

**Taxonomical Notes on the Japanese Species of the Genus *Batrisodes*  
REITTER, with a Description of a New Species  
from Yonagunijima Island of the Ryukyus  
(Coleoptera: Staphylinidae: Pselaphinae)**

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**Abstract** The Japanese species of the genus *Batrisodes* REITTER are revised. A new species *B. sennin* is described from Yonagunijima Island, the Ryukyus, Japan. *B. coiffaiti* JEANNEL is transferred to the genus *Tribasodites*. *B. galloisi* JEANNEL and *B. vargus* KURBATOV should be the members of the nominotypical subgenus. The eight Japanese species of the subgenus *Excavodes* O. PARK is classified into five species groups, namely, the *dorsalis*-, *stipes*-, *rugicollis*- *angustus*-, and *sennin*-groups.

The genus *Batrisodes* was separated from the large genus *Batrisus* by REITTER (1882) with the type species, *Batrisus delaporti* AUBÉ known from Europe. In the system by RAFFRAY (1911), twenty-one Japanese species were included in this genus. Though the genus *Batrisodes* redefined by RAFFRAY is considered to be a too large and polyphyletic taxon. Still now, it also includes many species described from tropical to subtropical areas of Southeast Asia, most of which should be moved to other genera of the *Tribasodes* group as shown by NOMURA and IDRIS (2003).

Orlando PARK (1951, 1953) classified the Nearctic species into eight newly defined subgenera, *Batriasymmodes*, *Babnormodes*, *Pubimodes*, *Excavodes*, *Elytrododes*, *Spifemodes*, *Empinodes* and *Declivodes*. Later, *Batriasymmodes* was upgraded to a full genus. JEANNEL (1958) adopted his system, and classified eleven Japanese species into three subgenera, *Batrisodes* s. str. (*B. coiffaiti*), *Pubimodes* O. PARK (*B. harmandi*, *B. globlifer*) and *Excavodes* O. PARK (the remaining eight).

KURBATOV (1992) added a species, *B. vargus*, from Kunashiri Is., Kuril Isls., and its subgeneric position was not shown. However, it is closely allied to *B. galloisi* JEANNEL after his original description. He also described the following two species of *Batrisodes* from Far East Russia: *B. tornatilis* KURBATOV is very similar to *B. vargus* in shape of the male genitalia (KURBATOV, 1990); *B. singularis* KURBATOV belongs to an isolated group in the genus after the original description (KURBATOV, 1985).

In the present study, *Batrisodes coiffaiti* described by JEANNEL (1958) on the basis of one female specimen is transferred to the genus *Tribasodites* with examination of the male speci-

mens. *Batrisodes galloisi* JEANNEL described as a member of the subgenus *Excavodes* from Honshu, and its allied species *B. vargus* and *B. tornatilis* should belong to the nominotypical subgenus.

Besides, a special type of new species, *Batrisodes sennin* is described from Yonagunijima Island, the Ryukyus. It is classified into the subgenus *Excavodes* by having the long trichome at the apex of hind tibia and the head with frontoclypeal modifications in the male. The eight Japanese species of this subgenus can be classified into five species-groups, namely, the *dorsalis*-, *stipes*-, *rugicollis*-, *angustus*-, and *sennin*-groups. A key to species-groups is also given in the present study.

### Materials and Methods

For the SEM observations, the holotype of *Batrisodes sennin* sp. nov. was examined by a scanning electron microscope (SEM: JEOL JSM-6380LV) without coating, with a low acv 0.9–2.0 kV. It was digital-micrographed from various angles. Scale bars in all figures are in micrometres. Measurements of the body and drawing of the male genitalia were made with a stereo microscope (Leica MZ Apo).

The depositories of the material examined are abbreviated as follows: CFA: Collection of Dr. Fernando ANGELINI; MNHN: Muséum national d'Histoire naturelle, Paris; NSMT: National Science Museum, Tokyo.

The following exotic species of the genus *Batrisodes* were examined for comparison in subgeneric taxonomy (the depository of the material is parenthesized). Europe: *B. (Batrisodes) delaporti* (AUBÉ) (NSMT, CFA), *B. (B.) venustus* (REICHENBACH) (NSMT), *B. (B.) buqueti* (AUBÉ) (NSMT), *B. (B.) ruprechtii* (KOLENATI) (NSMT), *B. (B.) tichomirovae* LÖBL (NSMT); Far East Russia: *B. (B.) tornatilis* KURBATOV (NSMT), *B. (B.) oculus* (AUBÉ) (NSMT); North America: *B. (Pubimodes) nigricans* (LECONTE) (MNHN), *B. (P.) tridens* CASEY (NSMT), *B. (P.) striatus* (LECONTE) (NSMT), *B. (P.) denticollis* (CASEY) (NSMT), *B. (Excavodes) frontalis* (LECONTE) (MNHN), *B. (E.) globosus* (LECONTE) (NSMT), *B. (Babnormodes) riparius* (SAY) (MNHN), *B. (Elytodes) ionae* (LECONTE) (MNHN), *B. (Declyvodes) bistratus* (LECONT) (MNHN), *B. (Spifemodes) schaumii* (AUBÉ) (MNHN).

### Genus *Batrisodes* REITTER

[Japanese name: Toge-arizukamushi Zoku]

*Batrisodes* REITTER, 1882, Dt. ent. Z., 26: 134. Type species: *Batrisus delaporti* AUBÉ, designated by LUCAS (1920).

*Alytus* HAMPE, 1863, Wien. ent. Monats., 7: 286. Type species: *Trichonyx adnexus* HAMPE, by monotypy.

*Batrisodinus* JEANNEL, 1950, Fn. Fr., 53: 351. Type species: *Batrisus oculus* AUBÉ, by original designation.

*Remarks.* This genus is similar to the Palearctic genus *Batrisus* in having the following characters in the male: 1) the almost symmetrical male genitalia, 2) the eleventh antennal segment with basiventral spine in many species, and 3) the mid femur and tibia each with spine (s) or denticle (s) in general. However, it differs from *Batrisus* by the following features in the male: 1) the endophallus of the male genitalia is broad and very weakly sclerotized, 2) the male

sexual character(s) is present on the clypeus or frons in general, and 3) the tenth antennal segment is swollen in many species in the male.

The Japanese species *Batrisodes coffaiti* was described by JEANNEL (1958) from Shikoku on the basis of only a female specimen, as a member of the nominotypical subgenus. After a detail examination of some additional specimens including the males, this species was clearly classified to the genus group of *Tribasodes* defined by NOMURA and IDRIS (2004) by the pronotum with a pair of lateral denticles, the hind trochanter with a spine on the posterior side and the asymmetrical male genitalia with a well-demarcated dorsal apophysis. And it was considered to belong to the genus *Tribasodites* JEANNEL in having the slightly thickened antennal segment VI in the male and the abdominal segment IV without dorsolateral concavity. This species should be called *Tribasodites coffaiti* (JEANNEL, 1958), comb. nov. in the present study.

According to NEWTON and CHANDLER (1989), this genus contains the following eight subgenera, *Batrisodes* s. str., *Babnormodes*, *Pubimodes*, *Excavodes*, *Elytrododes*, *Declivodes*, *Spifemodes* and *Empinodes*. The latter seven of them were defined by O. PARK (1951, 1953) on the basis of Nearctic species. JEANNEL (1958) distinguished the nominotypical subgenus from the seven Nearctic subgenera by lacking spur (*éperon*, in original) at the apex of the hind tibia, though the type species *B. delaporti* (AUBÉ) known from Europe has a short “spur” at the apex of the hind tibia (Fig. 1A). Additionally, the “spur” or the “*éperon*” on the hind tibia is not a simple sclerite but a slender trichome after an observation by SEM (Fig 1B), hence it should be called “trichome” below.

In the present study, the nominotypical subgenus is separable from the other subgenera by having a very short trichome at the apex of the hind tibia.

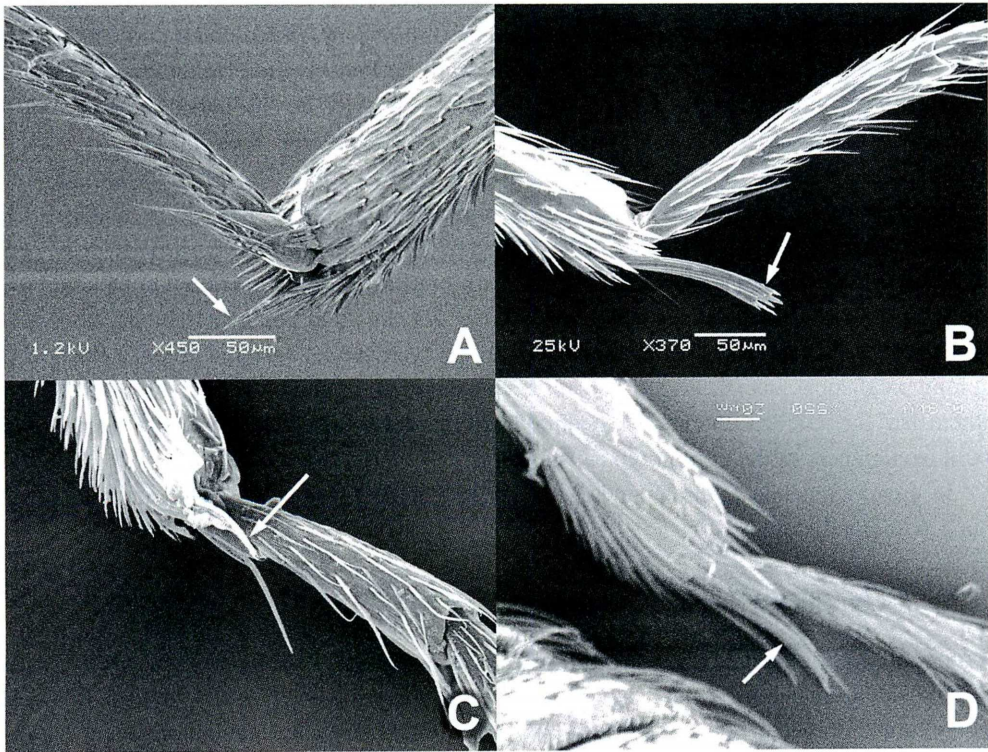


Fig. 1. Hind tibial trichomes in *Batrisodes* spp. — A, B. (*Batrisodes*) *delaporti* (AUBÉ); B, B. (*B.*) *oculatus* (AUBÉ); C, B. (*B.*) *galloisi* JEANNEL; D, B. (*Excavodes*) *senmin*, sp. nov.

### A Key to the Subgenera of the Genus *Batrissodes* REITTER Known from Japan

1. Hind tibiae each with a very short trichome at apex; antennal segment X swollen, XI with a short denticle at base on ventral side in male. .... *Batrissodes* s. str.  
—Hind tibiae each with a long trichome at apex; antennal segment X swollen or normal, XI with or without denticle in male. .... 2
2. Vertex with a pair of setose dorsal tentorial pits; antennal segment X strongly swollen and asymmetrical in male. .... *Pubimodes* O. PARK  
—Vertex with a pair of glabrous dorsal tentorial pits; antennal segment X almost the same in size as IX, symmetrically subglobose in male. .... *Excavodes* O. PARK

#### Subgenus *Excavodes* O. PARK

*Excavodes* O. PARK, 1951, Geol. Surv. Alabama, Mus. Pap., (31): 12. Type species: *Batrissodes frontalis* (LECONTE).

*Remarks*. This subgenus is separated from the nominotypical subgenus and the other subgenera by having the following characters: 1) the hind tibia with long apical trichome more than 1/3 the length of hind tarsal segment II (less than 1/3 in many species of *Batrissodes* s. str.), 2) the antenna is slender and the antennal segments IX to XI symmetrical in the male (IX to X are each swollen and asymmetrical in the male in *Pubimodes*, etc.; X is swollen and XI is denticulate in *Batrissodes* s. str.), 3) the dorsal tentorial pits are devoid of scales nor setae (densely setose in *Pubimodes*), 4) the head is modified in the male on the clypeus to the frons including clypeal projections, transverse excavation in the clypeofrontal region, frontal horn or frontal expansion (without sexual modification in *Elytroides*, *Spifemodes*, *Empinodes* and *Declyvodes*). The type species of this subgenus *B. frontalis* known from Pennsylvania, United States is distinct in having the strongly expanded frons with shallow concavity on the dorsal side. Within the Japanese species, *B. caviceps* (SHARP) is the most closely allied to the type species.

The Japanese species *B. galloisi* JEANNEL described from Chuzenji, (Nikko, Tochigi Prefecture, Honshu) as a member of this subgenus is closely allied to the type species of the genus, *B. delaporti*. *B. vargus* described by KURBATOV (1992) from Kunashiri Is., Kuril Is., and *B. tornatilis* by KURBATOV (1990) from Ussuri, Far East Russia are known to be allied to *B. galloisi* and to each other. In *B. galloisi* and *B. tornatilis*, the hind tibial trichome is short (about 1/4 of the length of hind tarsal segment II) as in the type species and the allied species of the nominotypical subgenus (*B. vargus* has not been examined) as shown in Fig. 1C. And the male of them has the swollen antennal segment X and the denticulate XI. These species therefore, should be members of the nominotypical subgenus.

In conclusion, the eight Japanese species of *Excavodes* are classified into five species groups as shown below.

#### A Key to the Species Groups for Japanese Species of the Subgenus *Excavodes* O. PARK

1. Pronotum without spine on dorsal surface; antennal segment I strongly extended anteriorly on inner side in male. .... 2  
—Pronotum with a pair or two pairs of spines on dorsal surface; antennal segment I hardly

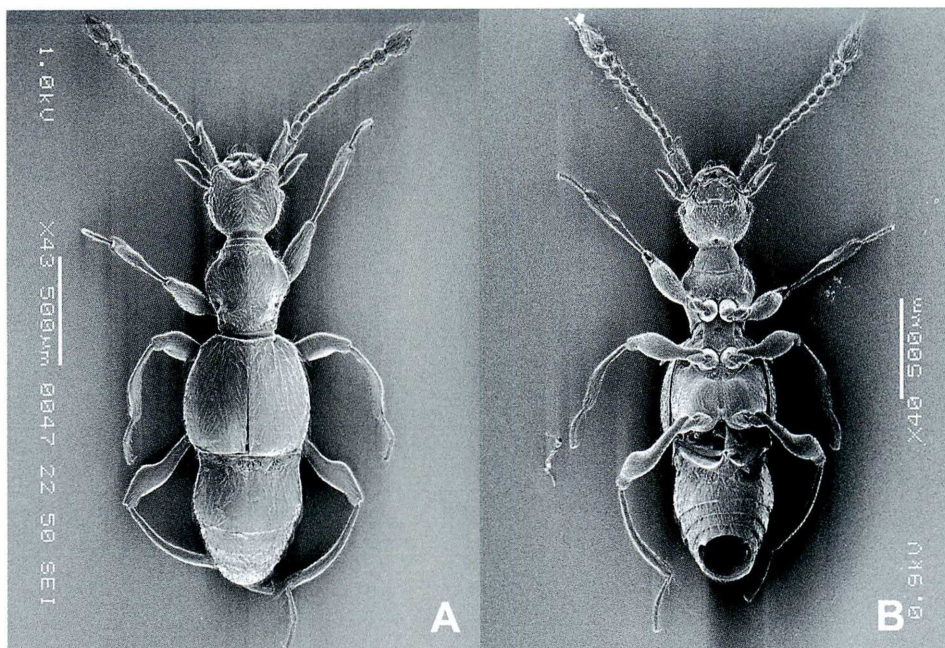


Fig. 2. *Batrisodes sennin* sp. nov. — A, habitus in dorsal view; B, ditto, ventral view.

- extended anteriorly on inner side in male..... 3
2. Head and pronotum rugosely punctured and mat..... *dorsalis* group  
 —Head and pronotum sparsely with minute punctures and shiny..... *sennin* group
3. Pronotum with two pairs of spines on dorsal surface..... *stipes* group  
 —Pronotum with a pair of spines on dorsal surface..... 4
4. Clypeus with a pair of lateral projections on anterior margin in male; frons with a short median horn beneath frontal expansion..... *rugicollis* group  
 —Clypeus arcuately or angulately expanded anteriorly in male, without lateral projection; frons strongly expanded anteriorly and concave on dorsal side, with very short median horn.  
 ..... *angustus* group

***Batrisodes sennin* sp. nov.**

[Japanese name: Sennin-toge-arizukamushi]

(Figs. 1D, 2–5)

*Etymology.* The name of the new species “sennin” is derived from the nickname of the late Dr. Hiroyuki SASAJI in his young age. Originally, the Japanese word “sennin” means a legendary wizard living in the mountains and capable of performing miracles. Dr. SASAJI had a taste for alcohol as well as “sennin” in Japanese and Chinese folktales.

*Holotype:* ♂, preserved in NSMT, Mt. Inbidake S, Yonagunijima Is., Ryukyus, Japan, 15–19. III. 2005, by FIT (NG–3), S. NOMURA leg.

*Male* (Figs. 3A–E). Body length 2.05 mm, width 0.61 mm, large and elongate, color reddish brown.

Head slightly wider than long, nearly ovoid in dorsal view, sparsely covered with minute

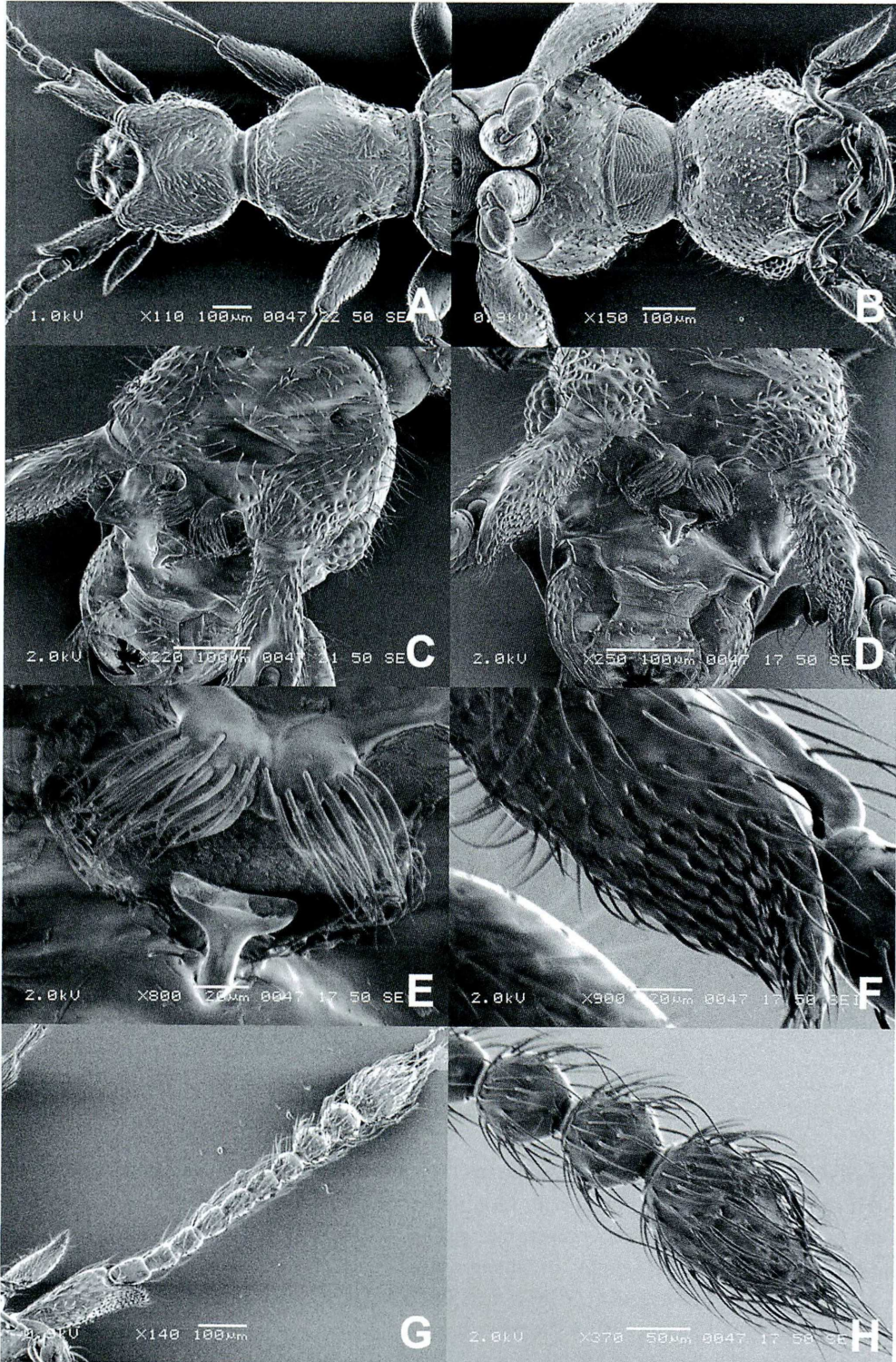


Fig. 3. *Batrisodes semini* sp. nov. — A, head and prothorax in dorsal view; B, ditto, in ventral view; C, head in anterolateral view; D, ditto, in anterior view; E, ditto, enlarged; F, antennal segment I in internal view; G, left antenna; H, ditto, apical part enlarged.

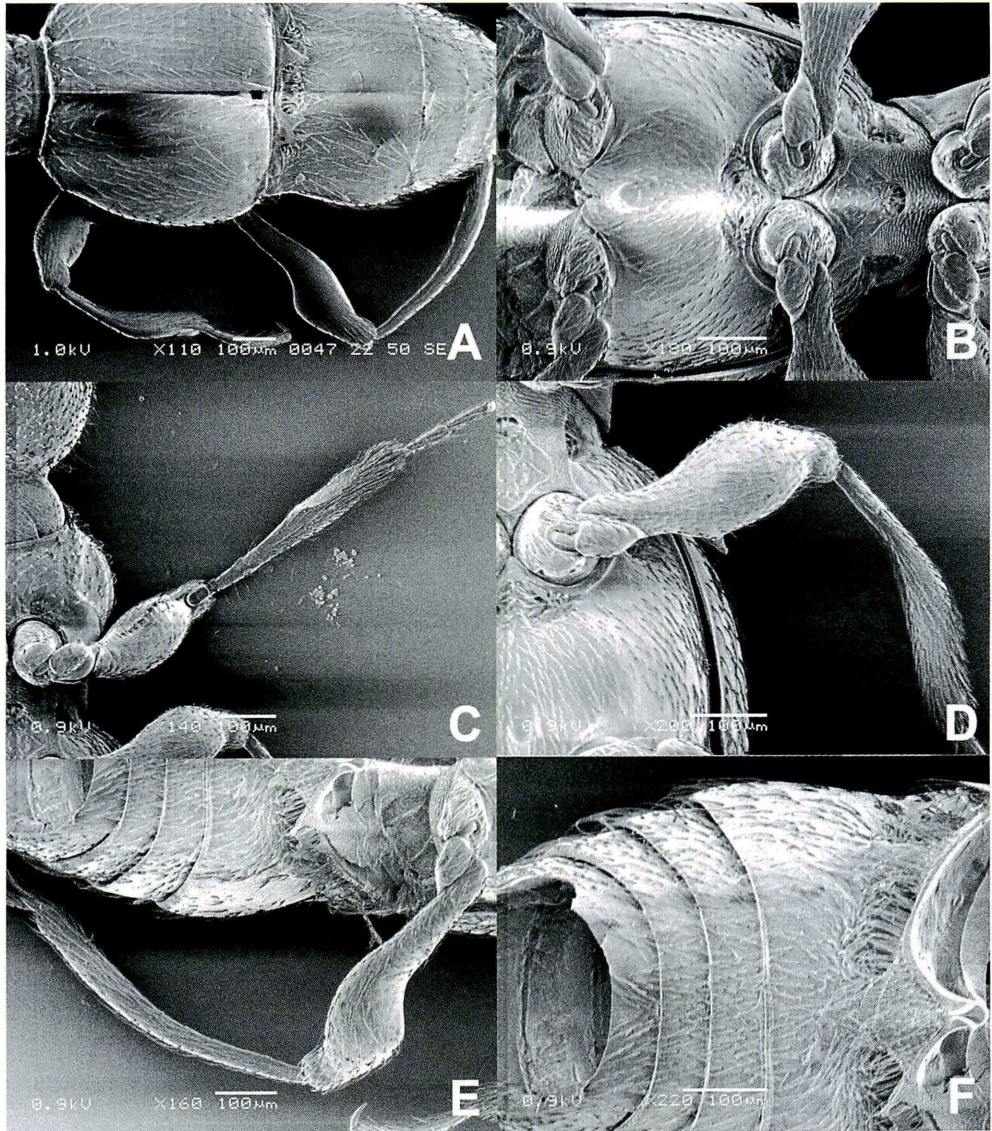


Fig. 4. *Batrisodes sennin* sp. nov. — A, meso-, metathoraces and abdomen in dorsal view; B, meso- and metathoraces in ventral view; C, left fore leg in ventral view; D, left mid leg in ventral view; E, left hind leg in ventral view; F, abdomen in ventral view.

pubescence on dorsal surface; clypeus short, transverse, with a trapezoidal projection on antero-medial part, and a pair of small angular expansions in anterolateral parts; frontoclypeal region transversely concave, with a small, T-shaped nodule at anteromedian part, a pair of short trichomes at the middle, and a short, trapezoidal horn between antennal tubercles; frons strongly convex on both antennal tubercles, arcuately emarginated and shallowly concave between antennal tubercles, with a shallow transverse sulcus near the middle; vertex almost flat, with a pair of minute dorsal tentorial pits; postgenae broad, weakly rounded, densely covered with suberect hairs. Eyes very small and semispherical, each composed of about 20 facets. Antennae (Fig. 3F–H) long and elongate, 1.00 mm in length; segment I large and thick, about as long as

segments II to V combined, strongly extended anteriorad on inner side, densely with short secretory setae on inner side of the extension; II to VII subequal in width, each small and ovoid, slightly longer than wide; VIII as wide as VII, subglobose; IX to X subequal, each thick and subglobose; XI large and thick, about as long as IX + X, ovoid, 1.5 times as long as wide; relative length (width) of each segment to width of segment I from base to apex 2.0 (1.0): 0.7 (0.5): 0.6 (0.5): 0.6 (0.5): 0.7 (0.5): 0.6 (0.5): 0.6 (0.5): 0.5 (0.5): 0.7 (0.7): 0.7 (0.7): 1.5 (1.0). Maxillary palpi large, elongate; segment I short; II elongate, thickened distally; III short, nearly triangular; IV the largest, fusiform, 3.2 times as long as wide, widest at basal 1/4.

Pronotum (Fig. 3A) slightly longer than head, slightly longer than wide, widest near the middle, rounded on lateral sides, weakly convex on dorsal side, sparsely covered with minute

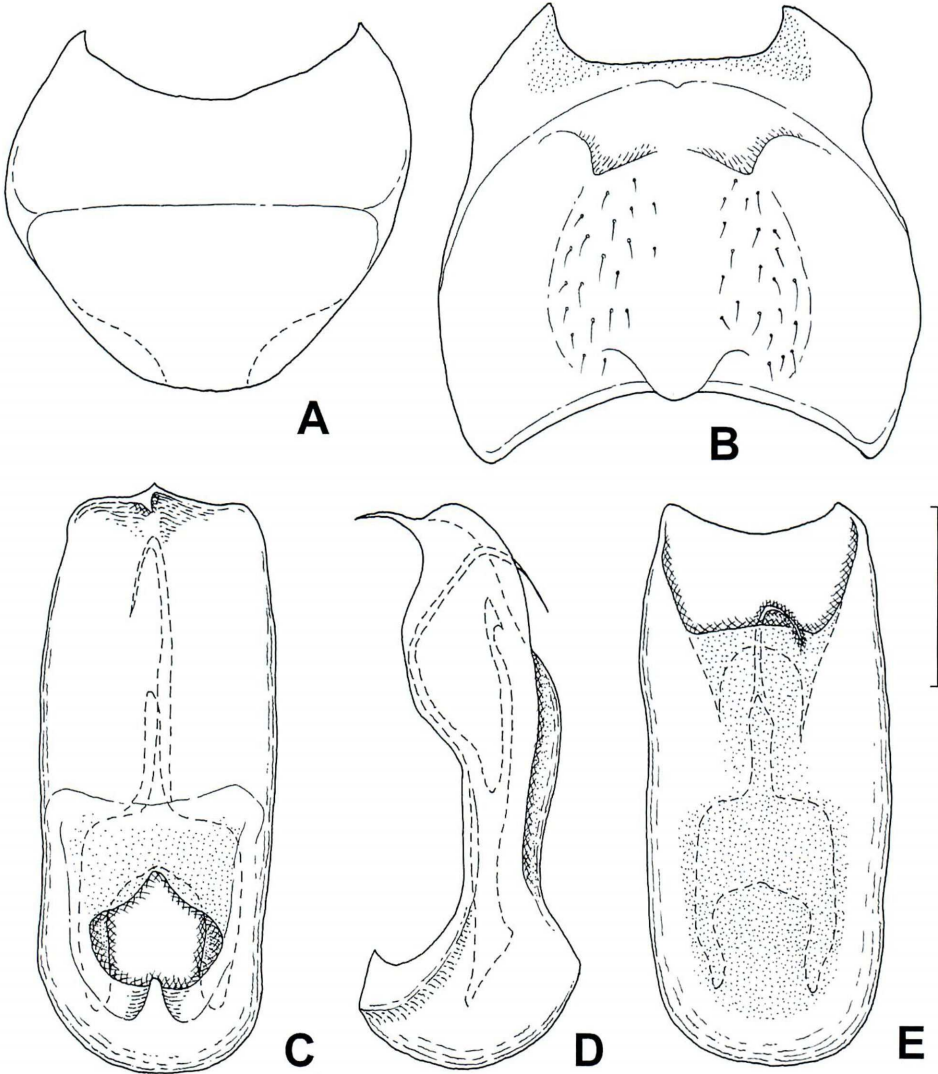


Fig. 5. *Batrisodes senmin* sp. nov. — A, abdominal tergite VIII in posterior view; B, abdominal sternite VIII in ventral view; C, male genitalia in ventral view; D, ditto, in lateral view; E, ditto, in dorsal view. (Scale: mm)



pubescence, with a pair of large lateral foveae at basal 1/3, and two pairs of small antebasal foveae in both basilateral parts. Elytra (Fig. 4A) slightly wider than long, widest at about basal 1/3, weakly convex on dorsal side, sparsely covered with minute pubescence on dorsal surface; each elytron with three basal foveae and an indistinct longitudinal sulcus running from outer basal foveae to near the middle. Legs (Figs. 4C–E) long and stout; mid femora thick, each with a short spine on posterior side; mid tibiae slender, each weakly curved inwards; hind femora thick, each with shallow excavation in basal half on anterior side; hind tibiae slender, gently thickened distad, weakly curved inwards; hind tibial trichome long and slender, about a half as long as hind tarsal segment II.

Abdomen (Figs. 4A, F) slightly longer, slightly narrower than elytra, longer than wide, widest at about basal 1/3, then gently narrowed posteriad, rounded at apex, sparsely covered with pubescence; segment IV the largest, weakly convex on dorsal side, with two pairs of basal foveae, a pair of short, triangular basal carinae between outer and inner basal foveae and with a pair of narrow, triangular paratergites demarcated by indistinct oblique lateral carinae; V to VII each short and transverse; tergite VIII (Fig. 5A) short, nearly trapezoidal in exposed part; sternite VIII (Fig. 5B) semicircular, shallowly concave in the middle, sparsely covered with short suberect setae in the middle concavity, with a small transverse concavity in basimedial part, nearly triangular small projection in posteromedial part.

Male genitalia (Figs. 5C–E) weakly sclerotized and almost symmetrical; median lobe nearly quadrate, longer than wide, flattened dorso-ventrally, with small basal foramen, large and transverse apical orifice and a small projection at apex; endophallus very weakly sclerotized, broad and bifurcate in basal part, with long and very slender dorsal and ventral spines in apical part.

*Female.* Unknown.

*Distribution:* Ryukyus (Yonagunijima Is.).

*Remarks.* This new species is easily separated from the other species of the subgenus *Excavodes* by having the anteriorly extended antennal segment I, the head with a pair of well convex antennal tubercles and the pronotum devoid of coarse punctures or dorsal spines. It is also similar to the genus *Petaloscapus* known from the Japanese mainland in having the extended antennal segment I. However, it apparently belongs to the genus *Batrisodes* by the head lacking large frontal nodule and the symmetrical male genitalia without strongly sclerotized endophallus.

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## 要 約

野村 周平：日本産トゲアリヅカムシ属（ハネカクシ科，アリヅカムシ亜科）に関する分類学的ノート。付 琉球列島与那国島産 1 新種の記載。—— *Batrisodes* REITTER トゲアリヅカムシ属の日本産種について分類学的再検討を行った。JEANNEL (1958) が四国から記載した *B. coiffaiti* を *Tribasodes* 属群に含まれる *Tribasodites* 属へ移した。本州から知られる *B. galloisi* JEANNEL と国後島から書かれた *B. vargus* KURBATOV は名義タイプ亜属に所属するのが妥当と判断された。琉球列島与那国島から、本属としては特異な 1 新種、*B. sennin* センニントゲアリヅカムシを記載命名した。本種名は先頃亡くなられた故 佐々治寛之博士の若い時代の愛称に因み、博士に献呈する意味で名づけられた。さらに本種が所属する *Excavodes* 亜属の日本産 8 種を検討し、*dorsalis* 種群、*stipes* 種群、*rugicollis* 種群、*angustus* 種群および *sennin* 種群の 5 つに分類した。末尾に日本産種のリストを付した。

なお、本研究は日本学術振興会科学研究費補助金（課題番号 18208006）による助成を受けている。

Appendix: A List of Japanese Species of *Batrisodes*Genus *Batrisodes* REITTERSubgenus *Batrisodes* s. str.

*B. (B.) galloisi* JEANNEL, 1958 Type locality: Senjuga, Chuzenji, Nikko, Tochigi Pref.

*B. (B.) vargus* KURBATOV, 1992 Type locality: Kunashiri Is., Kuril Isls.

Subgenus *Pubimodes* O. PARK, 1951

*B. (B.) harmandi* RAFFRAY, 1904 Type locality: “environs de Tokyo”.

*B. (B.) globrifera* JEANNEL, 1958 Type locality: Mt. Takao, Tokyo.

Subgenus *Excavodes* O. PARK, 1951The *sennin* group

*B. (B.) sennin* sp. nov. Type locality: Mt. Inbidake, Yonagunijima Is., Ryukyus.

The *dorsalis* group

*B. (B.) dorsalis* JEANNEL, 1958 Type locality: Mt. Takao, Tokyo.

The *stipes* group

*B. (B.) stipes* (SHARP, 1874) Type area: “Japan”.

The *rugicollis* group

*B. (B.) ornatifrons* (SHARP, 1883) Type locality: Chuzenji, Nikko, Tochigi Pref.

*B. (B.) acutifrons* JEANNEL, 1958 Type locality: Kumanotaira, nr. Karuizawa, Gunma Pref.

*B. (B.) rugicollis* (SHARP, 1883) Type locality: Oyama, Kanagawa Pref.

The *angustus* group

*B. (B.) angustus* (SHARP, 1874) Type locality: Kiga, Hakone, Kanagawa Pref.

*B. (B.) caviceps* (SHARP, 1883) Type locality: Yuyama (Mt. Ichifusayama), Kumamoto Pref.

Genus *Tribasodites* JEANNEL, 1959

*T. coiffaiti* (JEANNEL, 1958), comb. nov. Type locality: Kawauchi, Ino-cho, Kôchi Pref.

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