

A Taxonomic Revision of the Genus *Basitrodes* (Staphylinidae, Pselaphinae)

Part 1. *Basitrodes oscillator* Group

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Abstract The genus *Basitrodes* JEANNEL, 1958 known from Japan and Korea is redefined. *Basitrodes vestitus* (SHARP), *B. oscillator* (SHARP) and their allied new species are considered to belong to this genus. Five Japanese species, namely, *B. palpalis* (SHARP), *B. longulus* JEANNEL, *B. cristatus* JEANNEL, *B. acuminatus* JEANNEL and *B. laticollis* (SHARP) are transferred to the genus *Batrisodellus* JEANNEL, 1958. Two species from the mainland of Japan, *B. vulgaris* JEANNEL and *B. punctipennis* (SHARP), a species from the Kuril Is., *B. cornutus* KURBATOV, and two Korean species, *B. myrmecophilus* NOMURA et LEE and *B. leptothorax* NOMURA et LEE, should be tentatively treated as *Basitrodes? incertae sedis*.

In this part, *B. oscillator* is redescribed and its allied two new species, *B. kasaharai* from Kanto district and *B. hakusanus* from Hokuriku district are described.

Key words: Taxonomy, Staphylinidae, Pselaphinae, Batrisini, *Basitrodes*, new species.

Introduction

The genus *Basitrodes* was established by JEANNEL (1958) to include six known species of *Batrisus* or *Batrisodes* and three new species. He classified it into two species-groups, *vestitus* and *palpalis* groups on the basis of the shape of the first antennal segment. A Kuril species, *B. cornutus* was described by KURBATOV (1984) from Kunashir Is., NOMURA and LEE (1992, 1993) added two Korean species to this genus, one of which is based on the females alone. Up to the present, twelve species of this genus are known from Japan and Korea.

However, the identity of this genus is problematical. JEANNEL (1958) defined it on the basis of the well developed and asymmetrical parameres of the male genitalia, but the “parameres” considered by JEANNEL are apparently two apical processes of the median lobe of the male genitalia as shown below. Besides, asymmetry of the male genitalia occurs in so many genera of the Batrisini, that it cannot be recognized by itself as a diagnostic character of any genus.

I examined the type specimens of five old species described by SHARP (1883) and many materials of undescribed species of this group, and concluded that the *palpalis* group sensu JEANNEL (1958) and *B. laticollis* of the *vestitus* group should be excluded from the genus *Basitrodes*. They are classified into the genus *Batrisodellus* JEANNEL, 1958, because some important characters are coincident with those of *Batrisodellus*, for instance, the eleventh antennal segment bears hook-like process and the mid tibia has a denticle or spine on the posterior side in the male.

As regards *B. punctipennis* (SHARP), *B. vulgaris* (RAFFRAY) (Japan) and *B. leptothorax* NOMURA et LEE (Korea), they cannot be identified even at the genus level, because they were described only on the basis of female materials. *Basitrodes myrmecophilus* NOMURA et LEE known from the Korean Peninsula is considered to belong to a genus quite different from *Basitrodes* after a recent examination of male specimens. According to KURBATOV (1984), *B. cornutus* described from Kunashir Island is probably different from typical *Basitrodes*. These five species are tentatively treated as *Basitrodes? incertae sedis* in this study.

In the present study, the genus *Basitrodes* is redefined as shown below. It includes two known species, *B. vestitus* (SHARP), the type species, and *B. oscillator* (SHARP).

Genus *Basitrodes* JEANNEL

[Japanese name: Tsuno-arizukamushi Zoku]

Basitrodes JEANNEL, 1958, Mém. Mus. Hist. nat., Paris, (A), **18**: 26. — NEWTON & CHANDLER, 1989, Fieldiana Zool., (N. S.), (53): 33. — NOMURA, 2001, Elytra, Tokyo, **29**: 150.

Type species: *Batrisus vestitus* SHARP.

Body large-sized, elongate and thick, head and pronotum gently narrowed. Head ovoid to quadrangular; clypeus expanded anteriorly, with apical setae on anteromedian part, and a pair of transverse fronto-clypeal ridges and a short vertical ridge just below frontal horn at base in male, simply expanded anteriorly and without basal modification in female; frons broad and strongly elevated on both antennal tubercles, with a large frontal horn at anteromedian part between antennal tubercles, and a pair of frontal pencils in anterolateral parts just below antennal bases in male; vertex with a pair of distinct dorsal tentorial pits. Eyes developed. Antennae elongate and moniliform; 1st segment very large, broadened distally, with a large setiferous patch on mesal surface and two short projections at apex. Maxillary palpi large and geniculate. Pronotum subglobose, rounded on lateral sides, with a pair of lateral foveae, lateral longitudinal sulci and shallow basimedial depression. Elytra transverse, thick and convex, rounded on lateral sides; each elytron with three basal foveae and an indistinct longitudinal sulcus running from outer basal foveae. Legs long and stout. Abdomen subcylindrical in basal part, rounded posteriorly; 4th tergite the largest, with a pair of very short basimedial carinae and a pair of lateral carinae; 5th to 7th short and transverse.

Male genitalia composed of parameres, strongly sclerotized median lobe and endophallus; parameres weakly sclerotized, fused to each other to form a lamellar lobe;

median lobe consisting of nearly quadrate basal bulb and two apical processes; endophallus including slender sclerites. Female genitalia formed by 9th sternite and genital plate; 9th sternite lamellar and transverse; genital plate weakly sclerotized and T-shaped in ventral view.

Remarks. This genus is closely allied to *Batrisodes* and *Petaloscapus*. It is distinguished from *Batrisodes* by the strongly sclerotized male genitalia with two large apical processes on the median lobe, and is also separated from *Petaloscapus* by having the frontal horn and a pair of frontal pencils and by the first antennal segment lacking an apical lobe in the male.

It is divided into two species-groups, *vestitus* and *oscillator* groups. The former is separated from the latter by the large and dark-colored body and the fore tibia with a large spine on the inner side in the male (almost flat or slightly swollen in the *oscillator* group). In the present part, the *oscillator* group consisting of *B. oscillator* and two new species is dealt with.

***Batirodes kasaharai* sp. nov.**

[Japanese name: Kasahara-tsuno-arizukamushi]

(Figs. 1, 2 E, F, 4 A, B, 5 B)

Etymology. This species is dedicated to the late Mr. Sumao KASAHARA who was an amateur carabidologist in Chiba Prefecture.

Type material. Holotype ♂ (preserved in the National Science Museum, Tokyo), Obitsugawa-kakô, Kisarazu-shi, Chiba Pref., 6-V-1995, S. NOMURA leg. Paratypes: 2 ♀, same data as holotype; 10 ♂, 5 ♀, Daishi-bashi, Ohta-ku, Tokyo Pref., 13-V-2001, S. NOMURA leg.

Male. Length 2.10–2.18 mm. Width 0.76–0.79 mm.

Body reddish brown to light brown, tarsi weakly yellowish.

Head slightly wider than long, nearly quadrangular; clypeus weakly pointed on anterior margin, with 3 to 4 pairs of long setae near apex; fronto-clypeal ridges each indistinct near frontal horn; frons broad and convex in lateral part, weakly concave in median part; frontal horn short and well projected, slightly broadened and thickened in apical 1/3; frontal pencils just below antennal bases; vertex weakly convex; postgenae gently rounded, each densely covered with long and erect hairs. Eyes small, ovoid in lateral view, each composed of about 30 facets. Antennae 1.01–1.06 mm in length; relative length (width) of each segment from base to apex: 1.6 (1.2): 0.8 (0.6): 0.7 (0.6): 0.6 (0.6): 0.6 (0.6): 0.5 (0.6): 0.6 (0.6): 0.5 (0.6): 0.7 (0.7): 0.7 (0.8): 1.6 (1.0). Maxillary palpi large; 1st segment small and tubular; 2nd elongate, strongly swollen in apical half; 3rd short and thick; 4th the largest and fusiform, three times as long as wide; palpal cone very short.

Pronotum about as wide as head, as long as wide, rounded on lateral sides, convex on dorsal side, densely pubescent, with a pair of lateral foveae at basal 1/3, a median depression at basal 1/4 and a pair of incurved lateral longitudinal sulci each running

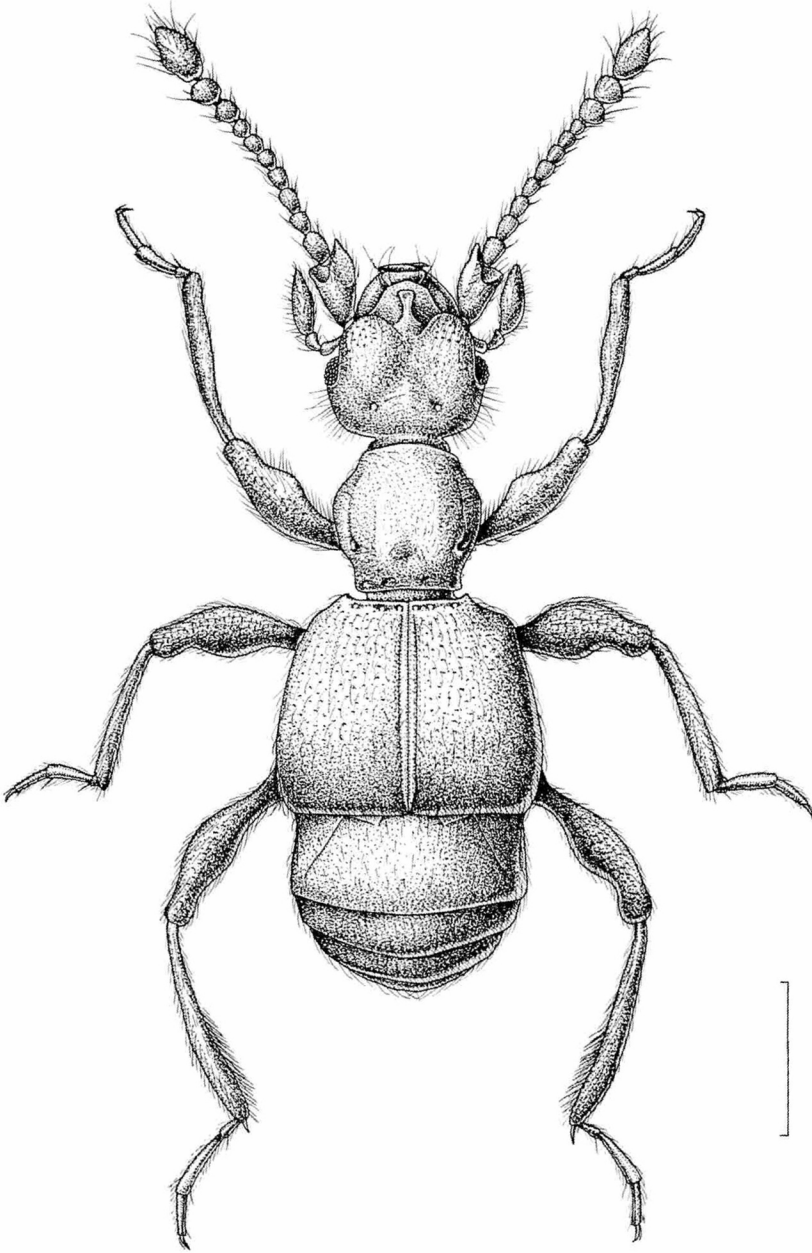


Fig. 1. *Basitrodes kasaharai* sp. nov., male, habitus. Scale: 0.5 mm.

from lateral fovea to anterior margin. Elytra wider than long, rounded on lateral sides, weakly convex; each elytron with three basal foveae and an indistinct lateral longitudinal sulcus. Legs long and stout; fore tibiae each slender, gently swollen near the middle, glabrous in apical half on mesal side; mid tibiae slender and almost straight, each with very short mucro at inner side of apex.

Abdomen slightly smaller than elytra, wider than long, subcylindrical in basal part, rounded posteriorly; 4th tergite the largest, with a pair of very short basimedial carinae and a pair of oblique lateral carinae; 5th short and transverse; 6th slightly shorter than 5th, 7th longer than 5th, nearly trapezoidal in posterodorsal view; 8th semicircular in ventral view, weakly convex; 8th sternite larger than 8th tergite, semicircular, shallowly concave near the middle.

Male genitalia strongly sclerotized; median lobe angulate and parallel-sided near base, with a nearly square basal foramen and a hook-like projection at basal end of the foramen; left apical process distinctly broadened distad, truncate and shallowly emarginate at apex.

Female. Length 2.31–2.41 mm. Width 0.81–0.84 mm. Antennae 1.03–1.05 mm in length. Similar to male, but differs in the following characters: clypeus more expanded than in male, almost flat and uniformly pubescent; ninth abdominal sternite transverse, weakly constricted in median part, with a pair of short ventral stalks in basilateral parts; genital plate about as long as wide, arcuate on posterior margin in ventral view.

Distribution. Japan (Honshu: Kanto District).

Remarks. This new species is very closely allied to *B. oscillator* (SHARP), but is separated by the incomplete fronto-clypeal ridges and the median lobe of male genitalia with more broadened left process than in *B. oscillator*.

Biological notes. This species is collected from litter of the glassland mainly formed by eulalia, *Miscanthus sinensis* (Japanese name: Susuki) near the estuaries of rivers. No host ant and no ethological relationship with ants are known on this species up to now.

Basitrodes oscillator (SHARP, 1883)

[Japanese name: Jou-etsu-tsunno-arizukamushi]

(Figs. 2 A–D, 3 A–D, 5A)

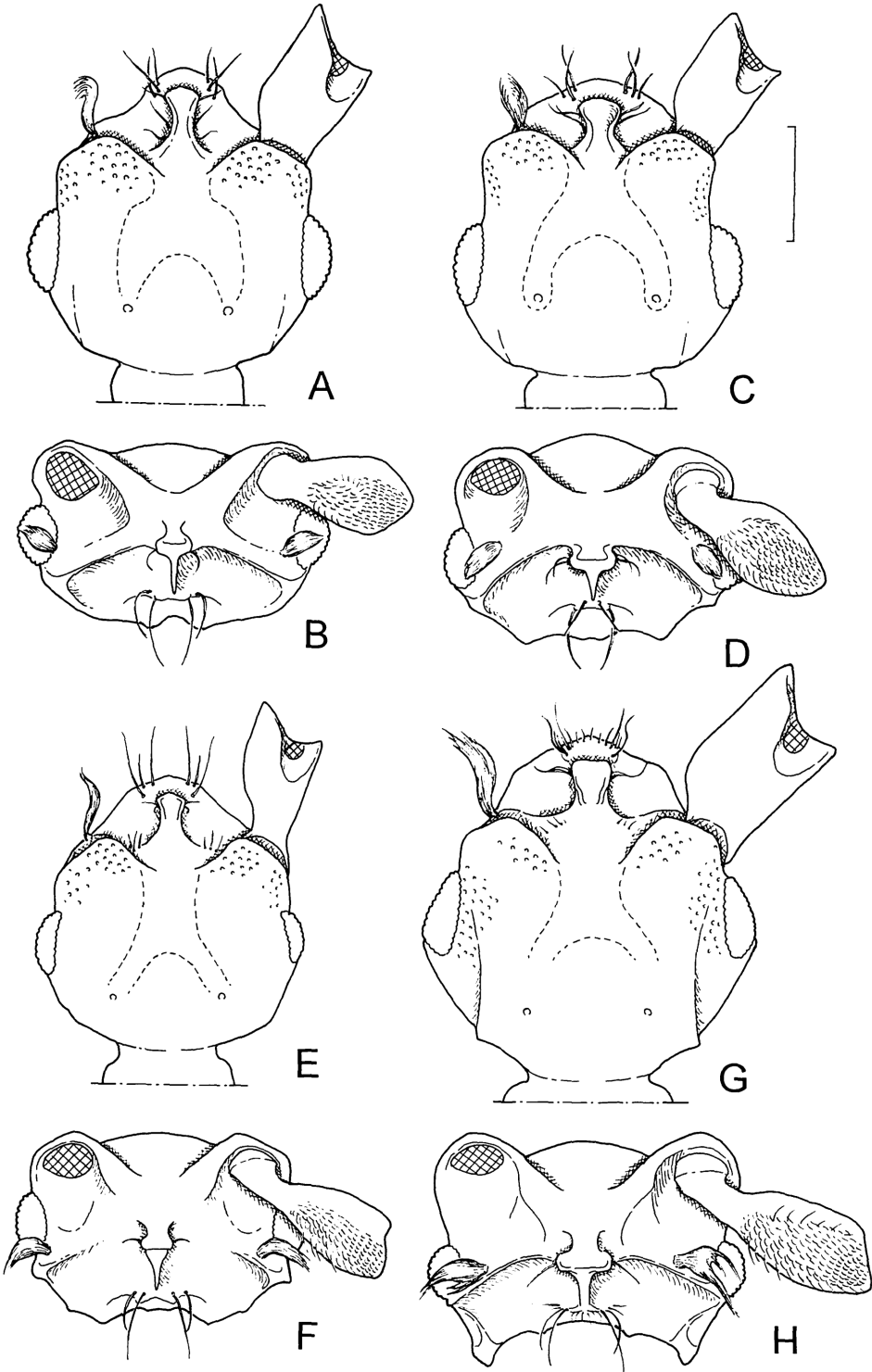
Batrisus oscillator SHARP, 1883, Trans ent. Soc. London, **1883**: 309.

Batrisodes oscillator: RAFFRAY, 1904, Anns. Soc. ent. Fr., **73**: 89; 1908, Gen. Ins., (64): 161; 1911,

Coleopt. Cat., (27): 65. — PARK, 1948, Bull. Chicago Acad. Sci., **8**: 154; 1948, *ibid.*, **8**: 210.

Basitrodes oscillator: JEANNEL, 1958, Mém. Mus. Hist. nat., Paris, (A), **18**: 28. — WATANABE, 1985,

Fig. 2. Heads of *Basitrodes* spp. — A, B, *B. oscillator* (SHARP) from Ohtsu-shitsugen, Hokkaido; C, D, ditto from Mt. Iimoriyama, Nagano Pref.; E, F, *B. kasaharai* sp. nov.; G, H, *B. hakusanus* sp. nov. A, C, E, G, dorsal view; B, D, F, H, anterior view. Scale: 0.2 mm.



Coleopt. Japan Col., Osaka, 2: 322. — NOMURA, 1989, Check List Jpn. Ins., Fukuoka, [1]: 288.

Etymology. The Japanese name of this species is changed in the present study, because the previous name “*Jou-etsu-toge-arizukamushi*” included the term “*toge*” meaning spine(s) on the pronotum. Actually, this species has no spine on the pronotum.

Type material examined. *Batrisus oscillator*, syntype, male in Natural History Museum, London, “*Batrisus oscillator*. Type D. S. Yunoshiku, Japan 22. 9. 1881. Lewis. / Type H. T. (round and red-margined) / Sharp Coll. 1905–313.”

Additional specimens. <Hokkaido> 1♂, Ohtsu-shitsugen, Toyokoro-chô, Tokachi, 11~24-VIII-1993, S. HORI leg.; 1♂, 1♀, Kannon-zawa, Sapporo-shi, 7-V-2000, H. SUGAYA leg.; 1♀, same data as above, but 15-X-2000; 2♀, same locality as above, 14-X-2001, M. MARUYAMA leg.; 1♂, Otadomari Pond, Rishiri Is., 28-VI-1986, S. NOMURA leg. <Honshu> 1♀, Shinbori (Mogami River), Sakata-shi, Yamagata Pref., 28-III-1997, K. OKABE leg.; 1♀, Akaiwa, Fukushima-shi, Fukushima Pref., 28-IV-1979, K. TAZOE leg.; 1♂, 3♀, Mt. Iimoriyama, ca. 1,500 m alt., Kawakami-mura, Nagano Pref., 5-V-2002, S. NOMURA leg.; 1♀, Kurosawaguchi, 1,100 m alt., Mt. Ontakesan, Nagano Pref., 20-VII-1952, S. UÉNO leg.; 2♂, 2♀, Shin-taka, 1,300 m alt., Mt. Ontakesan, Nagano Pref., 22-VII-1952, S. UÉNO leg.

Male. Length 2.24–2.43 mm. Width 0.80–0.90 mm. Very similar to *B. kasaharai* in general aspect, but different in the following characters: clypeus weakly pointed on anterior margin; fronto-clypeal ridges complete, each running from just below frontal horn to gena below eye; postgenae each with an indistinct longitudinal carina; antennae 1.06–1.14 mm in length; relative length (width) of each segment from base to apex: 1.6 (1.1): 0.7 (0.6): 0.7 (0.6): 0.5 (0.6): 0.6 (0.6): 0.5 (0.6): 0.5 (0.6): 0.5 (0.6): 0.7 (0.7): 0.7 (0.8): 1.6 (1.0); median lobe of genitalia slightly larger than in *kasaharai* and robust; left apical process less broadened distad than in *kasaharai*.

Female. Length 2.31–2.41 mm. Width 0.81–0.84 mm. Antennae 1.08–1.10 mm in length. Similar to male, but differs in more expanded clypeus than in male without fronto-clypeal and vertical ridges at base, and frons without horn and pencil.

Distribution. Japan (Hokkaido, Honshu).

Remarks. This species is closely allied to *B. kasaharai*, but is distinguishable by the larger body, the complete fronto-clypeal ridges, the indistinct longitudinal carina on the postgena and the median lobe of male genitalia with less broadened left apical process than in *kasaharai* in the male. The female is indistinguishable from *B. kasaharai* in morphological features.

The type locality of this species, “Mikuni-tôge” by SHARP (1881) is hand-written as “Yunoshiku” on the type label. Yunoshiku Spa (also called Yujiku Spa) in Niiharumura, Gunma Pref. is located at about 12 km SE from the top of the Mikuni-tôge pass.

Host ants. *Lasius umbratus* (NILANDER): locality unknown (TANOKUCHI, 1979 a); Mt. Fuji, Shizuoka Pref. (TANOKUCHI, 1979 b); Mt. Ontakesan, Nagano Pref., Mt. Iimoriyama, Nagano Pref. (present study). *Lasius flavus* (FABRICIUS): Kannon-zawa, Hokkaido (present study). *Lasius japonicus* SANTSCHI: Akabane, Tokyo (NAKANO &

YOSHIDA, 1939). *Formica japonica* MOTSCHULSKY: locality unknown (TANOKUCHI, 1979 a); Mt. Fuji, Shizuoka Pref. (TANOKUCHI, 1979 b). *Formica fukai* WHEELER: Mt. Fuji, Shizuoka Pref. (TANOKUCHI, 1979 b).

***Basitrodes hakusanus* sp. nov.**

[Japanese name: Hakusan-tsuno-arizukamushi]

(Figs. 2 G, H, 4 C, D, 5 C)

Etymology. The specific name is derived from the type locality of this species, Mt. Hakusan, Ishikawa Pref.

Type material. Holotype ♂ (preserved in National Science Museum, Tokyo), Mt. Hakusan, 1,700–1,900 m alt., Ishikawa Pref., 10–VII–1994, K. NAKATA leg. Paratype: 1 ♀, same data as the holotype.

Male. Length 2.68 mm. Width 0.93 mm.

Body large, reddish brown, tarsi light brown.

Head wider than long, nearly quadrangular; clypeus expanded anteriorly, nearly arcuate on anterior margin, with 3 to 4 pairs of long setae in median part; fronto-clypeal ridges complete and sharpened; vertical ridge short and strong; frontal horn short and well projected, slightly broadened and thickened in apical half; frontal pencils distant from each other, each just below antennal base; frons strongly convex in antennal tubercles, deeply concave at median part, vertex slightly convex; postgenae weakly rounded, each with a short longitudinal carina. Eyes small and ovoid, each composed of 25–30 facets. Antennae long, stout and moniliform, 1.34 mm in length; 1st segment very thick, broadened distally, with a large setiferous patch on inner surface and a large inner and small outer projections; relative length (width) of each segment from base to apex: 2.1 (1.4): 0.9 (0.7): 0.8 (0.7): 0.7 (0.7): 0.8 (0.7): 0.7 (0.7): 0.7 (0.7): 0.6 (0.7): 0.9 (0.9): 0.9 (1.0): 1.9 (1.2). Maxillary palpi large and robust, 1st short and tubular; 2nd elongate, gradually thickened distad; 3rd short and nearly triangular; 4th largest and fusiform, 3.5 times as long as wide.

Pronotum slightly wider than head, as long as wide, subglobose, with a pair of lateral foveae at basal 1/3, a pair of weakly incurved lateral longitudinal sulci, shallow median depression at basal 1/4, and a weak median longitudinal sulcus running from the median depression to anterior 1/3. Metasternum broad, with shallow and circular depression in median part. Elytra slightly wider than long, nearly trapezoidal; each weakly convex, with 3 basal foveae and an indistinct lateral longitudinal sulcus. Legs long and stout; fore tibiae weakly swollen at apical 3/7, glabrous in apical half on inner side; mid tibiae slender and almost straight, with a very small and hook-like mucro at apex.

Abdomen wider than long, thick; 4th tergite transverse, parallel-sided; 5th to 7th each short and transverse; 8th tergite semicircular in ventral view, convex; 8th sternite, semicircular, shallowly concave in median part. Male genitalia strongly sclerotized, large and robust; median lobe angulate; basal bulb nearly quadrangular, with a square

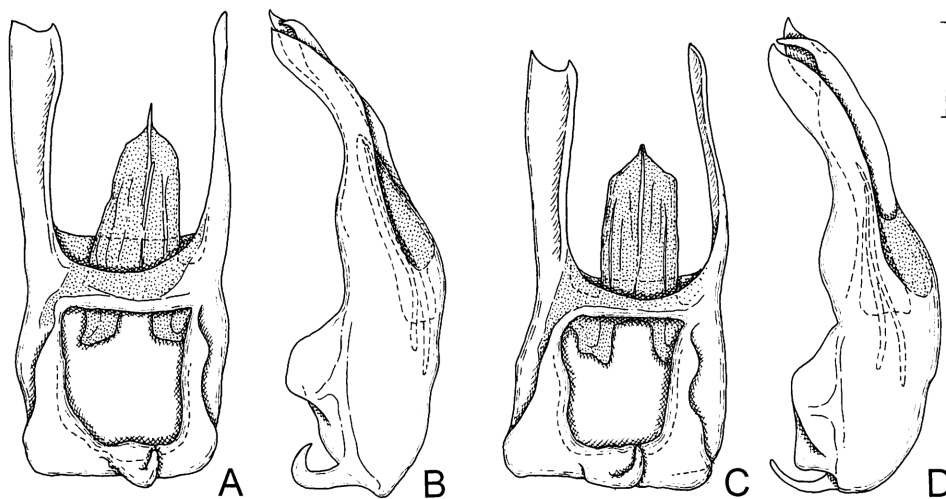


Fig. 3. Male genitalia of *Basitrodes oscillator* (SHARP); A, B, Ohtsu-shitsugen, Hokkaido; C, D, Mt. Iimoriyama, Nagano Pref. A, C, Ventral view; B, D, lateral view. Scale: 0.1 mm.

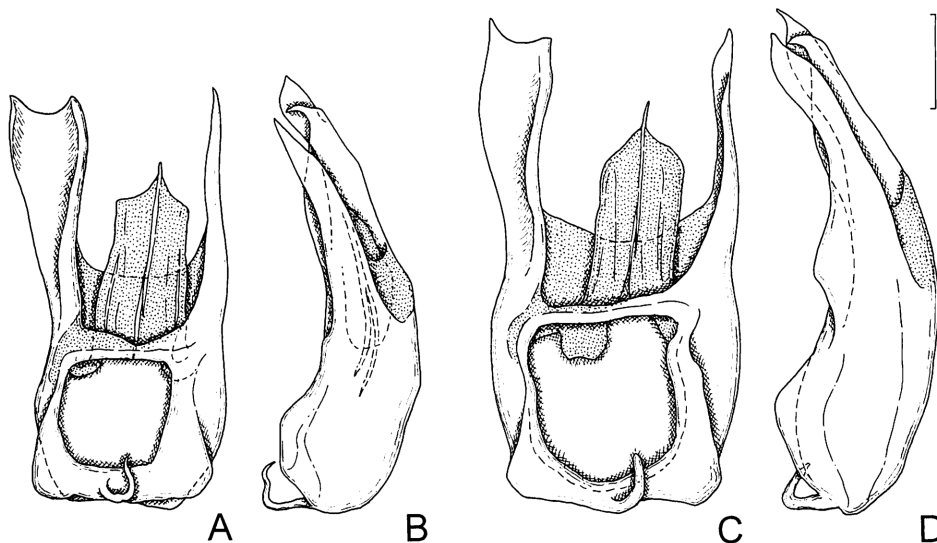


Fig. 4. Male genitalia of *Basitrodes* spp.; A, B, *B. kasaharai* sp. nov.; C, D, *B. hakusanus* sp. nov. A, C, Ventral view; B, D, lateral view. Scale: 0.1 mm.

basal foramen and a hook-like basal projection; left process elongate and slightly sinuate; right process narrower than left, slightly narrowed in apical part; endophallus including very thin spine-like sclerites.

Female. Length 2.84 mm. Width 0.99 mm. Antennae 1.31 mm in length. Simi-

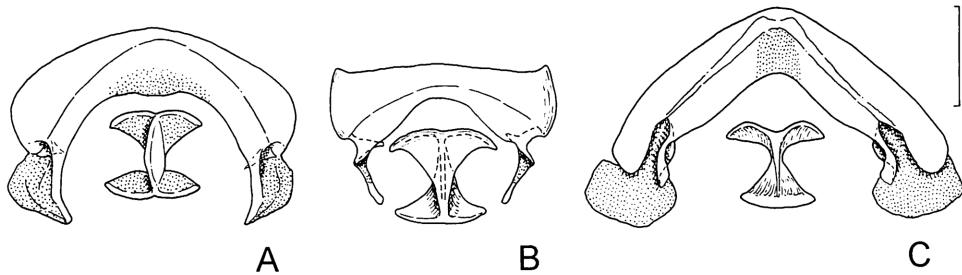


Fig. 5. Female genitalia of *Basitrodes* spp.; A, *B. oscillator* (SHARP) from Iimoriyama, Nagano Pref.; B, *B. kasaharai* sp. nov.; C, *B. hakusanus* sp. nov. Scale: 0.1 mm.

lar to male, but clypeus more expanded anteriorly than in male, without frontal horn and frontal pencil.

Distribution. Japan (Honshu: Hokuriku district).

Remarks. This new species is similar to *B. oscillator* (SHARP), but differs by the large body, the complete longitudinal carina on the postgena, and the very small and hook-like mucro at the apex of the mid tibia.

Host ants. *Formica lemani* BONDORIT: Mt. Hakusan, Ishikawa Pref. (present study).

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要 約

野村周平：ツノアリヅカムシ属（和名新称）の分類学的再検討。第1部：ジョウエツツノアリヅカムシ（和名改称）種群。——日本および韓国から12種が知られていた、*Basitrodes* ツノアリヅカムシ属（和名新称）の分類学的再検討を行った。従来知られる12種のうち、タイプ種である *B. vestitus* と *B. oscillator* のみを本属として認め、日本産5種、*B. palpalis*, *B. longulus*, *B.*

cristatus, *B. acuminatus*, *B. laticollis* を *Batrisodellus* 属へ移した。また、日本本土産 *B. vulgaris*, *B. punctipennis* と韓国産の *B. leptothorax* は雄の特徴が不明なため、また、韓国の *B. myrmecophilus* と千島国後島産 *B. cornutus* は、本属の特徴に一致しないため、所属不明 (*Basitrodes? incertae sedis*) として扱った。

本研究の第1部として、*B. oscillator* 種群を検討した。従来、ジョウエツトゲアリヅカムシと呼ばれていた *B. oscillator* を北海道、本州北部の標本に基づいて再記載し、前胸背板にトゲ状突起を欠くため、和名をジョウエツツノアリヅカムシに変更した。また、東京湾岸河口部のススキ群落に生息する種を *B. kasaharai* カサハラツノアリヅカムシとして記載した。さらに石川県白山から、*B. hakusanus* ハクサンツノアリヅカムシを記載した。ジョウエツとハクサンはアリの巣から多く見いだされているので、宿主アリの記録を付記した。

References

The literature cited will be given at the end of Part 2 of this series.