

## Two New Species of the Genus *Petaloscopus* JEANNEL (Coleoptera, Staphylinidae, Pselaphinae) from Kantô to Chûbu Districts, Eastern Honshu, Japan

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**Abstract** The following two new species of the genus *Petaloscopus* JEANNEL of the tribe Batrisini are described from Kantô to Chûbu Districts, eastern Honshu, Japan. *Petaloscopus shirokanensis* sp. nov. is described based on the specimens, which were misidentified as *P. basicornis* by JEANNEL (1958). It is widely distributed in Kantô to Chûbu Districts. Another new species, *P. takakuwai* sp. nov. was also described as new from Kantô District.

**Key words:** Pselaphinae, Staphylinidae, *Petaloscopus*, Kantô to Chûbu Districts, new species.

### Introduction

Up to the present, seven species and two subspecies have been known in the genus *Petaloscopus* JEANNEL, 1958. The genus which belongs to the supertribe Batrisitae, the tribe Batrisini is endemic to Japan. Recently, the author added a new species, *P. niisatoi*, from Hokuriku District, Honshu (NOMURA, 2017). This genus was remarkably diversified within the Japanese mainland, and many undescribed species still remain.

The member of the genus *Petaloscopus* is more or less similar in morphological structure to other genera of the tribe Batrisini. The genus is characterized by the medium-sized, stout body, and the apical projection of the antennal segment I (scape) in the male.

The species, *P. basicornis* was described by SHARP (1883) from Miyanoshita, Hakone, Kanagawa Prefecture. The type specimen is preserved in the Natural History Museum, London. On the other hand, *P. basicornis* was redescribed by JEANNEL (1958) on the basis of the *Petaloscopus* specimen collected by Hans SAUTER from “Kanagawa”, which was identified by Von Karl HOLDHAUS as “*P. basicornis*”. The author examined the specimen deposited in the A. RAFFRAY’s Collection at the Museum Nationale d’Histoire Naturelle, Paris, and it was confirmed that it is not the true *P. basicornis*, but an unnamed species.

In the present study, the unnamed species incorrectly redescribed as “*P. basicornis*” is described as a new species, *P. shirokanensis*. This species is widely distributed in lowland from Kantô to Chûbu Districts. Additionally, the other new species, *P. takakuwai* is also described from the western part of Kantô District including Kanagawa, Tokyo, and Saitama Prefectures. As the result, four species, *P. basicornis*, *P. nasutus*, *P. shirokanensis*, and *P. takakuwai* are distributed in Kanagawa Prefecture.

### Materials and Methods

The holotype of the new species, *P. shirokanensis*, was collected by the light trap of NAKASE system shown by NOMURA *et al.* (2013), NOMURA (2015), etc. Other type specimens shown below were collected from leaf litter in the forest by conventional methods, namely, shifting and Tullgren ex-

traction.

Specimens were washed and dissected in 70% ethanol or cleared in 10 % KOH water solution for detailed examination. Male genitalia were mounted in Canada balsam on a small glass slide on the same pin with the specimen as described by MARUYAMA (2004). Measurements of the body and parts were made with a stereo microscope (Leica MZ Apo). For the SEM observation, all specimens were air dried, uncoated, and illustrated with an SEM fit with a digital microscope system (KEYENCE VHX-2000 + VHX-D510) under AV 0.9–2.0 kv. The holotype and paratypes of this new species are deposited in the National Museum of Nature and Science, Tokyo (NMNS).

### Taxonomy

#### Genus *Petaloscopus* JEANNEL

[Japanese name: Higebuto-munetoge-arizukamushi Zoku]

*Petaloscopus* JEANNEL, 1958: 33. Type species by original designation: *Batrisus ornatus* SHARP.

*Remarks.* This genus is similar to the other genera of the tribe Batrisini. However, it is separated by the following character states: the body is middle-sized and stout; the scape bears a flat projection on the internal side of the apex in the male; the male genitalia is asymmetrical and nearly rectangular bearing large and triangular projection at the right or left apex of median lobe; the endophallus is asymmetrical and clearly sclerotized, formed from two to four sclerites surrounded by the median lobe. This genus belongs to the genus group of *Batrisus* as shown in NOMURA (2017).

#### A Key to the Male of the Species from Eastern Honshu of the Genus *Petaloscopus*

1. Frontal nodule with a short median longitudinal carina .....  
..... *P. shirokanensis* sp. nov. (Kantô to Chûbu Districts)
- Frontal nodule without median longitudinal carina ..... 2
2. Frontal nodule strongly constricted at base .....  
..... *P. basicornis* (SHARP, 1883) (Kantô to Chûbu Districts)
- Frontal nodule weakly constricted ..... 3
3. Antennal segment I with very short internal projection; abdominal sternite VIII almost flat in basimedial part ..... *P. niisatoi* NOMURA, 2017 (Niigata, Fukui)
- Antennal segment I with small internal projection; abdominal sternite VIII with a basimedial short-haired nodule in basimedial part ..... 4
4. Male genitalia includes two elongate sclerites, left one broadened at apex, right one simple; mirror image dimorphism of male genitalia unknown .....  
..... *P. nasutus* JEANNEL, 1958 (Tôhoku to Chûbu Districts, Pacific coast)
- Male genitalia includes two elongate sclerites, left one slendered near apex, with a long denticle on internal side near middle, right one simple; mirror image dimorphism of male genitalia happened ..... *P. takakuwai* sp. nov. (Kanagawa, Tokyo, Saitama)

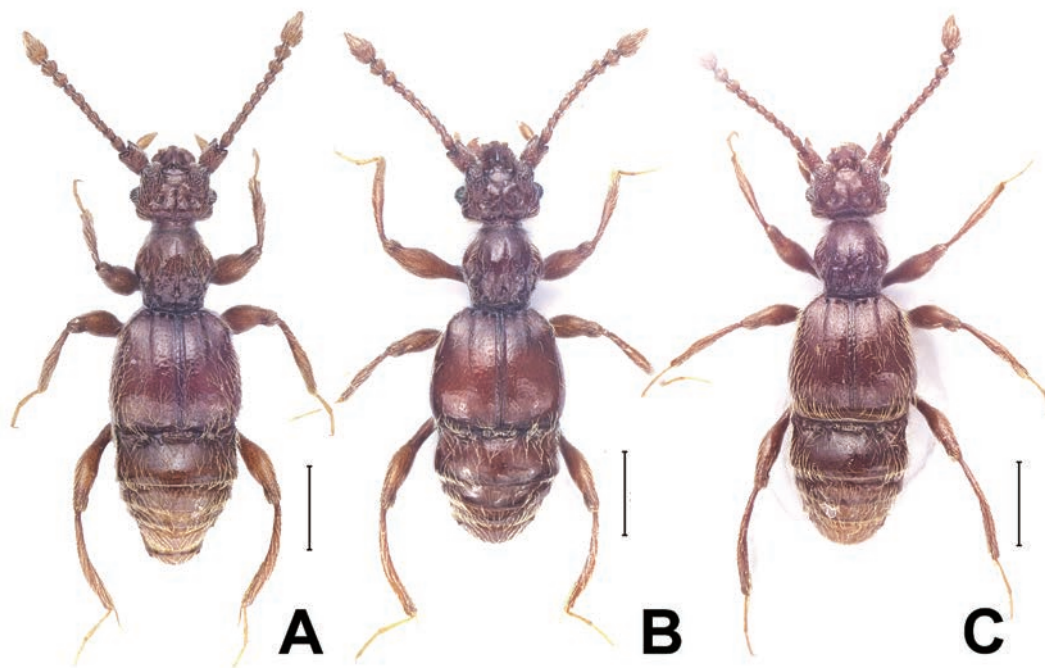


Fig. 1. Habitus of *Petaloscapus* spp. nov. — A, *P. shirokanensis* sp. nov., holotype male from Inst. Nat. Stud., Tokyo Pref.; B, ditto, paratype male, from Mt. Gagyusan, Niigata Pref.; C, *P. takakuwai*, paratype male from Ishitajuku, Saitama Pref. Scale: 0.5 mm.

***Petaloscapus shirokanensis* sp. nov.**

[Japanese name: Nise-higebuto-munetoge-arizukamushi]

(Figs. 1A, B, 2, 3 & 5)

*Petaloscapus basicornis*: JEANNEL, 1958: 35 (misidentification).

Holotype (Fig. 1A) male, Institute for Nature Study (by NLT st. 5–8 at high position) N35°38'20" E139°43'07", Shirokane, Minato-ku, Tokyo, 24–25.VI.2017, S. NOMURA leg. Paratypes: 2 males, 3 females, Gongen-mori (170 m alt.), Nagae-machi, Chiba Pref., 17.X.2000, S. NOMURA leg.; 3 males, Mt. Gagyusan, Murakami-shi, Niigata Pref.; 17.X.1978, H. KOIKE leg.; 1 female, same data as above, but 5.X.1978; 1 female, same data as above, but 17.IX.1979.

*Description.* Male (Figs. 1A, B, 2, 3 & 5). Body length 2.64–2.76 mm, width 0.84–0.92 mm, middle-sized, stout, head and prothorax weakly narrowed; color reddish brown, partly shiny on dorsal surface.

Head (Figs. 2A–C & 3A–C) about as long as wide, nearly pentagonal, coarsely punctate on both lateral sides, with a nodule on frons (Figs. 2C & 3C), a pair of antennal tubercles on both anterolateral side, a large excavation between antennal tubercles, a pair of dorsal tentorial pits, a short longitudinal carina between dorsal tentorial pits; frontal nodule convex, weakly constricted near middle, with a short longitudinal carina on center of nodule, with a pair of short spines and a pair of round depressions just base of carina. Postgenae roundly expanded, densely punctate, haired. Eyes well-developed,

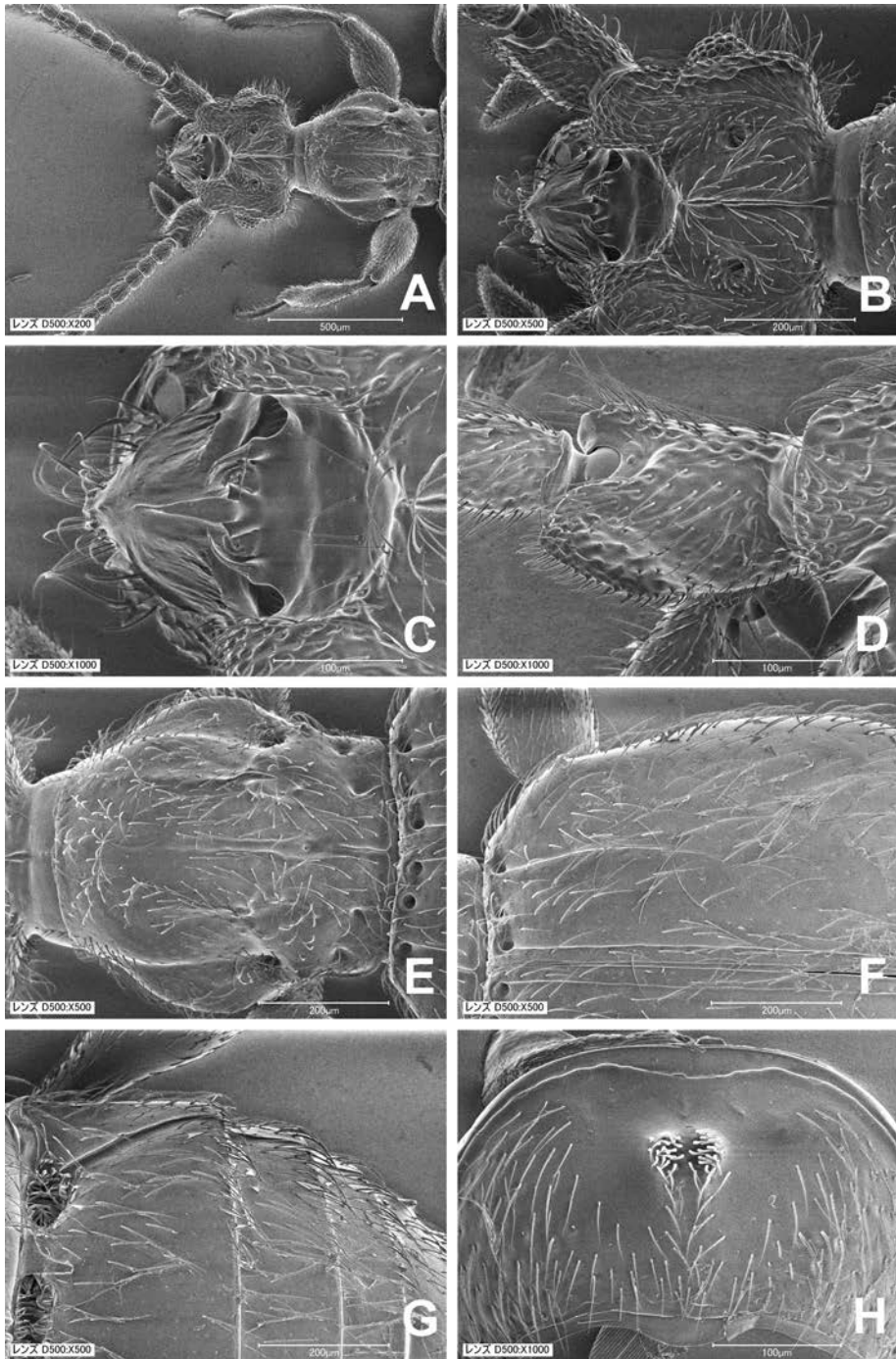


Fig. 2. *Petaloscapus shirokanensis* sp. nov., holotype male from Tokyo. — A, Head and pronotum in dorsal view; B, head in dorsal view enlarged; C, frontal nodule enlarged; D, antennal segment I in lateral view; E, pronotum in dorsal view; F, right elytron in dorsal view; G, abdomen in dorsal view; H, abdominal sternite VIII in ventral view.

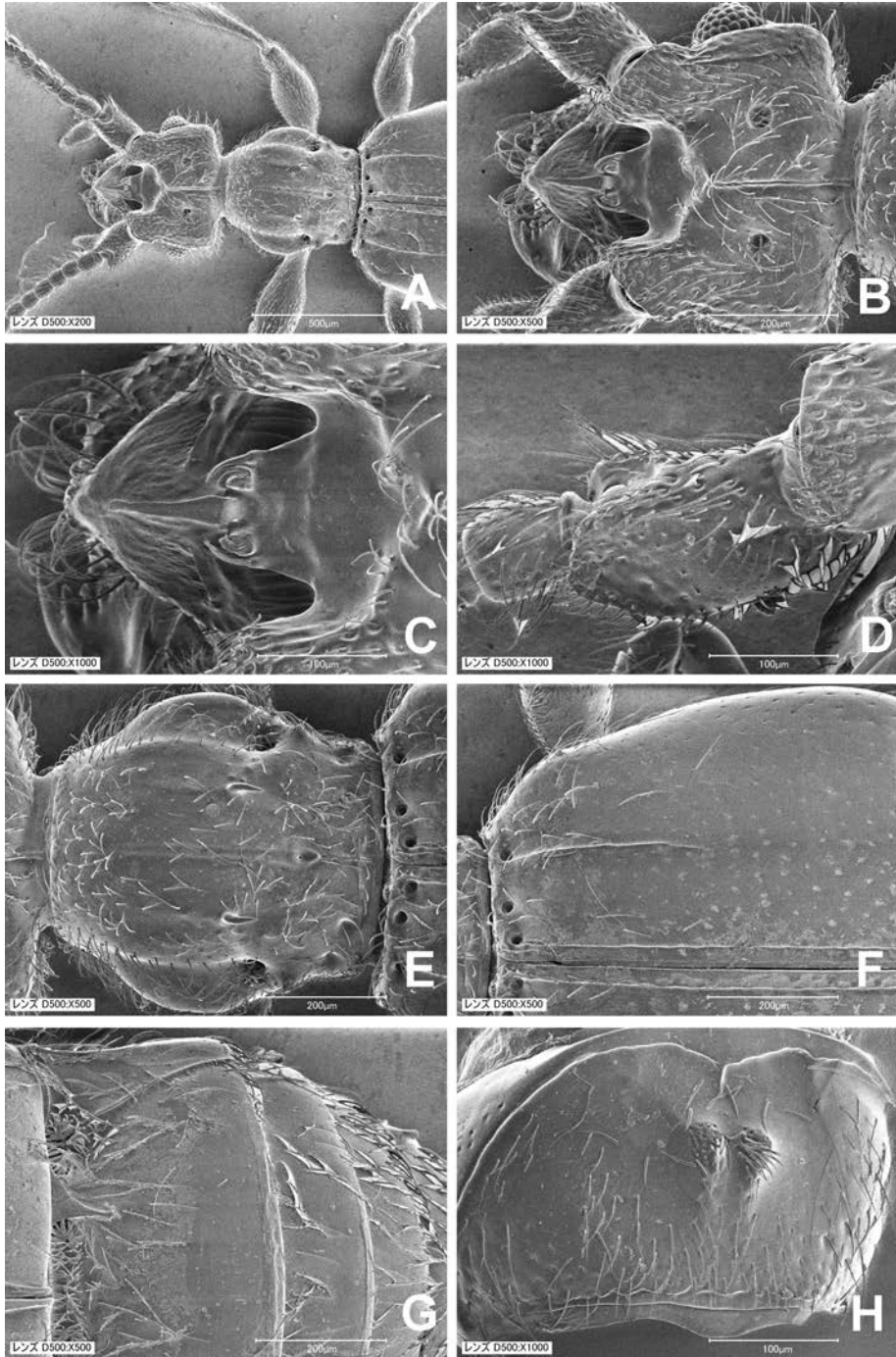


Fig. 3. *Petaloscopus shirokanensis* sp. nov., paratype male from Niigata. — A, Head and pronotum in dorsal view; B, head in dorsal view enlarged; C, frontal nodule enlarged; D, antennal segment I in lateral view; E, pronotum in dorsal view; F, right elytron in dorsal view; G, abdomen in dorsal view; H, abdominal sternite VIII in ventral view.

ovoid, each composed of about 40 facets. Antennae 1.24–1.28 mm in length, elongate, stout; segment I (Figs. 2D, 3D) twice as long as wide, nearly subcylindrical, coarsely punctate, largely excavated on apical part with a short, flat projection on internal apex; relative length (width) of each segment from I to XI: 2.5 (1.3): 1.1 (0.8); 0.8 (0.7); 0.7 (0.7); 0.7 (0.7); 0.7 (0.7); 0.8 (0.7): 0.7 (0.7); 1.0 (1.1); 1.0 (1.2): 2.2 (1.5). Maxillary palpi each elongate, short; segment IV largest, fusiform.

Pronotum (Figs. 2C & 3C) slightly larger than head, about as long as wide, subglobose, weakly punctate, densely haired, with three longitudinal sulci, three large basal foveae, a pair of large, acute dorsal hooks, five small antebasal foveae. Legs each elongate, stout; mesotrochanters each short, narrowed distally, with a conical spine at apex. Elytra (Figs. 2F & 3F) slightly wider than long, trapezoidal, broadened posteriorly, lightly convex, sparsely haired, each with three basal foveae, long adsubtural carina, a short basal sulcus in basal 2/5.

Abdomen (Figs. 2G & 3G) slightly smaller than elytra, slightly wider than long, weakly narrowed posteriad, segments IV to VIII successively shortened posteriad; segment IV largest, about twice as wide as long, with a pair of narrow, triangular paratergites, two pairs of basal foveae, a pair of very short longitudinal carinae in basal part; tergite VIII small, transverse, sparsely haired in posterior part; sternite VIII (Fig. 3H) semicircular, flattened, with a small circle of densely haired area at basal 2/5 of median part. Male genitalia (Fig. 5) strongly sclerotized; median lobe (Fig. 4A-a) large, stout, nearly rectangular, with a large, flat, asymmetrical projection in ventroapical part, a short, trapezoid process at basal end of basal foramen (Fig. 4A-d); endophallus formed by two sclerites, left sclerite rectangularly bent inward, with two denticles on external side near bent point; right sclerite long and slim, weakly curved inward.

**F e m a l e.** Body length 2.36–2.66 mm. Body width 0.76–0.80 mm. Antennae 1.04–1.16 mm in length. Similar to male, however differs in the following characters: head rounded, without frontal nodule, with a pair of less convex antennal tubercles than in male; antennae slightly shorter than in male; antennal segment I shorter than in male, without projection on inner apex; mid trochanter short, without apical spine; abdominal sternite VIII almost flat in ventral surface.

*Distribution.* Japan: Honshu (Kantô to Chûbu Districts).

*Remarks.* This new species is very similar to its congeneric species, *P. nasutus*, *P. nisatoi*, *P. takakuwai*, etc. However, it is easily separated from them by having a short longitudinal carina on the frontal nodule of the head in the male.

*Etymology.* The new name of this species is associated with the type locality, the Institute for Nature Study located at Shirokane, Minato-ku, Tokyo.

***Petaloscapus takakuwai* sp. nov.**

[Japanese name: Takakuwa-munetoge-arizukamushi]

(Figs. 1C, 4 & 6)

Holotype (Fig. 1C) male, Manazuru, Kanagawa Pref., 26.X.1985, S. NOMURA leg. Paratypes: 1 male, 1 female, same data as the holotype; 1 male, 3 females, Miyagino, Hakone, Kanagawa Pref., 25.X.1985, S. NOMURA leg.; 1 male, Sarushima Is., Yokosuka-shi, Kanagawa Pref., K. EMOTO leg.; 1 male, Ohkura, Tanzawa, Kanagawa Pref., 26.V.2000, T. WATANABE leg.; 1 male, same data as above, but 17.X.1986; 1 male, Notsuda-machi, Machida-shi, Tokyo Pref., S. YOSHIDA leg.; 1 male, Bijoji (Madake), Toda-shi, Saitama Pref., 10.IX.1987, O. NAKAMURA leg.; 2 males, Ishitajuku, Kitamoto-shi, Saitama Pref., 9.X.1991, S. NOMURA leg.

*Description.* Male (Figs. 1C, 4 & 6). Body length 2.44–2.60 mm, width 0.80–0.82 mm, middle-sized, stout, weakly broadened in elytra and abdomen; color reddish brown, partly shiny on dorsal surface.

Head (Figs. 4B & 4C) about as long as wide, nearly pentagonal, coarsely punctate on both lateral sides, with a pair of antennal tubercles on both anterolateral side, a large excavation between antennal tubercles, a pair of dorsal tentorial pits, a short longitudinal carina between dorsal tentorial pits; frontal nodule convex, weakly constricted near middle, flattened, glabrous on anterior side. Postgenae expanded, densely punctate, haired. Eyes well-developed, ovoid, each composed of about 40 facets. Antennae 1.14–1.22 mm in length, elongate, stout; segment I (Fig. 4D) twice as long as wide, subcylindrical, coarsely punctate, largely excavated on apical part with a short, flat projection on internal apex; relative length (width) of each segment from segment I to XI: 2.0 (1.3): 0.9 (0.8); 0.7 (0.7); 0.7 (0.7); 0.7 (0.7); 0.7 (0.7); 0.8 (0.7): 0.7 (0.7); 1.0 (1.0); 1.0 (1.1): 2.2 (1.5). Maxillary palpi each elongate, short; segment IV largest, fusiform.

Pronotum (Fig. 4E) slightly larger than head, about as long as wide, subglobose, weakly punctate, densely haired, with three longitudinal sulci, three large basal foveae, a pair of large, acute dorsal hooks, five small antebasal foveae. Legs each elongate, stout; mesotrochanters each short, narrowed distally, with a conical spine at apex. Elytra (Fig. 4F) slightly wider than long, trapezoidal, broadened posteriorly, lightly convex, sparsely haired, each with three basal foveae, long adsutural carina, a short basal sulcus in basal 2/5.

Abdomen (Fig. 4G) slightly smaller than elytra, slightly wider than long, weakly narrowed posteriorly, segments IV to VIII successively shortened posteriorly; segment IV largest, about twice as wide as long, with a pair of narrow, triangular paratergites, two pairs of basal foveae, a pair of very short longitudinal carinae in basal part; tergite VIII small, transverse, sparsely haired in posterior part; sternite VIII (Fig. 3H) semicircular, flattened, with a small circle of densely haired area at basal 2/5 of median part. Male genitalia (Fig. 6) strongly sclerotized; median lobe (Fig. 6A–C) large, stout, nearly rectangular, with a large, flat, asymmetrical projection in ventroapical part, a short, trapezoid process at basal end of basal foramen (Fig. 6B); endophallus formed by two sclerites, left sclerite elongate, arcuate, narrowed distally, with a long side branch on inner side near base, right sclerite elongate, broader than left, arcuately curved inward. In the type series of this species, mirror-image dimorphism of asymmetrical genitalia was discovered (see remarks).

Female. Body length 2.32–2.38 mm. Body width 0.78–0.82 mm. Antennae 0.98–1.06 mm in length. Similar to male, however differs in the following characters: head rounded, without frontal nodule, with a pair of less convex antennal tubercles than in male; antennae slightly shorter than in male; antennal segment I shorter than in male, without projection on inner apex; mid trochanter short, without apical spine; abdominal sternite VIII almost flat in ventral surface.

*Distribution.* Japan: Honshu (Kantô Districts: Kanagawa, Tokyo and Saitama Prefs.).

*Remarks.* This species is closely allied to *P. nasutus* known from the Pacific side of Tôhoku to Chûbu Districts in having the frontal nodule without longitudinal carina and the abdominal sternite VIII with a small short-haired nodule near the middle. It is separated from *P. nasutus* by the male genitalia with the right (or left) sclerite of the endophallus bearing a long denticle on the inner side near the base. In the type series of this species, mirror-image dimorphism in the asymmetrical male genitalia was recognized as shown in Figs. 6A and 6C. All asymmetric parts of the male genitalia are changed from right to left, and from left to right between one form and the other form in this dimorphism. Similar dimorphism was already reported by NOMURA (1991) in *Batrisceniola dissimilis* (SHARP) and *Arthromelodes loebli* NOMURA.

*Etymology.* This species was dedicated to the late Dr. Masatoshi TAKAKUWA, who was a great

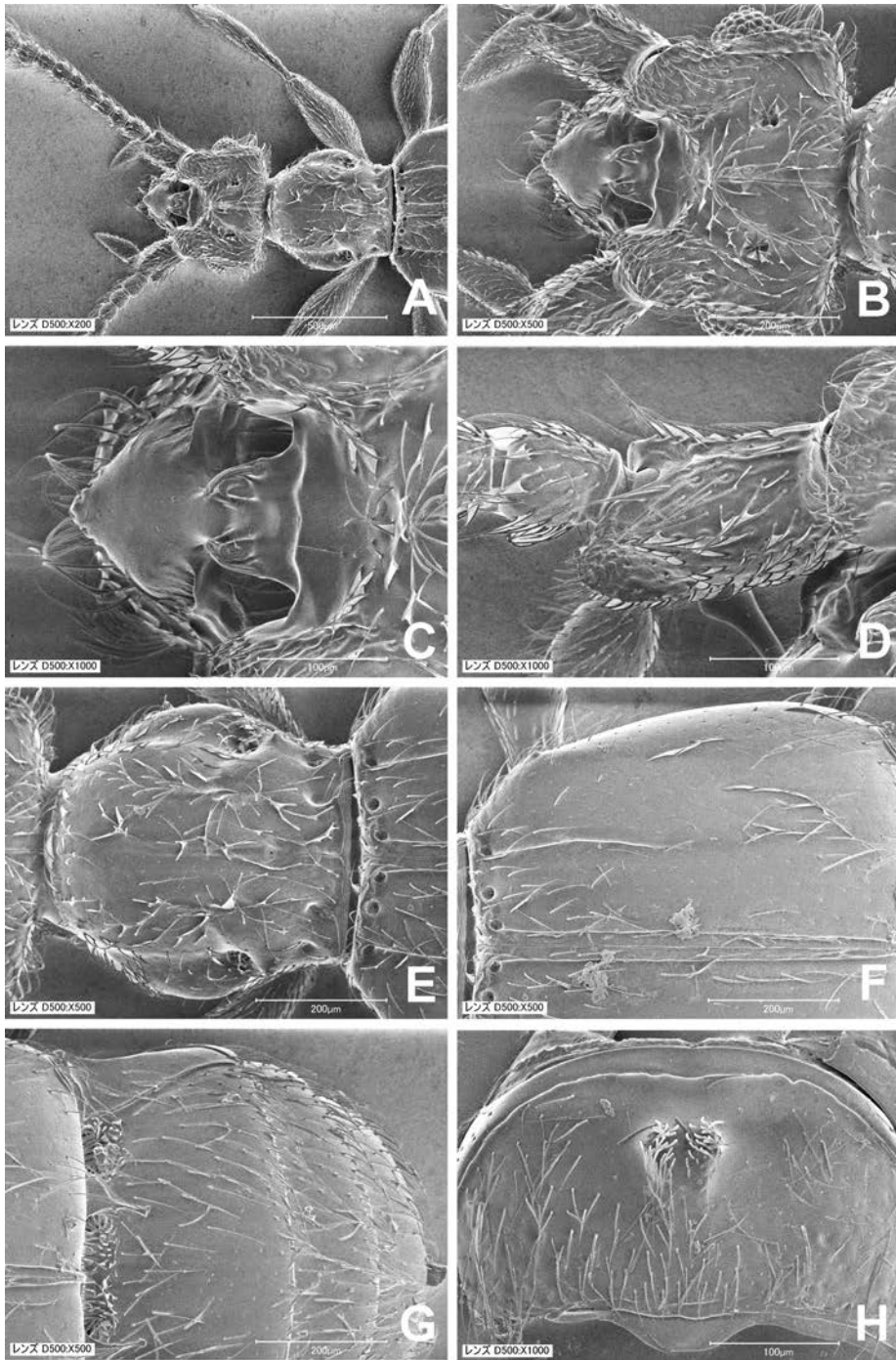


Fig. 4. *Petaloscapus takakuwai* sp. nov., paratype male from Kanagawa. — A, Head and pronotum in dorsal view; B, head in dorsal view enlarged; C, frontal nodule enlarged; D, antennal segment I in lateral view; E, pronotum in dorsal view; F, right elytron in dorsal view; G, abdomen in dorsal view; H, abdominal sternite VIII in ventral view.



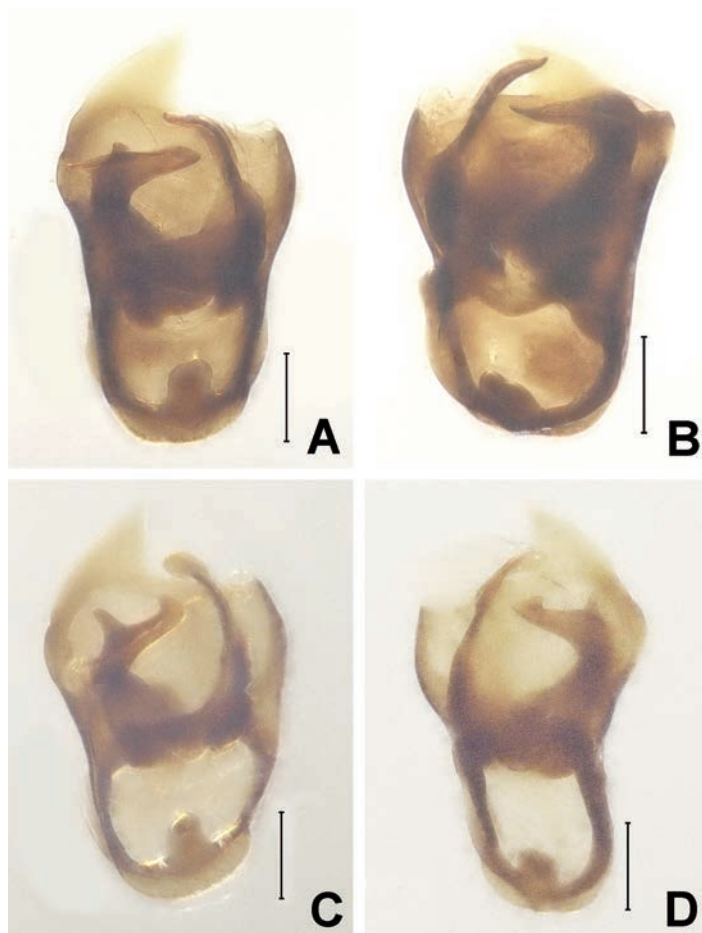


Fig. 5. *Petaloscopus shirokanensis* sp. nov., male genitalia. — A, Holotype from Tokyo, in dorsal view; B, ditto in ventral view; C, paratype from Niigata, in dorsal view; D, ditto in ventral view. Scale: 0.1 mm.

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Fig. 6. *Petaloscapus takakuwai* sp. nov., male genitalia. — A, Paratype from Ishitojuku, in dorsal view; B, holotype from Manazuru, in ventral view; C, paratype from Notsuda-machi, in dorsal view (right and left are reversal with A). Scale: 0.1 mm.

### 要 約

野村周平：関東から中部地方に産するヒゲブトムネトゲアリヅカムシ属の2新種（鞘翅目ハネカクシ科アリヅカムシ亜科）。——本州東部関東から中部地方に産する、ヒゲブトムネトゲアリヅカムシ属の2新種、*Petaloscapus shirokanensis* sp. nov. ニセヒゲブトムネトゲアリヅカムシ（新称）、および *P. takakuwai* sp. nov. タカクワムネトゲアリヅカムシ（新称）を記載した。前者は関東から中部地方の広い範囲に分布しており、従来、*P. basicornis* ヒゲブトムネトゲアリヅカムシと混同されていた。雄は前頭隆起の中央部に短い縦隆線をそなえることで、同属他種から容易に区別できる。後者は関東地方西部に産し、雄が前頭隆起中央に縦隆線をそなえず、腹部第8腹板中央やや基部に短毛の密生する隆起部をそなえることで、*P. nasutus* ナスヒゲブトムネトゲアリヅカムシに酷似するが、雄交尾器の形状が異なることで区別される。なお、本種には、左右非対称の雄交尾器の左右が入れ替わった、鏡像二型（mirror-image dimorphism）が見いだされた。

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