

Taxonomic Study on the Subfamily Trichopseniinae
(Coleoptera, Staphylinidae) of Japan, with
Descriptions of Three New Species*

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Abstract The termitophilous subfamily Trichopseniinae of Japan are revised, and descriptions of three new species, *Trichopsenius matsumotoi*, *T. serratus* and *T. brunneus* are given. A key to the Japanese species is prepared. Relationships between the *Trichopsenius* species and their host (*Reticulitermes*) are briefly discussed.

The Trichopseniini were first proposed by LECONTE and HORN (1883) as a subtribe of the tribe Tachyporini. This subtribe was raised to tribal rank by EICHELBAUM (1909). After that, the Trichopseniinae were established by SEEVERS (1941) to include six genera, i.e., *Trichopsenius* HORN, *Xenistusa* LECONTE, *Termitopsenius* WASMANN, *Rhinotermopsenius* SEEVERS, *Hamitopsenius* WASMANN and *Pulcipsenius* SEEVERS. This termitophilous subfamily is now composed of 15 genera and 25 species and is distributed in all zoogeographical regions (SEEVERS, 1957; KISTNER, 1969; PASTEELS & KISTNER, 1971).

From Japan, only one species, *Trichopsenius japonicus* SEEVERS, 1957, which was taken in the nest of *Reticulitermes speratus*, has hitherto been known in this subfamily. In this paper, three more species of the genus *Trichopsenius* are described as new, together with a key to the Japanese species. Relationships of the members of the genus *Trichopsenius* with their host termites of the genus *Reticulitermes* are briefly discussed.

Subfamily Trichopseniinae

Trichopseniini LECONTE et HORN, 1883, Clas. Coleopt. N. Am., p. 100.

Trichopseniini EICHELBAUM, 1909, Mém. Soc. ent. Belg., 17: 196; WASMANN, 1916, Zool. Jahrb. Syst., 39: 196; BERNHAUER & SCHUBERT, 1916, Coleopt. Cat., (67): 494; SCHEERPELTZ, 1934, Coleopt. Cat. Suppl., (130): 1520.

Schizelythrinae KEMNER, 1925, Ent. Tidskr., 46: 122.

Trichopseniinae SEEVERS, 1941, Ann. ent. Soc. Am., 34: 320; BORGMEIER, 1950, Rev. Ent., 21: 642; SEEVERS, 1957, Fieldiana Zool., 40: 266; SEEVERS, 1960, Ann. ent. Soc. Am., 53: 828;

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PASTEELS & KISTNER, 1971, Misc. Publ. ent. Soc. Am., 7: 352; SEEVERS, 1978, Fieldiana Zool., 71: 34.

This subfamily is diagnostic in the following characters: gula very short; prosternum reduced in length; metasternum at base with a pair of metasternal plates which cover at least a part of the hind legs in repose; hind coxae fused to metasternum; abdomen with terga and sterna more or less separated by membrane (physogastric) and without paratergites. Detailed descriptions of this subfamily were made by SEEVERS (1941) and PASTEELS and KISTNER (1971).

Genus *Trichopsenius* HORN

Trichopsenius HORN, 1877, Trans. Am. ent. Soc., 6: 88; BERNHAUER & SCHUBERT, 1916, Coleopt. Cat., (67): 494; SCHEERPELTZ, 1934, Coleopt. Cat. Suppl., (130): 1520; SEEVERS, 1941, Ann. ent. Soc. Am., 34: 323; PASTEELS & KISTNER, 1971, Misc. Publ. ent. Soc. Am., 7: 373; SEEVERS, 1978, Fieldiana Zool., 71: 14. Type species: *Hypocyptus depressus* LÉCONTE, by monotypy.

The genus *Trichopsenius* is composed of nine species: five from North America and four from Japan, including three new species described below. Description of this genus was given in detail, with many photographs and illustrations by PASTEELS and KISTNER (1971, figs. 21-24). Additional characters are as follows: tentorium almost H-shaped, without tentorial wall and dorsal arm; mandibular prosthecae reduced and membranous; pronotum with a membranous flap at the middle of anterior margin; mesonotum without prescutum; mesepisternum and metepisternum fused with mesepimeron and metepimeron, respectively; metendosternite V-shaped, slender; parameres of male genitalia asymmetrical, with left apical stalk more strongly curved than the right one.

This genus is closely related to *Xenistusa* LÉCONTE, but is separable from the latter by the body less physogastric and the metasternum shorter.

Key to the Japanese Species of the Genus *Trichopsenius*

- 1 (4) Body yellowish; 6th and 7th abdominal segments straight at posterior margins in both sexes; male genitalia with median plates of parameres broader.
- 2 (3) Pronotum as broad as elytra; left paramere of male genitalia with a short pointed branch near the middle.....*T. japonicus* SEEVERS
- 3 (2) Pronotum a little narrower than elytra; left paramere of male genitalia without median branch.....*T. matsumotoi* sp. nov.
- 4 (1) Body brownish; 6th and 7th abdominal segments serrate at posterior margins at least in male; male genitalia with median plates of parameres narrower.
- 5 (6) Fourth to 8th abdominal segments each serrate at posterior margin and with a row of longitudinal furrows which are less than half the length of segment in female; male genitalia with median lobe straight in apical half.....

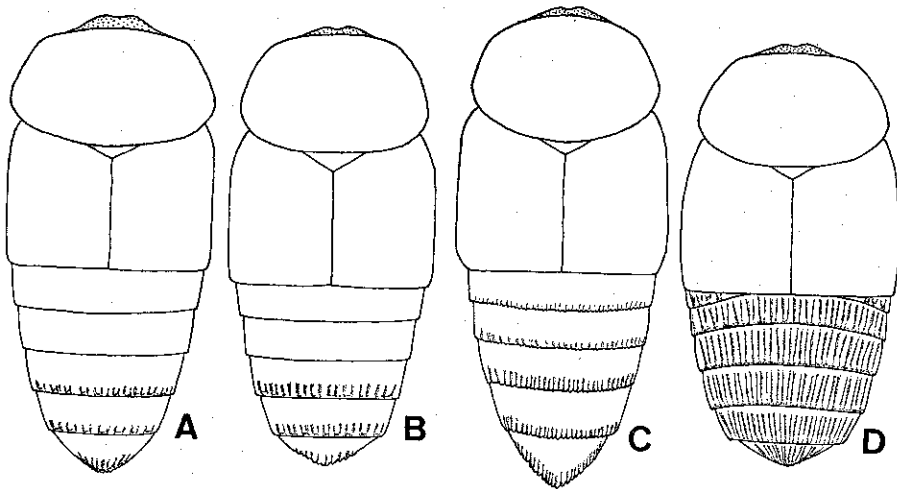


Fig. 1. Dorsal view of pronotum, elytra and abdomen of *Trichopsenius* spp. — A, *T. japonicus* SEEVERS (female); B, *T. matsumotoi* sp. nov. (male); C, *T. serratus* sp. nov. (female); D, *T. brunneus* sp. nov. (female).

-*T. serratus* sp. nov.
 6 (5) Fourth to 8th abdominal segments each hardly serrate at posterior margin and with a row of longitudinal furrows which are more than 2/3 the length of segment in female; male genitalia with median lobe curved ventrally in apical half.....*T. brunneus* sp. nov.

Trichopsenius japonicus SEEVERS

Trichopsenius japonicus SEEVERS, 1957, Fieldiana Zool., 40: 271.

Male. Body length: 1.3–1.5 mm.

Body yellowish to pale yellow, elytra brownish with yellowish posterior margins, 8th and 9th abdominal segments yellowish brown to brownish; moderately shiny.

Head oval, broader than long, flat dorsally, glabrous, clypeofrontal region broad, with anterior margin very weakly rounded. Eyes convex, a little wider than genal regions. Antennae moderate in length, reaching the posterior margin of pronotum, pedicel largest, elongate-oval, 3rd segment narrowest, about as long as 4th, 4th to 11th becoming gradually broader toward apex, 10th transverse.

Pronotum as broad as elytra, transverse, broadest at posterior 1/3, anterior membranous flap shallowly emarginate at the middle; surface very sparsely covered with erect hairs; elytra parallel-sided, with hairs like pronotum.

Abdomen gradually narrowed posteriorly, each segment with a row of long hairs along posterior margin, 6th to 8th each with a series of short longitudinal furrows along posterior margin, 8th tergum weakly serrate at apical margin.

Genitalia (Fig. 2 A-C) with median lobe bulbous at base, weakly constricted at posterior part of basal orifice; parameres longer than median lobe, basal stalk connate with median plate, median plate broad, moderately sclerotized along inner margin, apical stalk slender, curved, with a seta at the outer basal margin, right apical stalk longer than the left one which is provided with a short pointed branch near the middle.

Female. Abdomen (Fig. 1 A) with 6th to 8th segments similar to those of male.

Specimens examined. 1 female, Mōka City, Tochigi Pref., 21. iv. 1982, M. TERAYAMA leg.; 1 male, Hisagi, Zushi, Kanagawa Pref., 12. iv. 1957, K. ISHIDA leg.; 1 male, Kamakura, Kanagawa Pref., 21. iv. 1956; 1 female, Mt. Amagi, Shizuoka Pref., 4. v. 1957, K. ISHIDA leg.

Distribution. Japan (Honshu).

Host. *Reticulitermes speratus speratus* (KOLBE).

Remarks. This species is allied to *T. matsumotoi* sp. nov., but is separable from it by the pronotum as broad as elytra and the left paramere of male genitalia with a short pointed branch near the middle.

Trichopsenius matsumotoi sp. nov.

Male. Body length: 1.2–1.3 mm.

Body yellowish to pale yellow, head and elytra yellowish brown; shiny.

Head oval, broader than long, weakly convex dorsally, broadest at posterior 2/5. Eyes moderately convex, minutely faceted, about as long as genal regions. Antennae with 3rd segment as long as 4th, 4th to 10th gradually broadened apically.

Pronotum (Fig. 1 B) a little narrower than elytra, transverse, gently convex dorsally; surface very sparsely covered with erect hairs; elytra subparallel-sided, with erect hairs.

Abdomen (Fig. 1 B) relatively short, gradually narrowed posteriorly, each segment with a series of hairs along posterior margin, 6th to 8th each with a row of longitudinal furrows along posterior margin, furrows on 6th and 7th longer than those on 8th, 8th tergum with posterior margin more strongly serrate than in *T. japonicus* SEEVERS.

Genitalia (Fig. 2 D-F) with median lobe moderately sclerotized, convex ventrally at base; right paramere a little longer than median lobe and left one shorter than that, median plate narrower than in *japonicus* SEEVERS, with outer margin sinuate, apical stalk broader than in *japonicus* SEEVERS, twisted, with a seta at base.

Female. Unknown.

Holotype, male (Type No. 2576, Kyushu Univ.), Yakushima Is., Kagoshima Pref., 15–17. x. 1984, T. MATSUMOTO leg. Paratype, 1 male, same data as holotype.

Distribution. Japan (Yakushima Is.).

Host. *Reticulitermes speratus kyushuensis* MORIMOTO.

Remarks. This species is closely related to *T. japonicus* SEEVERS, but is sep-

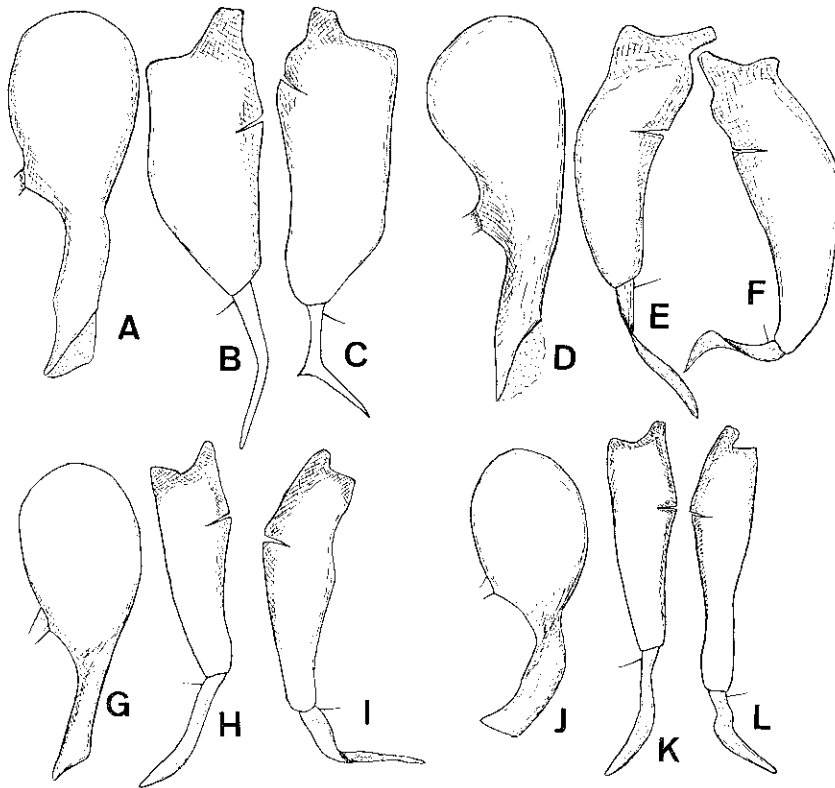


Fig. 2. *Trichopsenius* spp. — A-C, *T. japonicus* SEEVERS; D-F, *T. matsumotoi* sp. nov.; G-I, *T. serratus* sp. nov.; J-L, *T. brunneus* sp. nov. A, D, G, J, Median lobe in lateral view; B, E, H, K, right paramere; C, F, I, L, left paramere.

arable from it by the characters mentioned in the key.

This species is named in honor of Dr. T. MATSUMOTO of the Department of Biology, Tokyo University.

Trichopsenius serratus sp. nov.

Male. Body length: 1.5–1.6 mm.

Body yellowish brown to brownish; antennae, apical margins of elytra and 4th to 6th abdominal segments yellowish; moderately shiny.

Head oblong-oval, broader than long, slightly convex dorsally, almost glabrous. Eyes moderately convex, about as long as genal regions. Antennae with 3rd segment a little shorter than 4th, 4th to 10th gradually broadened toward apex, 10th transverse.

Pronotum narrower than elytra, transverse, posterior margin gently rounded;

surface very sparsely covered with erect hairs except for median glabrous area; elytra subparallel-sided, sparsely covered with erect hairs.

Abdomen narrowed posteriorly, 4th to 8th segments with posterior margins serrate, 6th to 8th each with a row of obscure longitudinal furrows along posterior margin.

Genitalia (Fig. 2 G-I) with median lobe bulbous, weakly sclerotized at base, apical half thinner than in *T. matsumotoi* sp. nov.; parameres a little longer than median lobe, basal stalk short, median plate slender, left apical stalk longer than in *matsumotoi* sp. nov.

Female. Abdomen (Fig. 1 C) with 4th to 8th segments similarly serrate as in male, longitudinal furrows on 6th to 8th a little deeper than in male.

Holotype, male (Type No. 2577, Kyushu Univ.), Ukenson, Amami-Oshima Is., Kagoshima Pref., 2. vi. 1983, M. TERAYAMA leg. Paratype, 1 female, same data as holotype.

Distribution. Japan (Amami-Oshima Is.).

Host. *Reticulitermes speratus okinawanus* MORIMOTO.

Remarks. This species is closely allied to *T. brunneus* sp. nov., but is separable from the latter by the 4th to 8th abdominal segments serrate along the posterior margins in both sexes and the median lobe of male genitalia straight in apical half in lateral view.

Trichopsenius brunneus sp. nov.

Male. Body length: 1.4–1.6 mm.

Body brownish to dark brown; antennae, apical margins of elytra and basal part of abdomen yellowish; moderately shiny.

Head oblong-oval, broader than long, subflat dorsally, glabrous. Eyes moderately convex, a little longer than genal regions. Antennae reaching the posterior margin of pronotum, robust, 3rd segment shorter than 4th, 6th to 10th transverse.

Pronotum narrower than elytra, broader than long, broadest at posterior 1/3; surface very sparsely covered with erect hairs; elytra broad, with side margins gently rounded.

Abdomen broad, weakly narrowed posteriorly, 4th to 8th segments with posterior margins minutely serrate and with a row of indefinite longitudinal furrows.

Genitalia (Fig. 2 J-L) with median lobe bulbous at base, weakly constricted near the middle, curved ventrally in apical half in lateral view; parameres longer than median lobe, slender, median plate slenderer than in *T. serratus* sp. nov., left median plate weakly constricted at apical 2/5, right apical stalk longer than the left.

Female. Fourth to 8th abdominal segments each hardly serrate at hind margin and with a row of parallel longitudinal furrows which reach near the base of segment (Fig. 1 D).

Holotype, male (Type No. 2578, Kyushu Univ.), Mt. Tanpatsu, Tokunoshima Is., Kagoshima Pref., 7. viii. 1984, M. TERAYAMA leg. Paratypes, 1 male, same data as holotype; 1 female, same locality as holotype, 11. x. 1984, Y. HIRONO leg.

Distribution. Japan (Tokunoshima Is.).

Host. *Reticulitermes speratus okinawanus* MORIMOTO.

Remarks. This species is closely allied to *T. serratus* sp. nov., but is distinguished from the latter by the characters noted in the key.

Host Relationships

The termitophilous genus *Trichopsenius* is associated with the genus *Reticulitermes*, and is species-specific to the host termite. According to MORIMOTO (1968), *Reticulitermes speratus* in Japan is grouped into five subspecies, three of which harbor four termitophiles. *Trichopsenius japonicus* SEEVERS is associated

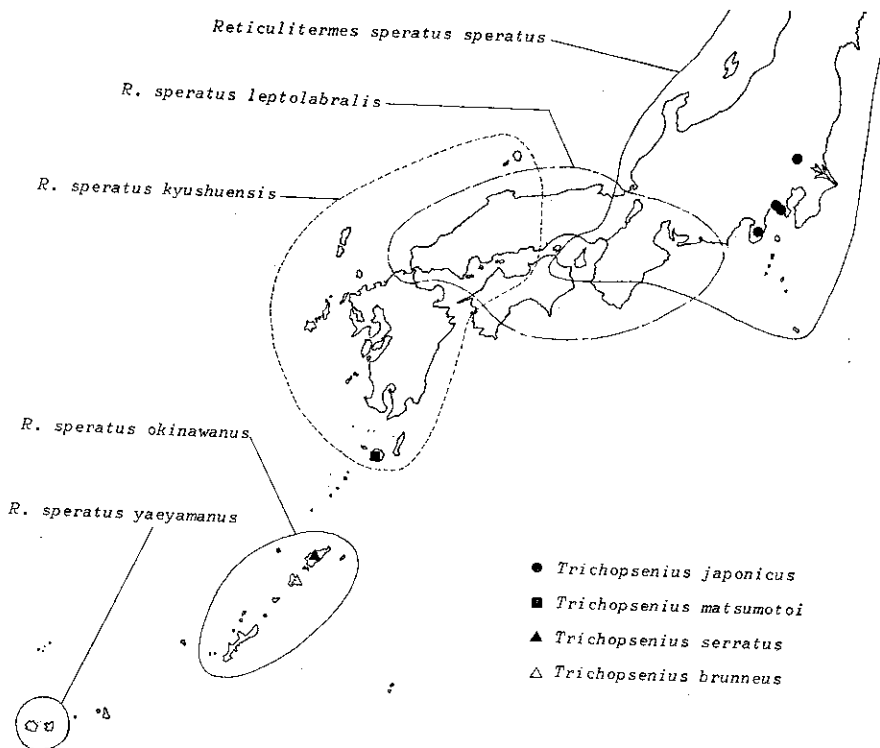


Fig. 3. Distribution of the species of the genus *Trichopsenius* and their host termite of the genus *Reticulitermes* in Japan. The distribution of the termite is adapted from MORIMOTO (1968).

with *Reticulitermes speratus speratus* (KOLBE), *T. matsumotoi* sp. nov. is with *R. s. kyushuensis* MORIMOTO, and *T. serratus* sp. nov. and *T. brunneus* sp. nov. are with *R. s. okinawanus* MORIMOTO (Fig. 3). These four termitophiles seem to be allopatrically distributed in the Japanese Archipelago, although the accurate distributional ranges of the species cannot be determined by the present data. It is interesting to note that the two different termitophiles, *T. serratus* sp. nov. and *T. brunneus* sp. nov. invade in the nests of the same host, *Reticulitermes speratus okinawanus*.

In North America, on the other hand, three species of *Reticulitermes* harbor five termitophiles. *Trichopsenius depressus* (LECONTE) is associated with *Reticulitermes virginicus* BANKS, *T. xenoflavipes* SEEVERS and *T. frosti* SEEVERS are with *R. flavipes* KOLLAR, and *T. longipes* SEEVERS and *T. californicus* SEEVERS are with *R. hesperus* BANKS (SEEVERS, 1957, KISTNER & HOWARD, 1980). It seems to be common that the two different termitophiles invade in the nests of a termite. However, there are no data as to whether or not the two species simultaneously invade in one nest of a termite.

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