

Taxonomic Study on *Stenus asyura* Naomi and Its Allied Species (Coleoptera: Staphylinidae) from Japan¹⁾

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Abstract *Stenus asyura* Naomi and its allied species are taxonomically studied, and a new species, *Stenus daikoku* from Shizuoka Prefecture, and a new subspecies, *Stenus asyura hakonensis* from Kanagawa Prefecture, are described. A key to the species and subspecies is also provided.

Key words: Coleoptera, Staphylinidae, Steninae, *Stenus*, new species, new subspecies, Japan.

Stenus asyura, belonging to the subgenus *Hypostenus* Rey of the genus *Stenus* Latreille, 1797, was described by Naomi (1988) based on a series of specimens collected from Mt. Yatsu of Yamanashi Prefecture in Honshu. This species is well characterized by the conditions of aedeagus as follows: the apicomedian part of median lobe is tri-cuspidate, its median tooth is longer but narrower than the lateral teeth, each emargination between the median tooth and the lateral tooth is deep and distinct, the apicolateral angles of median lobe are distinct; the apical part of paramere is furnished with 2 groups of setae: a group of seta is generally composed of 1 long seta (and several very minute setae) and is found at the apico-internal side of paramere, while the other group of setae are of 1, 2 or 3 long setae and is located near the base of the apical broadened part of paramere.

Stenus asyura was subsequently collected from various parts of Kanto District and its adjacent regions as is shown later in the specimens examined. During the examination of these additional specimens, a new subspecies of *Stenus asyura* was discovered from Kanagawa Prefecture. A new species, which shows the same conditions concerning the above-mentioned characters of aedeagus but is quite different from *Stenus asyura* for the

other structures of aedeagus, etc., was also discovered from Shizuoka Prefecture. The two new taxa are described here, together with the new distributional records of *Stenus asyura*; a key to species and subspecies, and the illustrations of taxonomically important structures for comparison are attached.

Stenus (Hypostenus) asyura Naomi (Fig. 1A)

Stenus asyura Naomi, 1988, Elytra, Tokyo, 16(2): 75; Herman, 2001, Bull. Amer. Mus. Nat. Hist., 2068; Puthz and Naomi, 2003, Newsl. Staphyl. Soc. Jpn. (20): 7.

Specimens examined. 1 ex., Mt. Jinbagata, Nakagawa-mura, Nagano Pref., 2. v. 1998, T. Shimada leg.; 6 paratypes, Jigokudani, Mt. Yatsu, Yamanashi Pref., 8. vii. 1982, S. Naomi leg.; 4 exs., Kanayama-daira, Sutama-machi, Yamanashi Pref., 13. vi. 1992, T. Kishimoto leg.; 1 ex., Tencho, Shioya-cho, Tochigi Pref., 18. v. 1993, T. Kishimoto leg.; 3 exs., Komine Pass, Hachioji C., Tokyo, 15–16. vii. 1996, T. Kishimoto leg.; 1 ex., Hachioji-jyoseki, Hachioji C., Tokyo, 27. ii. 1998, H. Mizushima leg.; 1 ex., Oyama, Machida C., Tokyo, 19. v. 1991, T. Kishimoto leg.; 1 ex., Mizunozawa, Okutama, Tokyo, 6. v. 1990, T. Kishimoto leg.; 2 exs., Tanitonoda, Yokosuka C., Kanagawa Pref., 15. iv. 1999, I. Kawashima leg.; 1 ex., Tomioka, Kanazawa, Yokohama C., Kanagawa Pref., 27–28. vii. 1992, T. Kishimoto leg.; 1 ex., Nagahama, Kanazawa, Yokohama C., Kana-

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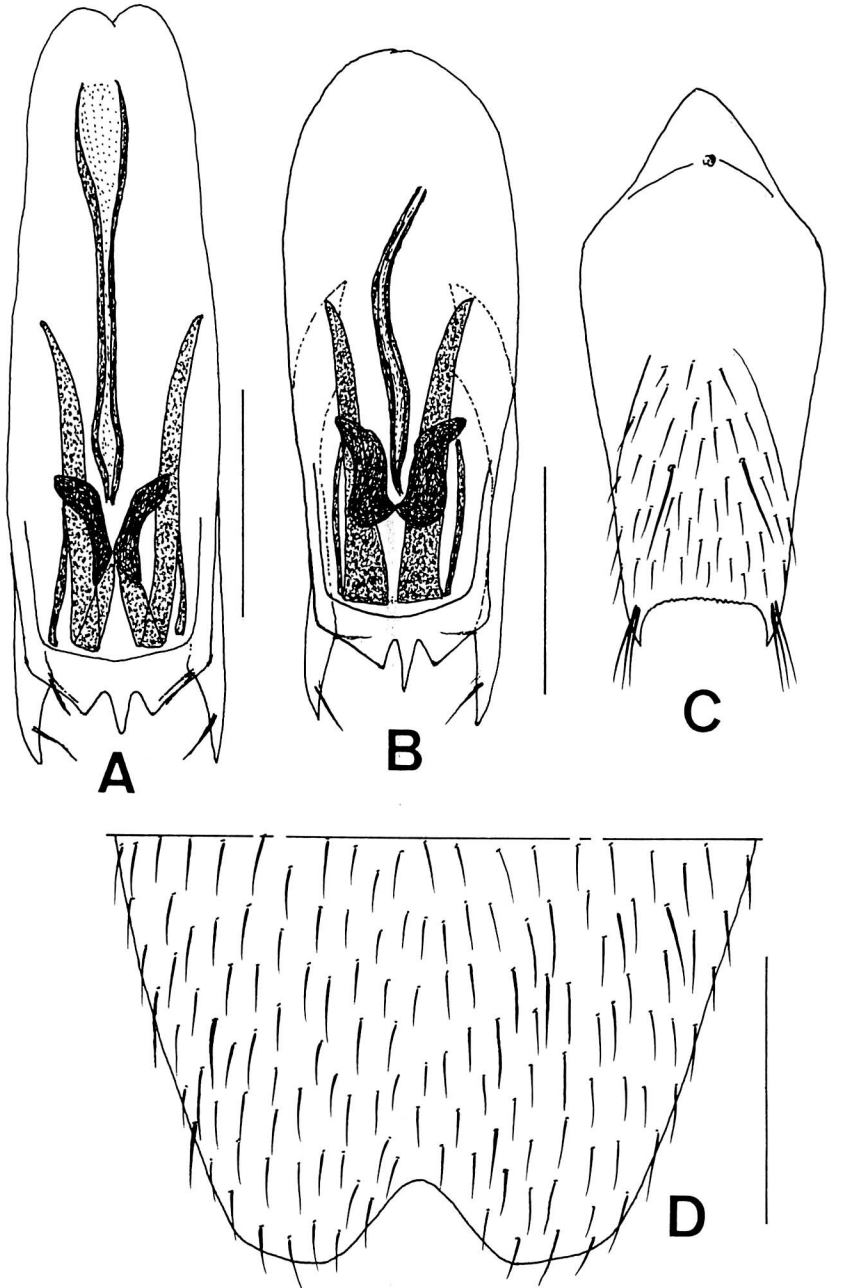


Fig. 1. A, *Stenus asyura* Naomi; B-D, *Stenus asyura hakonensis* subsp. nov. A, B, Aedeagus in ventral view; C, 9th sternite of male; D, 8th sternite of male. Scale: 0.2 mm.

gawa Pref., 27. vii. 1992, T. Kishimoto leg.; 11 exs., Aoba-cho, Chiba C., Chiba Pref., 31. i. 1994, Y. Hagino leg.; 2 exs., same locality, 6. ii. 1994, Y. Hagino leg.; 2 exs., Yoro Valley, Chiba Pref., 1. vi. 1993, S. Naomi leg.

Distribution. Japan: Chubu District (Nagano, Yamanashi) and Kanto District (Tochigi,

Tokyo, Kanagawa, Chiba).

Remarks. The specimens collected from the type locality and from various localities of Chubu and Kanto Districts were examined. No variation in the key characters of this species, except the size of teeth located at the apicomedian part of median lobe, was found.

The size of these teeth is in most cases same or similar as shown in Fig. 1A, but the teeth in some specimens collected from Tokyo and Kanagawa show smaller sizes than that in Fig. 1A.

Stenus (Hypostenus) asyura hakonensis
Naomi, subsp. nov.
(Fig. 1B–D)

Description. Male. Body 2.8–3.0 mm in length; structure and coloration very similar to those of nominotypical subspecies.

Eighth sternite with a deep and V-shaped median emargination on posterior margin (Fig. 1D); 9th sternite (Fig. 1C) with a pair of apicolateral projections which are short and pointed, posterior margin between apicolateral projections almost straight and very minutely serrate; aedeagus (Fig. 1B) with median lobe moderately bulbous at base, weakly narrowed apically, distinctly angulate at apicolateral corners, distinctly tri-cuspidate at apicomedian part; internal sac with median longitudinal bands relatively broad and long, paired lateral longitudinal bands thin, reaching anteriorly near the anterior ends of median hooks; median hooks connected at point, turned outside at anterior ends, each large and stout, widely rounded apically; basal tube relatively thin, weakly curved left at anterior part; parameres extending a little beyond the apex of median lobe, acutely pointed, each provided with 1 long seta at the apico-internal side of paramere and also with 1 long seta near the base of the apical broadened part of paramere.

Female. Eighth sternite almost entire or very feebly pointed at the middle of posterior margin.

Type-series. Holotype, 1 male (Type No., CBM-ZI: 94858), Sengokubara, Hakone, Kanagawa Pref., 25. x. 1985, S. Nomura leg. Paratypes, 4 males and 3 females, same data as holotype (1 female: Type No., CBM-ZI: 94859; 1 male and 1 female are deposited in Dr. Puthz Collection; the other specimens in my collection).

Distribution. Japan (Honshu).

Remarks. This new subspecies is separable from the nominotypical subspecies by the characters mentioned in the key.

Etymology. The subspecific epithet is de-

rived from the name of type locality (Hakone).

Stenus (Hypostenus) daikoku
Naomi, sp. nov.
(Fig. 2A–D)

Description. Male. Body 3.5 mm in length. Head black and shining, with clypeal area reddish brown; labrum reddish brown with anterior marginal area yellowish brown; maxillary palpi pale yellowish brown; antennae pale yellowish brown to reddish brown; pronotum and elytra reddish brown and weakly shining; abdomen entirely dark reddish brown and shining; legs bright yellowish brown to reddish brown.

Relative measurements: HL: 29; HW: 51; PL: 38; PW: 38; EL: 40; EW: 46; SL: 31.

Head (Fig. 2A) transverse, clypeofrontal area declivous anteriorly, punctate and pubescent, basiantennal tubercles small but distinct, interocular area narrowed anteriorly, with a pair of longitudinal depressions distinctly running convergent anteriorly, median part between depressions gently convex, narrowed anteriorly, and elongate-triangular in shape; punctures near inner margins of eyes round, dense and distinct, about as large as and a little denser than those on median part of interocular area, diameter of a large puncture on head about as large as median cross-section of 8th antennal segment; interstices between punctures distinctly microsculptured on median part of interocular area, while indistinctly microsculptured on its lateral parts. Antennae with 3rd segment distinctly narrower than 2nd, 3rd to 7th segments almost equal in breadth, 8th segment elongate, spindle-shaped, 9th segment distinctly broader than 8th, longer than broad, apical segment weakly pointed, with relative lengths of antennal segments from base to apex as: 14: 12: 23: 14: 13: 10: 10: 8: 10: 10: 12.

Pronotum well convex dorsally, broadest near middle, then narrowed anteriorly, and weakly constricted at base; surface weakly uneven, with median longitudinal depression being obscure in outline, not reaching both the anterior and posterior margins of pronotum; punctures round, very dense, distinct but somewhat irregular, diameter of large puncture about as large as median cross-

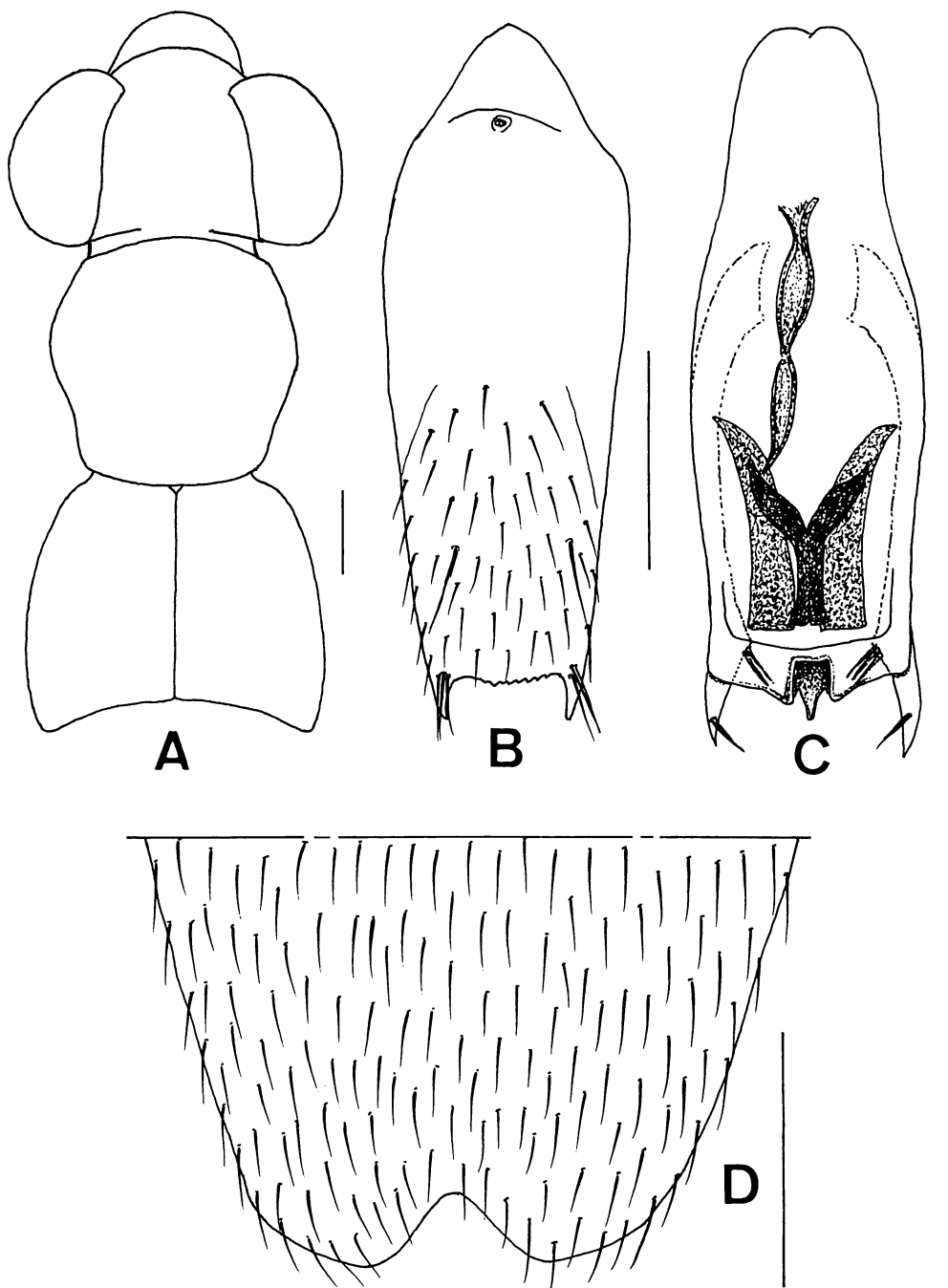


Fig. 2. *Stenus daikoku* sp. nov. A, Head, pronotum and elytra; B, 9th sternite of male; C, aedeagus in ventral view; D, 8th sternite of male. Scale: 0.2 mm.

section of 9th antennal segment; interstices between punctures very narrow, microsculptured and shining.

Elytra narrowed at base, uniformly rounded laterally, conjoint hind margins forming

wide and arcuate emargination; surface almost even, with a pair of shallow depressions at insides of humeral areas; punctures round, very dense, large; interstices between punctures very narrow, distinctly micro-

sculptured and shining.

Legs stout and moderately long; hind tarsi relatively thick, 4th tarsomere distinctly bifurcate, reaching near the middle of 5th tarsomere, with relative lengths of tarsomeres from base to apex as: 22 : 11 : 8 : 12 : 14.

Abdomen very weakly narrowed posteriorly; punctures on 3rd tergite round, distinct, moderate in density, interstices between punctures microsculptured, and shorter than the diameter of a puncture; punctures becoming smaller toward posterior segments; 7th sternite flat and furnished with long pubescence at posteromedian part; 8th sternite (Fig. 2D) with a V-shaped distinct and moderately deep emargination at middle of posterior margin; 9th sternite (Fig. 2B) with a pair of pointed apicolateral projections, posterior margin between the projections minutely and somewhat irregularly serrate. Aedeagus (Fig. 2C) robust especially at apical half; median lobe distinctly angulate at apicolateral corners, apicomedian part of median lobe distinctly tri-cuspidate, but square and deep concavity located above median tooth; median hooks Y-shaped, completely fused at posterior half, and anterior end of each median hook pointed; median longitudinal bands relatively short but broad, divergent outside at anterior parts; basal tube distinctly and characteristically constricted twice on its way; parameres mostly hidden under median lobe when seen ventrally, extending posteriorly beyond apex of median lobe, relatively thick especially at bases and acutely pointed at apices, each provided with 1 long seta at the apico-internal side of paramere and 2 or 3 long setae near base of apical broadened part of paramere.

Female. Unknown.

Type-series. Holotype, male (Type No., CBM-ZI: 94860), Nihondaira, Shimizu C., Shizuoka Pref., 1. v. 1989, Y. Saida leg.

Distribution. Japan (Honshu).

Remarks. *Stenus daikoku* sp. nov. displays a series of peculiar conditions of the key characters that confirm its species status, especially the basal tube and the median hooks of aedeagus. The new species is positively distinguishable from *S. asyura* by the characters enumerated in the key provided below.

Etymology. The specific epithet is derived

from a name of the Japanese god of fortune.

Key to species and subspecies of *Stenus asyura* and its allied species

- 1(4) Body smaller (2.8–3.2 mm); abdomen pale yellowish brown to brown, with apical segments dark brown; apicomedian part of median lobe simply tri-cuspidate, without concavity around teeth; apicolateral part of median lobe distinct but less strongly angulate; median hooks of internal sac usually connected at a point; median longitudinal bands of internal sac longer and narrower; basal tube of internal sac very loosely constricted once on its way.
- 2(3) Aedeagus with median hooks of internal sac each more or less angulate or pointed apically; basal tube of internal sac almost symmetrical.....
.....*Stenus asyura asyura* Naomi
- 3(2) Aedeagus with median hooks of internal sac each widely rounded apically; basal tube of internal sac asymmetrical, weakly curved left at anterior part ...*Stenus asyura hakonensis* sp. nov.
- 4(1) Body larger (3.5 mm); abdomen entirely dark reddish brown; apicomedian part of median lobe tri-cuspidate but square deep concavity present above median tooth; apicolateral part of median lobe distinct and more strongly angulate; median hooks of internal sac completely fused at posterior half so that the whole of median hooks forms Y-shape; median longitudinal bands of internal sac shorter and broader; basal tube of internal sac distinctly constricted twice on its way*Stenus daikoku* sp. nov.

Acknowledgements

I thank Dr. S. Nomura (National Science Museum, Tokyo), Dr. T. Kishimoto (Japan Wildlife Research Center, Tokyo), Mr. Y. Hagino (Natural History Museum and Institute, Chiba) for their kind gift or loan of the *Stenus* specimens used in the present study.

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(Accepted 15 December 2003)

日本産 *Stenus asyura* Naomi (甲虫目, ハネカクシ科) およびその近縁種 についての分類学的研究

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本論文は日本産メダカハネカクシ亜科に関する研究の第35報である。本稿において、メダカハネカクシ属の *Hypostenus* 亜属の *Stenus asyura* Naomi の新産地を記録すると同時に、1新亜種を記載した。さらに、その種に近縁の1新種を記載した。 *Stenus asyura hakonensis* Naomi は神奈川県箱根から発見された新亜種であり、内袋の中央ホックはより幅広く、その後縁部は丸まり、内袋の基部管が前方で左に弱く曲がっているという雄交尾器の形状ばかりでなく、体がより小さい (2.8–3.0 mm) という点で、その基亜種から区別される。 *Stenus daikoku* Naomi は、静岡県清水市から発見された *S. asyura* に近縁の新種である。この新種は、体はより大きく (3.5 mm)、腹部全体が暗赤褐色を呈し、雄交尾器の中央片先端部の中央歯の上に正方形の深い窪みがあり、中央片の先端側部はより強く角張り、内袋の中央ホックは後半部が癒合するため Y 字型を呈し、内袋の中央縦バンドはより短くより幅広く、内袋の基部管は明瞭に2度くびれる点で、後者から容易に区別がつく。