

Systematic Position of the Trechine Genus *Eocnides* (Coleoptera, Trechinae)¹⁾

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Abstract A new species of the trechine genus *Eocnides* is described from northern Sichuan in central China under the name of *E. fragilis*. Based upon the male genitalic characters of this new species, the genus is transferred from the Cnidina of the tribe Perileptini to the Trechina of the tribe Trechini.

Eocnides is a poorly known trechine genus erected by JEANNEL (1954, p. 10) for a single female specimen of a very strange Assamese species. Unable to see any male specimen, he hesitated for about twenty years in deciding its systematic position, and finally resolved to place it at the side of the South and Central American genus *Cnides* in his tribe Homaloderini. Four years later, he (1958, p. 733) erected Cnidina in the tribe Trechodini and placed *Cnides* and *Eocnides* in the new subtribe. He revised his classification of the Trechinae in 1964 (p. 233), raising the Trechodini to a subfamily equivalent to the Trechinae and the Cnidina to one of its tribes. This arrangement can be disputed, since the two related groups Perileptini and Cnidini were placed in two different subfamilies. In my own view, the Cnidina should belong to the tribe Perileptini, which is the most primitive of the three tribes of the subfamily. However, the present paper is not concerned with the problem of the major classification of the Trechinae. Its purpose is to clarify that *Eocnides* does not belong to the Cnidina and therefore is not a close relative of *Cnides*.

I already noticed this fact in 1981 (p. 60, foot-note), when describing the second Asian genus of the Trechodini from the eastern Himalayas. It was verified beyond doubt on an examination of male genitalia of an *Eocnides*. At that time, however, only the female type of *E. assamensis* from northeastern India and a male specimen from central China were available for study, and though the latter seemed specifically different from the former through my direct comparison made at the Muséum National d'Histoire Naturelle, Paris, I was reluctant to describe it as a new species since the two were very similar to each other at least superficially.

Recently, five more specimens of an *Eocnides* were collected in Sichuan by Hiroshi MIYAMA and submitted to me for study. This collection contained both males and females, and thus we had at last on hand the two sexes of an *Eocnides* from the same

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population. MIYAMA's collection also gave us definite and reliable information on the habitat of this isolated trechine beetle. Since the Chinese form closely resembles the Assamese as mentioned above, it was necessary to make a direct comparative study based upon the same sex for determining the true identity of the former. I was able to do this through the courtesy of the Muséum National d'Histoire Naturelle, and definitely confirmed specific independency of the Chinese trechine.

In the present paper, I am going to give first a revised account of the genus *Eocnides*, whose original description is not sufficient to illustrate this very strange trechine, then a full description of the new Chinese species under the name of *E. fragilis*, and in comparison with it a redescription of *E. assamensis* based upon the type specimen. The genus will be transferred from the Cnidina of the tribe Perileptini to the Trechina of the tribe Trechini. It is difficult at present to determine its affinity within the subtribe Trechina, but a brief comment will be made on its presumable relationship. The abbreviations used herein are the same as those explained in other papers of mine.

Before going into further details, I wish to express my hearty thanks to Mr. Hiroshi MIYAMA, whose keen eyes for ground-living beetles at last brought forth long awaited fresh material of the problematical trechine beetle. Deep indebtedness should also be expressed to Dr. A. DESCARPENTRIES, Dr. Georges G. PERRAULT and Mlle. Hélène PERRIN, who kindly took the trouble of making arrangement for the loan of the type specimen of *Eocnides assamensis* JEANNEL.

Genus *Eocnides* JEANNEL, 1954

Eocnides JEANNEL, 1954, Rev. fr. Ent., 21, p. 10; type species: *Eocnides assamensis* JEANNEL, 1954; 1958, Ent. Arb. Mus. Frey, Tutzing, 9, pp. 732, 733. — UÉNO, 1981, Annot. zool. japon., 54, p. 60, foot-note. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, pp. 9, 35.

Medium-sized trechines somewhat similar in general appearance to certain bembidiines. Body elongate, subparallel-sided, depressed, and glabrous except for abdominal sternites, with long antennae and legs; tactile setae on body surface mostly long; inner wings fully developed; colour black or brown, with pale appendages.

Head transverse, with protruding eyes and posteriorly contracted genae, the latter of which are completely glabrous and separated from narrow neck by deep constriction; frontal furrows entire, clearly impressed, rather weakly curved in front, widely divergent behind, and not angulate at middle; two pairs of rather closely situated supraorbital pores present on lines more or less convergent posteriad, the anterior one being slightly behind the mid-eye level and foveolate. Labrum transverse, widely and simply emarginate at apex, sexsetose. Mandibles short and stout, sharply hooked at apices, tridentate though the premolar tooth is not sharply defined on the right mandible. Mentum separated from submentum by a distinct labial suture, the former bearing a broad tooth in apical emargination, which is distinctly cleft at the tip, the latter bearing six setae, of which the sublateral pair are very long and situated near buccal fissures; ligula narrow and porrect, octosetose; paraglossae slender, extending

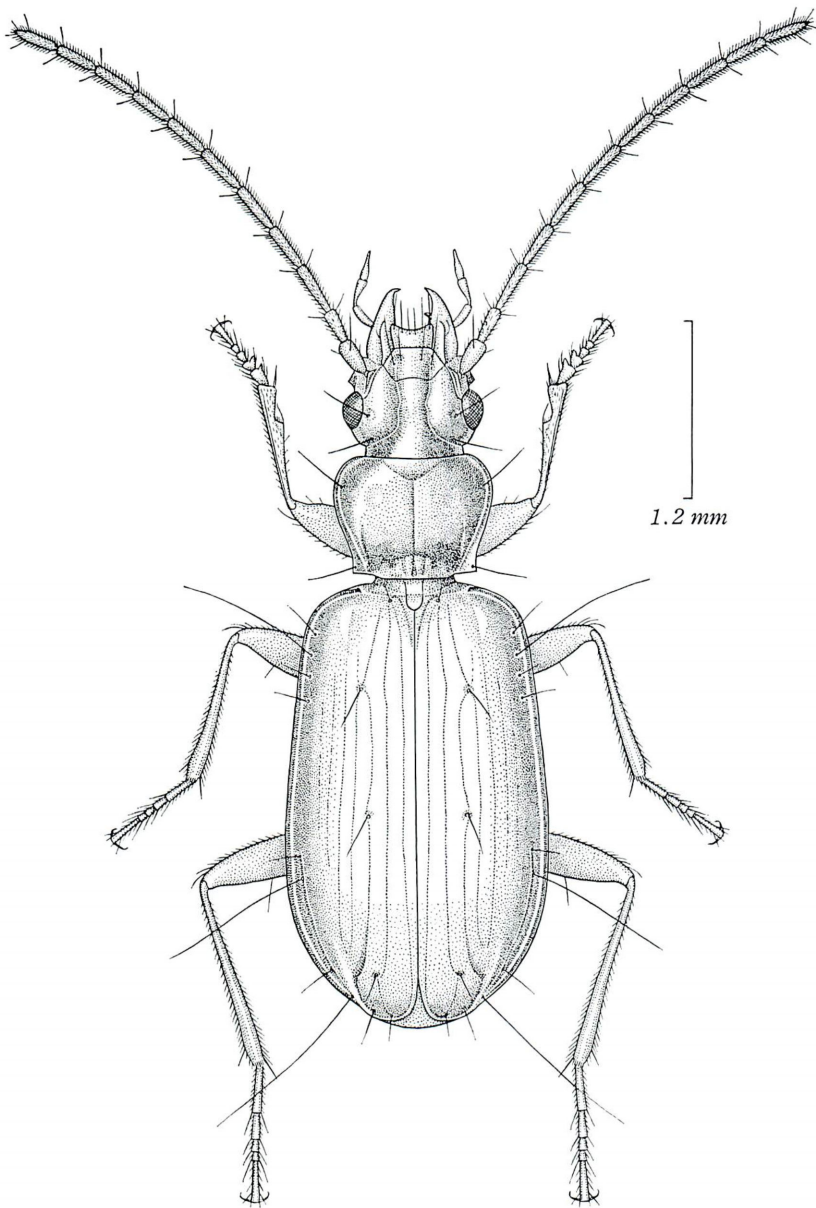


Fig. 1. *Eocnides fragilis* S. UÉNO, sp. nov., ♂, from Xiajijie Hai at Jiuzhaigou.

much beyond ligula. Palpi not long; penultimate segment moderately dilated towards apex and completely glabrous in maxillary palpus, feebly dilated towards apex and quadrisetose in labial palpus; apical segments elongated subconical, about as long as the penultimate in labial palpus but much longer than that in maxillary palpus.

Antennae filiform, long and slender.

Pronotum small, transverse, with the sides widely reflexed behind the widest part, arcuate in front and briefly sinuate just before hind angles which are almost rectangular; two pair of marginal setae situated slightly before the widest part and slightly before hind angles, respectively; apical impression distinct, widely divergent V-shaped and smooth; median line deeply impressed, widening in basal area; basal transverse impression deep and continuous, somewhat uneven at the bottom; basal foveae very large, subtriangular, extending anteriorly along the side borders; postangular carinae obtuse; basal area narrow, more or less notched along the basal border. Scutellum small and narrow, though distinct.

Elytra large and elongate, subparallel-sided though widest behind the middle, and depressed on the disc, with square shoulders; prehumeral borders not reaching basal peduncle, being interrupted at the site of the base of stria 5; sides rather narrowly reflexed throughout; striae distinctly impressed on the disc but obsolete at the sides, with the exception of stria 8 which is deeply impressed behind the middle set of marginal umbilicate pores; stria 2 extending to apex without forming apical anastomosis with stria 3; scutellar striole long, deeply impressed, and close to suture; apical striole short but deep, strongly arcuate inwards and joining stria 3; intervals smooth, apical carina obtuse; two setiferous dorsal pores present on stria 3 (frequently on anastomoses of striae 3 and 4), and none on stria 5; preapical pore situated on apical declivity and adjoining stria 2; apical pores normal, though the anterior one is situated rather backwards; marginal umbilicate pores regular and aggregated, the four pores of the humeral set being ranged equidistantly.

Prosternum glabrous; metasternum with a few hairs; sternites 2–5 each covered with rather long hairs at the median part; anal sternite provided with a pair of setae in ♂, with two pair of setae in ♀. Legs fairly long and slender; protibiae straight, gently dilated towards apices, distinctly grooved on the external face, and wholly pubescent on the anterior face; tarsi not very long, segment 1 about as long as segments 2–4 together in both meso- and metatarsi, segment 4 with a long ventral apophysis in pro- and mesotarsi; in ♂ two proximal segments of each protarsus widely dilated, stoutly produced inwards at apices, and furnished beneath with sexual adhesive appendages.

Male genital organ very small. Aedeagus tubular though widely membranous on the dorsal surface, with completely closed basal part, whose orifice is situated at the ventral side; sagittal aileron present; apical lobe symmetrical, long and narrow. Inner sac armed with a large asymmetrical copulatory piece but devoid of sclerotized teeth. Styles large and broad, left style devoid of ventral apophysis, each bearing four or five setae at apex.

Range. Northeastern India and central China.

Notes. Because of the characteristic conformation of the aedeagal basal part, the genus *Eocnides* belongs to the tribe Trechini beyond all doubt. As was conclusively demonstrated by JEANNEL (1958, pp. 732–734), the aedeagal basal part is

widely open between two sagittal lobes in the members of *Cnides* from Central and South America. This feature is currently regarded as a peculiarity of the tribe Trechodini, but is also found in the tribe Perileptini. JEANNEL misunderstood the aedeagal structure of perileptines and placed the tribe at the side of the Trechini (e.g., 1964, p. 233). Actually, however, the basal part of the perileptine aedeagus is membranous except for the ventral side, and can be regarded as the prototype that could have produced both the trechodine and the trechine types of aedeagi. JEANNEL was also wrong in considering that specific differentiation was clearly observed in the aedeagi of *Cnides* species. In reality, genitalic differentiation is not pronounced in *Cnides* as in the Perileptini, though there is a considerable difference between the two in the grade of sclerotization of aedeagal walls, and the spiralled copulatory piece extant in the former is homologous with the thin, poorly sclerotized flagellum commonly found in the latter.

Thus, *Cnides* should be associated with the Perileptini, and is phylogenetically remote from *Eocnides*, which indisputably belongs to the Trechini. It is, however, not easy to determine the true systematic position of *Eocnides* within the tribe. In my view, three major groups can be recognized within the Trechini. The largest of them is the Trechina, which may or may not include homaloderoid genera mainly distributed in the Southern Hemisphere. *Eocnides* could be regarded as a homaloderoid because of the tridentate mandibles, but mandibular dentition is not a decisive character for discriminating homaloderoid genera from trechoid ones. In fact, many genera belonging to the *Trechoblemus* group, which doubtless belongs to the Trechina, have a premolar tooth, at least on the right mandible. *Eocnides* may have a remote relationship to this genus-group because of similarities in the peculiar disposition of elytral apical striole, regularly aggregated humeral set of marginal umbilicate pores on elytra, pubescent protibiae, conformation of male genitalia, and so on, as well as in the mode of life in the case of oculate species (see Notes to *E. fragilis* sp. nov.). On the other hand, it is different from the latter in that the penultimate segment of maxillary palpus is completely glabrous, that the submentum is not fused with the mentum²⁾ and bears only six setae, that the body surface is glabrous except for abdominal sternites, and that the protibiae are externally grooved. There are exceptions to all these similarities and discrepancies, but so far as concerned with oculate species bearing fully developed hind wings, the differences noted above are decisive.

CASALE and LANEYRIE (1982, pp. 23–24) placed in the *Trechus* group such isolated genera with pubescent protibiae as *Altaiotrechus* IABLOKOFF-KHNZORIAN (1971, p. 155), *Antoinella* JEANNEL (1937, p. 83) and *Iberotrechus* JEANNEL (1920, p. 154; 1927, pp. 14, 104), an arrangement that had been first proposed in part by JEANNEL (1937, *loc. cit.*). Their opinion seems sound to me, and on this premise *Eocnides* could also be regarded as an isolated member of the same genus-group. If so, however, *Eocnides*

2) JEANNEL (1954, p. 11) described that “chez *Eocnides* le labium est soudé,” and this was regarded by CASALE and LANEYRIE (1982, p. 9) as a diagnostic feature of the genus. Actually, however, a complete labial suture is present in *Eocnides*.

is unique in the striation and chaetotaxy of the apical part of elytra, and cannot be associated with any of the genera hitherto known in the *Trechus* group.

For the time being, I prefer to place *Eocnides* in its own group, which represents an archaic type of the Trechina and has relationship to both the *Trechoblemus* group and the *Trechus* group.

Key to the Species

- 1 (2) Colour of body brown; prothorax smaller, PW/HW less than 1.20, EW/PW more than 1.55; eyes smaller, genae longer and more oblique; antennae longer; Sichuan *E. fragilis* S. UÉNO, sp. nov.
- 2 (1) Colour of body black; prothorax larger, PW/HW more than 1.20, EW/PW less than 1.55; eyes larger, genae shorter and less oblique; antennae shorter; Assam *E. assamensis* JEANNEL.

Eocnides fragilis S. UÉNO, sp. nov.

(Figs. 1-3)

Length: 4.60–5.10 mm (from apical margin of clypeus to apices of elytra).

Body elongate, with small prothorax and large elytra; integument thin, with unusually soft elytra. Colour brown, shiny, faintly iridescent on elytra; head black except for clypeus, buccal appendages and sometimes dorsum of neck which are brown; pronotal disc dark brown; palpi, antennae, epipleura, legs, and sometimes venter of hind body pale yellowish brown.

Head wider than long, depressed above, with protruding eyes and narrow neck; frontal furrows deeply impressed, especially before the post-eye level; frons and supra-orbital areas gently convex; microsculpture distinct, mostly consisting of transverse meshes; eyes not large but prominent, rather variable in size; genae oblique, two-fifths to a half as long as eyes, almost straightly convergent towards neck constriction, though slightly and very briefly convex just before reaching it; antennae long and thin, reaching apical three-eighths of elytra, segment 2 about two-thirds as long as each of segments 3–7, which is subcylindrical and about 4.5 times as long as wide, segments 8–10 subequal in length to one another and slightly shorter than segment 7, terminal segment slightly longer than segment 3, obviously longer than scape but only three-fifths as wide as the latter.

Pronotum small, transverse, widest at about five-sevenths from base, and much more gradually narrowed towards base than towards apex; PW/HW 1.08–1.18 (M 1.13), PW/PL 1.32–1.42 (M 1.37), PW/PA 1.48–1.54 (M 1.51), PW/PB 1.28–1.33 (M 1.30); surface moderately convex at the antero-lateral parts but widely depressed on the disc, usually with an indistinct round depression on each side slightly behind the level of the widest part; microsculpture formed by fine transverse lines, which are partially irregular or degenerated; sides sharply reflexed throughout, the reflexed

border becoming broader posteriorly, strongly and narrowly rounded in front, very slightly arcuate or nearly straight behind middle, and slightly sinuate at about basal sixth; apex very slightly emarginate, with front angles rounded and hardly produced; base wider than apex, PB/PA 1.16–1.20 (M 1.17), slightly arcuate at middle, and slightly sinuate on each side inside hind angle, which is either rectangular or somewhat obtuse; median line deeply impressed on the disc, not reaching apex; transverse impressions and basal foveae as described under the genus.

Elytra elongate and depressed, widest at about apical two-fifths, and more gradually narrowed towards bases than towards apices; EW/PW 1.56–1.69 (M 1.63), EL/EW 1.57–1.65 (M 1.62); surface flat on the disc, steeply declined along the sides, with gentle apical declivity; microsculpture mostly obliterated, though consisting of fine transverse lines; shoulders square, with prehumeral borders almost perpendicular to the mid-line at the innermost portions; sides straight in front but gently arcuate in apical third, each with a shallow preapical emargination; apices separately rounded, forming a large re-entrant angle at suture; striae shallow and impunctate, becoming shallower and almost obsolete towards the side, 1–3 distinctly impressed though stria 3 is sometimes interrupted between the base and anterior dorsal pore, others more or less obsolete in basal area with the exception of stria 5 which is sometimes traceable to the base; scutellar striole sharply carved; apical striole as described under the genus; stria 3 with two setiferous dorsal pores at about basal 1/5 and about middle or a little behind that level, the anterior one always situated on anastomosis of striae 3 and 4.

Ventral surface and legs as described under the genus.

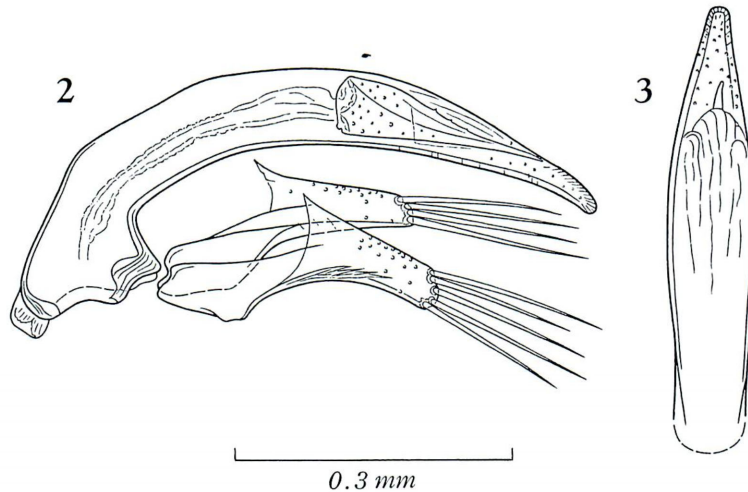
Male genital organ very small though moderately sclerotized. Aedeagus only a little more than one-fifth as long as elytra, very slender, moderately arcuate, and gradually narrowed apicad from behind middle, with small dilated basal part rather abruptly curved ventrad; basal orifice small, with the sides shallowly emarginate; sagittal aileron small though distinct; apical lobe long and narrow, slightly curved ventrad and blunt at the tip in lateral view, gradually narrowed towards subtruncate apex in dorsal view; ventral margin widely arcuate in profile. Copulatory piece large, about three-eighths as long as aedeagus, large and rolled in proximal half, but acuminate and becoming acicular at the apex. Styles large and broad, left style obviously larger than the right, each bearing four long stout setae at the apex; in the holotype, a fifth seta present on the left style.

Type series. Holotype: ♂, allotype: ♀, paratypes: 1 ♂, 2 ♀♀, 25–VII–1988, H. MIYAMA leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Type locality. Xiajijie Hai, ca. 2,600 m alt., at Jiuzhaigou of Nanping Xian in northern Sichuan, central China.

Further specimen examined. 1 ♂, Tu-pa-keo, 7,400 ft. alt., Szechwan (=Sichuan), 3~9–IX–1929, H. STEVENS leg.

Notes. It is worth noting that the elytra are unusually thin and soft in this new



Figs. 2-3. Male genital organ of *Eocnides fragilis* S. UÉNO, sp. nov., from Xiajijie Hai at Jiuzhaigou; left lateral view (2), and apical part of aedeagus, dorso-apical view (3).

species. When the specimens of the type series were brought in by MIYAMA, I thought that all were more or less teneral. However, dissection of male specimens revealed that their genital organs were thoroughly sclerotized. Since sclerotization of male genitalia in trechine beetles is always delayed than that of body surface, possession of hardened genitalia can be regarded as an infallible indication of maturity. This reminds us of *Apoplotrechus* ALLUAUD (1915, p. 286; JEANNEL, 1926, pp. 402, 437) of the Perileptini, whose integument is also thin and soft.

The type locality of this interesting new species, Xiajijie Hai, is a small lake lying in a valley of Jiuzhaigou surrounded by high mountains exceeding 4,000 m in height. It is situated near the Gansu border at the northern end of Sichuan Sheng. According to MIYAMA, all the specimens of the type series were found from under stones lying on a silty water-edge of the lake together with some bembidiines. *Eocnides* itself looked like a bembidiine until it was examined under a magnifying glass.

Eocnides assamensis JEANNEL, 1954

Eocnides assamensis JEANNEL, 1954, Rev. fr. Ent., 21, p. 11, fig. 1; type locality: Naga Hills. — CASALE & LANEYRIE, 1982, Mém. Biospéol., 9, p. 35, fig. 2.

Length: 5.00 mm (from apical margin of clypeus to apices of elytra).

Closely allied to *E. fragilis*, but the integument is more heavily sclerotized, the coloration is much darker, the prothorax is larger and more strongly contracted in front and behind, the eyes are larger, and the antennae are shorter.

Colour black, shiny, faintly iridescent on elytra; neck, lateral reflexed margins of pronotum and elytra, scutellum, apical portion of each elytron, and epipleura more or

less brownish; buccal appendages including mandibles, antennae and legs yellowish brown to light reddish brown.

Head with larger eyes, less oblique genae and a little narrower neck than in *E. fragilis*; eyes large and protruding; genae short, only one-third as long as eyes, hardly convex, and rapidly convergent towards neck constriction; mandibles somewhat stouter though acutely hooked at apices; antennae shorter, probably reaching apical four-ninths of elytra,³⁾ scape a little narrower than in *E. fragilis*, each of middle segments a little more than 4 times as long as wide. Pronotum larger and more strongly contracted at the two ends, especially at apex, than in *E. fragilis*, widest at about two-thirds from base, with the sides more widely rounded in front, feebly arcuate even behind middle, and more deeply sinuate at about basal seventh; PW/HW 1.22, PW/PL 1.42, PW/PA 1.60, PW/PB 1.34, PB/PA 1.19; other features as in *E. fragilis*. Elytra similar to those of *E. fragilis*, but much more heavily sclerotized, widest at about four-ninths from apices, and with more sharply defined striation; EW/PW 1.54, EL/EW 1.61; striae 1–3 sharply impressed throughout,⁴⁾ stria 4 distinct in apical half but obsolete before the level of anterior dorsal pore, 5–7 very slight and only partially perceptible as vestiges; stria 3 with two setiferous dorsal pores at 1/5 and 5/9 from base respectively, the anterior pore being situated on anastomosis of striae 3 and 4.

Male unknown.

Type depository. Laboratoire d'Entomologie, Muséum National d'Histoire Naturelle, Paris.

Specimen examined. 1 ♀ (holotype), Naga Hills, 5,000 ft. alt., Assam, NE India, 9–IV–1924, S. N. CHATTERJEE leg.

Note. Nothing has been known about details of the type locality and habitat of *E. assamensis*. Judging from its habitus, however, this trechine must be hygrophilous, most probably living on water edges of mountain streams like many bembidiines.

要 約

上野俊一：ヒゲナガチビゴミムシの帰属。——ヒゲナガチビゴミムシ属 *Eocnides* は、アッサムのナガ山地で得られた雌の1標本に基づいて設けられたものである。その所属は長いあいだ確定しなかったが、いちおうホソチビゴミムシ族 *Perileptini* のスベホソチビゴミムシ亜族 *Cnidina* に置かれてきた。しかし、見山 博氏によって最近、中国の四川省で採集された第二の種を詳しく検討した結果、この属はチビゴミムシ族 *Trechini* のチビゴミムシ亜族 *Trechina* に含まれることが明らかになった。亜族のなかで類縁関係のとくに近い属群は知られていないが、アトスジチビゴミムシ群や狭義のチビゴミムシ群に似た点があり、比較的、原始的な地位にある孤立した属であろうと考えられる。

この論文では、中国産の種に *Eocnides fragilis* という新名を与えて記載するとともに、属基準種の *E. assamensis* JEANNEL を正基準標本に基づいて再記載し、あわせて属自体の再記載も行った。

3) The segments 6–11 of the left antenna and 9–11 of the right are lost from the holotype, but the remaining segments clearly show that the antennae are shorter in *E. assamensis* than in *E. fragilis*.

4) The third stria is complete to the base, though it was described by JEANNEL (1954, p. 12) as “la 3^e [strie] obsolète en avant du premier pore discal.”

fragilis という新名は、この新種の皮膚が異常に薄く、とくに上翅が軟らかくて一見、未熟な個体のようにみえることに基づくものである。

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