. v. 1969, K. Takeno, Malaise trap), 1 ♂ (13. ix. 1969, K. Kanmiya), 1 ♂ (2. vii. 1970, K. Nozato, at light), 1 ♂ (27. vii. 1971, K. Takeno), 1 ♂ (3. v. 1975, M. Yamamoto), 2 ♂ (13. v. 1975, A. Nakanishi), 1 ♂ (13. v. 1975, Y. Yoshiyasu *et al*., at light), 1 ♂ (11 - 12. v. 1977, Y. Yoneda), 6 ♂ (3. v. 1983, K. Konishi, at light), 29 ♂ (5. vii. 1983, R. Noda, at light), 18 ♂ (6. vii. 1983, R. Noda, at light), 1 ♂ (7. vii. 1983, M. Abe *et al*., at light), 12 ♂ (7–8. vii. 1983, O. Tadauchi *et al*., at light), 2 ♂ (18–19. viii. 1983, N. Kôda, at light), 1 ♂ (29. viii. 1983, K. Ôhara, at light), 1 ♂ (13. x. 1983, M. T. Chûjô, at light), 1 ♂ (31. viii. 1983, K. Ôhara, at light), 1 ♂ (4. ix. 1984, K. Ôhara, at light) & 5 ♂ (24–25. vi. 1985, N. Kôda, at light), Mt. Hikosan. Nagasaki Pref.- 1 ♂ , Unzen Mts., 25. ix. 1983 (K. Konishi *et al*., at light); 1 ♂ , Mt. Gokaharadake, 6. v. 1986 (T. Yasunaga, at light). Oita Pref.- 1 ♂ (19. vii. 1979, I. Kanazawa, at light), 1 ♂ (5. viii. 1983, R. Noda), 1 ♂ (8. viii. 1983, R. Noda), 2 ♂ (3. x. 1983, N. Kôda *et al*., at light) & 6 ♂ (14. vii. 1984, S. Yoshimatsu, at light), Kuju Mts. Kumamoto Pref.- 1 ♂ (12. vi. 1978, H. Makihara), 1 ♂ (17. vi. 1978, H. Makihara), 1 ♂ (18. vi. 1978, H. Makihara), 30 ♂ (20 - 29. vi. 1978, K. Yamagishi), 13 ♂ (1 - 9. vii. 1978, K. Yamagishi), 13 ♂ (10 - 19. vii. 1978, K. Yamagishi) & 2 ♂ (10. vii. 1983, H. Harada *et al*.), Mt. Asosan, (at light); 32 ♂ , Shiiya-tôge, 26. vii. 1985 (K. Konishi *et al*., at light); 14 ♂ (10. vii. 1977, T. Saigusa, at light), 5 ♂ (19. vii. 1977, K. Ôhara, at light), 1 ♂ (26 - 27. v. 1978, K. Ôhara), 5 ♂ (9. vii. 1978, T. Saigusa, at light), 2 ♂ (8. vii. 1978, A. Nagatomi, at light), 9 ♂ (8. vii. 1978, K. Maeto, at light), 3 ♂ (9. vii. 1978, A. Nagatomi, at light), 10 ♂ (9 - 11. vii. 1978, K. Maeto), 3 ♂ (10. vii. 1978, K. Maeto, at light), 1 ♂ (4. x. 1979, T. Gotô, at light), 4 ♂ (1. vi. 1980, T. Saigusa), 2 ♂ (12. v. 1983, N. Kôda *et al*., at light), 1 ♂ (12. v. 1983, K. Ôhara, at light), 3 ♂ (13. v. 1983, N. Kôda *et al*., at light), 8 ♂ (9. vii. 1983, N. Kôda, at light), 28 ♂ (19. vii. 1983, N. Kôda *et al*., at light), 5 ♂ (26. viii. 1983, N. K ôda *et al*., at light), 3 ♂ (9. vii. 1988, R. Noda, at light) & 9 ♂ (19. ix. 1992, R. Noda, at light), Mt. Shiratoriyama. Miyazaki Pref.- 1 ♂ , Mt. Sobosan, 20–22. vii. 1979 (K. Konishi). Kagoshima Pref.- 1 ♂ , Terayama, 1. v. 1970 (K. Kusigemati); 1 ♂ , Kaseda, 23. vii. 1976 (K. Ôhara).

Distribution. Japan (Hokkaido, Honshu, Izu-shichitô Isls., Shikoku, Kyushu).

Remarks. This species was synonymized with *Paniscus unicolor* by Uchida (1940a). Later, Townes, Momoi & Townes (1965) treated it as distinct species in their catalogue without any comments. *Takaozana* differs from *unicolor* in having the slenderer 1st metasomal tergum and the pad, which is strongly produced basally. This is the most common species of the subgenus *Netelia* in Japan. This is the first description and illustration of the male genitalia of *takaozana*.

Netelia (*Netelia*) *testacea* (Gravenhorst)
(Figs. 31A–G, 32A–B)

Paniscus testaceus Gravenhorst, 1829: 626.
Netelia ocellaris valvator Aubert, 1968: 100.
Netelia (*Netelia*) *valvator*: Delrio, 1975: 63.

♂. Head (Figs. 31A, 31B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area smooth or weakly sculptured; geno-orbital index 2.2–3.3; upper face finely granulate with faint to weak trans-striae; lower face 1.3–1.5 times as wide as long; clypeus 1.9–2.1 times as wide as long; flagellum 48–60–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 3.0–3.2 times as long as wide.

Mesosoma: Mesoscutum 1.2–1.4 times as long as wide; mesoscutellum 1.6–1.8 times as long as distance between lateral carinae at its base, with lateral carina sharp and extending to posterior margin; metapleuron weakly puncto-striate, or evenly and finely punctate in some specimens; propodeum trans-striate on anterior 3/4–4/5 and with weak longitudinal striae on posterior 1/5–1/4; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.4–14.5 times as long as wide; fore tarsal claw with 17–30 pectines; hind tarsal claw with 12–19 pectines.

Forewing (Fig. 32A) 2.6–3.1 times as long as wide; cu-a distad Rs+M by 1/4–1/2 of cu-a length, weakly to strongly inclivous and slightly curved; hindwing (Fig. 32B) with 5 –6 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 31C, 31D) 3.9–5.0 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 31E) short, with apical margin weakly convex; paramere (Fig. 31F) slender, with apical portion of dorsal margin not emarginate; brace oblique, almost parallel sided and almost straight; pad semicircular, situated at about middle; aedeagus (Fig. 31G) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum with median and lateral lobes light brown; hind leg and metasoma darker; 1st and 2nd metasomal terga light brown. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Length of forewing: 8.8–14.9 mm.

♀. Not examined.

Specimens examined. [Hokkaido] 1 ♂, Uryu, 19. vi. 1991 (N. Kuhara, at light); 1 ♂, Shimogoku, Furano, 23–26. viii. 1993 (K. Suzuki *et al*.); 2 ♂, Shimamatsu, 12. vi. 1967 (K. Kusigemati). [Honshu] Tochigi Pref.- 1 ♂, Nasu, 8. viii. 1969 (M. Suwa); 1 ♂, Kiyotaki, Nikko, 8. viii. 1977 (at light); 1 ♂, Nikko, 9. viii. 1953 (S. Kato); 2 ♂ (7–26. vi. 1989), 13 ♂ (15–28. vii. 1989), 2 ♂ (28. vii–11. viii. 1989), 2 ♂ (11–22. viii. 1989) & 2 ♂ (22. viii–8. ix. 1989), Yaita, (K. Konishi, Malaise trap). Ibaraki Pref.- 1 ♂, Mt. Yamizosan, 3. viii. 1991 (S. Yoshimatsu, at light); 1 ♂ (7–26. vi. 1989), 7 ♂ (10–14. vii. 1989), 7 ♂ (14–25. vii. 1989), 2 ♂ (25–31. vii. 1989), 3 ♂ (1–8. viii. 1989), 5 ♂ (8–14. viii. 1989), Mt. Tsukubasan, (M. Sharkey, Malaise trap); 3 ♂, NIAES, Tsukuba, 15–26. vi. 1989 (Malaise trap). Gunma Pref.- 1 ♂, Mitsumine, 27. viii. 1947 (S. Kato). Tokyo- 1 ♂, Mt. Takaosan, 29. iv. 1928. Nagano Pref.- 1 ♂, Nanakurasawa, Omachi, 3. vii. 1982 (Y. Yoshida *et al*., at light). Gifu Pref.- 1 ♂, Terakawato, Shokawa, 2. viii. 1969 (S. Ohkusa). Yamanashi Pref.- 1 ♂, Yokote, Hakushu, 14. vii. 1984 (S. Nomura *et al*., at light); 1 ♂ (2. vi. 1975) & 1 ♂ (16. vi. 1975), Masutomi, Kanayama, (J. Emoto, Malaise trap). Shizuoka Pref.- 1

♂ , Kanaya, 18. x. 1950 (J. Sonan); 1 ♂ (15. x. 1966) & 1 ♂ (31. vii. 1967), Mt. Iwamuro, Izu, (T. Maenami). Aichi Pref.- 1 ♂ , Nisshin, 4. v. 1969 (K. Yamagishi); 1 ♂ , Jyokoji, Seto, 18. v. 1970 (T. Okadome). Mie Pref.- 1 ♂ , Mt. Nonoboriyama, Kameyama, 7. viii. 1970 (Y. Higuchi). Hyogo Pref.- 1 ♂ , Mt. Joryujisan, Awajishima, 19. viii. 1970 (K. Tobi). Shimane Pref.- 1 ♂ , Gonokawa, 10. v. 1999 (S. Nakamura). Hiroshima Pref.- 1 ♂ , Mt. Garyuzan, Geihoku, 27. vi. 1987 (S. Nomura). [Sadogashima Is.] 1 ♂ , Mt. Kinpoku, 7–8. vii. 1936 (K. Baba, Y. Suzuki & Z. Sawano). [Shikoku] Tokushima Pref.- 1 ♂ , Mt. Takashiroyama, Kisawa, 24. vii. 1986 (K. Ôhara *et al*., at light). Kochi Pref.- 2 ♂ , Teragawa, Hongawa, 1. vii. 1995 (K. Konishi *et al*., at light). [Kyushu] Fukuoka Pref.- 1 ♂ , Mt. Tachibanayama, Fukuoka, 27. viii. 1976 (Y. Kanamaru, Malaise trap); 1 ♂ (9. v. 1969, K. Takeno, Malaise trap), 1 ♂ (17. vii. 1969, K. Takeno, Malaise trap), 1 ♂ (5. vii. 1983, R. Noda, at light), 2 ♂ (24–25. vi. 1985, N. Kôda, at light), Mt. Hikosan. Oita Pref.- 1 ♂ , Daisen-rindô, Mts. Kuju, 31. v. 1981 (F. Sugita); 1 ♂ (29. v. 1982, K. Hirano) & 1 ♂ (15. ix. 1985, K. Konishi), Mt. Kurodake, Mts. Kuju, (at light); 1 ♂ , Mt. Kuju, 8. vii. 1977 (K. Ôhara); 1 ♂ (7. vii. 1963, M. Shiga) & 1 ♂ (22. vii. 1983, S. Nomura, at light), Mt. Sobosan. Kumamoto Pref.- 2 ♂ , Kusasenri, Mt. Asosan, 10. vii. 1983 (H. Harada *et al*., at light); 2 ♂ , Mt. Asosan, 20–29. vi. 1978 (K. Yamagishi, light trap); 1 ♂ , Gokanosho, 29. vii. 1976 (T. Shiba); 6 ♂ , Mt. Shiratoriyama, Izumi, 19. vii. 1983 (N. Kôda *et al*., at light); 1 ♂ , Shiiya-tôge, 26. vii. 1985 (K. Konishi *et al*., at light). Miyazaki Pref.- 1 ♂ , Shiiba, 5. viii. 1970 (A. Nagatomi). Kagoshima Pref.- 1 ♂ , Kurinodake-onsen, Mts. Kirishima, 20–21. vii. 1983 (N. Kôda *et al*., at light); 1 ♂ , Kawara–Oojigahara, Mts. Kirishima, 23. vi. 1963 (K. Kusigemati); 1 ♂ , Oonobaru, Mt. Takakuma, 29. iv. 1968 (A. Tanaka); 1 ♂ , Mt. Hoyoshidake, Kouyama, 12–14. vii. 1991 (R. Noda).

Distribution. Japan (Hokkaido, Honshu, Sadogashima Is., Shikoku, Kyushu), Europe, North Africa.

Remarks. Until Horstmann (1992) designated the male lectotype of *Paniscus testaceus* Gravenhorst and synonymized *Netelia ocellaris valvator* Aubert under *P. testaceus*, this species was *incertae sedis* (Derlio, 1975). Uchida (1928 and 1934) treated *Paniscus melanurus* as a synonym of *P. testaceus* and recorded *testaceus* from Japan. The majority of his specimens were *melanurus*.

Netelia (*Netelia*) *unicolor* (Smith)
(Figs. 32C–D, 33A–G)

Paniscus unicolor Smith, 1874: 396.

Paniscus (*Paniscus*) *ocellaris*: Uchida, 1934a: 110 (in part).

Netelia (*Netelia*) *unicolor*: Townes, Townes & Gupta, 1961: 103; Townes, Momoi & Townes, 1965: 95.

♀♂ . Head (Figs. 33A, 33B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view convex; interocellar area weakly sculptured; geno-orbital index 2.0–2.3; upper face trans-striate; lower face 1.4–1.5 times as wide as long; clypeus 1.7–1.8 times as wide as long; flagellum 44–50–segmented; 1st flagellomere 1.5–1.7 times as long as the 2nd, the 2nd 2.6–2.7 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.4–1.8 (♀) and 1.8–2.1 (♂) times as long as distance between lateral carinae at its base, with lateral carina weak, fading out before reaching posterior margin, or extending to posterior margin in some specimens; metapleuron striate on ventral half; propodeum trans-striate on anterior 4/5–5/6; lateral crest of propodeum distinct, weak or absent.

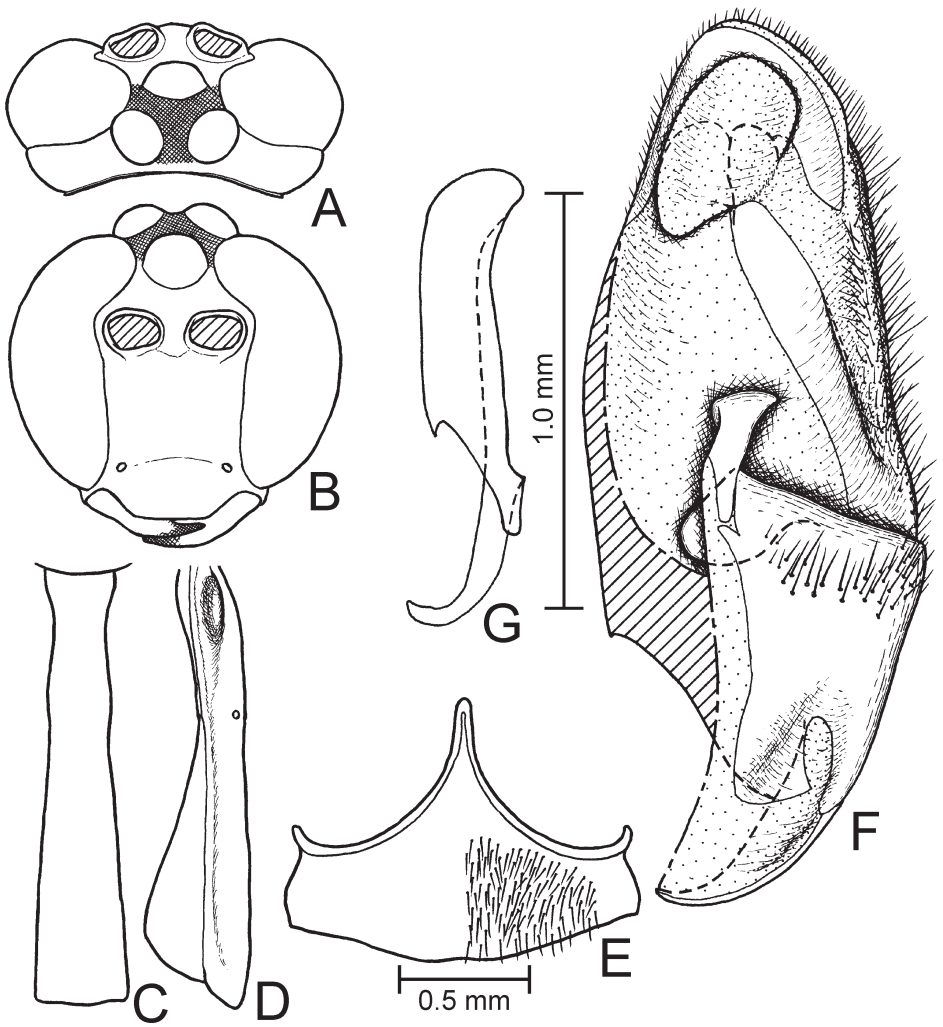

Fig. 31. *Netelia* (*Netelia*) *testacea* (Gravenhorst, 1829), ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 10.4–11.4 times as long as wide; fore tarsal claw with 12–16 (♀) and 28–34 (♂) pectines; hind tarsal claw with 11–13 (♀) and 21–28 (♂) pectines.

Forewing (Fig. 32C) 2.6–3.0 times as long as wide; cu-a distad Rs+M by about 2/5 of cu-a length, vertical or inclivous, and weakly curved; hindwing (Fig. 32D) with 6–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 33C, 33D) 2.8–3.5 times as long as apical width and 1.5–1.6 times as long as the 2nd; male hypopygium (Fig. 33E) moderately long, with apical margin moderately convex and rounded; paramere (Fig. 33F) with apical portion

of dorsal margin not emarginate; brace oblique, relatively broad, almost parallel sided and almost straight; pad D-shaped, situated near dorsal margin; aedeagus (Fig. 33G) with penis valve slender.

Head yellow; interocellar area light brown to blackish brown; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum and metasoma darker. Wings hyaline; vein C and stigma of forewing brownish yellow; other veins brown.

Ovarian egg 0.7 mm long and 0.3–0.4 mm high, with a stalk on its posterior end.

Length of forewing: 9.9–14.5 mm.

Specimens examined. [Hokkaido] 1 ♂ (12. viii. 1970, T. Kumata) & 2 ♂ (28. vii–3. viii. 1975, M. Suwa *et al*.), Ginsendai, Mt. Taisetsuzan; 4 ♂ , Nissho-tôge, 1. viii. 1986 (S. Nomura, at light); 2 ♂ , Bibai, 8. viii. 1962 (K. Kamijo, reared from *Furcula infumata*); 1 ♂ , Sapporo, 7. ix. 1931 (Matsumura), recorded as *Paniscus* (*Paniscus*) *ocellaris* by Uchida (1934). [Honshu] Aomori Pref.- 2 ♂ , Taisawa, Aomori, 13. vi. 1991 (T. Ichita). Iwate Pref.- 18 ♂ (15. vii. 1985) & 8 ♂ , Kawaranobo, Mt. Hayachine, (K. Konishi *et al*., at light). Fukushima Pref.- 2 ♂ , Ina, 15. ix. 1990 (K. Konishi, at light). Tochigi Pref.- 1 ♂ , Nikkozawa, Okukinu, 12. ix. 1987 (K. Konishi, at light). Gunma Pref.- 1 ♂ , Mt. Akagisan, 12. v. 1971 (H. Fuse). Aichi Pref.- 1 ♂ , Mt. Chausuyama, Goshodaira, 3–4. vi. 1974 (S. Ueda); 1 ♂ , Uradani, Kitashitara, 31. v. 1975 (H. Yamada). [Shikoku] Kochi Pref.- 1 ♂ , Befu, Mononobe, 4. vii. 1992 (I. Yamashita, at light). Ehime Pref.- 1 ♂ , Mt.

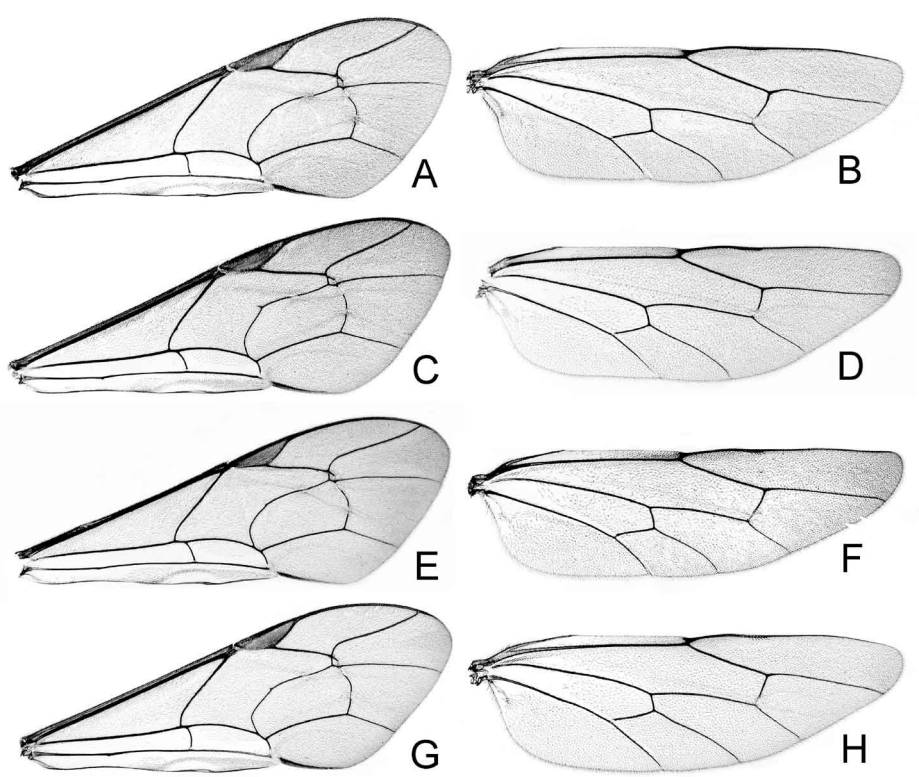

Fig. 32. Wings of *Netelia* (*Netelia*) spp. A, C, E & G, forewings; B, D, F & H, hindwings; A & B, *N.* (*N.*) *testacea* (Gravenhorst, 1829); C & D, *N.* (*N.*) *unicolor* (Smith, 1874); E & F, *N.* (*N.*) *vegeta* Tolkanitz, 1981; G & H, *N.* (*N.*) *vinulae* (Scopoli, 1763).

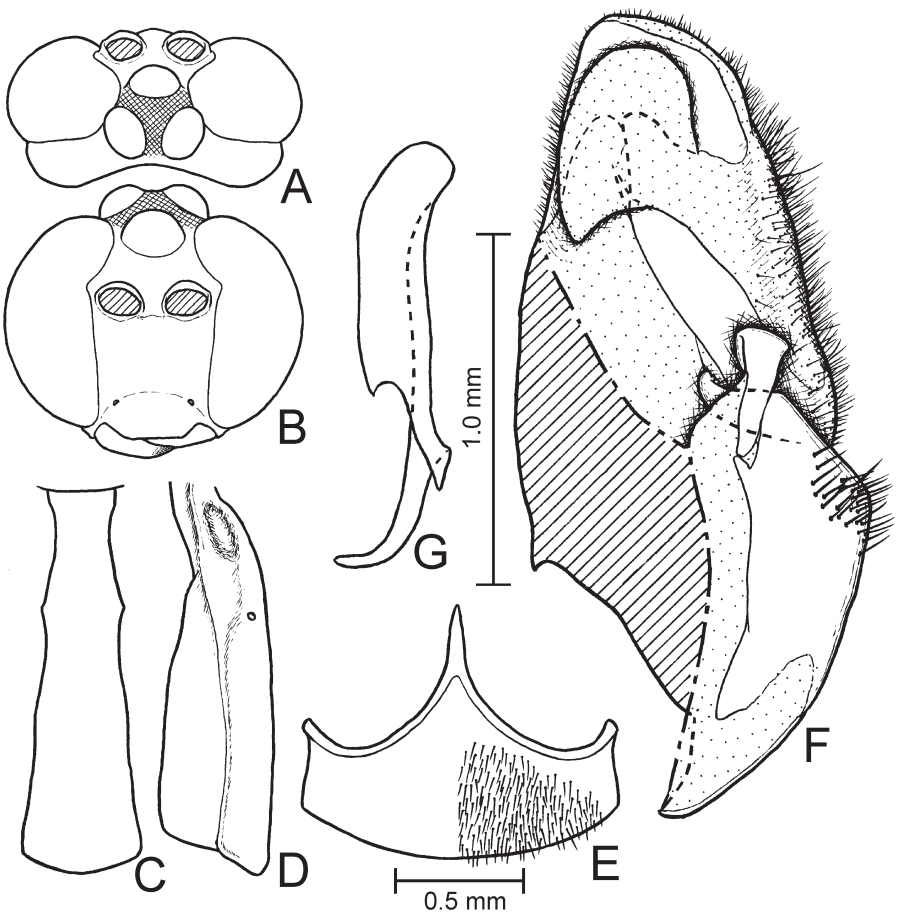

Fig. 33. *Netelia* (*Netelia*) *unicolor* (Smith, 1874), ♂ holotype. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

Odamiyama, 12. vi. 1981 (I. Kanazawa, at light). [Kyushu] Fukuoka Pref.- 1 ♂ (16. vi. 1982, K. Konishi), 1 ♂ (15–19. viii. 1983, N. Kôda), 2 ♂ (30. viii. 1983, K. Ôhara), 1 ♂ (31. viii. 1983, K. Ôhara) & 1 ♂ (6. ix. 1983, M. T. Chûjô), Mt. Hikosan, (at light). Saga Pref.- 2 ♂ , Okuhiratani, Kashima, 17. viii. 1985 (S. Nomura). Kumamoto Pref.- 1 ♂ , Mt. Asosan, 12. vi. 1978 (H. Makihara, at light); 1 ♂ , Mt. Shiratoriyama, Izumi, 26. viii. 1983 (N. Kôda *et al*., at light); 1 ♂ (29. viii. 1992) & 1 ♂ (5. ix. 1992, at light), Mt. Shiragadake, Ue, (R. Noda). Miyazaki Pref.- 1 ♂ , Mt. Mukabakiyama, Nobeoka, 3. vi. 1979 (T. Goto, at light). [Yakushima Is.] 6 ♂ , Anbou-rindô, 22. vii. 1982 (K. Konishi *et al*., at light); 1 ♂ , Shirataniunsuikyo, 14. v. 1983 (K. Konishi *et al*., at light). [Amami-ôshima Is.] 1 ♂ , Mt. Yuwandake, 1. ix. 1983 (R. Noda *et al*., at light).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Yakushima Is., Amami-ô shima Is.), China, Taiwan?, Korea?, Malaysia?, Singapore?, Indonesia?.

Host. *Furcula infumata* (Staudinger, 1887) (Lepidoptera, Notodontidae).

Remarks. This is the first description and illustration of the male genitalia of this species. Uchida (1928) recorded this species from Hokkaido, Honshu, Kyushu, Taiwan

and Korea. Among the specimens, which Uchida (1928) recorded from Japan, seven females and twelve males were found in the collection of Hokkaido University. The genitalia of all male specimens were examined. As the result, ten males were identified with *N*. (*N*.) *rapida* Tolkanitz and the other two males were *N*. (*N*.) *oharai* n. sp. and *N*. (*N*.) *kusigematii* n. sp., respectively. One specimen from Taiwan was found, but its metasoma was lost. Any specimens from Korea could not be found. Thus, the distribution of *N*. (*N*.) *unicolor* in Taiwan and Korea could not be confirmed. Morley (1913) recorded *unicolor* from Malaysia, Singapore and Indonesia. These records also should be confirmed.

Netelia (*Netelia*) *vegeta* Tolkanitz
(Figs. 32E–F, 34A–G)

Netelia (*Netelia*) *vegeta* Tolkanitz, 1981a: 34

♂. Head (Figs. 34A, 34B) 1.6–1.7 times as wide as long; occipital carina obsolete at the mid line, or in the mid-dorsal area weak and horizontal in some specimens; vertex in dorsal view convex; interocellar area smooth, or weakly sculptured in some specimens; geno-orbital index 2.3–2.7; upper face weakly to strongly trans-striate; lower face 1.4 –1.5 times as wide as long; clypeus 1.8–1.9 times as wide as long; flagellum 48–53–segmented; 1st flagellomere 1.6 times as long as the 2nd, the 2nd 2.8–3.0 times as long as wide.

Mesosoma: Mesoscutum 1.4–1.5 times as long as wide; mesoscutellum 1.6–1.8 times as long as distance between lateral carinae at its base, with lateral carina sharp and extending to posterior margin; metapleuron puncto-striate; propodeum trans-striate on anterior 3/4–4/5; lateral crest of propodeum distinct or weak.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 11.5–12.3 times as long as wide; fore tarsal claw with 26–35 pectines; hind tarsal claw with 21–27 pectines.

Forewing (Fig. 32E) 2.8–2.9 times as long as wide; cu-a distad Rs+M by 1/3–1/2 of cu-a length, inclivous and slightly curved; hindwing (Fig. 32F) with 5–7 distal hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 34C, 34D) 4.3–4.9 times as long as apical width and 1.5–1.6 times as long as the 2nd; hypopygium (Fig. 34E) long, with apical margin strongly convex and truncate; paramere (Fig. 34F) with apical portion of dorsal margin emarginate; brace oblique, tapering toward apex and curved; pad strongly produced baso-dorsally and weakly produced apico-ventrally; aedeagus (Fig. 34G) with penis valve slender.

Head yellow; interocellar area black; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker; mesoscutum light brown in some specimens. Wings hyaline; vein C and stigma brownish yellow; other veins brown.

♀. Unknown.

Specimens examined. [Hokkaido] 2 ♂, Rubesu, Shibetsu, Nemuro, 25–28. viii. 1971 (K. Yamagishi); 1 ♂, Shimamatsu, 12. vi. 1967 (K. Kusigemati); 1 ♂, Shiriuti, Oshima, 21. vi. 1976 (T. Kumata *et al*.). [Honshu] Aomori Pref.- 1 ♂, Hibakozawa-rindô, Aomori, 15. viii. 1992 (T. Ichita); 1 ♂, Igurisawa, Aomori, 28. vii. 1992 (T. Ichita). Iwate Pref.- 1 ♂, Mt. Hiraniwa, 27. viii. 1966 (K. Kusig.). Yamagata Pref.- 1 ♂, Mt. Chokaisan, 11. vi. 1977 (K. Baba). Fukushima Pref.- 1 ♂, Azuma Mts., 29. vii. 1995 (M. Miyazaki); 1 ♂, Urabandai, 2. ix. 1966 (M. Suwa); 1

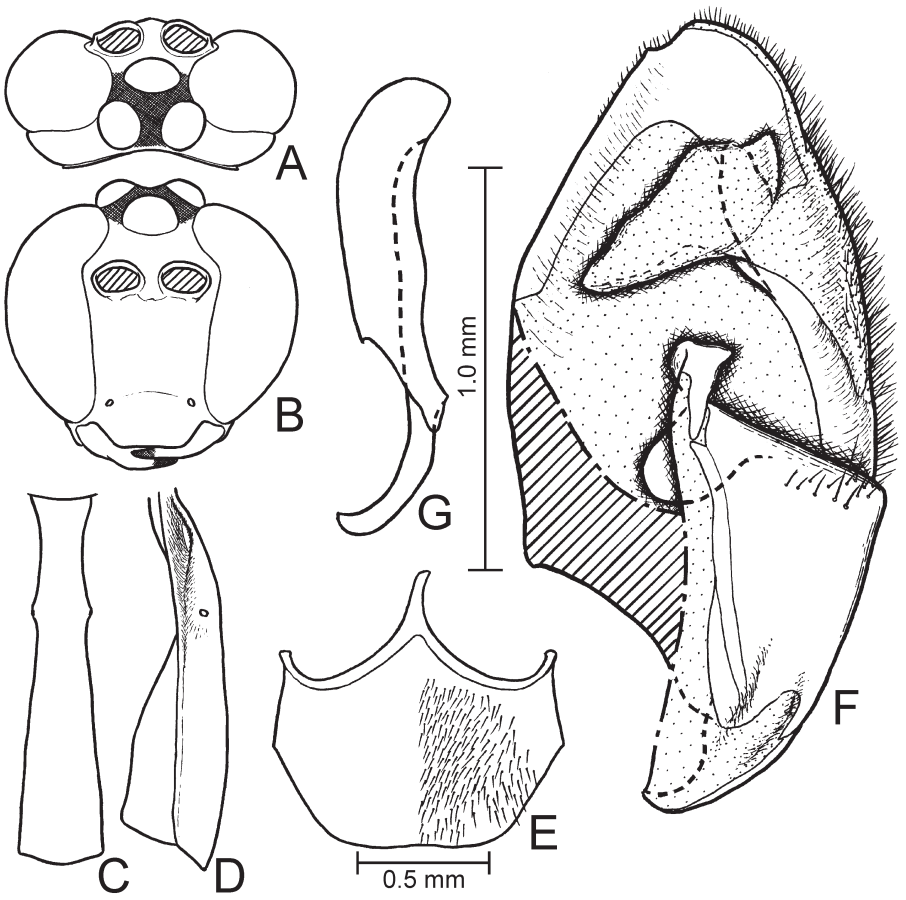

Fig. 34. *Netelia* (*Netelia*) *vegeta* Tolkanitz, 1981, ♂ . A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

♂ , Mt. Tashiroyama, Tateiwa, 29. viii. 1992 (M. Yoshida, at light). Niigata Pref.- 1 ♂ , Nishidani, Koshiji, 13. vi. 1997 (T. Naito, at light); 1 ♂ , Kettou, Tsunan, 7. ix. 1996 (S. Sakurai, at light). Tochigi Pref.- 1 ♂ , Miyama, Kuroiso, 30. viii. 1995 (S. Yoshimatsu, at light); 1 ♂ , Nikkozawa, Okukinu, 12. ix. 1987 (K. Konishi, at light); 1 ♂ , Okukinu, 11–13. vii. 1967 (H. Higuchi); 1 ♂ , Nikko, 11–13. vi. 1967 (H. Takizawa). Ibaraki Pref.- 1 ♂ (3. viii. 1991, S. Yoshimatsu) & 2 ♂ (22. viii. 1992, K. Konishi), Mt. Yamizosan, (at light); 1 ♂ (14–25. vii. 1989) & 2 ♂ (8–14. viii. 1989), Mt. Tsukubasan, (M. Sharkey, Malaise trap). Saitama Pref.- 1 ♂ , Iruma, 22. v–27. vi. 1972 (M. Shimoda). Tokyo- 1 ♂ , Mt. Takaosan, 9. ix. 1949 (I. Hattori). Nagano Pref.- 1 ♂ , Nakabusa-onsen, 9–11. vi. 1967 (N. Fukuhara); 1 ♂ , Karasawa, 26–28. viii. 1967 (H. Higuchi); 1 ♂ , Hiziri Highland, 2. viii. 1965 (S. Katsuya). Yamanashi Pref.- 5 ♂ , Mt. Nyugasa, 10. viii. 1961 (A. Nakanishi). Shizuoka Pref.- 1 ♂ (20. vii. 1947), 2 ♂ (21. vii. 1947), 1 ♂ (13. vii. 1948) & 1 ♂ (12. viii. 1950), Kanaya, (J. Minamikawa); 1 ♂ (11. ix. 1966, T. Maenami), 3 ♂ (21. vi. 1967, T. Maenami), 1 ♂ (23. vi. 1967, T. Maenami), 1 ♂ (28. vi. 1967, T. Maenami), 13 ♂ (29. vi. 1967, T. Maenami), 2 ♂ (6. vii. 1967, K. Ogura), 2 ♂ (7. vii. 1967, K. Ogura), 1 ♂ (12. vii. 1967,

K. Ogura), 1 ♂ (15. vii. 1967, T. Maenami), 2 ♂ (20. vii. 1967, T. Maenami), 1 ♂ (9. viii. 1967, K. Ogura), 17 ♂ (16. viii. 1967, T. Maenami), 3 ♂ (22. viii. 1967, T. Maenami), 2 ♂ (23. viii. 1967, K. Ogura), 5 ♂ (25. viii. 1967, K. Ogura), 1 ♂ (5. ix. 1967, T. Maenami), 1 ♂ (5. v. 1968, T. Maenami), 1 ♂ (12. v. 1968, T. Maenami), 3 ♂ (17. v. 1968, T. Maenami), 2 ♂ (25. v. 1968, T. Maenami), 7 ♂ (1. vii. 1968, T. Maenami), 19 ♂ (7. vii. 1968, T. Maenami), 4 ♂ (8. vii. 1968, T. Maenami), 2 ♂ (9. vii. 1968, T. Maenami), 2 ♂ (13. vii. 1968, T. Maenami), 5 ♂ (15. vii. 1968, T. Maenami) & 7 ♂ (16. vii. 1968, T. Maenami), Mt. Iwamuro, Izu. Mie Pref.- 1 ♂ (6. vi. 1965) & 3 ♂ (7. vi. 1965), Hirakura, (A. Nakanishi). Hyogo Pref.- 1 ♂ , Tarumi, Kobe, 8. v. 1961 (T. Torii). [Shikoku] Ehime Pref.- 1 ♂ , Tsuchigoya, Mt. Ishizuchisan, 26. vii. 1971 (Y. Arita). Kochi Pref.- 1 ♂ , Tengu-kôgen, Higashitsuno, 20. vii. 2000 (I. Yamashita, at light). [Tsushima Is.] 1 ♂ (5–8. vii. 1983, H. Makihara, at light) & 1 ♂ (20–23. v. 1984, A. Saito), Mt. Ohoshiyama; 3 ♂ , Tsutsu, 26. iv. 1977 (Y. Suzuki). [Kyushu] Fukuoka Pref.- 1 ♂ , Mt. Inunaki, 3. v. 1969 (A. Nakanishi); 1 ♂ (13. v. 1955, Esaki *et al*.), 1 ♂ (20. v. 1971, K. Takeno, Malaise trap), 2 ♂ (12–13. v. 1977, K. Setoya, at light) & 1 ♂ (3. v. 1983, K. Konishi *et al*., at light), Mt. Hikosan. Oita Pref.- 1 ♂ , Chojabaru, Mts. Kuju, 22. v. 1983 (Y. Abe *et al*., at light); 1 ♂ (21. vii. 1981, S. Yoshimatsu) & 1 ♂ (25. viii. 1984, K. Konishi, at light), Mt. Kurodake, Mts. Kuju. Kumamoto Pref.- 1 ♂ , Mt. Shiratoriyama, Izumi, 19. vii. 1983 (N. Kôda *et al*., at light). Kagoshima Pref.- 1 ♂ , Kurinodake-onsen, Mts. Kirishima, 20–21. vii. 1983 (N. Kôda *et al*., at light); 1 ♂ , Gingu–Kawara, Mts. Kirishima, 23. vi. 1963 (K. Kushigemachi).

Distribution. Japan (Hokkaido, Honshu, Shikoku, Tsushima Is., Kyushu), Russia (Primorsky Krai).

Remarks. This is the first record of this species from Japan.

Netelia (*Netelia*) *vinulae* (Scopoli)
(Figs. 32G–H, 35A–G)

Ichneumon vinulae Scopoli, 1763: 286.

Paniscus inquinatus Gravenhorst, 1829: 631.

Paniscus cephalotes Holmgren, 1860: 31.

Netelia (*Netelia*) *vinulae*: Townes, Momoi & Townes, 1965: 95; Tolkanitz, 1974: 388; Delrio, 1975: 64; Tolkanitz, 1981a: 34; Tolkanitz, 1981b: 99.

♀♂ . Head (Figs. 35A, 35B) 1.7–1.8 times as wide as long; occipital carina obsolete at the mid line; vertex in dorsal view strongly convex; interocellar area smooth; geno-orbital index 1.2–1.5; upper face finely granulate or weakly to distinctly trans-striate; lower face 1.5–1.6 times as wide as long; clypeus 1.9–2.1 times as wide as long; flagellum 53–55–segmented; 1st flagellomere 1.5–1.6 times as long as the 2nd, the 2nd 2.8–3.1 times as long as wide.

Mesosoma: Mesoscutum 1.3–1.4 times as long as wide; mesoscutellum 1.7–1.8 times as long as distance between lateral carinae at its base, with lateral carina weak and extending to posterior margin; metapleuron without striae or weakly puncto-striate; propodeum trans-striate on anterior 3/4; lateral crest of propodeum distinct.

Fore tibial spur 0.4 times as long as the 1st tarsomere, which 9.6 (♀) and 10.8–11.4 (♂) times as long as wide; fore tarsal claw with 15–16 (♀) and 29–34 (♂) pectines; hind tarsal claw with 14 (♀) and 19–26 (♂) pectines.

Forewing (Fig. 32G) 3.0–3.3 times as long as wide; cu-a distad Rs+M by 1/6–1/3 of cu-a length, slightly inclivous and slightly curved; hindwing (Fig. 32H) with 6–8 distal

hamuli; nervellar index 0.4–0.5.

Metasoma with 1st tergum (Figs. 35C, 35D) 2.7 (♀) and 3.5–3.6 (♂) times as long as apical width and 1.4–1.5 times as long as the 2nd; male hypopygium (Fig. 35E) moderately long, with apical margin moderately convex and truncate; paramere (Fig. 35F) with apical portion of dorsal margin not emarginate; brace oblique, relatively broad, almost parallel sided and curved; pad long and semicircular, with base long, situated near dorsal margin; aedeagus (Fig. 35G) with penis valve slender.

Head yellow; interocellar area blackish brown; occiput and antenna reddish yellow. Meso-, metasomata and legs reddish yellow; mesoscutum, hind femur and metasoma darker. Wings hyaline; vein C and stigma of forewing light brownish yellow; other veins brown.

Ovarian egg 1.1 mm long and 0.5 mm high, with a stalk on its posterior end.

Length of forewing: 13.9–15.8 mm.

Specimens examined. [Hokkaido] 1 ♀, Bibai, em. iv. 1963 (K. Kamijo, reared from *Cerura*

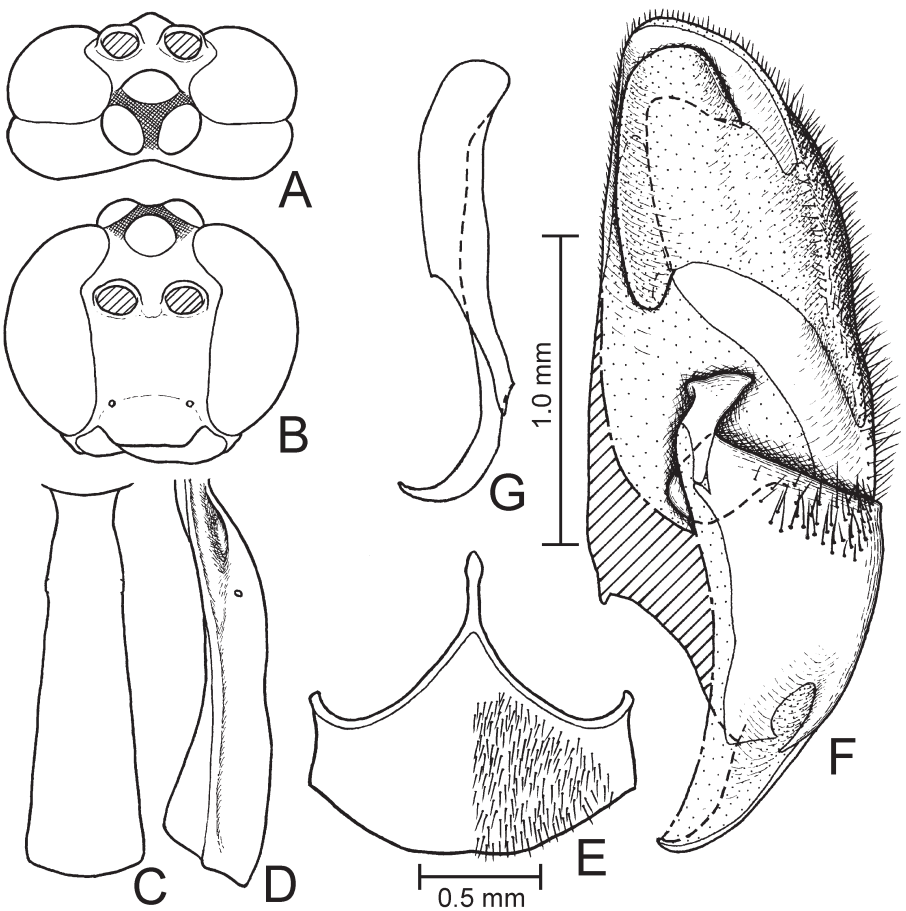

Fig. 35. *Netelia* (*Netelia*) *vinulae* (Scopoli, 1763), ♂. A, head in dorsal view; B, ditto in frontal view; C, first metasomal segment in dorsal view; D, ditto in lateral view; E, hypopygium; F, right paramere in median view; G, aedeagus in lateral view.

felina). [Honshu] Iwate Pref.- 1 ♂, Kawaranobô, Mt. Hayachine, 15. vii. 1985 (K. Konishi *et al*., at light). Miyagi Pref.- 1 ♀, Futakuchikeikoku, Akiu, 12. vii. 1985 (K. Konishi *et al*., at light). Fukushima Pref.- 4 ♂, Kawairi, nr. Mts. Iide, 27–30. vi. 1987 (K. Konishi, at light). Tochigi Pref.- 1 ♂, Nikkozawa, 28. vii. 1983 (H. Makihara). Gunma Pref.- 1 ♂, Katashina, 12–13. vii. 1991 (S. Yoshimatsu, at light). Nagano Pref.- 1 ♂, Kisokomakôgen, 10. vii. 1982 (Y. Yoshida *et al*., at light).

Distribution. Japan (Hokkaido, Honshu), Eulope, Israel, Iran, India.

Host. Twenty-nine species belonging to Noctuidae, Sphingidae, Notodontidae, Lasiocampidae and Lymantriidae (Lepidoptera) and Cimbicidae (Hymenoptera) have been recorded. Among them, *Triaena intermedia, Pseudaletia separata* (Noctuidae), *Agrius convolvuli*, *Laothoe amurensis* (Sphingidae), *Cerura erminea, Cucullia fraterna* (Notodontidae), *Dendrolimus superans* (Lasiocampidae) and *Calliteara pseudabietis* (Lymantriidae) were recorded from Japan by Uchida (1928, 1930, 1934). Because no specimens of this species could be found in Uchida collection, these host records could not be confirmed. As mentioned in 'Specimens examined', one female was reared from *Cerura felina* Butler, 1877 (Lepidoptera, Notodontidae), and this is a new host record.

Remarks. This species can be distinguished from other Japanese species of the subgenus *Netelia* by the strongly convex vertex.

Species erroneously recorded from Japan

Netelia (*Netelia*) *dilatata* (Thomson, 1888)
(Figs. 36A, 36D, 37A & 37D)

Panisicus dilatata Thomson, 1888
Paniscus brachycera Thomson, 1888
Paniscus capito Kokujev, 1900
Paniscus genalis Kokujev, 1900
Paniscus nigridorsum Meyer, 1929
Paniscus schirjajewi Kokujev, 1900
Paniscus sibiricola Kokujev, 1900

As Delrio (1975) stated, *dilatata* is characteristic in the head, which is swollen behind eye, and the lateral ocellus which is apart from eye (Figs. 36A, 36D). This species was recorded from Japan as *Paniscus capito* by Uchida (1928) based on a female. The specimen was found in the collection of Hokkaido University and examined. Though it could not be identified with any species because it was female, the characters of head were different from those of *dilatata*. Therefore *N*. (*N*.) *dilatata* should be excluded from the Japanese fauna.

Netelia (*Netelia*) *fuscicornis* (Holmgren, 1860)
(Figs. 36B, 36E, 37B & 37E)

Paniscus fuscicornis Holmgren, 1860
Paniscus gracilipes Thomson, 1888

This species was recorded from Japan as *Paniscus gracilipes* by Uchida (1928)

based on a female. The specimen could not be found in the collection of Hokkaido University. Male lectotype of *Paniscus fuscicornis* was examined and its head and genitalia are shown in Figs. 36B, 36E, 37B and 37E. No specimens which possess the paramere as shown in fig. 37B were found in the specimens from Japan.

Netelia (*Netelia*) *grumi* (Kokujev, 1906)
(Figs. 36C, 36F, 37C & 37G)

Paniscus grumi Kokujev, 1906

Twelve males, which were recorded from Japan as *Paniscus grumi* by Uchida (1928 & 1934a), were found in the collection of Hokkaido University. They were identified with *atra*, *nigrinotus*, *takaozana*, *gotoi* or *nigritarsalis*.

One male of the syntypes of *Paniscus grumi* was examined and the specimen is designated as lectotype of *Paniscus grumi* here. Its paramere (Fig. 37C) resembles to those of *unicolor*, *nomurai* and *suwai*, but differs from them in the pad, which is less strongly produced dorsally, and the broad brace. Furthermore, in the coloration of *grumi*, the head (Figs. 36C, 36F), the mesosoma and the coxae are blackish brown, and the legs except coxae and the metasoma are reddish yellow. None of the specimens of the subgenus *Netelia* from Japan have such coloration.

Data of the lectotype is "Sando-ho River, 20. vii. 1889, Gr. Grzhimailo".

Netelia (*Netelia*) *orientalis* (Cameron, 1905)

Paniscus orientalis Cameron, 1905

Matsumura & Uchida (1926) and Uchida (1928, 1934a & 1934b) recorded *Paniscus orientalis* from Japan, China and Taiwan. Six females and six males, which were used by them, were re-examined. All of them except one male, which was identified with *N.* (*Toxochiloides*) *hayashii*, were *N.* (*T.*) *latro latro* (Konishi, 1996 and 2000).

Netelia (*Netelia*) *nigriventris* (Brullé, 1846)

Paniscus nigriventris Brullé, 1846

This species was recorded from Mt. Obakodake in Nara by Iwata (1960) based on one female. The specimen could not be examined. Uchida (1928) recorded *Paniscus nigriventris* from Taiwan based on a male and the specimen was found in the collection of Hokkaido University. It was examined and identified as *N.* (*N.*) *silantjewi* (Kokujev). Because Iwata (1960) acknowledged to 'Prof. Dr. T. Uchida' for identification, it is possible that the female specimen from Nara also was misidentified.

According to Kaur & Jonathan (1979), *nigriventris* is distinctly characterized by the large body size (length of forewing 18 mm), the very coarsely and sparsely striated propodeum and the coloration, that is, the ground color is reddish brown, and the metasomal tergites and the hind leg except tarsus and apex of tibia are black. None of the Japanese specimens possess such character states.

Consequently, it is considered that *N.* (*N.*) *nigriventris* can be excluded from

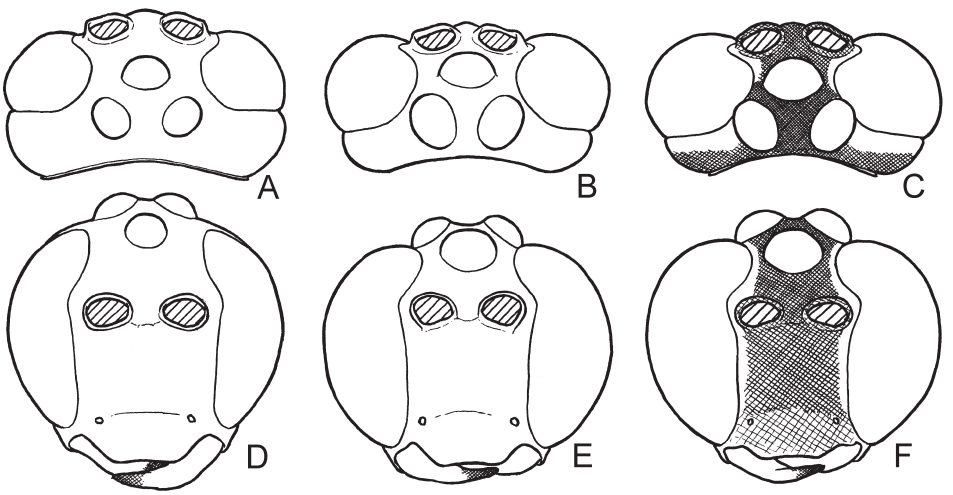

Fig. 36. Heads of *Netelia* (*Netelia*) spp. A - C, dorsal views; D - F, frontal views; A & D, *N.* (*N.*) *dilatata* (Thomson, 1888), holotype of *Paniscus schirjajewi* Kokujev, 1900; B & E, *N.* (*N.*) *fuscicornis* (Holmgren, 1860), lectotype; C & F, *N.* (*N.*) *grumi* (Kokujev, 1906), lectotype.

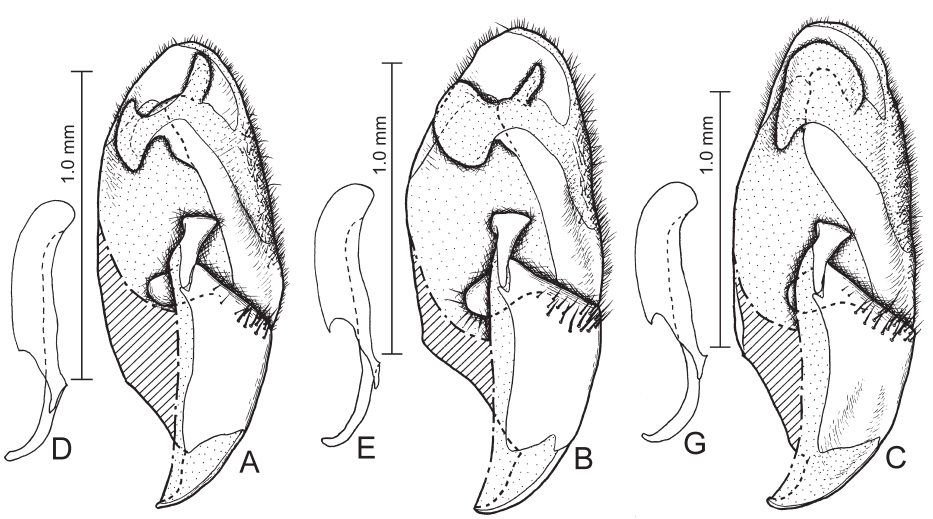

Fig. 37. Male genitalia of *Netelia* (*Netelia*) spp. A - C, parameres in median view; D - F, aedeagi; A & D, *N.* (*N.*) *dilatata* (Thomson, 1888), holotype of *Paniscus schirjajewi* Kokujev, 1900; B & E, *N.* (*N.*) *fuscicornis* (Holmgren, 1860), lectotype; C & F, *N.* (*N.*) *grumi* (Kokujev, 1906), lectotype.

Japanese fauna.

Acknowledgements

I would like to express my sincere thanks to the following persons who offered me specimens or allowed me to examine specimens under their charge: Prof. Emer. S. Takagi, Prof. M. Suwa and Assoc. Prof. M. Ôhara (Hokkaido Univ.); Prof. Emer. Y. Hirashima, Prof. Emer. K. Morimoto, Dr. M. T. Chujo, and Prof. O. Tadauchi (Kyushu Univ.); Prof. K. Kusigemati (Kagoshima Univ.); Dr. A. Nakanishi (Hyogo Pref. Mus.); Dr. K. Yamagishi (Meijo Univ.); Dr. K. Kamijo (Bibai); Dr. S. A. Belokobylsij (Zoological Institute, St. Petersburg); Dr. L. -A. Janzon (Naturhistoriska Riksmuseet, Stockholm); Dr. M. Fitton (The Natural History Museum, London); the late Dr. K. Baba (Niigata Pref.); Dr. I. Togashi (Ishikawa Agricultural College); Assoc. Prof. T. Hirowatari (Univ. Osaka Pref.); Assoc. Prof. N. Kôda (Nanzan Univ.); Assoc. Prof. K. Maeto (Kobe Univ.); Mr. K. Ôhara (Tokushima Pref. Mus.); Prof. M. Hayashi (Saitama Univ.); Dr. T. Goto and Mr. H. Makihara (Forestry and Forest Products Research Institute); Mr. I. Kanazawa (Osaka Mus. Nat. Hist.); Drs. S. Naomi and A. Saito (Nat. Hist. Mus. Inst., Chiba); Dr. S. Yoshimatsu (Nat. Inst. Agro-Environ. Sci.); Dr. Y. Abe (Kyoto Pref. Univ.); Dr. S. Nomura (Nat. Sci. Mus.); Dr. T. Yasunaga (JICA); Mr. I. Yamashita (Kochi Pref.); Mr. R. Noda (Fukuoka Pref. Forest Exp. Station); Dr. N. Kuhara (Chitose City); Mr. Y. Nakata (Ehime Pref. Forest Exp. Station).

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