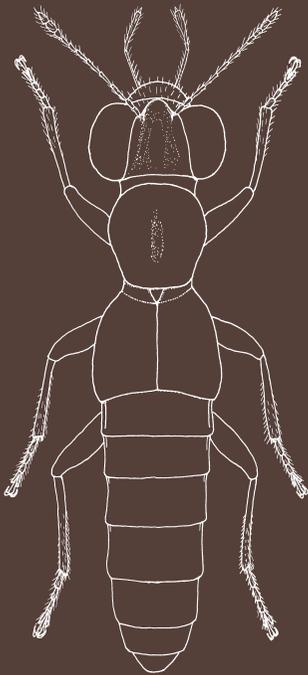


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**THE SUBFAMILY STENINAE MACLEAY, 1825
(COLEOPTERA: STAPHYLINIDAE) OF JAPAN
PART 3. *STENUS SATSUKI*-GROUP AND
S. CEPHALOTES-GROUP**

**Shun-Ichiro Naomi
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The subfamily Steninae Macleay, 1825 (Coleoptera: Staphylinidae) of Japan Part 3. *Stenus satsuki*-group and *S. cephalotes*-group

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Abstract This is the final, 3rd part of a monographic study of the subfamily Steninae Macleay, 1825 (Coleoptera: Staphylinidae) of Japan. It treats taxonomically the Japanese species of the 2 species groups of genus *Stenus* Latreille, 1797 (*satsuki*-group: 21 species; and *cephalotes*-group: 100 species), together with the addition of 8 species to the *asyura*-group (*kasumi*-subgroup). The following 17 *Stenus* species are described from Japan as new to science: *S. kannoi* sp. nov., *S. tsushimamontis* sp. nov., *S. ivanloebli* sp. nov., *S. kyotoensis* sp. nov., *S. sicyoideus* sp. nov., *S. cohaerens* sp. nov., *S. subulifer* sp. nov., *S. glorificus* sp. nov., *S. kochiensis* sp. nov., *S. takashiellus* sp. nov., *S. fulvidus* sp. nov., *S. notomontis* sp. nov., *S. obtusus* sp. nov., *S. yoshidaiellus* sp. nov., *S. tateoitoi* sp. nov., *S. asiensis* sp. nov., *S. sasajiellus* sp. nov. Six new synonyms are as follows: *S. nemoralis* Naomi, 2015 is in synonymy with *S. taoi* Naomi, 1989a; *S. imadatei* Naomi & Puthz, 1996 with *S. kazami* Naomi, 1988a; *S. syugen* Naomi, 1989a with *S. himiko* Naomi, 1989a; *S. olliformis owasenus* Naomi, 2006 with *S. olliformis* Naomi, 2006; *S. ingens ryugataensis* Naomi, 2006 with *S. ingens* Naomi, 2006; *S. ichihashii miunensis* Naomi, 2006 with *S. ichihashii* Naomi, 2006. *S. nakanei awajinis* (Naomi), 1997b is upgraded to a species, *S. awajinis* Naomi, 1997b stat. nov. The lectotype of *S. cephalotes* Sharp, 1889 is designated. *S. trispinosus* Naomi & Nomura, 2015 is transferred from the *asyura*-group to the *satsuki*-group. Keys to all the species of *Stenus* treated here except for *S. bifurcatus* and 8 species of *asyura*-group are given, together with detailed drawings of the taxonomically important structures of all species, and also with habitus photos of the Japanese 67 species and the non-Japanese (Palearctic or Oriental) 5 species. In addition, a probable endophallic copulatory tube gland is discovered from the male of *S. rufescens* Sharp and it is described and drawn (Fig. 82G, H).

Introduction

This is the final, 3rd part of our monographic studies, in which we aim at clarifying the Japanese fauna of the subfamily Steninae Macleay, 1825 of Staphylinidae (Coleoptera). In the 3rd part (Puthz: Contribution No. 375 on Steninae; Naomi: Contribution No. 62 on Steninae), the Japanese species of 2 species groups of *Stenus*, namely, the *satsuki*-group (21 species) and the *cephalotes*-group (100 species: *cephalotes*-subgr. 40 species and *rufescens*-subgr. 60 species) are treated taxonomically, together with the addition of 8 species to the *asyura*-group (*kasumi*-subgroup). The 17 new species (1 new species of *satsuki*-group; 9 new species of *cephalotes*-subgr.;

and 7 new species of *rufescens*-subgr.) are described, and the necessary taxonomic treatments are given, including synonymizations, a new combination and a lectotype designation. *S. trispinosus* Naomi & Nomura, 2015 is transferred from the *asyura*-group to the *satsuki*-group. Keys to all the species except for *S. bifurcatus* and 8 species of *asyura*-group are provided. The taxonomically important structures are drawn in detail for all the *Stenus* species treated in the Part 3, and the habitus photos are also given for the Japanese 67 species and the non-Japanese (Palearctic or Oriental) 5 species. In addition, a probable endophallic copulatory tube gland of *S. rufescens* Sharp (male) is also described and drawn (Fig. 82G, H).

Material of the Steninae treated

The holotypes of all the *Stenus*-species described in the Part 3 are examined by Naomi and/or Puthz. Depositories of the holotype specimens are as follows:

Institutions

AACO: Agriculture and Agrifood Canada, Ottawa
CBM: Natural History Museum and Institute, Chiba
EUMM: Ehime University Museum, Matsuyama
FMC: Field Museum of Natural History, Chicago
KUF: Kyushu University, Fukuoka
KUMF: Kyushu University Museum, Fukuoka
NHML: Natural History Museum, London
NHMG: Natural History Museum, Geneva
NHMV: Natural History Museum, Vienna
NMNST: National Museum of Nature and Science, Tsukuba
NMP: National Museum of Prague — Natural History Museum
OMNHO: Osaka Museum of Natural History, Osaka
SMNHS: State Museum of Natural History, Stuttgart
TUAA: Tokyo University of Agriculture, Atsugi

Private collections

cH: Collection of Yasuhiko Hayashi, Hyogo
cI: Collection of Tateo Ito, Kyoto
cP: Collection of Volker Puthz, Schlitz

When the depositories of specimens (including paratypes) examined are not mentioned in the descriptions of species, they all are deposited in the Kyushu University Museum, Fukuoka (KUMF).

Characters used for the Taxonomy of Steninae

The characters used in the Part 3 are basically the same as in the Part 1 and Part 2. See Naomi *et al.* (2017, p. 5–20 and 2019, p. 2–3) regarding the characters used for the taxonomy of Steninae in the Part 1 and Part 2, respectively. Two more characters are discussed here for more easily understanding the species groups of *Stenus* treated in the Part 3.

Head concavity

In the *satsuki*-group and *cephalotes*-group, the basic structure of head, namely, a pair of more or less longitudinal furrows (or depressions) on the interocular area and the median longitudinal swollen area between the furrows are the same as in the other species groups of *Stenus*. We observed that 3 different forms are found on how the furrows run on the interocular area of head. The running course of furrows are longitudinal-oblique (e.g., *S. kazami*, *S. oblongulus*), longitudinal (e.g., some specimens of *S. testaceopiceus*, *S. asiensis*) and mesially-curved (e.g., *S. intermixtus*, *S. cinanomontis*).

Spermatheca of female

In the 4 species of *satsuki*-group (*S. hime*, Fig. 6I; *S. intermixtus*, Fig. 7C; *S. kannoi*, Fig. 8E; and *S. volkerpuzhi*, Fig. 9F), a peculiar form of spermatheca is developed. Namely, the capsule is spherical or elongate-subovoidal in shape. The spermathecal duct is very short in that it is no more than 2.3 times the diameter of capsule, and it is more or less swollen at its distal portion. The capsule is connected with the spermathecal duct by a more or less thin, very short duct in the *satsuki*-group. The spermatheca of similar form is found also in the *indubius*-group (*S. tanuki*, *S. ohishii*; Naomi *et al.*, 2019). In the *indubius*-group the capsule is connected with the apical (swollen) chamber of spermathecal duct by a thin duct called collum.

When considering the above-mentioned structural similarity of spermatheca observed in the *satsuki*-group and the *indubius*-group, the more or less swollen distal portion of duct in the *satsuki*-group seems to be homologous with the apical chamber of duct in the *indubius*-group, while the connecting duct in the former group is homologous with the collum in the latter group (see also Naomi, 2006, p. 8–11). Furthermore, the basal valve of duct is not formed in the *satsuki*-group, as in the *indubius*-group. The peculiar form of spermatheca found in the 4 species of *satsuki*-group is, thus, considered a peculiar subform of the *indubius*-form of spermatheca.

Descriptions and Drawings

Aiming at the concise descriptions of *Stenus*-species treated in the Part 3, the descriptions and drawings are slightly modified from those in the Part 1 and Part 2, regarding several points which are here taken up and discussed below. See Naomi *et al.* (2017, p. 20–21 and 2019, p. 3–5) regarding the methods of descriptions and drawings in the Part 1 and Part 2, respectively.

First, we take up and discuss the revised methods of making the ‘Keys to species’ and ‘Specimens examined’ in the descriptive parts of Part 3. Second, we discuss the revised methods of describing the punctures on the surface of body and the abdominal modifications of male, because they are slightly different from the methods adopted in the Parts 1 and 2. Third, we add various annotations on several taxonomic characters for more easily understanding the descriptions of *Stenus*-species treated in the Part 3.

1. Methods of descriptions

(1). Revised methods of describing the species of *Stenus*

Keys to species

As far as the *satsuki*-group and the so-called “*frieibi*-complex” (which is placed as *incertae sedis* in the *satsuki*-group) are concerned, a key is made for the species of the group or the com-

plex because each comprises a small number of species.

The *cephalotes*-subgr. and *rufescens*-subgr. of the *cephalotes*-group are large species subgroups. Thus, we are to make a lengthy key to the species of such species subgroup. However, a lengthy key to the large number of species is difficult to make, because the useful characters for adequately making a key to species are highly limited to the internal characters obtained from the aedeagus and endophallic structures in addition to a few other external characters from the abdominal modifications of male, colors of body, etc. owing to the high similarity of external structures of body among the species of each subgroup. Such lengthy keys seem to be thus difficult for users to use for species identification. Therefore, as far as the *cephalotes*-subgr. and *rufescens*-subgr. are concerned, a key is made for each unit of species that is found out from the *cephalotes*-subgr. or *rufescens*-subgr. during the course of our present study. (See introductory part of the *cephalotes*-group, p. 53 regarding the matter with units of species.)

Specimens examined

When the available beetle specimens of a *Stenus*-species treated here are small or moderate in number, they all are enumerated in the 'Specimens examined'. However, when they are large or much larger in number than we need to grasp the distributional range of the *Stenus*-species concerned, some extra-specimens are not enumerated in the 'Specimens examined'. For example, when much larger number of *Stenus*-beetles of a same species are collected from the same locality on the same day, only 3 specimens are enumerated. When the *Stenus*-beetles of a same species are collected many times from the same locality on the different days, only one collecting sample of *Stenus*-beetles is enumerated.

(2). Revised methods of describing the taxonomic characters of *Stenus*

Punctures

There are various ways for describing the punctures on the surface of body in *Stenus*. In the present paper, first, the common shapes and average sizes of punctures on the surface of body of each *Stenus*-species are described. The density of punctures are not described owing to an amount of supposed larger variations than on the shapes and sizes of punctures. The large and the coarse or subrugose punctures, whose conditions are sometimes useful for the species identification of *Stenus*, are very often found on the pronotum and elytra. Second, these conditions of punctures are thus also described in the species where they are found on the pronotum and elytra. An example on the description of punctures is as follows: Body with punctures round to ovoidal or elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures.

Abdominal modifications of male

The abdominal ventrites of male are diversely modified with the flat areas, various size and depth of depressions, elevation of the lateral sides of a depression, various size and shape of emarginations, presence of the dense and/or long setae, and also posteroventral protrusion of whole abdominal ventrite. A depression is commonly found on the posteromedian part of each of 6th and 7th ventrites. All the 3rd to 8th ventrites are sometimes modified with flat areas and various depth of depressions, together with other kinds of modifications (e.g., emarginations). The anteromedian as well as posteromedian depressions are often developed on the 7th ventrite when the depression is well-developed (e.g., very deep and large).

The morphologically modified ventrites (especially 6th to 8th ventrites) of male are drawn in detail for most of the *Stenus*-species treated in the Part 3. Thus, descriptions of the abdominal modifications of male are restricted to the flat area(s) and depression(s) on the posteromedian parts of ventrites on which they are found, and the emargination at the posteromedian part of 8th ventrite. When a flat area or a depression is located on the posteromedian part of a ventrite, it is simply described as ‘flat area’ or ‘depression’ without adding the term ‘posteromedian’. On the other hand, when a conspicuous anteromedian depression is developed, together with a posteromedian depression on the 6th and 7th, or on the 7th ventrite, both of them are when necessary described in terms of ‘anteromedian depression’ and ‘posteromedian depression’. An example on the description of abdominal modifications of male is as follows: Abdomen modified with a flat area on the 5th, a shallow depression on the 6th, a moderately deep anteromedian and a deep posteromedian depression on the 7th, and an arcuate, shallow emargination on the 8th ventrite.

These descriptions seem to be essential because they all are often clues for identifying the *Stenus*-species, especially in cases of the closely allied species where the morphological differences on the aedeagal median lobe and endophallic components are relatively small. Descriptions of other various kinds of abdominal modifications of male are omitted in the Part 3. For knowing how these various modifications (emarginations, setae, etc.) are actually developed on the ventrites of male, together with the posteromedian flat areas and depressions, see a series of figures annexed to the descriptions of *Stenus*-species treated in the Part 3.

(3). Annotations for describing the taxonomic characters of *Stenus*

Color

The color of body parts (head, pronotum, elytra and abdomen) and appendages (labrum, antennae and legs) are described as in the Part 1 and Part 2. However, descriptions of the color of several parts of body and appendages are omitted. The anterior margin of labrum is usually sub-transparent and paler in color, and thus its color is not described. Instead, the color of the basal part of labrum is described as the color of labrum. The apical segments of antennae, the “knees” (namely, distal parts of femora and proximal parts of tibiae) of legs, and the apical segments of abdomen are very often infuscate (or darker in color). Such infuscations as above are usually not important for describing the color of body, nor show remarkable uniqueness for many of the *Stenus*-species treated here. Thus, these infuscations are not described. The color of abdomen gradates from the base (paler) to apex (darker) in some *Stenus*-species. Such gradation of color on the abdomen also is not described except for the cases where it is distinct. The range of colors that show such color gradation is to be adequately described by commonly describing the range of the color of abdomen (e.g., reddish brown to dark brown or almost black).

Ninth tergum of male

The anteroventral extension of the anterior margin of 9th tergum of male in *Stenus* was once called “antecostal apophysis” in the Part 2 (Naomi *et al.*, 2019, p. 4). It is here called *ventral apophysis*, as in the Part 1 (Naomi *et al.*, 2017, p.10), until it is clarified what the anterior margin of 9th tergum with its anteroventral extension is from the morphological point of view.

Spermatheca

In the spermatheca of *Stenus*, the subapical part of duct, on which the transverse stripes densely run, was called “rattlesnake’s tail-like duct” (abbreviated as “RT-duct”) in Naomi (2006a,

p. 52). Here, it is called *striped duct*, because such term reflects the actual condition of duct for more adequately describing the spermatheca in *Stenus*. The most proximal part of spermathecal duct was called “basal sclerotized duct” in Naomi (e.g., 2006, p. 9). It is certainly strongly sclerotized in the most species of *Stenus* examined. However, in some cases it is submembranous (e.g., *S. okiensis*), only moderately sclerotized (e.g., *S. tsurusakii*) or partially sclerotized (e.g., *S. sa-tsuki*, *S. fulvidus*). Thus, it is better to call it *basal duct* in the descriptive studies.

The matter with the drawing and description of spermathecal gland is also here mentioned. The spermathecal gland is drawn as it is and is also described so, when the original shape of a gland can be observed under the microscope. The spermathecal gland sometimes shrinks (e.g., Fig. 88C) after it was boiled in the KOH solution. Thus, it is drawn but not described when the deformed condition of gland only was observed.

Abdominal muscles

In some cases, the running courses of few muscles of postabdomen (e.g., Fig. 3A) and aedeagus (e.g., Figs. 3C, 51F) can be almost completely or partially observed during the course of our study. They are carefully drawn in cases where their drawings will be considered to be useful for understanding the running courses of those muscles, but they are not described in the descriptions of species.

2. Methods of drawings

Adopting in the Part 3 the same methods of drawing the structures as taxonomically important characters as in the Part 1 and Part 2, we add here only a few remarks as to how to use the dotted lines (·····) and the arrows (→) in the drawings.

The dotted line is used for drawing the outline of a lost part of a structure as taxonomic character (Fig. 56B) only when the outline of the lost part in question can be traced by observing the unbroken opposite side of the structure, or by observing the same structure (unbroken) of another specimen examined.

Among the structures as taxonomic characters which we draw for species identification, there are several structures with simple, uniform arrangement of very small dots, very small tubercles, or very thin transverse stripes. They are well-exemplified by the ventromedian bands of endophallus which are uniformly covered with very small, round dots. For saving the times, for example, the dots on the surface of ventromedian band are drawn only for those along the posterior margin of folded ventromedian band. To show that the non-dotted area of ventromedian band in the drawing is equally dotted as in the dotted area, an arrow is depicted on the non-dotted area (Fig. 3A). Here, the depiction of the arrow means that the non-dotted area indicated by the direction of arrow is modified with the same kind of dots as in the dotted area. The same is also true of the use of an arrow in cases of the structures with simple, uniform arrangement of very small tubercles (e.g., Figs. 50A, 54E) or of very thin transverse stripes (e.g., Fig. 118C).

Taxonomy and Descriptions

Subfamily Steninae MacLeay, 1825

Genus *Stenus* Latreille, 1797

Species group of *S. satsuki* Naomi

It was noticed during the course of present study that the 15 *Stenus*-species (listed below) have several similarities to the 2 European species: *S. pallipes* Gravenhorst, 1802 (Fig. 1A) and *S. kolbei* Gerhardt, 1893 (Fig. 1B–H), although the diverse conditions of abdomen can be observed among these Japanese species. Five species have very thin lateroventrites in the 4th to 6th segments (*Hemistenus*-type); 4 species have only tergoventrite sutures there (*Hemistenus*-type); and 6 species have no lateroventrites nor tergoventrite sutures there (*Hypostenus*-type). (See description of *S. nemorosus* regarding the reclassification of *S. trispinosus* from the *asyura*-group to the *satsuki*-group., p. 31)

Three morphological similarities between the 2 European species and some or most of these 15 Japanese species are found, which probably suggest their phylogenetic kinship. First of all, some of the Japanese species is very similar in habitus to the European species. Especially, the habitus of *S. okayamaensis* (Fig. 130D), *S. satsuki* (Fig. 130E), etc. is very similar to that of *S. kolbei* (Fig. 130B). In addition, these species share the similar subcylindrical form of abdomen due to the nearly embedded position of lateroventrites into the abdominal wall. Second, the body of the European and also Japanese species is dark or black in color. Namely, the body is black in the European species (Fig. 130A, B), while it is dark to black in color in all the 15 Japanese (Fig. 130C–L) species. Third, the aedeagal median lobe of the European (e.g., Fig. 1A) and also Japanese (e.g., Fig. 3A) species is moderately broad to broad and even so at the apicolateral corners except for the 2 Japanese species, *S. hotei* (Fig. 2B) and *S. gracilior*. (Fig. 15B).

Furthermore, the peculiar conditions of characters obtained from the aedeagus and endophallus are found in 1 or 2 of the European (abbreviated as 'E') species and also in some Japanese (abbreviated as 'J') species, although the conditions are slightly different from one species to another in each of the characters mentioned below. First, the apical sclerotized area of aedeagal median lobe is narrow, and about 2/5 to 3/5 times as broad as the breadth of median lobe at the apicolateral corners: *S. pallipes* (E)—*S. kajika* and *S. okayamaensis* (J). Second, the small, almost pointed or pointed apicomedian cusp of aedeagal median lobe is developed: *S. kolbei* (E)—*S. nemorosus*, *S. fujimontis* and *S. fujiensis* (J). Third, the basal (thick) and apical (thin) tubes are distinctly recognizable from each other by the different thickness so that the copulatory tube forms a unique shape: *S. kolbei* (E)—*S. taoi*, *S. fujimontis* and *S. gracilior* (J). Fourth, the copulatory tube is more or less bifurcated at the apex: *S. pallipes* (E)—*S. kajika* and *S. kannoi* (J). Fifth, the hump or hump-like protrusion is developed at the mesial side of endophallic expulsion hook: *S. kolbei* (E)—*S. hime* (J). Sixth, the apical area of aedeagal paramere is short to very short: *S. pallipes* and *S. kolbei* (E)—*S. taoi*, *S. nemorosus*, *S. trispinosus*, *S. fujimontis* and *S. fujiensis* (J). The occurrences of these unique apomorphic conditions seem to, though restrictedly found as described above, also add some evidences to show their phylogenetic kinship.

These morphological similarities in total seem to certainly show the phylogenetically closed relationship of the 15 Japanese species to the 2 European species (*S. pallipes* and *S. kolbei*). However, first, no distinct synapomorphies can be observed that are shared by all or almost all these 17 species, and second, these 17 species, when wholly putting together, show a clear dis-

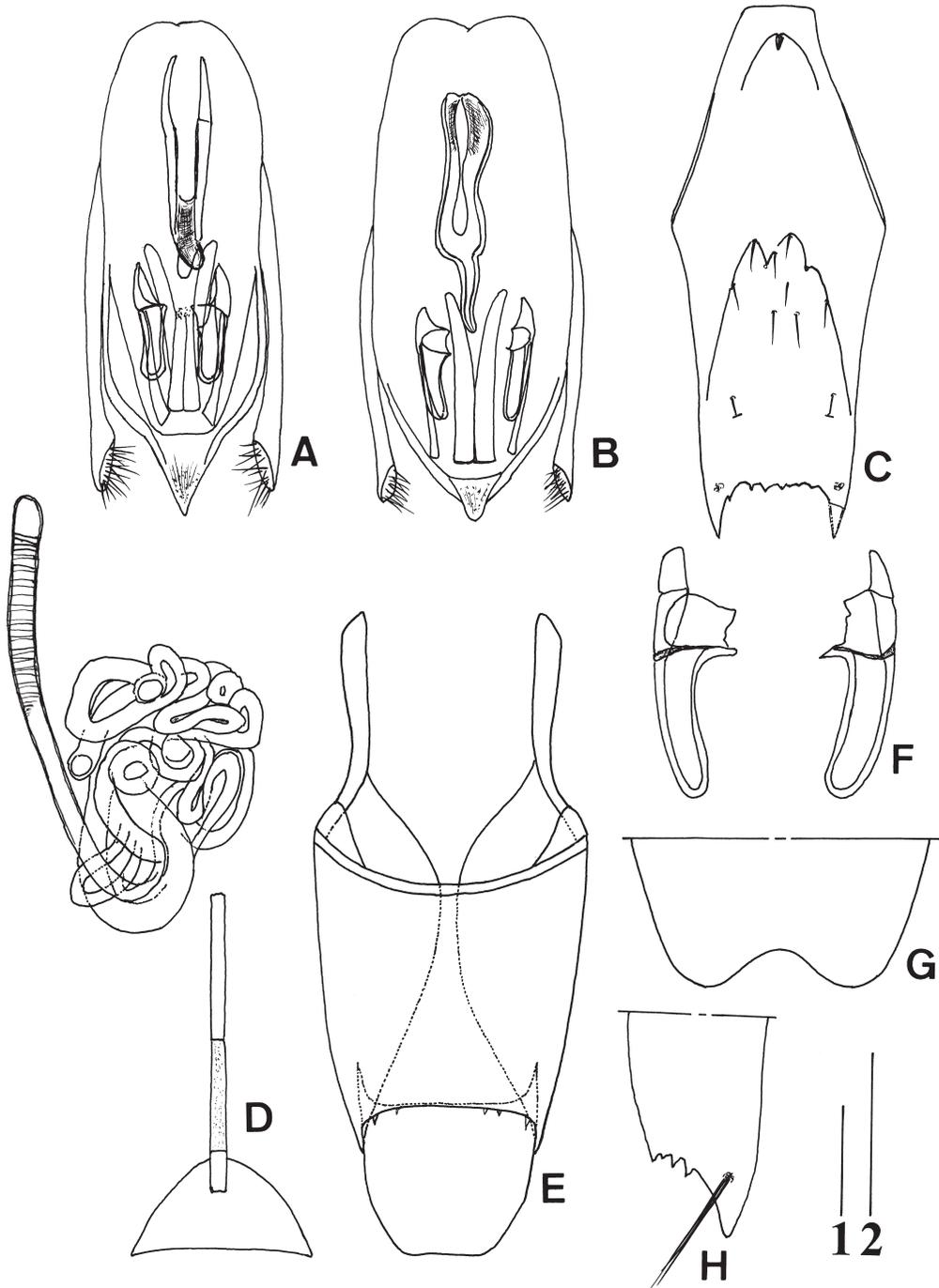


Fig. 1. A, *Stenus pallipes* Gravenhorst & B–H, *S. kolbei* Gerhardt (East Europe). A, B, aedeagus; C, 9th ventrite of male; D, spermatheca; E, 9th and 10th terga of male; F, copulatory tube, G, posterior part of 8th ventrite of male; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A; scale 2: 0.2 mm for B, C, E, G; 0.1 mm for D, F, H.

junct distribution within the Palaearctic Region. Therefore, until their phylogenetic relationship is clarified, we here newly but tentatively classify the 15 Japanese species in the species group of *S. satsuki*, but not in the “*pallipes*-group” which was established by Benick (1925) and restudied by Benick (1938). This is because the “*pallipes*-group” is considered a mixed group, in which a small number of species of several species groups of *Stenus* are included (Benick, 1925, 1938). The *satsuki*-group seems to be allied to the *cephalotes*-group (with the *Hypostenus*-type abdomen), but it is, though only partially, separable from the latter species group by the *Hemistenus*-type abdomen, the particular form of habitus (Fig. 130C–L), etc.

Diagnostic characters of the *satsuki*-group. Male and female: Legs each with 4th tarsomere strongly bilobed; abdomen marginated by thin to very thin lateroventrites or tergoventrite sutures (*Hemistenus*-type), or not marginated (*Hypostenus*-type). Male: Abdominal ventrites slightly to moderately modified with flat areas, shallow depressions, emarginations, etc. (Figs. 3D, E, 10E); 9th ventrite with a pair of more or less pointed apicolateral teeth (Fig. 5B); aedeagal median lobe usually moderately broad to broad and even so at apicolateral corners (Figs. 1B, 5C), sometimes with an almost pointed or pointed apicomedian cusp (Figs. 1B, 14F). Female: Gonocoxites each with a pointed apicolateral tooth (Fig. 5F); spermatheca showing common-form in most species (Figs. 1D, 14A) or *indubius*-form in the 4 Japanese species (Fig. 6I).

S. friebi-complex

The *friebi*-complex was first established in Naomi & Puthz (1996), in which it was briefly characterized as “small reddish species with distinct paratergites”. The species of *friebi*-complex have been several times included in the *cephalotes*-group (Puthz, 2012, 2013; Naomi & Puthz, 2013, etc.) because they are more or less similar in the external and internal structures of body to the species of *cephalotes*-group.

However, it was also noticed during the course of present study that the *friebi*-complex is very similar in several points to the *satsuki*-group newly established above. First, all the species of *friebi*-complex (Fig. 131A–I) are very similar in the general structure of body and habitus to some species of the *satsuki*-group with abdominal ventrites (Fig. 130A–E). Additionally, some species of *friebi*-complex are similar or very similar to some species of *satsuki*-group regarding the shape of aedeagal median lobe and/or some components of its endophallus. For example, *S. silvaticulus* (*friebi*-complex; Fig. 18D) is very similar in the shape of aedeagal median lobe to *S. hotei* (*satsuki*-group; Fig. 2B). Therefore, until the taxonomic problem as to whether the species of *friebi*-complex belong to the *cephalotes*-group or the *satsuki*-group, is firmly settled, the species of *friebi*-complex are tentatively classified in the *satsuki*-group (as *insertae sedis*).

Japanese fauna of the *satsuki*-group

At present, the *satsuki*-group consists of 21 species from Japan, including the 6 species that are here classified in the *incertae sedis*. They are distributed in Honshu (norther Tohoku-District to western Chugoku-District), Shikoku and Nansei Islands, but not in Kyushu. They all are brachypterous species, and each is indigenous to the Japanese Archipelago. Recently, many species are also newly described and thus distributed also from Taiwan (Puthz, 2012, etc.). *S. hagaromo* from Nansei Isls., Japan is closely allied to a Taiwanese species, *S. perspicabilis* Puthz, 2012.

A list of the Japanese species of the *satsuki*-group

- hotei* Naomi, 1998a Distribution: Japan (Shikoku).
kajika Naomi & Puthz, 1994 Distribution: Japan (Honshu).
okayamaensis Naomi, 2021 Distribution: Japan (Honshu).
satsuki Naomi, 1987 Distribution: Japan (Shikoku).
hime Naomi & Puthz, 1994 Distribution: Japan (Honshu).
intermixtus Puthz, 1993 Distribution: Japan (Honshu).
kannoi Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
volkerputhzi Naomi, Nomura & Kamezawa, 2015 Distribution: Japan (Honshu, Shikoku).
uneme Naomi, 1989a Distribution: Japan (Honshu).
taoi Naomi 1989a Distribution: Japan (Honshu).
 =*nemoralis* Naomi syn. nov.
nemorosus Naomi & Y. Watanabe, 2015 Distribution: Japan (Honshu).
trispinosus Naomi & Nomura, 2015¹⁾ Distribution: Japan (Honshu).
fujimontis Puthz, 2001 Distribution: Japan (Honshu).
fujiensis Puthz, 2001 Distribution: Japan (Honshu).
gracilior Naomi, 2015 Distribution: Japan (Honshu).

Note. 1). This species was first classified into the *asyura*-group (Naomi *et al.*, 2019, p. 24).

Incertae sedis (S. friebi-complex)

- etsukoe* Naomi, 1987 Distribution: Japan (Hokkaido).
kazami Naomi, 1988 Distribution: Japan (Honshu).
 =*imadatei* Naomi & Puthz, 1996 syn. nov.
silvaticulus Naomi, 1997 Distribution: Japan (Honshu).
koinobori Hromádka, 1980 Distribution: Japan (Hokkaido).
puthziellus Naomi, 1997 Distribution: Japan (Honshu).
hagoromo Naomi, 1988 Distribution: Japan (Nansei Isls.).

The *satsuki*-group

Key to the Japanese species of the *satsuki*-group

- 1(10) Male and female: Abdomen having lateroventrites in the 4th to 6th segments.
 2(9) Male: Endophallic expulsion hook laterally without a hump in the middle. Female: Spermatheca showing the basic form.
 3(4) Male: Aedeagal median lobe distinctly narrower at apicolateral corners (Fig. 2B)
 *S. hotei* Naomi
 4(3) Male: Aedeagal median lobe distinctly broader at apicolateral corners.
 5(6) Male: Aedeagus with apical sclerotized area well-developed, with median part strongly protruding posteriorly (Fig. 3A); copulatory tube more or less robust, short (Fig. 3A).....
 *S. kajika* Naomi & Puthz
 6(5) Male: Aedeagus with apical sclerotized area hardly or less developed; copulatory tube comprising a thin flagellum.
 7(8) Male: Aedeagal median lobe with apical sclerotized area developed and rounded at apico-

- median part (Fig. 4A); paramere simply pointed at apex (Fig. 4A)
*S. okayamaensis* Naomi
- 8(7) Male: Aedeagal median lobe with apical sclerotized area hardly developed (Fig. 5C);
 paramere subulate at apex (Fig. 5C)*S. satsuki* Naomi
- 9(2) Male: Endophallic expulsion hook laterally with a hump in the middle (Fig. 6F). Female:
 Spermatheca showing the *indubius*-form (Fig. 6I) *S. hime* Naomi & Putnz
- 10(1) Male and female: Abdomen lacking lateroventrites in the 4th to 6th segments.
- 11(18) Male and female: Abdomen having tergoventrite sutures in the 4th to 6th segments.
- 12(17) Male: Aedeagal median lobe broadest at apicolateral corners and obtuse at apex; endo-
 phallic expulsion hooks well-developed.
- 13(16) Male: Paramere without setae at the most apical part. Female: Spermatheca showing the
indubius-form.
- 14(15) Male: Aedeagal median lobe with apical sclerotized area very shallowly emarginate at
 posterolateral margin (Fig. 7A); copulatory tube with ventrally- turned process thicker
 and moderately curved (Fig. 7E)*S. intermixtus* Puthz
- 15(14) Male: Aedeagal median lobe with apical sclerotized area very weakly rounded at postero-
 lateral margin (Fig. 8G); copulatory tube with ventrally-turned process thinner and
 strongly curved (Fig. 8D).....*S. kannoi* Naomi, Nomura & Puthz sp. nov.
- 16(13) Male: Paramere with setae only at the most apical part (Fig. 10C). Female: Spermatheca
 showing the basic form (Fig. 10A, B)*S. uneme* Naomi
- 17(12) Male: Aedeagal median lobe broadest before the middle and well-rounded apically apex
 (Fig. 9A); endophallic expulsion hooks atrophied (Fig. 9G).....
 *S. volkerputhzi* Naomi, Nomura & Kamezawa
- 18(11) Male and female: Abdomen lacking tergoventrite sutures in the 4th to 6th segments.
- 19(28) Male: Aedeagal median lobe broader, and narrowly rounded or obtusely angulate at api-
 colateral corners; paramere with apical area much shorter than the breadth of median lobe
 at apicolateral corners.
- 20(21) Male: Aedeagal median lobe tricuspidate at the apicomedian part (Naomi *et al.*, 2019,
 Part 2, p. 25, Fig. 7D).....*S. trispinosus* Naomi
- 21(20) Male: Aedeagal median lobe obtusely pointed at apex or pointed with an apicomedian
 cusp.
- 22(23) Male: Aedeagal median lobe obtusely pointed at apex (Fig. 11H).....*S. taoi* Naomi
- 23(22) Male: Aedeagal median lobe pointed with apicomedian cusp.
- 24(27) Male: Aedeagal median lobe with apical sclerotized area hardly developed; endophallic
 expulsion hook with anterior plate partially fused with posterior plate.
- 25(26) Male: Copulatory tube with basal tube demarcated by a weak constriction from apical
 tube (Fig. 12C); endophallic expulsion hook a little broader, with anterior plate minutely
 hooked at anterior tip (Fig. 12G)*S. nemorosus* Naomi & Y. Watanabe
- 26(25) Male: Copulatory tube with basal tube distinctly demarcated by the thickness from apical
 tube (Fig. 13D); endophallic expulsion hook a little narrower, with anterior plate almost
 rounded at anterior tip (Fig. 13F).....*S. fujimontis* Puthz
- 27(24) Male: Aedeagal median lobe with apical sclerotized area developed and broad- subtrian-
 gular (Fig. 14F); endophallic expulsion hook with anterior plate demarcated by a suture
 from posterior plate (Fig. 14E)*S. fujiensis* Puthz
- 28(19) Male: Aedeagal median lobe narrower, and widely, moderately rounded at apicolateral
 corner (Fig. 15B); paramere with apical area a little longer than the breadth of median

lobe at apicolateral corners (Fig. 15B).....*S. gracilior* Naomi

***Stenus hotei* Naomi**
(Fig. 2A–F)

Stenus hotei Naomi, 1998a: 391; Herman, 2001: 2217; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Mt. Ikenoko, Kitô-son, Naka, Tokushima Pref., 18. viii. 1980, M. Yoshida leg.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male: Body 3.7 mm (fore body 1.9 mm) in length. Body moderately shining; head, elytra and abdomen black; pronotum dark red near black; labrum dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal or elliptical, and also pronotum and elytra partially with coarse to subrugose punctures. Head moderately concave, with a pair of mesially-curved furrows; antennae moderately long, thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; abdomen subcylindrical, slightly thick, subparallel-sided; lateroventrites each very thin, finely punctate, tergoventrite sutures distinct.

Abdomen (Fig. 2D) modified with an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 2A) with ventral apophyses moderately long, thin; 9th ventrite (Fig. 2C) with macrosetae long, apicolateral teeth small, acute, apicolateral setae moderately long; 10th tergum (Fig. 2A) entire. Aedeagus (Fig. 2B) with median lobe moderately elongate, gradually narrowing in the apical 1/2 toward the rounded apex with a triangular transparent plate at the apicomedian part; apical sclerotized area short. Endophallus (Fig. 2B) with copulatory tube having main tube flagellar, moderately long; dorsolateral bands thin; expulsion hooks (Fig. 2E) developed, moderately large, almost X-shaped, fused behind the middle; ventromedian bands moderately long, moderately broad. Parameres (Fig. 2B) long, each slightly sinuous, very acutely pointed at apex; apical area very long, mesially with 8 to 9 setae along dorsal and ventral margins.

Female: Unknown.

Biology and ecology. *S. hotei* is a rare species. The beetle of this species inhabits leaf litter in the natural forest of a mountainous region.

Remarks. *S. hotei* is characterized in having such primitive conditions widely found in the *Stenus* species as the abdomen margined with thin lateroventrites, the aedeagus simply narrowing apicad, and the endophallus having the developed expulsion hooks (Fig. 2E), suggesting that this species is probably most primitive in the Japanese species of *satsuki*-group. At present, no species seems to be closely related to *S. hotei*, which makes this species distinct among the species of this group. It is thus easily separable from the other species of this species group by the aedeagus simply narrowing apicad (Fig. 2B) and the endophallic expulsion hooks developed (Fig. 2E).

Etymology. The specific epithet of this species is derived from the name of one of the Seven Gods of Good Fortune, Hotei.

***Stenus kajika* Naomi & Puthz**
(Figs. 3A–E, 130C)

Stenus kajika Naomi & Puthz, 1994: 261; Herman, 2001: 2243; Naomi & Puthz, 2013: 144.

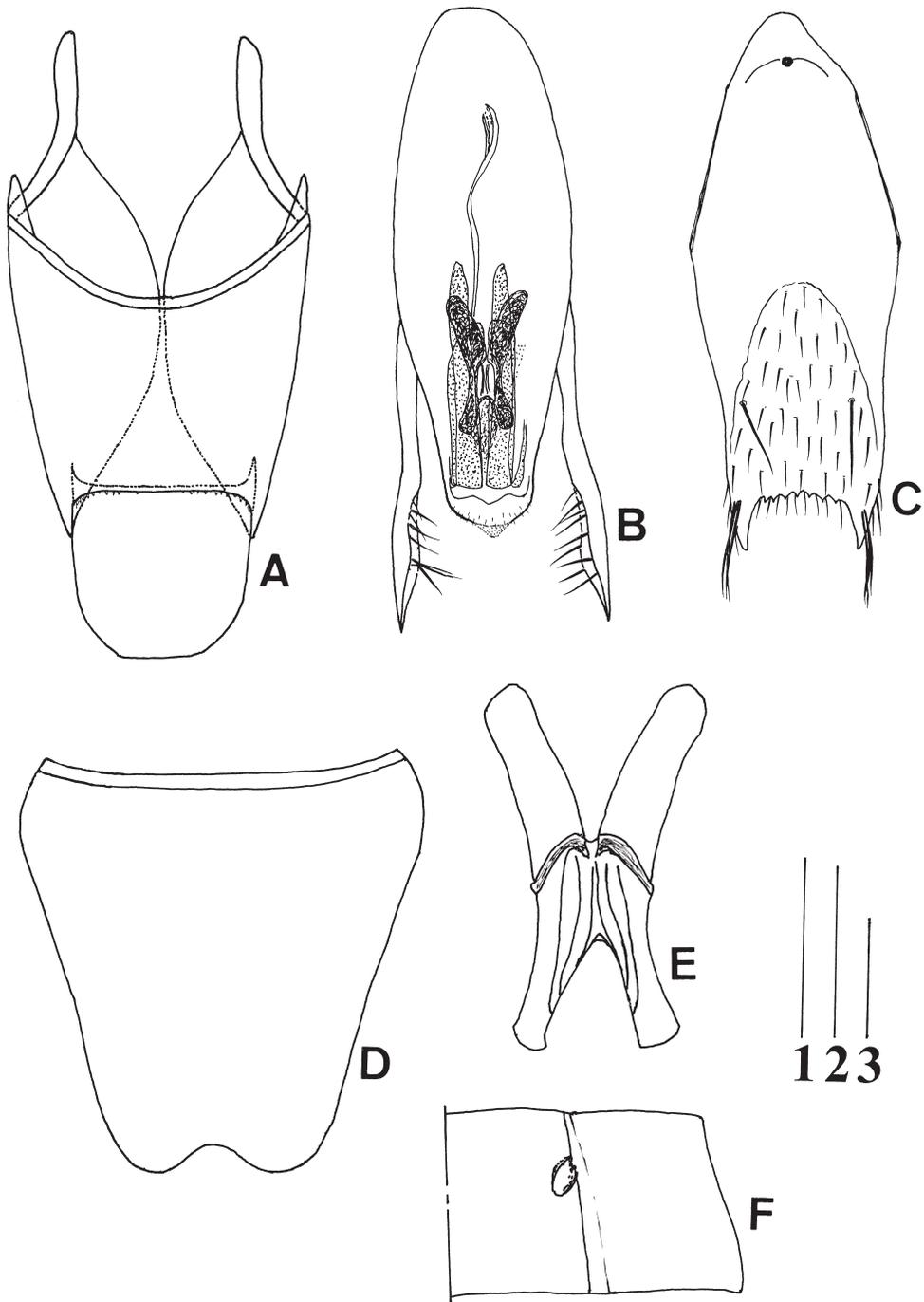


Fig. 2. *Stenus hotei* Naomi (Tokushima: Mt. Ikenoko). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, 8th ventrite of male; E, endophallic expulsion hooks; F, 5th abdominal segment (right dorsolateral view). Scale 1: 0.2 mm for A–C; scale 2: 0.2 mm for D, F; scale 3: 0.05 mm for E.

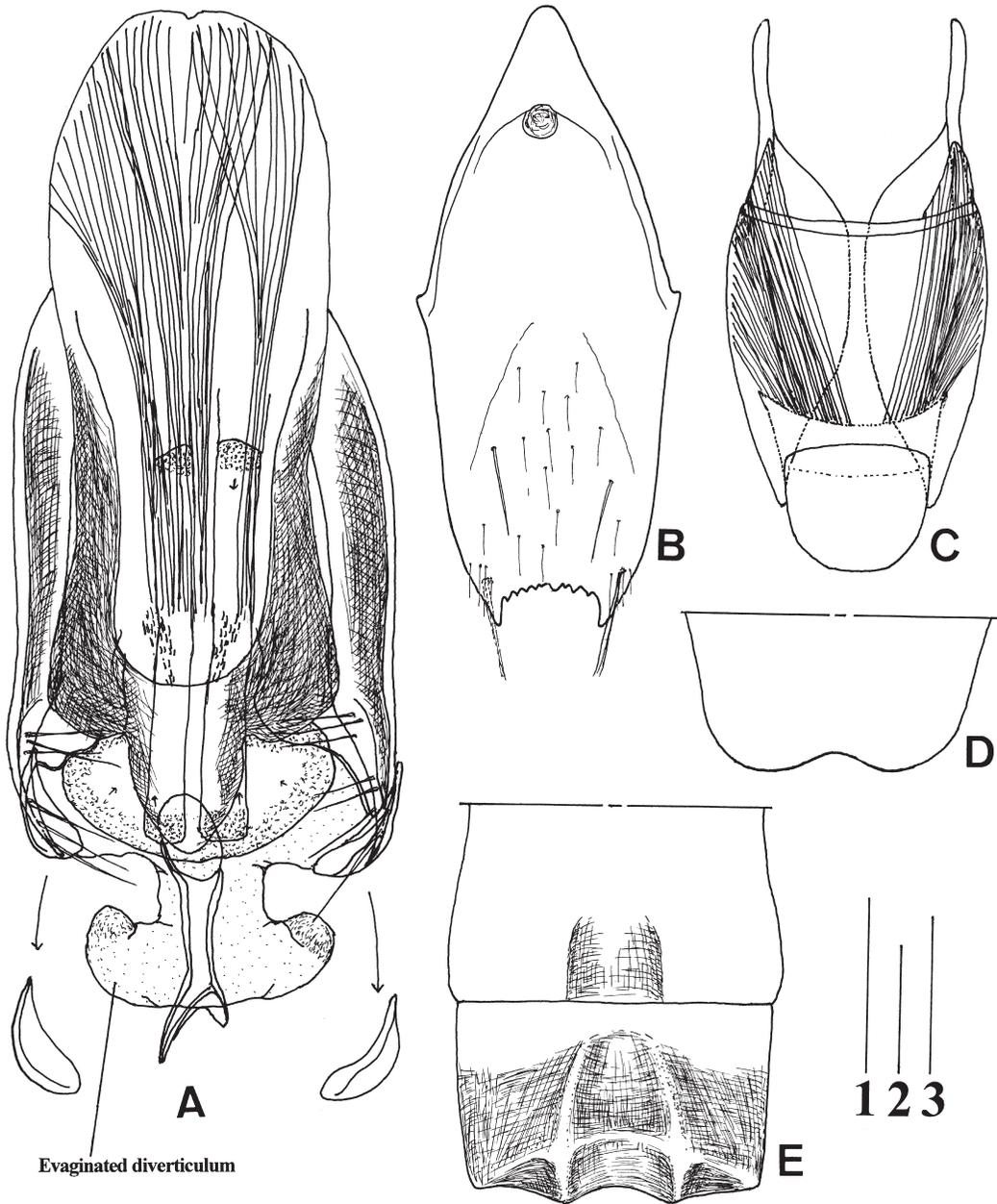


Fig. 3. *Stenus kajika* Naomi (Nara: Ohdaigahara). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, posterior part of 8th ventrite of male; E, 6th and 7th ventrites of male. Scale 1: 0.1 mm for A, 0.2 mm for C, D; scale 2: 0.1 mm for B; scale 3: 0.25 mm for E.

Type material examined. Holotype: ♂ (cP), Ohdaigahara (1,600 m), Nara Pref., 23. ix. 1973, K. Sawada leg.

Distribution. Japan: Honshu (Nara Pref.).

Redescription. Male: Body 3.1 mm (fore body 1.4 mm) in length. Body weakly shining and almost black to black; labrum dark red; antennae and legs yellowish brown to reddish brown.

Body with punctures small to moderately large, round to elliptical, and also pronotum and elytra partially with coarse to subrugose punctures. Head shallowly concave, with a pair of broad depressions; antennae moderately long, thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven; abdomen subcylindrical, thin, subparallel-sided; lateroventrites each very thin, with a line of fine punctures, tergoventrite sutures distinct.

Abdomen (Fig. 3E) modified with a shallow depression on the 6th, the 4-partitioned depressions of various size on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 3C) with ventral apophyses long; 9th ventrite (Fig. 3B) with macrosetae moderately long, apicolateral teeth small, acute, apicolateral setae moderately long; 10th tergum (Fig. 3C) almost rounded posteriorly. Aedeagus (Fig. 3A) well-sclerotized, with median lobe broad, well-rounded at apicolateral corners; apical sclerotized area with its median part protruding posteriorly, about 1/3 times as broad as the apicolateral part of median lobe, obtusely rounded apically. Endophallus (Fig. 3A) with copulatory tube short, bifurcate apically, with right process longer and thinner than left one; dorsolateral bands very thin; expulsion hooks broadly separated, almost crescent-shaped; diverticulum when evaginated, strongly constricted medially so that its anterior and posterior diverticula are distinctly recognizable; ventromedian bands long, moderately broad. Parameres (Fig. 3A) very thick, each fulcate at apex; apical area long, mesially with 3 long setae at base and 3 long setae at apex.

Female: Unknown.

Biology and ecology. *S. kajika* is a rare species. The beetle of this species inhabits leaf litter in the natural forest of a mountainous region.

Remarks. Among the Japanese species of *satsuki*-group, it seems that there is no closely allied species to *S. kajika*. This species is thus easily separable from the other species of this group by the aedeagal median lobe having the apical sclerotized area with its median part obtusely rounded apically (Fig. 3A). *S. kajika* may be related to the European species *S. pallipes* and *S. kolbei*, but it is separable from by the latter 2 species by the aedeagal median lobe having the apical sclerotized area with its median part obtusely rounded apically (Fig. 3A) and the copulatory tube bifurcated into 2 processes of different length at the apex (Fig. 3A).

Etymology. The specific epithet of this species is derived from the Japanese term which means a river flog, kajika.

Stenus okayamaensis Naomi

(Figs. 4A–E, 130D)

Stenus okayamaensis Naomi, 2021: 67.

Type material examined. Holotype: ♂ (KUMF), Mt. Gion, Takahashi City, Okayama Pref., 27. iii. 2005, Y. Fujiya leg. Paratype: 1 ♂, Uzando, Niimi City, Okayama Pref., 7. ix. 2009, O. Yamaji leg.

Distribution. Japan: Honshu (Okayama Pref.).

Redescription. Male: Body 3.9–4.1 mm (fore body 1.5–1.6 mm) in length. Body weakly shining and black; labrum almost black; antennae dark red to reddish brown; legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and elytra also partially with subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique to mesially-curved furrows; antennae short to moderately long, thin; pronotum with surface

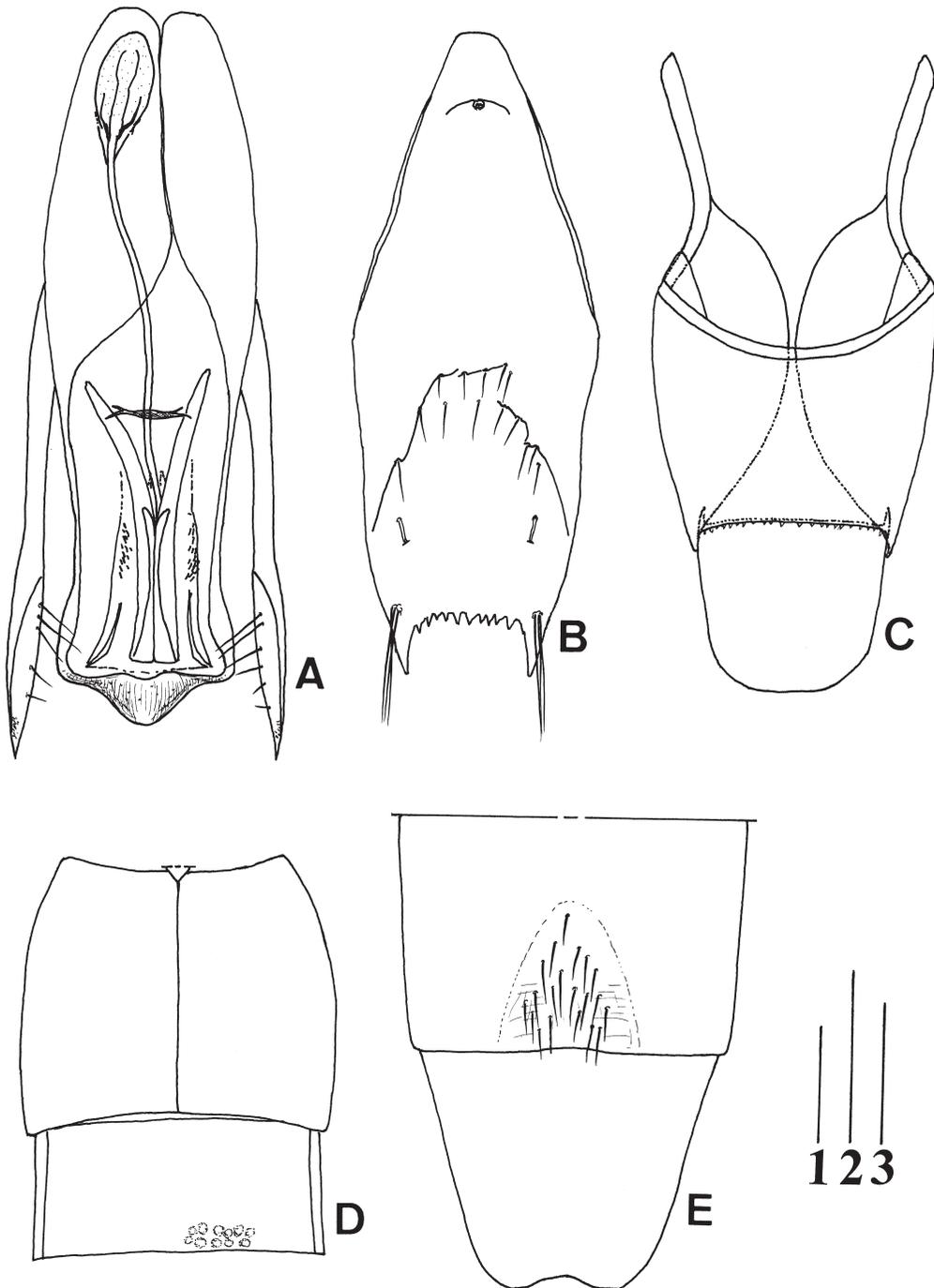


Fig. 4. *Stenus okayamaensis* Naomi (Okayama: A, C–E, Takahashi, B, Niimi). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, elytra and 3rd tergum; E, 7th and 8th ventrites of male. Scale 1: 0.1 mm for A, B; scale 2: 0.2 mm for C; scale 3: 0.3 mm for D, 0.2 mm for E.

uneven, with a median longitudinal furrow indistinct; elytra (Fig. 4D) with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites each very thin, finely punctate, tergoventrite sutures distinct.

Abdomen (Fig. 4E) modified with a flat area on the 7th, and a shallow emargination on the 8th ventrite; 9th tergum (Fig. 4C) with ventral apophyses very long, thin; 9th ventrite (Fig. 4B) with macrosetae, apicolateral teeth moderately long, very acute, apicolateral setae long; 10th tergum (Fig. 4C) entire. Aedeagus (Fig. 4A) with median lobe moderately elongate, expanded laterally at apicolateral parts; apical sclerotized area short, rounded apically, weakly declivous toward dorsal side when seen ventrally. Endophallus (Fig. 4A) with copulatory tube having basal chamber large, ovoidal, main tube flagellar, very long; dorsolateral bands short, very thin; expulsion hooks lost; ventromedian bands long, relatively thin, curved. Parameres (Fig. 4A) each almost straight, acutely pointed at apex; apical area very long, mesially with 3 long and 2 or 3 short setae.

Female: Unknown.

Biology and ecology. *S. okayamaensis* is a rare species. The beetles of this species inhabit leaf litter in the natural forests of mountainous regions.

Remarks. *S. okayamaensis* is a sister species of *S. satsuki*, and it is distinctly separable from the latter species by the aedeagal median lobe with its apical sclerotized area slightly developed and rounded apicomediaally (Fig. 4A), the flagellar copulatory tube longer (Fig. 4A), and the paramere simply acutely pointed at the apex, with its apical area with 3 long setae at the base (Fig. 4A).

***Stenus satsuki* Naomi**
(Figs. 5A–F, 130E)

Stenus satsuki Naomi, 1987: 1; Herman, 2001: 2378; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Mt. Ishizuchi, Ehime Pref., 16. vi. 1981, S. Naomi leg. Paratype: 1 ♂, same data as holotype.

Other material examined. [SHIKOKU]: 1 ♀, Nanokawagoe, Saijyo City, Ehime Pref., 17. vi. 2005, T. Kitano leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.5–1.6 mm) in length. Body weakly shining and black; labrum dark reddish brown; antennae reddish brown to dark brown; legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head shallowly concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites each very thin, finely punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 5E) modified with a shallow depression on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 5A) with ventral apophyses very long; 9th ventrite (Fig. 5B) with macrosetae moderately long, apicolateral teeth moderately long, acute, apicolateral setae moderately long; 10th tergum (Fig. 5A) entire. Aedeagus (Fig. 5C) with median lobe moderately elongate, almost truncate apically, weakly expanded laterally and angu-

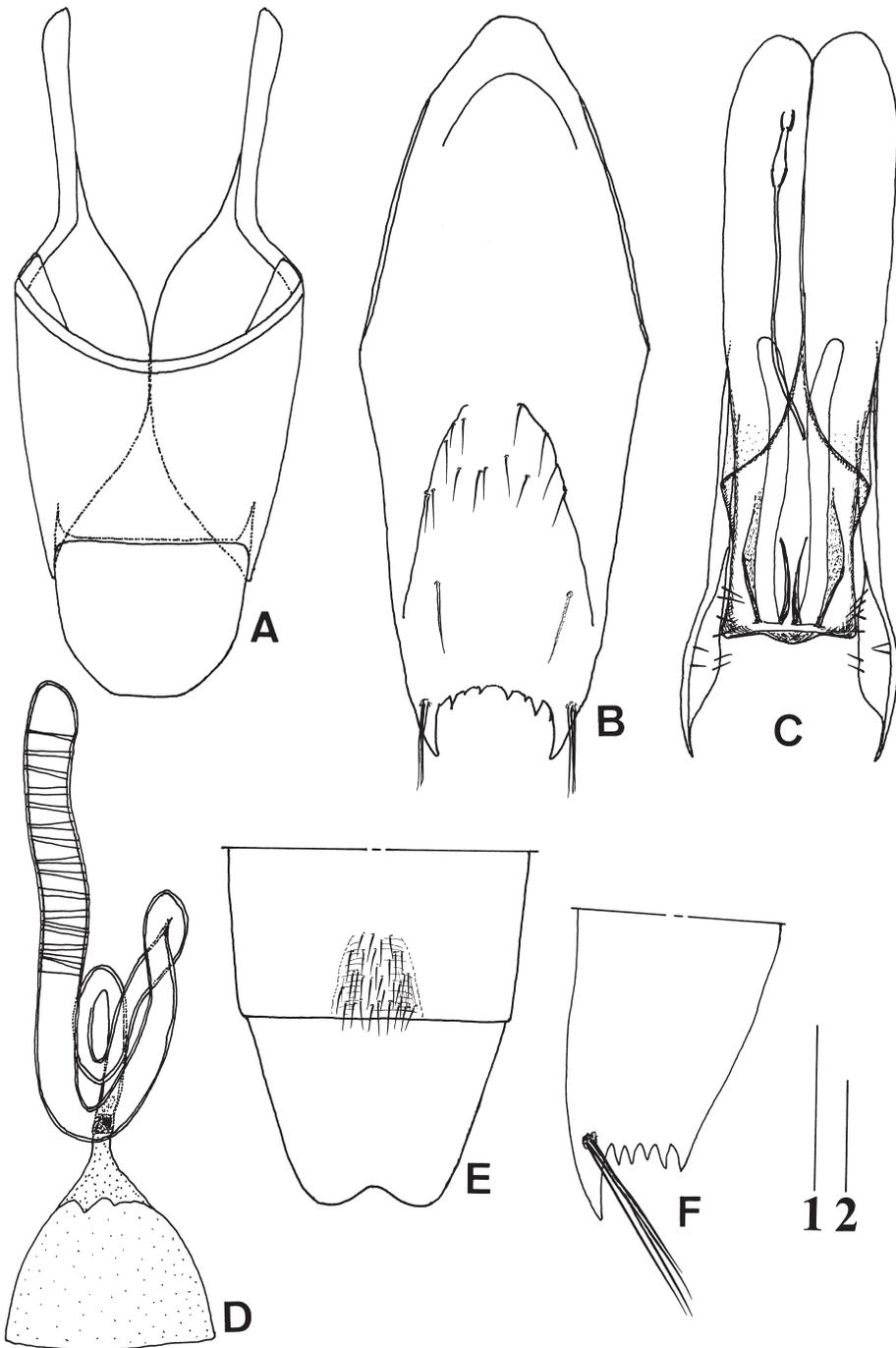


Fig. 5. *Stenus satsuki* Naomi (Ehime: A–C, E, Mt. Ishizuchi, D, F, Saijyo). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, 7th ventrite and 8th ventrite of male; F, posterior part of gonocoxite. Scale 1: 0.2 mm for A, C, 0.1 mm for F; scale 2: 0.05 mm for D; scale 3: 0.1 mm for B, 0.2 mm for E.

late at apicolateral parts; apical sclerotized area (Fig. 5C) almost lost or very weakly swollen apicomediaally. Endophallus (Fig. 5C) with copulatory tube having main tube flagellar, long; dorso-lateral bands short, very thin; expulsion hooks lost; ventromedian bands long, relatively thin. Parameres (Fig. 5C) each subulate at apex; apical area very long, large, mesially with 6 to 7 short setae along dorsal margin of basal 2/3 and 2 short setae along the middle of ventral margin.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 5F) each with apicolateral tooth very acute, apicolateral setae very long. Spermatheca (Fig. 5D) with capsule rounded apically; striped duct moderately long and broad; duct moderately long, thin, coiled with 4 turns; basal valve very short; basal pouch bowl-shaped, submembranous.

Biology and ecology. *S. satsuki* is a rare species. The beetles of this species inhabit leaf litter in the natural forests of mountainous regions.

Remarks. *S. satsuki* is a sister species of *S. okayamaensis*, and it is distinctly separable from the latter species by the aedeagal median lobe with its apical sclerotized area almost lost, i.e., truncate apically (Fig. 5C), the flagellar copulatory tube shorter (Fig. 5C), and the paramere with its apical area falcate and basally with 4 short setae (Fig. 5C).

Etymology. The specific epithet of this species is derived from the Japanese name of a group of *Rhododendron* trees, satsuki.

***Stenus hime* Naomi & Puthz**
(Fig. 6A–I)

Stenus hime Naomi & Puthz, 1994: 259; Herman, 2001: 2214; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (cP), Mt. Ibuki, Shiga Pref., 1. xi. 1973, K. Sawada leg. Paratype: 1 ♀ (cP), same data as holotype.

Distribution. Japan: Honshu (Shiga Pref.).

Redescription: Male and female: Body 2.6–3.2 mm (fore body 1.3–1.5 mm) in length. Body weakly shining; head and abdomen black; pronotum and elytra dark red near black; labrum reddish brown to black; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae very short, thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites thin, sparsely punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 6E) modified with a very shallow depression on the 6th, a narrower, shallow depression on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 6B) with ventral apophyses very long; 9th ventrite (Fig. 6C) with apicolateral teeth short, very acute, apicolateral setae short; 10th tergum (Fig. 6B) shallowly emarginate posteromedially. Aedeagus (Fig. 6A) with median lobe broadest at apicolateral corners, angulate at apex; apical sclerotized area developed only at apicomedian part, by a narrow, apical rim. Endophallus (Fig. 6A) with copulatory tube (Fig. 6G) having basal chamber small, main tube stick-like, strongly bend then turning antieriad at apical portion; expulsion hooks (Fig. 6F) each shoe-shaped, laterally with a hump in the middle; dorsolateral bands very thin; ventromedian bands long, broad. Parameres (Fig. 6A) each thick at base, acutely pointed at apex; apical area very long, mesially with 9 to 10 short setae.

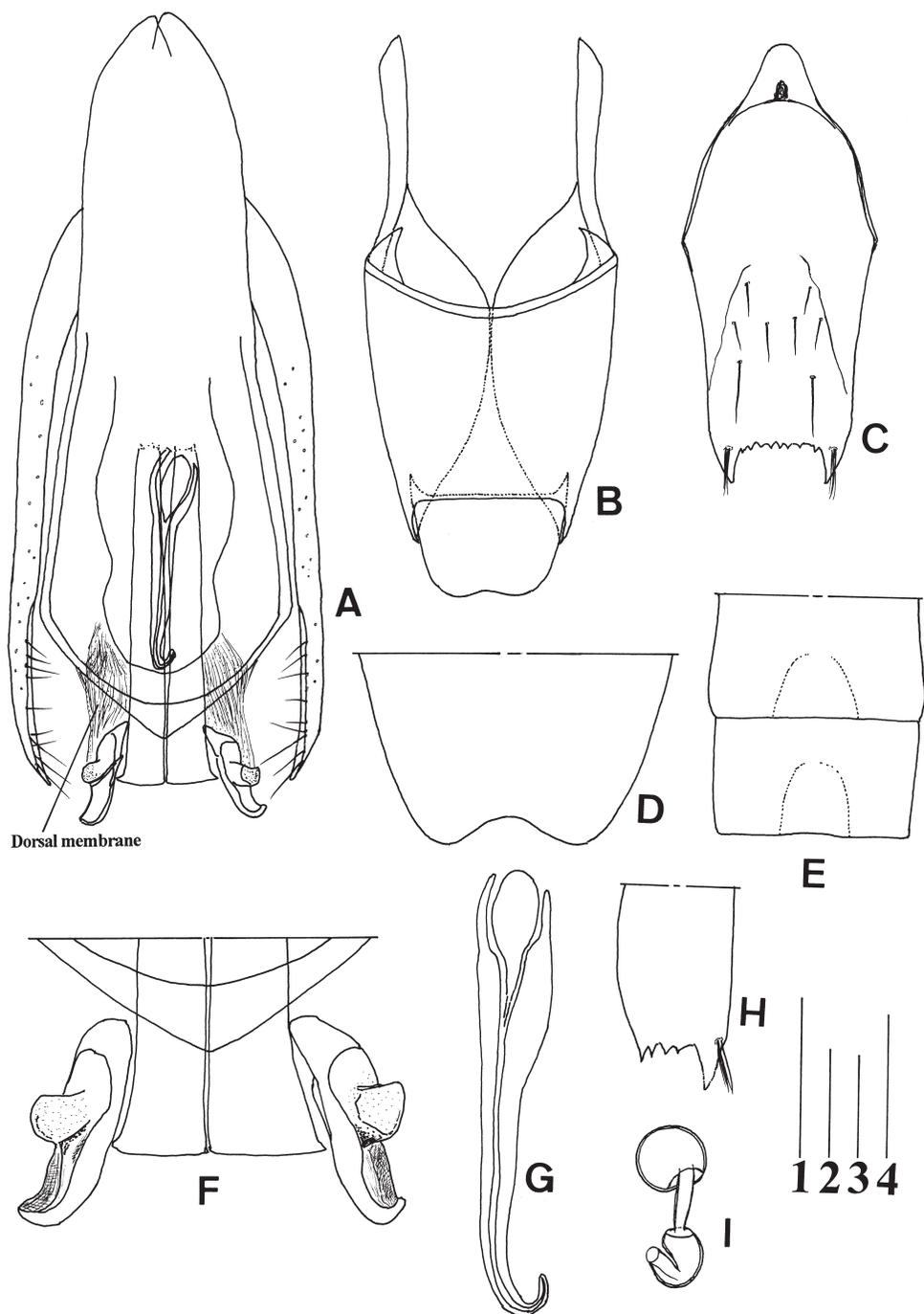


Fig. 6. *Stenus hime* Naomi & Puthz (Shiga: Mt. Ibuki). A, aedeagus with outthrust endophallus; B, 9th and 10th terga of male; C, 9th ventrite of male; D, posterior part of 8th ventrite of male; E, 6th and 7th ventrites of male; F, apical part of aedeagus with outthrust endophallus; G, copulatory tube; H, posterior part of gonocoxite; I, spermatheca. Scale 1: 0.1 mm for A, H, 0.05 mm for F, G; scale 2: 0.2 mm for B–D; scale 3: 0.2 mm for E; scale 4, 0.1 mm for I.

Female: Eighth ventrite (Fig. 6I) obtuse posteromedially; gonocoxites (Fig. 6H) each with apicolateral tooth short, acute, apicolateral setae short. Spermatheca (Fig. 6I) small, with capsule spherical; collum longer than capsule; duct extremely short, once distinctly bent.

Biology and ecology. *S. hime* is a rare species. The beetles of this species inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. hime* is allied to *S. intermixtus* and *S. kannoi*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical sclerotized area developed only at the apico-median part (Fig. 6A), the copulatory tube with its main tube thinner, almost attenuate excepting the apical portion which is turned anteriorly (Fig. 6G), and the endophilic expulsion hook shoe-shaped, laterally with a hump (Fig. 6F).

Etymology. The specific epithet of this species is derived from the Japanese name of princess, hime.

Stenus intermixtus Puthz

(Figs. 7A–I, 130F)

Stenus intermixtus Puthz, 1993: 164; Herman, 2001: 2234; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♀ (NHMG), Jyoshin-Etsu Highland National Park, Shiga highland (1,500 m), Nagano Pref., 23. viii. 1980, I. Löbl leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 3 ♂♂ ♀, Shirakoma, Mt. Kitayatsu, Nagano Pref., 13–16. ix. 1996, T. Ito leg.; 2 ♂♂ ♀, Shirabiso Highland, Ue Vil., Nagano Pref., 16. xi. 1999, S. Nomura leg.; 1 ♂♂ ♀, Shiokawa, Ohshika Vil., Nagano Pref., 8. xi. 1999, S. Nomura leg.; 1 ♂♂ ♀, Nomugi Pass, Nagawa Vil., Nagano Pref., 8. viii. 1996, T. Kishimoto leg.; 1 ♂, Mt. Norikura, Azumi Vil., Nagano Pref., 20. viii. 1996, S. Nomura leg.; 1 ♀, Oohira Pass, Nagiso-cho, Nagano Pref., 15. xi. 1999, S. Nomura leg.; 1 ♀, Mt. Yatsu, Chino City, Nagano Pref., 19. viii. 1996, S. Nomura leg.; 1 ♀, Ame Pond, Yachiho Vil., Nagano Pref., 19. viii. 1996, S. Nomura leg.; 1 ♀, Mugikusa, Nagano Pref., 16. ix. 1996, H. Ohira leg.; 1 ♂, Mt. Kurai, Gifu Pref., 28. x. 2017, T. Ito leg.; 1 ♂, Hirayu, Gifu Pref., 24. viii. 1987, S. Nomura leg.; 1 ♂, Tsukechi Valley, Kakomo Vil., Gifu Pref., 15. xi. 1999, S. Nomura leg.; 2 ♂, Mikuni Pass, Ohtaki Vil., Saitama Pref., 30. x. 1999, S. Nomura leg.; 1 ♂, Yanagisawa Pass, Enzan City, Yamanashi Pref., 17. xi. 1999, S. Nomura leg.

Distribution. Japan: Honshu (Kanto and Chubu Districts).

Redescription: Male and female: Body 2.6–3.3 mm (fore body 1.4–1.5 mm) in length. Body moderately shining; Head and abdomen black; pronotum and elytra dark red; labrum reddish brown to dark reddish brown; antennae and legs reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum and elytra partially with coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of mesially-curved furrows; antennae short, thin to slightly thick; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventrite sutures distinct.

Male: Abdomen (Fig. 7H) modified with an arcuate, very broad emargination on the 8th ventrite; 9th tergum (Fig. 7B) with ventral apophyses long; 9th ventrite (Fig. 7G) with apicolateral teeth short, very acute, apicolateral setae slightly short; 10th tergum (Fig. 7B) rounded posteriorly. Aedeagus (Fig. 7A) with median lobe broad, broadest at apicolateral corners, obtuse at

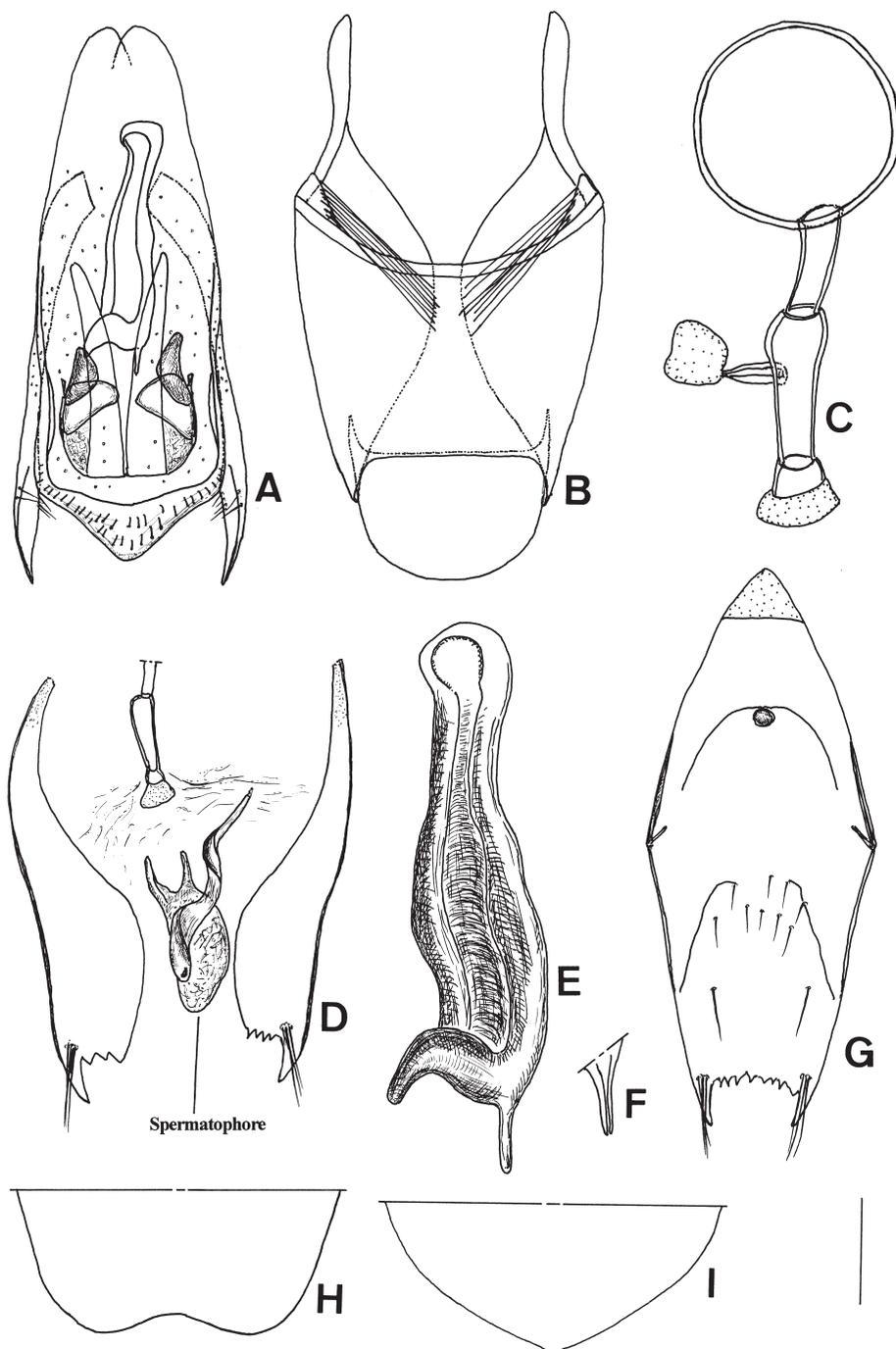


Fig. 7. *Stenus intermixtus* Puthz (Nagano: A, B, E, G, H, Mt. Kitayatsu, C, D, I, Nagawa, F, Mt. Norikura). A, aedeagus; B, 9th and 10th terga of male; C, spermatheca; D, gonocoxites, proximal part of spermatheca and spermatophore deposited by male during copulation; E, copulatory tube; F, apical process of copulatory tube; G, 9th ventrite of male; H, posterior part of 8th ventrite of male; I, posterior part of 8th ventrite of female. Scale 1: 0.1 mm for A, B, D, G–I; scale 2: 0.05 mm for C, E, F.

apex; apical sclerotized area broad-subtriangular, very shallowly emarginate at posterolateral part. Endophallus (Fig. 7A) with copulatory tube thick, becoming gradually broader apicad, with an apical process short, thin (Fig. 7E) or attenuate (Fig. 7F), and with a ventrally turned process thick, moderately curved (Fig. 7E); dorsolateral bands visible only in anterior portions; expulsion hooks each with anterior plate subtriangular, smaller than posterior plate which is also subtriangular; ventromedian bands long, broad. Parameres (Fig. 7A) each very acutely pointed at apex; apical area long, weakly swollen mesially at base, mesially also with 6 short setae at base, glabrous in the apical 1/2.

Female: Eighth ventrite obtuse posteromedially (Fig. 7I) or almost rounded posteriorly; gonocoxites (Fig. 7D) each with apicolateral tooth short, acute, apicolateral setae slightly short. Spermatheca (Fig. 7C, D) with capsule very large, spherical; collum shorter than capsule, duct 2-segmented; gland moderately large, with opening located on the lateral side of the 2nd segment of duct.

Biology and ecology. The beetles of *S. intermixtus* inhabit leaf litter heaped in the natural forests of mountain to high mountainous regions.

Remarks. *S. intermixtus* is the sister species of *S. kannoi*, but it is separable from the latter species by the 6th and 7th abdominal ventrites of male each simple, the aedeagal median lobe with its apical sclerotized area very shallowly emarginate at the posterolateral part (Fig. 7A), the copulatory tube with its ventrally turned process thick, moderately curved (Fig. 7E), and the spermatheca with its basal duct much shorter (Fig. 7C).

A spermatophore deposited into a genital chamber of female by a male beetle during copulation was observed at the opening of genital chamber (Fig. 7D).

Stenus kannoi Naomi, Nomura & Puthz sp. nov.

(Figs. 8A–H, 130G)

Type material examined. Holotype: ♂ (KUMF), Tatedani, Fujiwara-cho, Inabe City, Mie Pref., 3. xii. 2002, K. Kanno leg. Paratype: 1 ♀, same data as holotype.

Distribution. Japan: Honshu (Mie Pref.).

Description: Male and female: Body 2.7–3.3 mm (fore body 1.3–1.5 mm) in length. Body weakly shining and black; labrum dark brown to black; antennae and legs reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum and elytra partially with coarse punctures. Head shallowly concave, with a pair of broad, longitudinal-oblique or mesially-curved depressions; antennae very short to short, thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventrite sutures distinct.

Male: Abdomen (Fig. 8B) modified with a broad flat area on the 6th, an elongate, shallow depression on the 7th, and a very shallow emargination on the 8th ventrite; 9th tergum (Fig. 8A) with ventral apophyses long; 9th ventrite (Fig. 8C) with apicolateral teeth short, acute, apicolateral setae short; 10th tergum (Fig. 8A) very slightly emarginate posteriorly. Aedeagus (Fig. 8G) with median lobe moderately broad, broadest at apicolateral corners, obtuse at apex; apical sclerotized area broad-subtriangular in shape, very weakly rounded at posterolateral margin. Endophallus (Fig. 8G) with copulatory tube thick, weakly curved, bifurcated apically, with an apical process moderately thick (Fig. 8D) and with a ventrally turned process thin, strongly turned (Fig. 8D); dorsolateral bands moderately long, thin; expulsion hooks (Fig. 8H) each elongate-triangu-

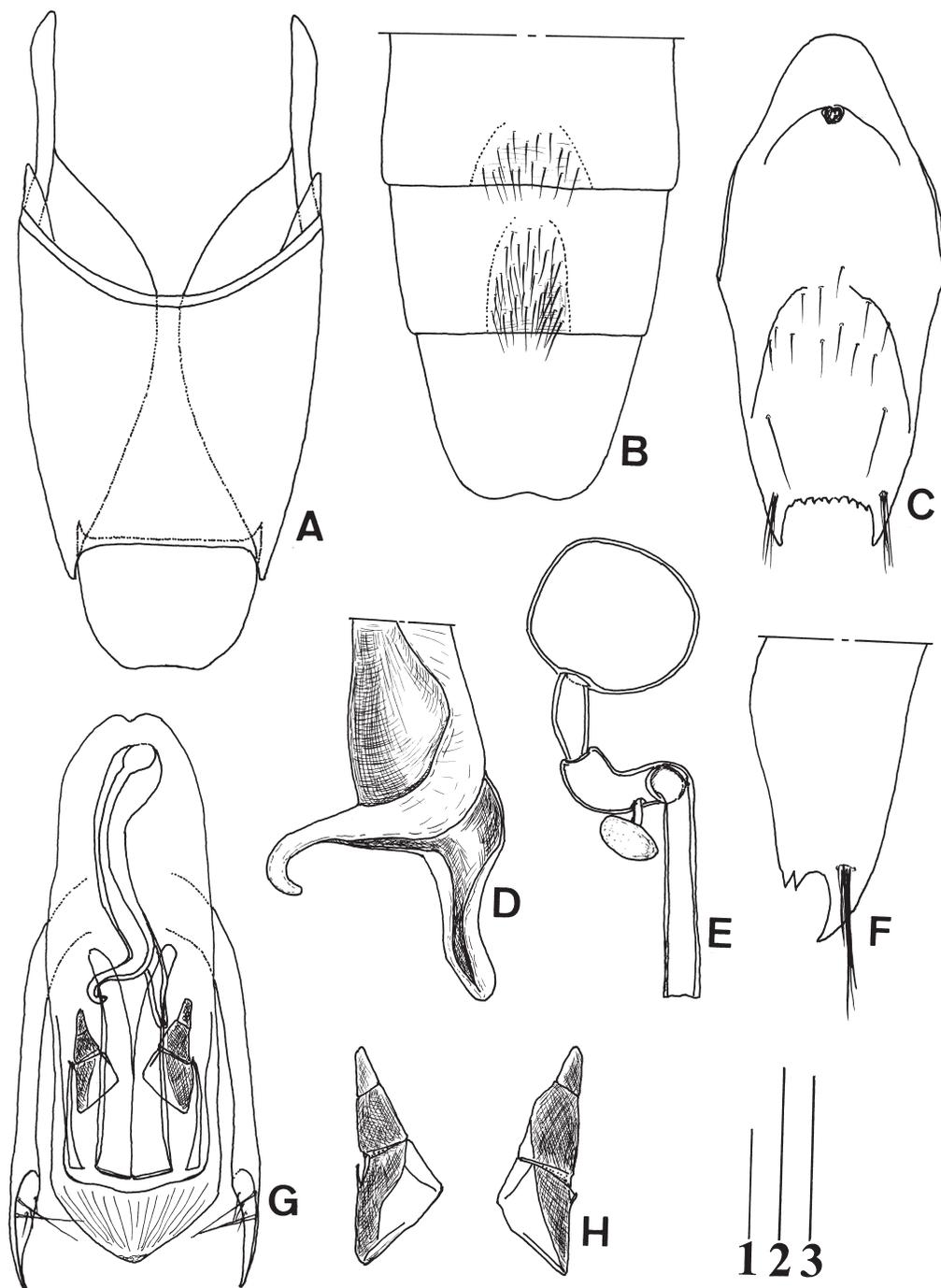


Fig. 8. *Stenus kannoi* Naomi, Nomura & Puthz sp. nov. (Mie: Inabe). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, apical part of copulatory tube; E, spermatheca; F, posterior part of gonocoxite; G, aedeagus; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A, C, G, 0.05 mm for E, H; scale 2: 0.3 mm for B; scale 3: 0.05 mm for D, 0.1 mm for F.

lar in shape, with anterior plate divided antero-posteriorly into 2 subplates; ventromedian bands moderately long, moderately broad. Parameres (Fig. 8G) each very acutely pointed at apex; apical area moderately long, weakly swollen mesially at base, mesially also with 2 long and 3 short setae, glabrous in the apical 1/2.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 8F) each with apicolateral tooth slightly short, acute, apicolateral setae long. Spermatheca (Fig. 8E) moderately sclerotized, with capsule very large, almost spherical; collum shorter than capsule, duct very short, with 1 turn; gland moderately large, with opening located on the lateral side of the 2nd segment of duct.

Biology and ecology. The beetles of *S. kannoi* inhabit leaf litter heaped in the natural forests of a low mountainous region.

Remarks. *S. kannoi* is the sister species of *S. intermixtus*, and it is separable from the latter species by the 6th and 7th ventrites of male each modified with the posteromedian depression (Fig. 8B), the aedeagal median lobe with its apical sclerotized area very weakly rounded at the posterolateral margin (Fig. 8G), the copulatory tube with its ventrally turned process thin and strongly turned (Fig. 8D), and the spermatheca with its basal duct much longer (Fig. 8E).

Etymology. This new species is named after Mr. Kenji Kanno (Mie) who collected the *Stenus*-beetle designated as the type specimens.

***Stenus volkerputhzi* Naomi, Nomura & Kamezawa**
(Figs. 9A–G, 130H)

Stenus volkerputhzi Naomi, Nomura & Kamezawa, 2015: 324.

Type material examined. Holotype: ♂ (NMNST), Murodo, Mt. Hakusan, Ishikawa Pref., 1. x. 2002, S. Nomura leg. Paratypes: 1 ♂3 ♀ (NMNST), same data as holotype; 3 ♂8 ♀, same data as above.

Distribution. Japan: Honshu (Ishikawa Pref.).

Redescription: Male and female: Body 3.0–3.6 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head black with clypeofrontal area dark red; pronotum and elytra dark red; abdomen black; labrum reddish brown; antennae dark red; legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum and elytra partially with coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae very short to short, thin to slightly thick; pronotum with surface slightly uneven, with a median longitudinal furrow distinct; elytra with surface uneven, each often with a basal keel and also with an indistinct, large fovea on each side of basal keel; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergo-ventrite sutures distinct.

Male: Abdomen (Fig. 9D) modified with a very shallow, elongate depression on the 7th, and a shallow, arcuate emargination on the 8th ventrite; 9th tergum (Fig. 9B) with ventral apophyses relatively short; 9th ventrite (Fig. 9C) with apicolateral teeth short, very acute, apicolateral setae short; 10th tergum (Fig. 9B) almost rounded posterolaterally. Aedeagus (Fig. 9A) with median lobe broad, well-rounded apically; apical sclerotized area semicircular, sparsely covered with very small pores along marginal area. Endophallus (Fig. 9A, G) with copulatory tube having basal chamber elongate-spherical in shape, main tube thin, straight in the basal 1/2, weakly curved in the apical 1/2, pointed at apex; dorsolateral bands visible only in posterior portion; expulsion hooks missing (Fig. 9A) or highly atrophied to be a pair of very small sclerites (Fig.

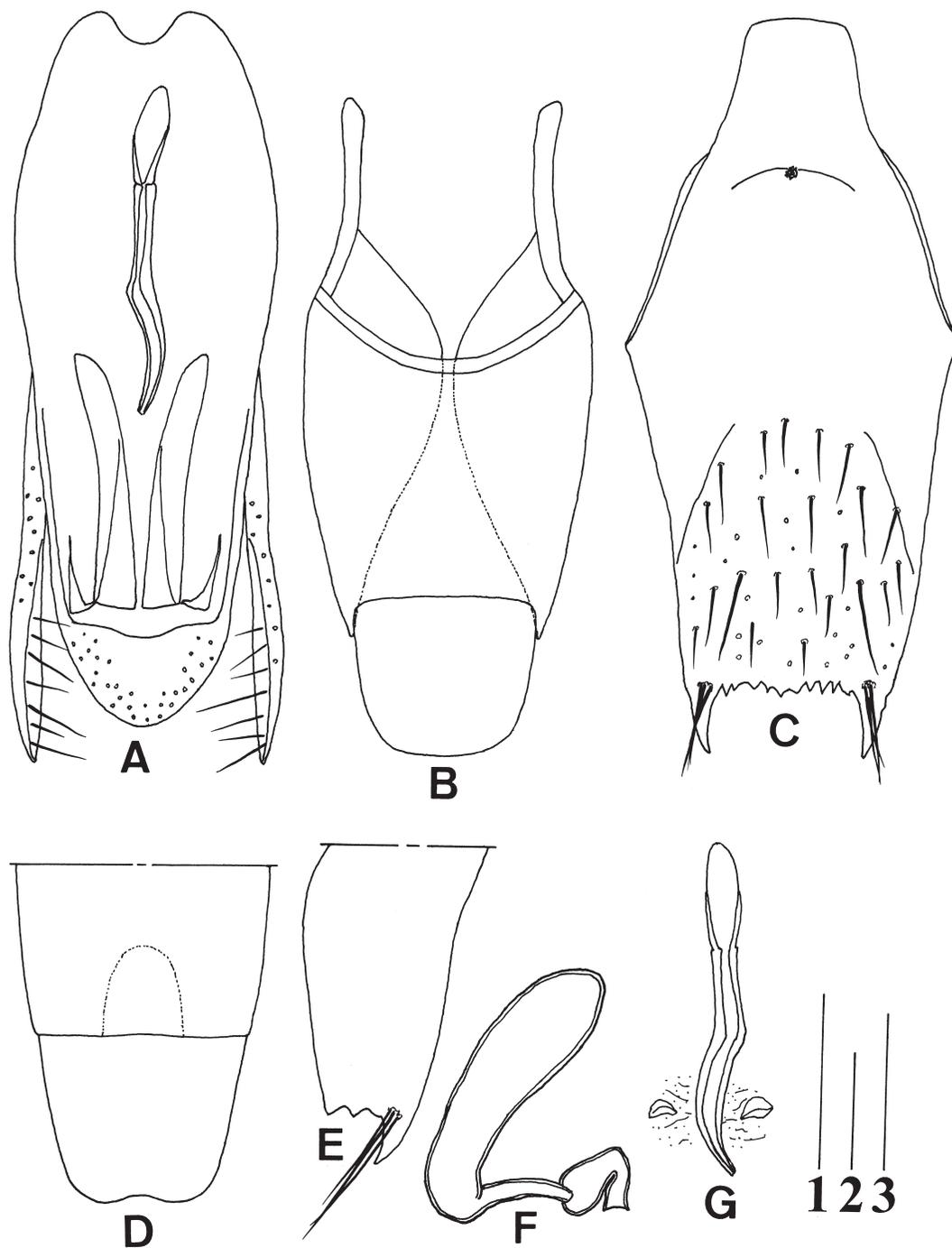


Fig. 9. *Stenus volkerputhzi* Naomi, Nomura & Kamezawa (Ishikawa: Mt. Hakusan). A, aedeagus; B, 9th and 10th terga of male; C, 9th ventrite of male; D, 7th and 8th ventrites of male; E, posterior part of gonocoxite; F, spermatheca; G, endophallic copulatory tube. Scale 1: 0.1 mm for A, C, E–G; scale 2: 0.1 mm for B; and scale 3: 0.3 mm for D.

9G); ventromedian bands moderately long, broad. Parameres (Fig. 9A) moderately thick, sparsely covered with very small pores in the middle, rounded apically when seen laterally; apical area very long, not swollen mesially at base, mesially also with 7 to 8 setae of various length.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 9E) each with apicolateral tooth very short, acute, apicolateral setae long. Spermatheca (Fig. 9F) moderately sclerotized, with capsule elongate-subovoidal in shape; collum thin, much shorter than capsule; duct very short, distinctly once bent.

Biology and ecology. The beetles of *S. volkerputhzi* inhabit leaf litter heaped in the natural forests of a high mountainous region.

Remarks. *S. volkerputhzi* is allied to *S. intermixtus* and *S. kannoi*, but it is separable from the latter 2 species by the aedeagal median lobe rounded apically (Fig. 9A), the copulatory tube thinner (Fig. 9G), the endophallic expulsion hook atrophied into a small sclerite (Fig. 9G), and the spermatheca with its capsule cucumber-like (Fig. 9F).

Etymology. This species is named after the third author of this paper, Volker Puthz

Stenus uneme Naomi

(Figs. 10A–I, 130I)

Stenus uneme Naomi, 1989a: 8; Herman, 2001: 2427; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Omogokei, Ehime Pref., 15. vi. 1981, S. Naomi leg. Paratype: 1 ♂ 2 ♀, same data as holotype.

Other material examined. [HONSHU]: 2 ♂ 1 ♀, Mt. Koya, Wakayama Pref., 1. v. 1985, T. Ito leg.; 1 ♂ 1 ♀, Tamagawa Valley, Mt. Koya, Wakayama Pref., 29. iv. 1987, T. Watanabe leg.; 2 ♂ 1 ♀, Mt. Kōjin, Nara Pref., 2. v. 1968, T. Ito leg. [SHIKOKU]: 2 ♂ 1 ♀, Amagoi Fall, Kamiyama-cho, Tokushima Pref., 3. v. 1999, M. Yoshida leg.; 2 ♂ 1 ♀, Mt. Takashiro, Kisawa Vil., Tokushima Pref., 3. vii. 2004, M. Yoshida leg.; 1 ♂, Tokuen Temple, Saga, Sanagouchi Vil., Tokushima Pref., 13. viii. 1968, M. Yoshida leg.; 1 ♂, Mt. Odami (800m), Ehime Pref., 19. vii. 1993, M. Sakai.; 1 ♂, Mt. Ohkawa, Mannō-cho, Kagawa Pref., 28. vi. 2008, H. Fujimoto leg.; 1 ♂, Kaminishi-koide River, Takamatsu City, Kagawa Pref., 24. v. 2008, H. Fujimoto leg.; 1 ♂, Kami City, Kochi Pref., 8. ix. 2007, T. Miyata leg.; 1 ♂, same locality, 23. ix. 2007, T. Miyata leg.

Distribution. Japan: Honshu (Wakayama and Nara Prefs.) and Shikoku.

Redescription. Male and female: Body 2.7–3.5 mm (fore body 1.4–1.6 mm) in length. Body weakly shining; head black; pronotum, elytra and abdomen dark red to dark brown; labrum reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to almost round, small to moderately large, and also elytra with large punctures. Head shallowly concave, with a pair of longitudinal-oblique depressions; antennae short to moderately long, thin; pronotum with surface even to slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven; abdomen almost cylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures very thin.

Male: Abdomen (Fig. 10E) modified with a shallow emargination on the 8th ventrite; 9th tergum (Fig. 10G) with ventral apophyses thin, short; 9th ventrite (Fig. 10D) very finely serrate posteriorly, with apicolateral setae very acute, apicolateral setae moderately long; 10th tergum (Fig. 10G) entire. Aedeagal median lobe (Fig. 10C) sclerotized, relatively broad, broadest at apicolateral corners, rounded or obtusely pointed at apex; apical sclerotized area hardly developed.

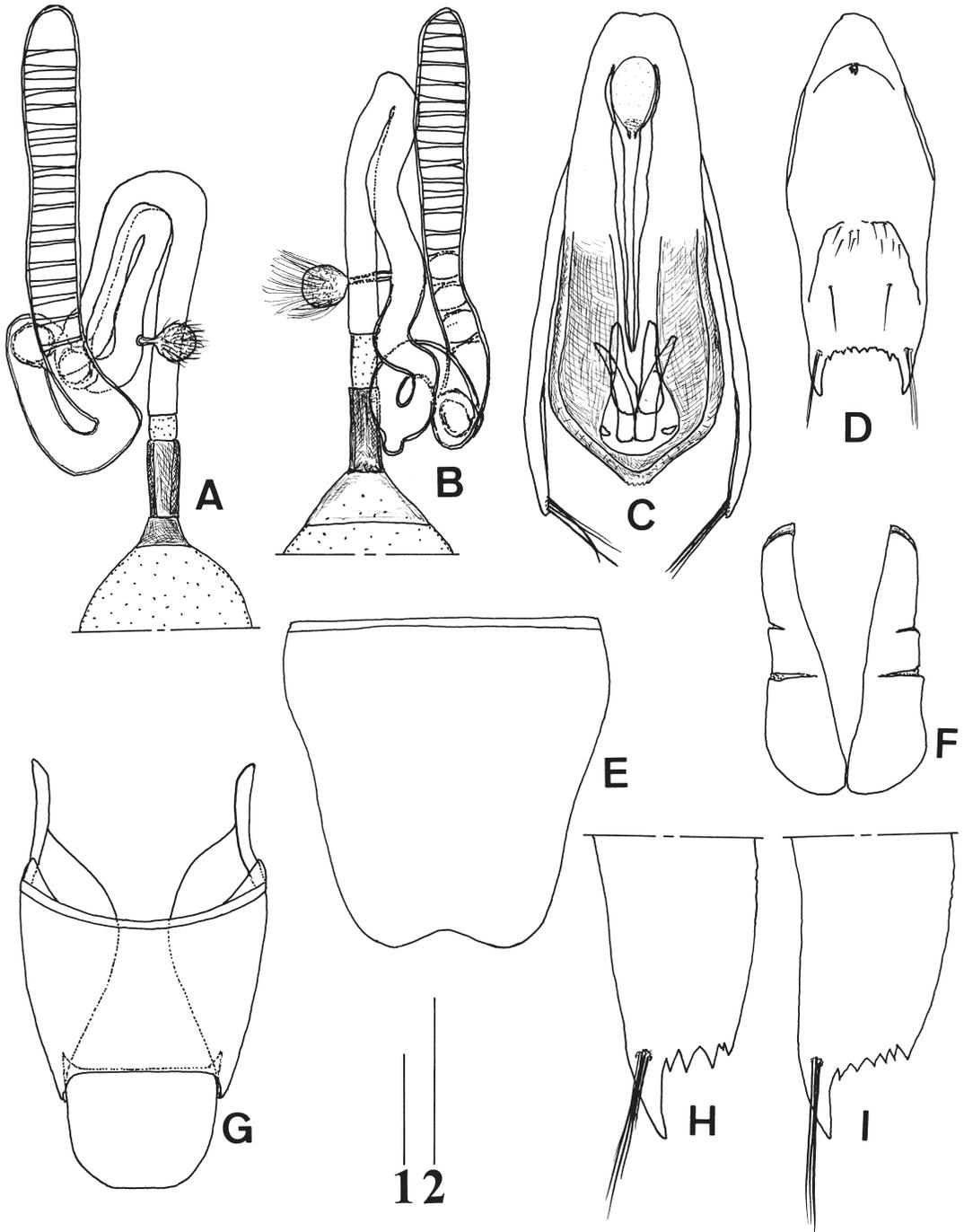


Fig. 10. *Stenus uneme* Naomi (Ehime: A, H, Omogokei; Wakayama: B, I, Mt. Koya; Ehime: C, D, F, G, Mt. Odami; Kagawa: E, Ohkawa). A, B, spermatheca; C, aedeagus; D, 9th ventrite of male; E, 8th ventrite of male; F, endophallic expulsion hooks; G, 9th and 10th terga of male; H, I, posterior part of gonocoxite. Scale 1: 0.05 mm for A, B, 0.1 mm for C; scale 2: 0.2 mm for D, E, G, 0.05 mm for F, 0.1 mm for H, I.

Endophallus (Fig. 10C) with copulatory tube having basal chamber ovoidal, main tube long, attenuate; dorsolateral bands pigmented only at bases; expulsion hooks (Fig. 10F) each with anterior plate well- rounded posteriorly, incompletely demarcated by a transverse, narrow crevice from posterior plate; ventromedian bands very short, thin, moderately diverging anteriorly. Parameres (Fig. 10C) slender, each gently curved mesially, moderately pointed at apex; apical area long, thin, mesially with 3 to 4 long setae in the most apical part (Fig. 10C) or in about apical 1/2.

Female: Eighth ventrite (Fig. 10E) pointed posteromedially; gonocoxites (Fig. 10H, I) each with apicolateral teeth very acute, apicolateral setae very long. Spermatheca (Fig. 10A, B) with capsule developed or not; striped duct long to very long, thick; duct relatively short to moderately long, moderately thick, loosely coiled mostly at the most distal turn of duct, with 4 to 6 turns; gland almost spherical, with long or short ciliae, with opening located on the mesial side of duct between 1st and 2nd turns (Fig. 10B) or 2nd and 3rd turns (Fig. 10A); basal valve very short to short; basal duct well-sclerotized, moderately long.

Biology and ecology. The beetles of *S. uneme* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions. In Mt. Koya (Honshu) and Mt. Odami (Shikoku), the beetles inhabit wet litter heaped along the mountain torrents.

Remarks. Because of the peculiar structures of aedeagus and its endophallic components, it is considered that no species is closely related to *S. uneme* among the Japanese species of *satsuki*-group. Thus, *S. uneme* is easily separable from the other species of this group by the aedeagal paramere with several long setae only at the most apical part (Fig. 10C).

Etymology. The specific epithet of this species is derived from the Japanese name of domestic servants of the emperor in the ancient periods, uneme.

Stenus taoi Naomi
(Figs. 11A–I, 130J)

Stenus taoi Naomi, 1989a: 10; Herman, 2001: 2412; Naomi & Puthz, 2013: 142.

Stenus nemoralis Naomi, 2015: 17. **New synonym.**

Type material examined. Holotype of *S. taoi*: ♀ (KUF), Hirogawara, Mt. Shiranekita, Yamanashi Pref., 9–13. vii. 1982, S. Naomi leg. Paratype of *S. taoi*: 1 ♂ (cP) 1 ♀, same data as holotype.

Holotype of *S. nemoralis* (CBM): ♂, Kami-nikkawa Pass, Enzan, Kôshû City, Yamanashi Pref., 16. x. 2010, T. Watanabe leg. Paratype of *S. nemoralis*: 1 ♂, Daibosatsu, Yamanashi Pref., 26. vi. 1991, T. Ito leg.

Other material examined. [HONSHU]: 1 ♂ 2 ♀, Yanagisawa Pass, Tabayama Vil., Yamanashi Pref., 5. v. 2002, S. Nomura leg.

Distribution. Japan: Honshu (Yamanashi Pref.).

Redescription. Male and female: Body 3.2–3.5 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red to dark brown; labrum dark red to dark brown; antennae and legs reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with large punctures. Head shallowly concave, with a pair of longitudinal-oblique furrows; antennae short, thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly

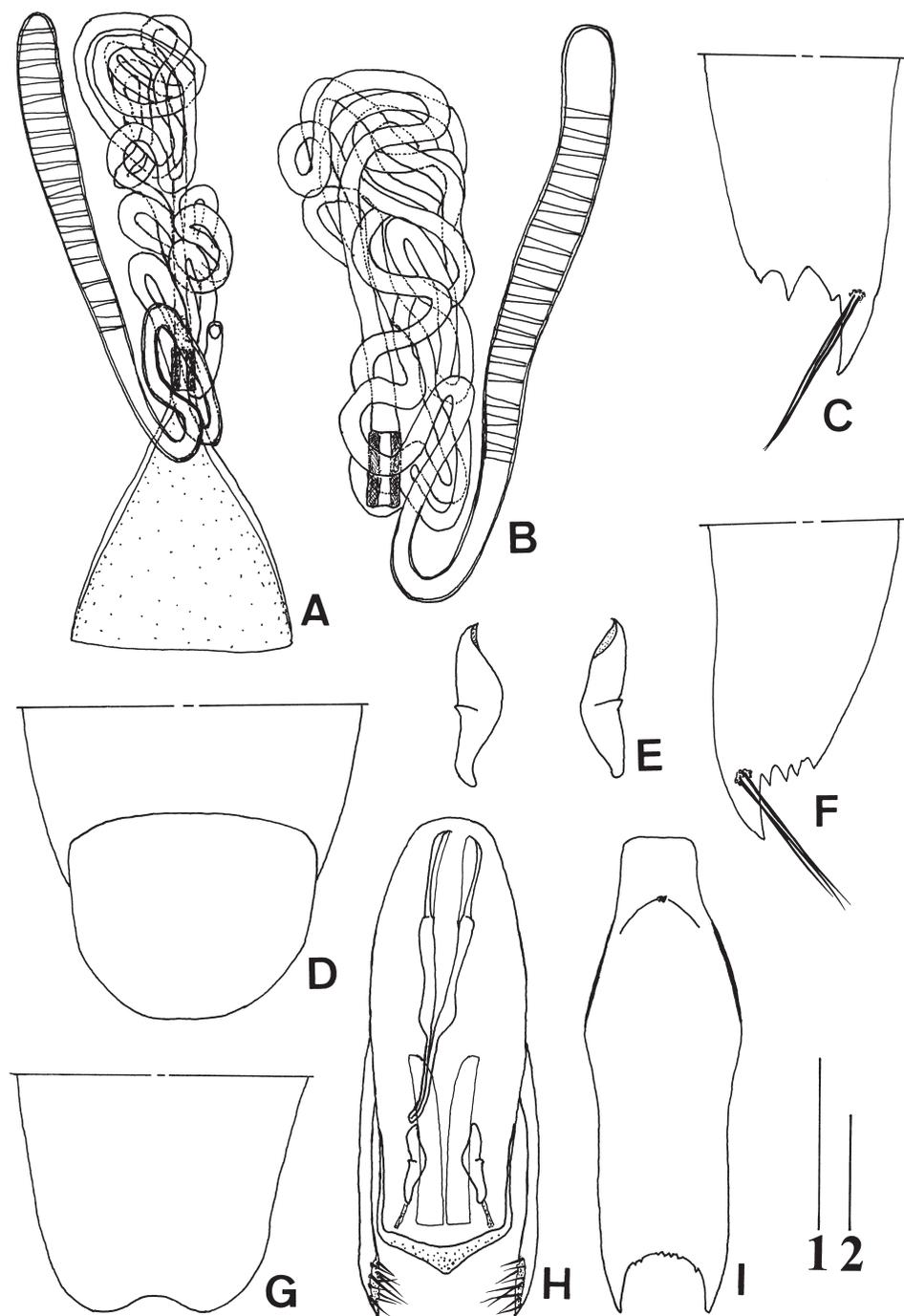


Fig. 11. *Stenus taoi* Naomi (Yamanashi: A, C, Yanagisawa Pass, B, F, Hirogawara, D, E, G-I, Daibosatsu). A, B, spermatheca; C, F, posterior part of gonocoxite; D, posterior part of 9th tergum and 10th tergum of male; E, endophallic expulsion hooks; G, posterior part of 8th ventrite of male; H, aedeagus; I, 9th ventrite of male. Scale 1: 0.1 mm for A, C-F, 0.2 mm for G-I; scale 2: 0.05 mm for B.

tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 11G) modified with an arcuate emargination on the 8th ventrite; 9th tergum with ventral apophyses short, thin; 9th ventrite (Fig. 11I) with apicolateral teeth long, acute, apicolateral setae moderately long; 10th tergum (Fig. 11D) almost rounded posteriorly. Aedeagus (Fig. 11H) with median lobe broad, obtusely angulate at apicolateral corners, obtusely pointed at apex; apical sclerotized area composed of the narrow, apical rim. Endophallus (Fig. 11H) with copulatory tube long, having basal chamber composed of 2 robust rods, main tube with basal tube very thick, apical tube very thin, weakly curved at apical part; expulsion hooks (Fig. 11E) widely separated, each slightly narrow; ventromedian bands moderately broad, short. Parameres (Fig. 11H) thin, each acutely pointed at apex; apical area very short, slightly swollen mesially at base, mesially also with 9 to 10 short setae.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 11C, F) each with apicolateral teeth short to long, very acute, apicolateral setae very long. Spermatheca (Fig. 11A, B) with capsule long (Fig. 11B) or hardly developed (Fig. 11A); striped duct long, moderately thick to thick; duct very long, thin, tightly coiled; basal valve short; basal duct sclerotized, moderately long and thick; basal pouch large, conical.

Biology and ecology. The beetles of *S. taoi* inhabit leaf litter heaped in the natural forests of mountainous to high mountainous regions.

Remarks. Both *S. taoi* Naomi, 1989a and *S. nemoralis* Naomi, 2015 were described as new species based on the specimens of beetles collected from the mountainous regions in Yamanashi Pref., Chubu District. After our close examination during the present study, it was clarified that *S. nemoralis* Naomi, 2015 is newly placed in synonymy with *S. taoi* Naomi, 1989a.

S. taoi is allied to *S. nemorosus*, but it is separable from the latter species by the aedeagal median lobe broader (Fig. 11H), the copulatory tube with its basal tube distinctly demarcated by the difference of thickness from apical tube (Fig. 11H), and the endophallic expulsion hook narrower (Fig. 11E).

Etymology. This species is named after Mr. Minoru Tao who collected the *Stenus*-beetle designated as the type specimens

***Stenus nemorosus* Naomi & Y. Watanabe**
(Fig. 12A–G)

Stenus nemorosus Naomi & Y. Watanabe, 2015: 99.

Type material examined. Holotype: 1 ♂ (TUAA), Hirogawara at the foot of Mt. Shiranekita, Yamanashi Pref., 11. vi. 1966, Y. Watanabe leg. Paratypes: 1 ♀ (TUAA), same data as holotype; 1 ♂ 1 ♀, same locality, 6. vi. 1964, Y. Watanabe leg.

Distribution. Japan: Honshu (Yamanashi Pref.).

Redescription. Male and female: Body 3.3–3.5 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark reddish brown to dark red near black; labrum dark red to dark brown; antennae and legs reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short, thin to slightly thick; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to

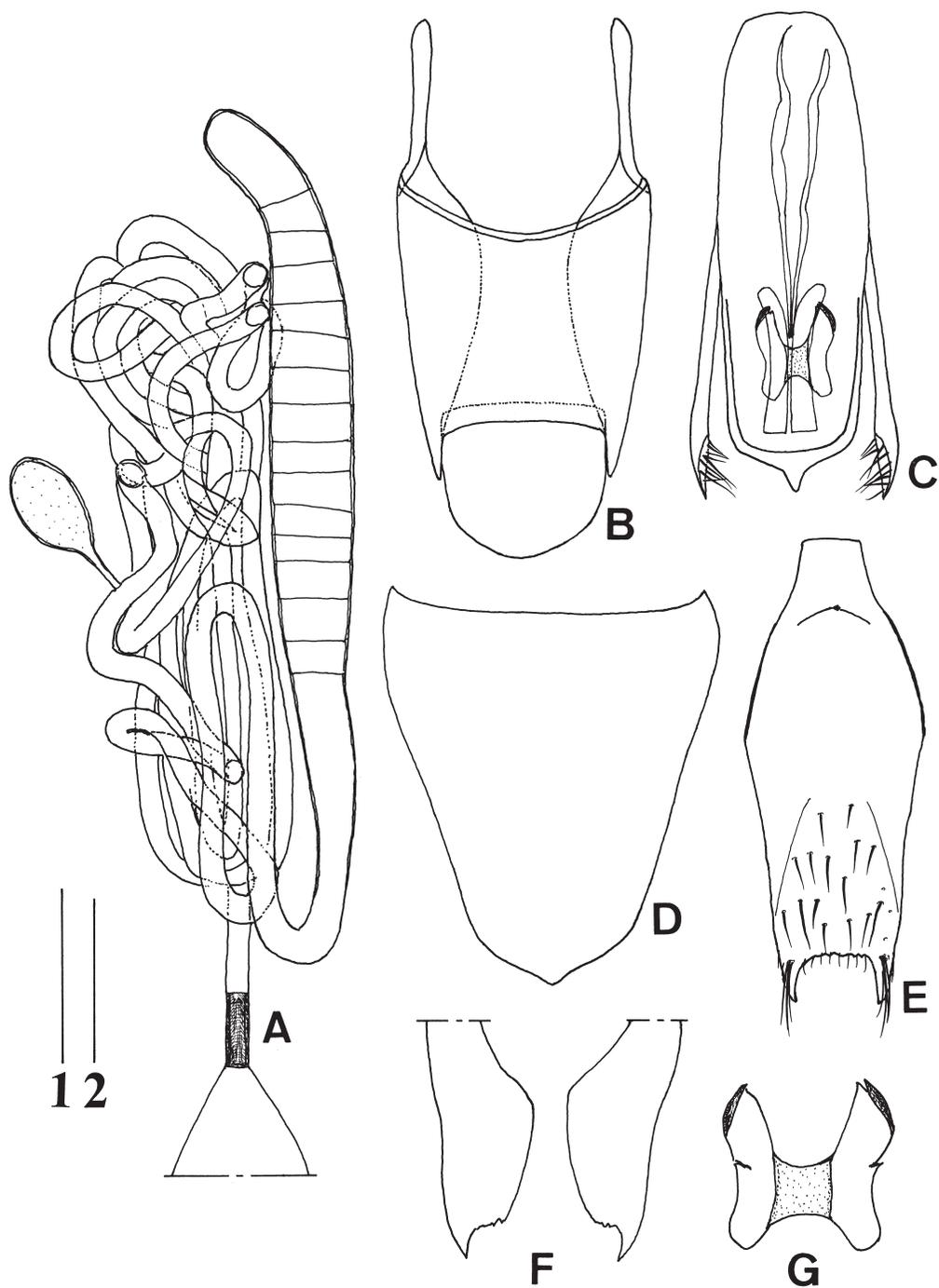


Fig. 12. *Stenus nemorosus* Naomi & Watanabe (Yamanashi: Hirogawara). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 8th ventrite of female; E, 9th ventrite of male; F, gonocoxites; G, endophallic expulsion hooks. Scale 1: 0.2 mm for B, C, E, F, 0.1 mm for G, 0.05 mm for A; scale 2: 0.2 mm for D.

subparallel-sided; lateroventrites and tergoventral sutures almost lost.

Male: Abdomen modified with an arcuate emargination on the 8th ventrite; 9th tergum with ventral apophyses thin, moderately long; 9th ventrite (Fig. 12E) with apicolateral teeth short, acute; 10th tergum (Fig. 12B) rounded posteriorly. Aedeagus (Fig. 12C) with median lobe moderately broad, narrowly rounded at apicolateral corners, with a pointed apicomedian cusp; apical sclerotized area hardly developed. Endophallus (Fig. 12C) with copulatory tube long, main tube thick in the basal 1/2, more or less tapering apicad, with basal tube demarcated by a weak constriction from apical tube; dorsolateral bands long, thin; expulsion hooks (Fig. 12G) broadly connected by a membrane, each slightly broad, with anterior plate minutely hooked or bi-hooked at anterior tip; ventromedian bands moderately broad, short. Parameres (Fig. 12C) thin, each acutely pointed at apex; apical area very short, slightly swollen mesially at base, mesially also with 9 to 10 short setae.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 12F) each with apicolateral teeth short, very acute, apicolateral setae long. Spermatheca (Fig. 12A) with capsule very long; striped duct long, very thick; duct very long, thin to moderately broad, tightly coiled; gland large, ovoidal, with opening located on the lateral side of duct between the last 6th and 7th turns; basal valve short; basal pouch conical.

Biology and ecology. The beetles of *S. nemorosus* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. Our present study shows that *S. nemorosus* is also allied to *S. trispinosus* Naomi & Nomura, 2015, which was previously classified into the *kasumi*-subgroup of *asyura*-group (Naomi *et al.*, 2019, p. 24). This is because these two species possess in common such conditions as the aedeagal median lobe moderately broad and narrowly rounded at the apicolateral corners (Fig. 12C), the endophallic expulsion hooks broadly connected each other by a membrane (Fig. 12G), the paramere with its apical area very short (Fig. 12C), and the spermatheca with its duct very long and tightly coiled (Fig. 12A), in addition to their similar habitus and color of body. Thus, *S. trispinosus* is here transferred to the *satsuki*-group.

S. nemorosus is allied to *S. taoi*, but it is separable from the latter species by the aedeagal median lobe narrower (Fig. 12C), the copulatory tube with its basal tube hardly demarcated from apical tube (Fig. 12C), and the endophallic expulsion hook broader (Fig. 12G). *S. nemorosus* is also allied to *S. trispinosus*, but it is separable from the latter species by the aedeagal median lobe pointed with the apicomedian cusp (Fig. 12C) and the endophallic expulsion hook with its anterior plate minutely hooked or bi-hooked at the anterior tip (Fig. 12G).

***Stenus fujimontis* Puthz**
(Figs. 13A–I, 130L)

Stenus fujimontis Puthz, 2001: 46; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (SMNHS), Azami-line (1,400 m), East side of Mt Fuji, Shizuoka Pref., 2. viii. 1999, V. Puthz leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 2 ♂1 ♀, Subashiriguchi, Mt. Fuji (2-gome), Shizuoka Pref., 5. xi. 2010, T. Watanabe leg.; 2 ♂1 ♀, Yamabushi Pass, Doshi Vil., Yamanashi Pref., 16. x. 2000, S. Nomura leg.; 1 ♂1 ♀, Mt. Ishihodo, Nishitanzawa, Kanagawa Pref., 5. x. 2002, T. Watanabe leg.; 1 ♂, Teppôgino-atama, Nishitanzawa, Kanagawa Pref., 12. vi. 2002, T. Watanabe leg.

Distribution. Japan: Honshu (Yamanashi, Shizuoka and Kanagawa Prefs.).

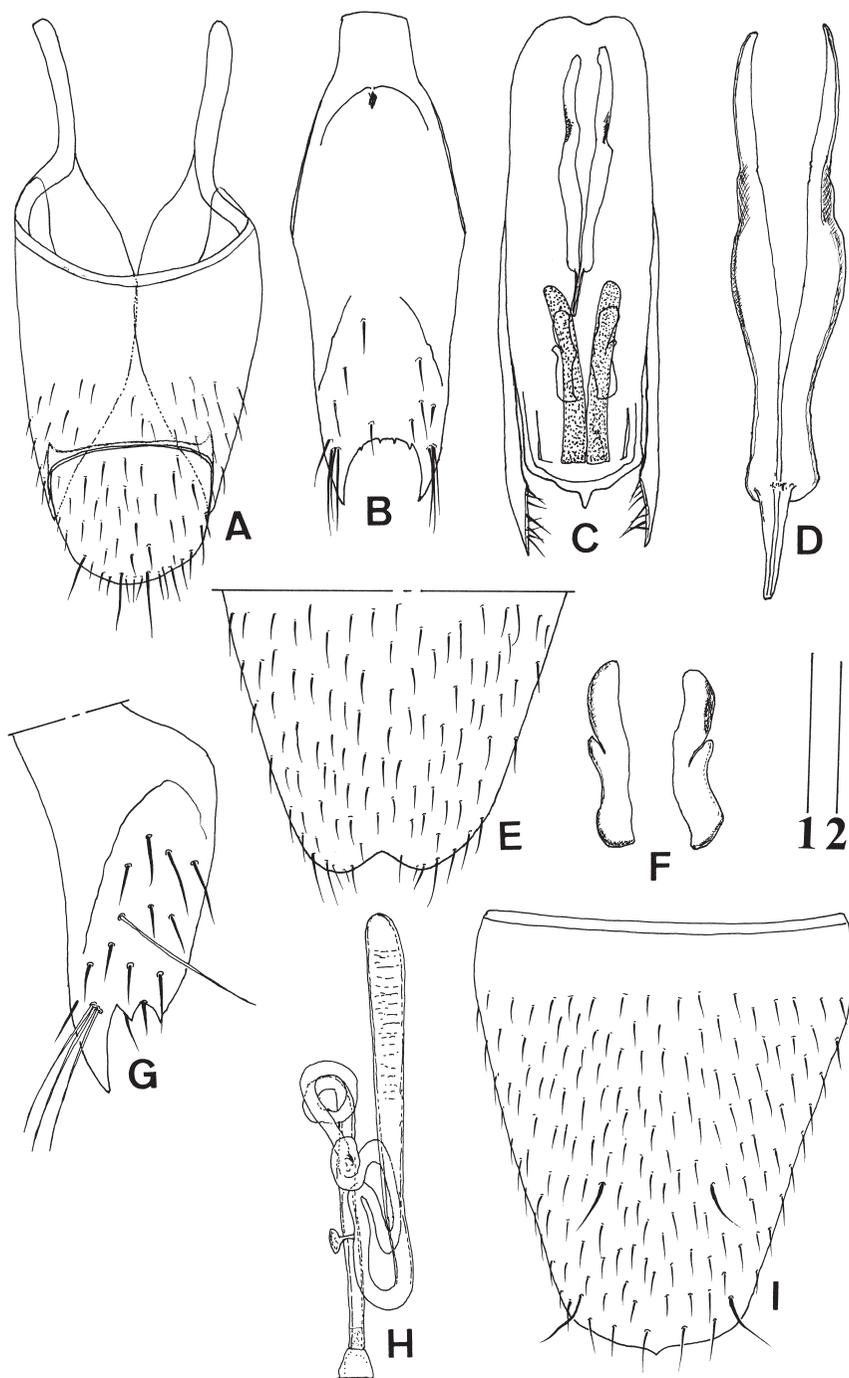


Fig. 13. *Stenus fujimontis* Puthz (Shizuoka, Yamanashi and Kanagawa). A, 9th and 10th terga of male; B 9th ventrite of male; C, aedeagus; D, copulatory tube; E, posterior part of 8th ventrite of male; F, endophallic expulsion hooks; G, gonocoxite; H, 8th ventrite of female. Scale 1: 0.2mm for A–C, I, 0.1 mm for D, F–H; scale 2: 0.2mm for E.

Redescription. Male and female: Body 3.3–3.5 mm (fore body 1.6–1.7 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red to dark brown; labrum reddish brown to dark red or almost black; antennae and legs reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with subrugose punctures and elytra partially with coarse, large punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen almost cylindrical to subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures usually lost but sometimes very thin, obscure in rudimentary way.

Male: Abdomen (Fig. 13E) modified with a small triangular emargination on the 8th ventrite; 9th tergum (Fig. 13A) with ventral apophyses thin, long; 9th ventrite (Fig. 13B) with apicolateral teeth long, acute, apicolateral setae moderately long; 10th tergum (Fig. 13A) entire. Aedeagal median lobe (Fig. 13C) subparallel-sided, obtusely angulate at apicolateral corners, pointed with a small apicomedian cusp; apical sclerotized area hardly developed. Endophallus (Fig. 13C) with copulatory tube (Fig. 13D) long, basal chamber large, main tube with basal tube thick, moderately constricted near the middle, apical tube very thin, attenuate; dorsolateral bands very thin; expulsion hooks (Fig. 13F) separated, each relatively thin, with anterior plate almost rounded at anterior tip; ventralmedian bands relatively short, slightly thin. Parameres (Fig. 13C) each acutely pointed at apex; apical area short, weakly angulate mesially at base, mesially also with 8 to 9 short setae.

Female: Eighth ventrite (Fig. 13I) minutely pointed posteromedially; gonocoxites (Fig. 13G) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 13H) with capsule small; striped duct moderately long, moderately thick; duct slightly short, thin, loosely coiled with about 10 turns; gland small, with opening on the lateral side of duct between the last and last 2nd turns; basal valve very short; basal sclerotized duct very short, truncated-conical in shape.

Biology and ecology. The beetles of *S. fujimontis* inhabit leaf litter heaped in the natural forests of mountainous to high mountainous regions. They were collected from the low shrub mainly comprising an alder (*Alnus firma*), which spread at the timber line of the Azami-line of Mt. Fuji. They are not rarely found there.

Remarks. *S. fujimontis* is a sister species of *S. fujiensis*, and it is separable from the latter species by the abdominal modification of male developed only on the 8th ventrite (Fig. 13E), the aedeagal median lobe narrower, without its apical sclerotized area (Fig. 13C), the copulatory tube with the demarcation between the basal and apical tubes distinct (Fig. 13C), and the endophallic expulsion hook thinner (Fig. 13F).

Stenus fujiensis Puthz

(Figs. 14A–H, 130L)

Stenus fujiensis Puthz, 2001: 48; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (SMNHS), Subaru-line (2200 m), North side of Mt Fuji, Shizuoka Pref., 1. viii. 1999, V. Puthz leg. Paratypes: 2♂2♀, same locality as holotype, 1. viii. 1999, S. Naomi leg.

Other material examined. [HONSHU]: 1♂2♀, Shin-5-gôme, Fujinomiya, Shizuoka Pref., 5.

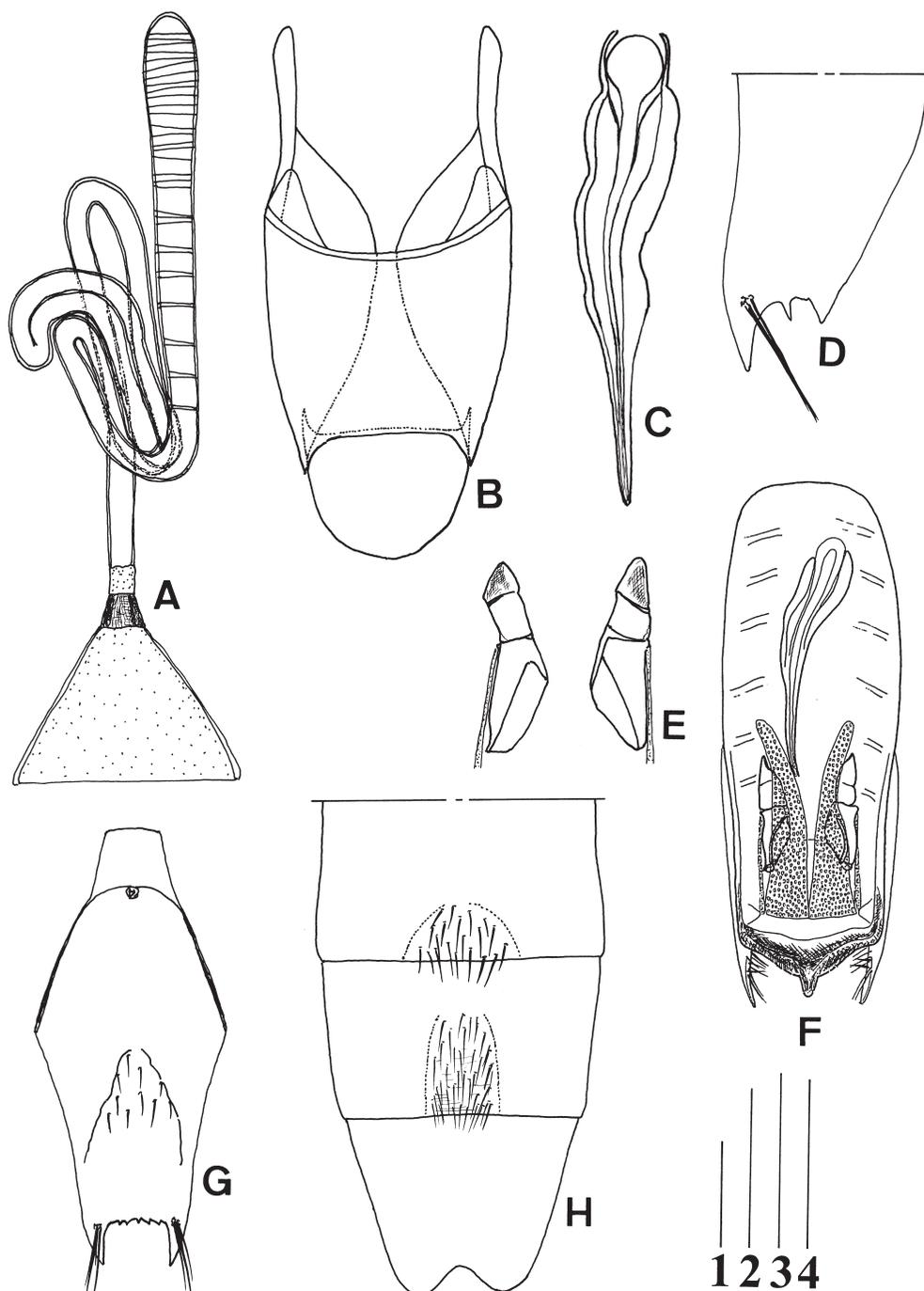


Fig. 14. *Stenus fujiensis* Puthz (Shizuoka: A, B, D, Fujinomiya; Yamanashi: C, E–H, Mt. Fuji). A, spermatheca; B, 9th and 10th terga of male; C, copulatory tube; D, posterior part of gonocoxite; E, endophallic expulsion hooks; F, aedeagus; G, 9th ventrite of male; H, 6th, 7th and 8th ventrites of male. Scale 1: 0.05 mm for A; scale 2: 0.2 mm for B, G, 0.1 mm for C–E; scale 3: 0.2 mm for F; scale 4: 0.3 mm for H.

xi. 2000, S. Nomura leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 3.4–3.6 mm (fore body 1.6–1.7 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red to dark brown; labrum dark reddish brown to almost black; antennae and legs reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum partially with subrugose punctures and elytra partially with large, coarse punctures. Head shallow to moderately concave, with a pair of longitudinal-oblique or almost longitudinal furrows (or depressions); antennae short, thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen nearly almost cylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 14H) modified with a broad, flat area on the 6th, an elongate, shallow depression on the 7th, and a triangular emargination on the 8th ventrite; 9th tergum (Fig. 14B) with ventral apophyses thin, long; 9th ventrite (Fig. 14G) with apicolateral teeth short, acute, apicolateral setae slightly short; 10th tergum (Fig. B) entire. Aedeagal median lobe (Fig. 14F) relatively broad, obtusely angulate at apicolateral corners, obtusely pointed with an apicomedian cusp; apical sclerotized area broad-subtriangular in shape. Endophallus (Fig. 14F) with copulatory tube (Fig. 14C) moderately long, basal chamber small, main tube with basal tube thick, sinuous, apical tube very thin, attenuate, sometimes slightly swollen at the most apical part; dorsolateral bands very thin; expulsion hooks (Fig. 14E) separated, each with anterior plate demarcated by a suture from posterior plate, and also further divided into 2 small subplates; ventromedian bands each with basal band very broad at posterior margin, narrowing toward anterior tip. Parameres (Fig. 14F) each acutely pointed at apex; apical area short, weakly angulate mesially at base, mesially also with about 8 setae.

Female: Eighth ventrite (Fig. 14I) pointed posteromedially with a very small cusp; gonocoxites (Fig. 14D) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 14A) with capsule lost; striped duct long, thick; duct moderately long, thin, loosely coiled with about 8 turns; basal valve very short; basal sclerotized duct very short, truncated-conical in shape.

Biology and ecology. The beetles of *S. fujiensis* inhabit leaf litter heaped in the natural forests of mountainous to high mountainous regions. They are collected from the litter in the mixed forests of birch, alder, etc. which spread at the timber line of the Subaru-line of Mt. Fuji. These beetles are not rare there.

Remarks. *S. fujimontis* is a sister species of *S. fujimontis*, and it is separable from the latter species by the abdominal modifications of male developed on the 6th to 8th ventrites (Fig. 14H), the aedeagal median lobe broader, with its apical sclerotized area broad-subtriangular in shape (Fig. 14F), the copulatory tube without its distinct demarcation between the basal and apical tubes (Fig. 14C), and the endophallic expulsion hook thicker (Fig. 14F).

Stenus gracilior Naomi
(Fig. 15A–E)

Stenus gracilior Naomi, 2015: 3.

Type material examined. Holotype: ♂ (CBM), Fudakake, Mts. Tanzawa, Kanagawa Pref., 8. ix. 2011, T. Watanabe leg. Paratype: 1 ♂ (KUMF), Mt. Ooyama, Mts. Tanzawa, Kanagawa Pref.,

3. vii. 2006, T. Watanabe leg.

Other material examined. [HONSHU]: 1 ♂, Mt. Ooyama, Mts. Tanzawa, Hadano City, Kanagawa Pref., 19. x. 2000, S. Nomura leg.

Distribution. Japan: Honshu (Kanagawa Pref.).

Redescription. Male: Body 3.5–3.6 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red; labrum dark red; antennae and legs pale reddish brown to reddish brown. Body with punctures small to moderately large, round

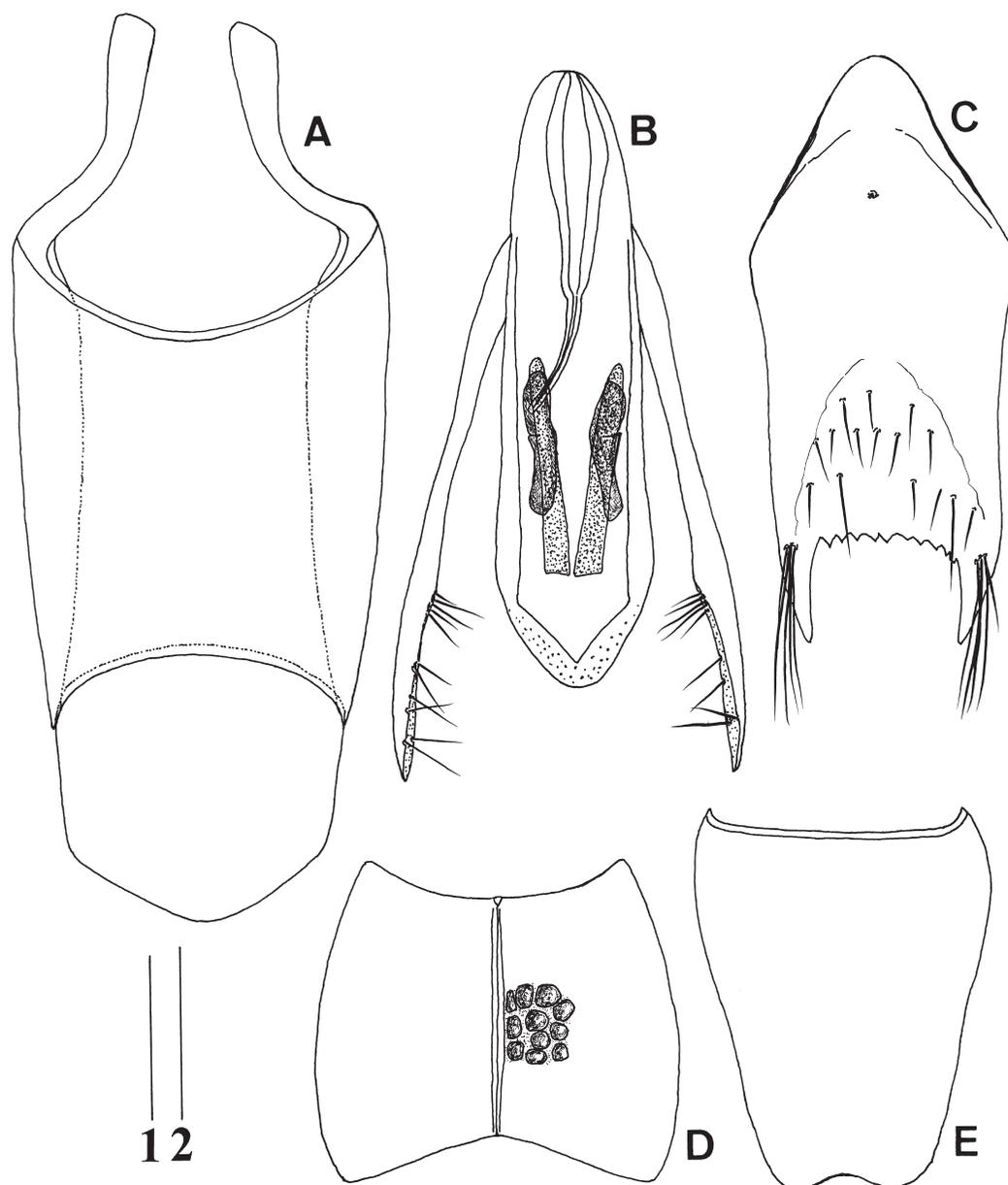


Fig. 15. *Stenus gracilior* Naomi (Kanagawa: Mt. Tanzawa). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite; D, elytra; E, 8th ventrite of male. Scale 1: 0.1 mm for A–C, 0.2 mm for E; scale 2: 0.3 mm for D.

to elliptical, and elytra also partially with large punctures. Head shallowly concave, with a pair of mesially-curved furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra (Fig. 15D) with surface uneven; abdomen almost cylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen modified with a small flat area on the 7th, and a broad, shallow emargination on the 8th ventrite (Fig. 15E); 9th tergum (Fig. 15A) with ventral apophyses short; 9th ventrite (Fig. 15C) with macrosetae moderately long, apicolateral teeth very long, acute, apicolateral setae long; 10th tergum (Fig. 15A) obtusely angulate posteromedially. Aedeagal median lobe (Fig. 15B) slender, widely, moderately rounded and broadest at apicolateral corners, narrowly rounded at apicomedian part; apical sclerotized area covered with small pores. Endophallus (Fig. 15B) with copulatory tube moderately long, with basal chamber (?) and basal tube together forming a loofah-shaped tube, apical tube very thin, attenuate, weakly curved; dorsolateral bands invisible; expulsion hooks each elongate; ventromedian bands thin, relatively short. Parameres (Fig. 15B) very long; apical area very long, weakly swollen mesially at base, mesially also with 5 to 6 setae at base and 4 to 6 setae in the apical 2/3.

Female: Unknown.

Biology and ecology. The beetles of *S. gracilior* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. gracilior* is probably allied to *S. fujimontis* and *S. fujiensis*, but it is easily separable from the latter 2 species by the 9th tergum of male with its ventral apophyses short (Fig. 15A), the aedeagal median lobe much slender (Fig. 15B), and the paramere with its apical area much longer (Fig. 15B).

Incertae sedis (S. friebi-complex)

Key to the Japanese species of *S. friebi-complex*

This is a key for a unit of *Stenus*-species (6 species) beginning with *S. etsukoae* and almost adequately diagnosed with the combination of following character conditions: Abdomen with lateroventrites, usually moderately broad to broad; aedeagal median lobe usually rounded (Fig. 20C), almost rounded (Fig. 17E) or pointed (Fig. 16G) at apex; copulatory tube with main tube usually simple in structure, attenuate (Fig. 17E), and modified if present with thickness at base (Fig. 19D), weak constriction on its way (Fig. 16G), etc.; endophallic expulsion hook well-developed, often with anterior plate almost completely (Fig. 21F) or incompletely (Fig. 18G) divided antero-posteriorly into 2 subplates; spermatheca with duct usually moderately broad to broad (Fig. 18B), short (Fig. 16F) to moderately long (Fig. 17C).

Distribution: Hokkaido, Honshu (Tohoku and Kanto Districts), Nansei Isls.

- 1(8) Male and female: Pronotum and elytra usually yellowish brown to reddish brown.
- 2(7) Male: Aedeagus median lobe narrower, with apical sclerotized area almost flat ventrally; endophallic expulsion hook simple laterally.
- 3(4) Male: Eighth ventrite posteriorly with a deep, V-shaped emargination (Fig. 16A); endophallic expulsion hook thinner (Fig. 16E) *S. etsukoae* Naomi
- 4(3) Male: Eighth ventrite posteriorly with an arcuate, shallow emargination; endophallic expulsion hook broader.

- 5(6) Male: Aedeagal median lobe broader before apicolateral corners, with apical sclerotized area almost rounded apically (Fig. 17E). Female: Spermatheca with duct more strongly bumpy on the surface (Fig. 17C)*S. kazami* Naomi
- 6(5) Male: Aedeagal median lobe narrower before apicolateral corners, with apical sclerotized area minutely incised at apicomedian part (Fig. 18D). Female: Spermatheca with duct almost smooth or less strongly bumpy on the surface (Fig. 18B).....*S. silvaticulus* Naomi
- 7(2) Male: Aedeagus median lobe broader, with apical sclerotized area ventrally with a barb (Fig. 19G); endophallic expulsion hook flanked with a lateral flap (Fig. 19H).....*S. koinobori* Hromádka
- 8(1) Male and female: Pronotum and elytra usually dark reddish brown to dark brown.
- 9(10) Male: Fourth to 7th ventrites without depression (Fig. 20D); aedeagal median lobe broader, with apical sclerotized area almost rounded apically (Fig. 20C).....*S. puthziellus* Naomi & Puthz
- 10(9) Male: Fourth to 7th ventrites each with depression (Fig. 21A); aedeagal median lobe narrower, with apical sclerotized area pointed at apex (Fig. 21C)*S. hagoromo* Naomi

***Stenus etsukoae* Naomi**
(Figs. 16A–G, 131B)

Stenus etsukoae Naomi, 1987: 2; Herman, 2001: 2169; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (KUF), Itomuka, Kitami City, Hokkaido, 23. vii. 1986, S. Nomura leg. Paratypes: 4 ♂2 ♀, same data as holotype; 5 ♂5 ♀, Nissy Pass, Hokkaido, 2. viii. 1986, S. Nomura leg.; 1 ♂1 ♀, Himenuma, Rishiri Is., Hokkaido, 26. vi. 1986, S. Nomura leg.; 1 ♀, same locality, 12. vii. 1977, S. Naomi leg.; 1 ♂, Horoka, Hokkaido, 29. vii. 1986, S. Nomura leg.

Other material examined. [HOKKAIDO]: 1 ♂1 ♀, Wayside pond near Rausunuma, Hokkaido, 21. viii. 1990, M. Sakai leg.; 3 ♀, Tokachi-Mitsumata, Kamishihoro-cho, Hokkaido, 24. vii. 2000, S. Arai leg.; 2 ♂3 ♀, Mt. Midori in Mt. Daisetsu, Hokkaido, 14. viii. 2001, M. Maruyama & H. Sugaya leg.; 1 ♂, Upepesanke, Mt. Daisetsu, Hokkaido, 9. vii. 2002, N. Yasuda leg.

Distribution. Japan: Hokkaido.

Redescription. Male and female: Body 3.0–3.3 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head dark brown with clypeofrontal area reddish brown; pronotum and elytra yellowish brown to reddish brown; abdomen reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with large punctures. Head shallowly concave, with a pair of broad, longitudinal-oblique depressions; antennae short, thin to slightly thick; pronotum with surface uneven, with a median longitudinal furrow distinct; elytra with surface uneven; abdomen slightly expanded laterally, moderately broad to broad, slightly tapering posteriorly to subparallel-sided; lateroventrites horizontal in position, thin, punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 16A) modified with a flat area on the 5th, a shallow depression on the 6th, a moderately deep depression on the 7th, and a deep, V-shaped emargination on the 8th ven-

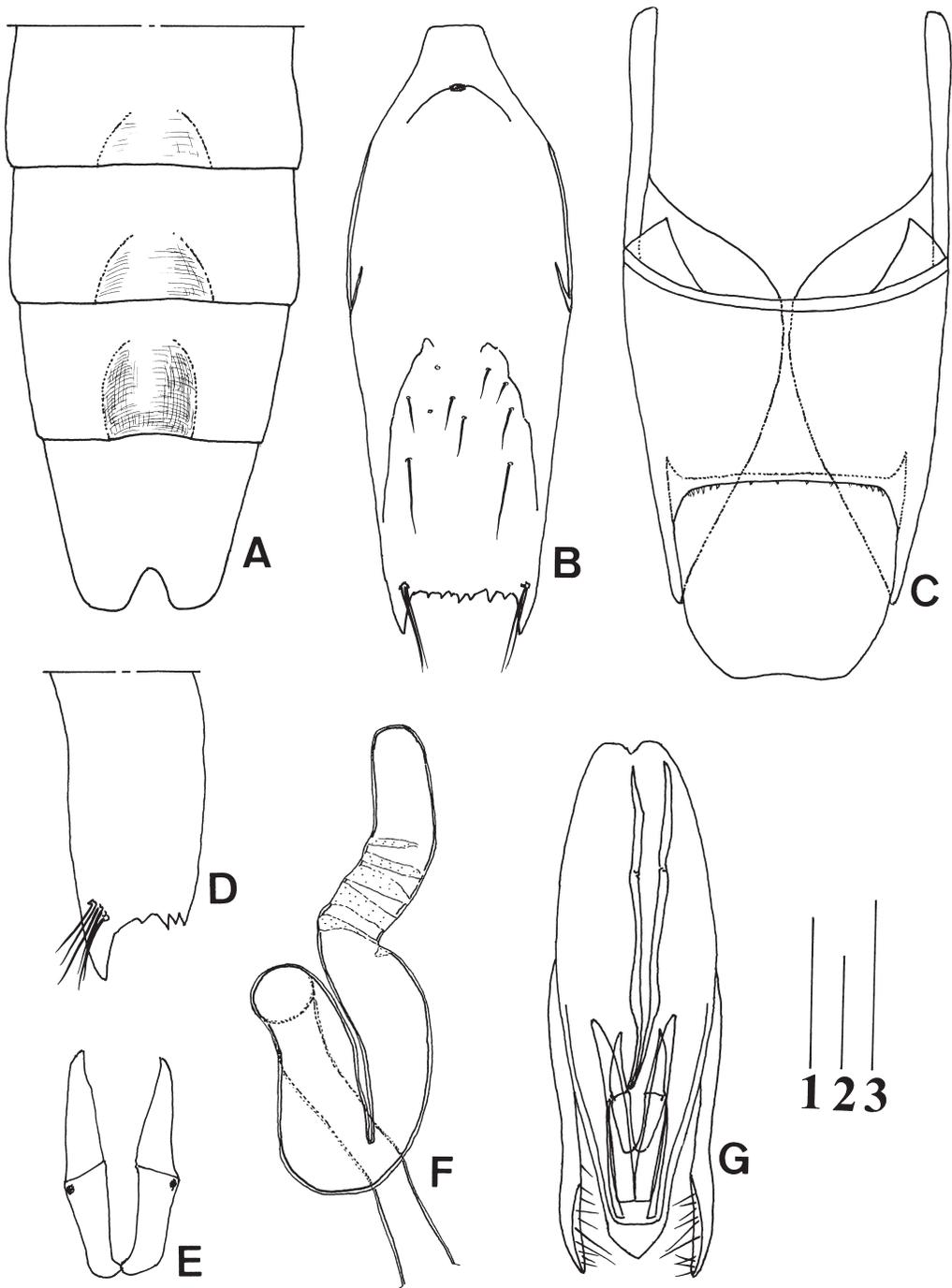


Fig. 16. *Stenus etsukoae* Naomi (Hokkaido: A, Upepesanke, B–G, Itomuka). A, 4th to 7th ventrites of male; B, 9th ventrite of male; C, 9th and 10th terga of male; D, gonocoxite; E, endophallic expulsion hooks; F, spermatheca; G, aedeagus. Scale 1: 0.3 mm for A; scale 2: 0.1 mm for B, C; scale 3: 0.1 mm for D–F, 0.2 mm for G.

trite; 9th tergum (Fig. 16C) with ventral apophyses long; 9th ventrite (Fig. 16B) with macrosetae moderately long, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 16C) very shallowly emarginate posteriorly. Aedeagus (Fig. 16G) with median lobe elongate; apical sclerotized area subtriangular, pointed at apex. Endophallus (Fig. 16G) with copulatory tube having basal chamber long, main tube with basal tube thick, apical tube thin, attenuate; dorsolateral bands very thin; expulsion hooks (Fig. 16E) each with anterior plate narrowing anteriorly, pointed at anterior tip; ventromedian bands relatively short, thin. Parameres (Fig. 16G) each pointed at apex; apical area moderately long, weakly swollen mesially at base, mesially also with 2 long and 8 to 9 short setae.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 16D) each with apicolateral tooth short, acute, apicolateral setae short. Spermatheca (Fig. 16F) with capsule elongate, rounded apically; striped duct short, about as long as capsule; duct short, broad, coiled with 2 turns.

Biology and ecology. *S. etsukoae* is a very common species. The beetles of this species inhabit leaf litter heaped in the natural forests of lowlands through low mountainous to high mountainous regions. They seem to prefer wet leaf litter heaped near the ponds near or among forests.

Remarks. *S. etsukoae* is allied to *S. kazami* and *S. silvaticulus*, but it is separable from the latter 2 species by the abdominal modifications of male developed on the 5th to 8th ventrites (Fig. 16A), the 9th tergum of male with its ventral apophysis longer (Fig. 16C), the aedeagus median lobe simply pointed at apex (Fig. 16G), the endophallic expulsion hook more slender (Fig. E), and the spermatheca with its duct shorter, with 2 turns (Fig. 16F).

Etymology. This species is named after the late mother of first author, Etsuko Naomi.

Stenus kazami Naomi

(Figs. 17A–H, 131C)

Stenus kazami Naomi, 1988a: 80; Herman, 2001: 2245; Naomi & Puthz, 2013: 142.

Stenus imadatei Naomi & Puthz, 1996: 158. **New synonym.**

Type material examined. Holotype of *S. kazami*: ♀ (KUF), Kawarabo, Mt. Hayachine, Iwate Pref., 22–24. vi. 1980, S. Naomi leg. Paratype of *S. kazami*: 1 ♂, same data as holotype of *S. kazami*.

Holotype of *S. imadatei*: ♀ (SMNHS), Mt. Hayachine, Iwate Pref., 18. vi. 1971, G. Imadate leg.

Other material examined. [HONSHU]: 1 ♂, Tsuta Spa, Aomori Pref., 8. viii. 1964, Y. Shibata leg.; 1 ♂, Cape Tappi, Aomori Pref., 30. ix. 1992, M. Sakai leg.; 1 ♂, Yagen Spa, Ohta-cho, Aomori Pref., 5–6. viii. 1992, T. Kishimoto leg.; 1 ♀, Yachi Spa, Aomori Pref., 6. viii. 1964, Y. Shibata leg.; 1 ♂ 2 ♀, Mt. Iwaki, Aomori Pref., 29. ix. 1992, M. Sakai leg.; 1 ♂ 2 ♀, Dakedai, Fujisato-machi, Akita Pref., 28. viii. 1994, O. Nakamura & Y. Hagino leg.; 1 ♂, Appi highland, Iwate Pref., 1. x. 1992, S. Nirasawa leg.; 1 ♀, Doai Valley, Marumori-machi, Miyagi Pref., 30. xi. 1995, S. Nomura leg.

Distribution. Japan: Honshu (Tohoku District).

Redescription. Male and female: Body 3.0–3.2 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head black, sometimes with median area dark red; pronotum and elytra yellowish brown to reddish brown; abdomen reddish brown to dark reddish brown; labrum reddish

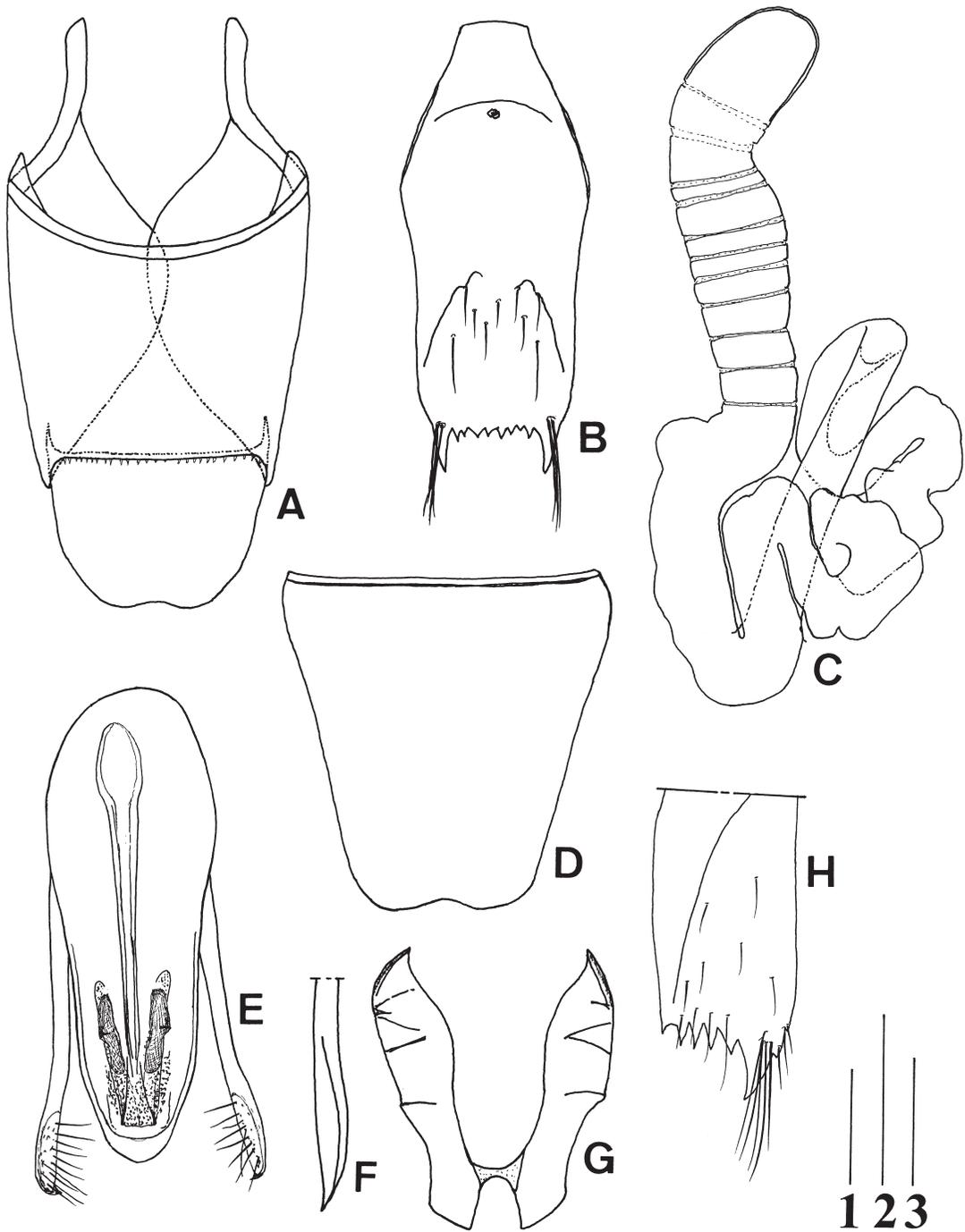


Fig. 17. *Stenus kazami* Naomii (Iwate: A, D, E, G, Appi; Akita: B, Fujisato; Aomori: C, H, Yachi-spa; Iwate: F, Mt. Hayachine). A, 9th and 10th terga of male; B, 9th ventrite of male; C, spermatheca; D, 8th ventrite of male; E, aedeagus; F, apical part of paramere; G, endopthallic expulsion hooks; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B; scale 2: 0.05 mm for C, G, 0.2 mm for D, 0.1 mm for F, H; scale 3: 0.1 mm for E.

brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures. Head shallowly concave, with a pair of broad, longitudinal-oblique depressions; antennae short, thin to slightly thick; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven; abdomen slightly expanded laterally, moderately broad to broad, slightly tapering posteriorly to subparallel-sided; lateroventrites ventromesial in position, thin, punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 17A) modified with an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 17A) with ventral apophyses relatively short; 9th ventrite (Fig. 17B) with macrosetae moderately long, apicolateral teeth short, acute, apicolateral setae long; 10th tergum (Fig. 17A) shallowly emarginate posteromedially. Aedeagus (Fig. E) with median lobe elongate, almost rounded apically; apical sclerotized area crescent, short. Endophallus (Fig. 17E) with copulatory tube having basal chamber ovoidal, main tube very long, straight, subulate; expulsion hooks (Fig. 17E, G) each with anterior plate acutely pointed (Fig. 17G) or almost rounded (Fig. 17E) at anterior tip; ventromedian bands short, thin. Parameres (Fig. 17E, F) each simply, acutely pointed (Fig. 17F) or weakly incurved (Fig. 17E) at apex; apical area short, weakly swollen laterally, mesially with 10 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 17H) each with apicolateral tooth short, very acute, apicolateral setae moderately long. Spermatheca (Fig. C) with capsule large, rounded apically; striped duct moderately long, moderately broad to broad; duct moderately long, broad, somewhat bumpy with tubercles of various sizes on the surface, coiled with 8 to 9 turns.

Biology and ecology. The beetles of *S. kazami* inhabit leaf litter in the natural forests of lowlands near seashores to low mountainous or mountainous regions.

Remarks. *S. imadatei* was described as new species by Naomi & Puthz (1996) only by one specimen (as holotype) of female beetle which was collected from Mt. Hayachine, Iwate Pref., the same holotype locality of *S. kazami*. *S. imadatei* Naomi & Puthz, 1996 is here newly placed in synonymy with *S. kazami* Naomi, 1988a.

S. kazami is allied to *S. silvaticulus*, but it is separable from the latter species by the aedeagal median lobe broader and more or less gradually narrowing apical in about apical 1/2 (Fig. 17E), with its apical sclerotized area shorter and simply rounded apicomediaally (Fig. 17E), the copulatory tube longer (Fig. 17E), and the spermatheca with its duct somewhat bumpy with tubercles of various sizes on the surface (Fig. 17C).

Etymology. The specific epithet of this species is derived from the Japanese term which means the weather vane, *kazami*.

Stenus silvaticulus Naomi

(Figs. 18A–G, 131D)

Stenus silvaticulus Naomi, 1997a: 20; Herman, 2001: 2390; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Iidate Vil., Fukushima Pref., 20. vii. 1985, S. Nomura leg. Paratypes: 1 ♂8 ♀, same locality, 20–21. vii. 1985, S. Nomura leg.; 3 ♂4 ♀, Numapara, Mt. Nasu, Tochigi Pref., 4. vi. 1994, S. Naomi leg.

Other material examined. [HONSHU]: 1 ♀, Futamata Spa, Shimogo-machi, Fukushima Pref., 19. x. 2003, S. Arai leg.

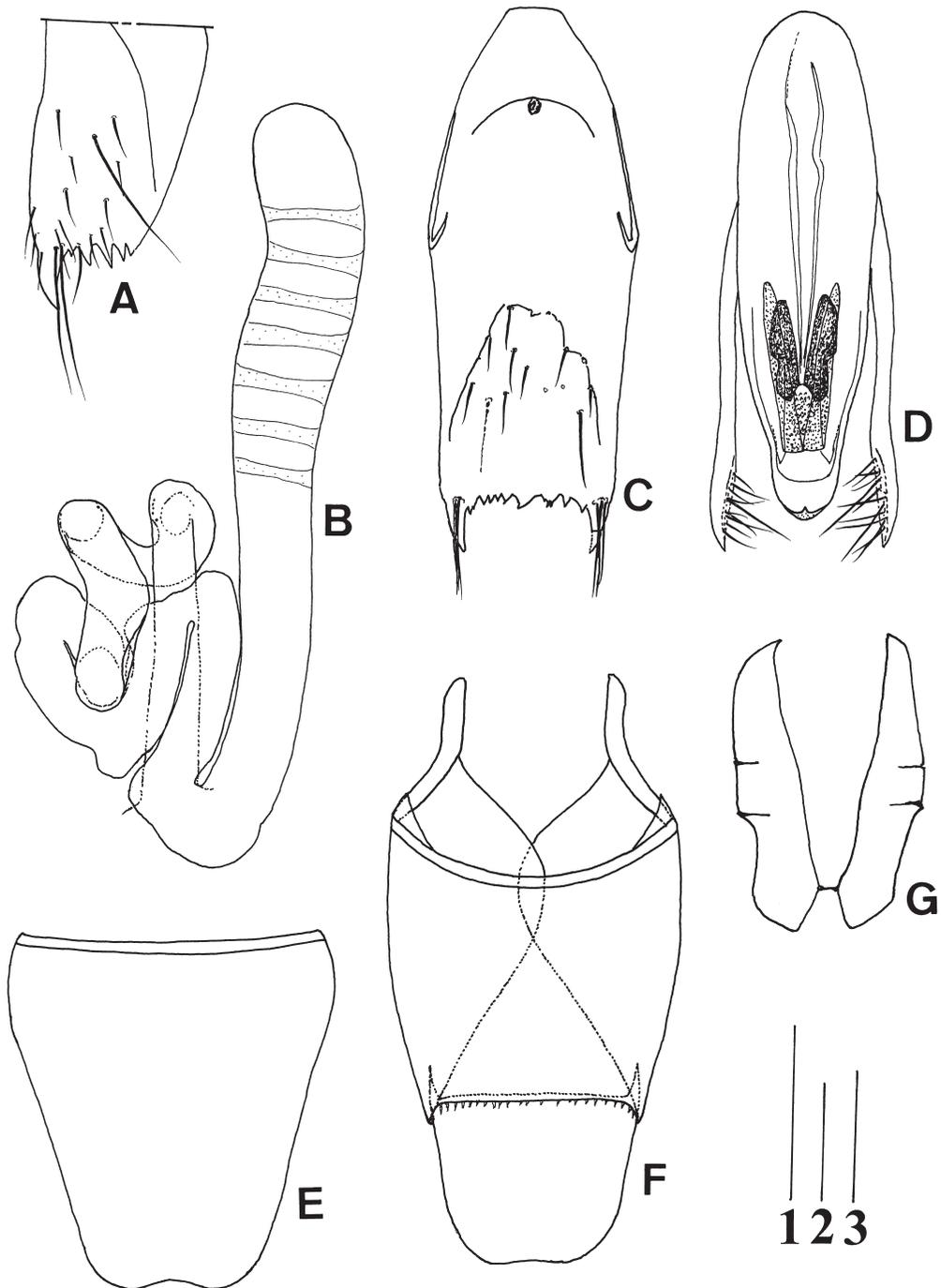


Fig. 18. *Stenus silvaticulus* Naomi (Fukushima: A, B, D–G, Iidate; Tochigi: C, Mt. Nasu). A, posterior part of gonocoxite; B, spermatheca; C, 9th ventrite of male; D, aedeagus; E, 8th ventrite of male; F, 9th and 10th terga of male; G, endophallic expulsion hooks. Scale 1: 0.1 mm for A, 0.05 mm for B, G, 0.2 mm for E; scale 2: 0.1 mm for C, F; scale 3: 0.1 mm for D.

Distribution. Japan: Honshu (Fukushima and Tochigi Prefs.).

Redescription. Male and female: Body 3.0–3.3 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head black, sometimes with median area reddish brown to dark red; pronotum, elytra and abdomen yellowish brown to reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head shallowly concave, with a pair of broad, longitudinal-oblique or mesially-curved furrows (or depressions); antennae short, thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen slightly expanded laterally, slightly tapering posteriorly to subparallel-sided; lateroventrites ventromesial in position, thin, punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 18E) modified with an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 18F) with ventral apophyses short; 9th ventrite (Fig. 18C) with macrosetae long, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 18F) very shallowly emarginate posteriorly. Aedeagus (Fig. 18D) with median lobe elongate, moderately constricted a little before the base of apical sclerotized area; apical sclerotized area almost semicircular, rounded apically, with a minute apicomedian incision. Endophallus (Fig. 18D) with copulatory tube having basal chamber elongate-ovoidal in shape, main tube long, straight, subulate; expulsion hooks (Fig. 18G) each with anterior plate more or less pointed at anterior tip; ventromedian bands short. Parameres (Fig. 18D) each acutely pointed at apex; apical area short, weakly swollen laterally, mesially with 10 to 12 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 18A) each with apicolateral tooth slightly short, acute, apicolateral setae long. Spermatheca (Fig. 18B) with capsule large, rounded apically; striped duct moderately long, very broad; duct moderately long, moderately broad to broad, almost smooth or partially slightly bumpy with tubercles on the surface, coiled with 8 to 9 turns.

Biology and ecology. The beetles of *S. silvaticulus* inhabit leaf litter in the natural forests of mountainous regions.

Remarks. *S. silvaticulus* is allied to *S. kazami*, but it is separable from the latter species by the aedeagal median lobe narrower and moderately constricted a little before the base of apical sclerotized area (Fig. 18D), with its apical sclerotized area longer and minutely incised apicomediaally (Fig. 18D), and the copulatory tube shorter (Fig. 18D), and the spermatheca with its duct almost smooth or partially slightly bumpy with tubercles on the surface (Fig. 18B).

Stenus koinobori Hromádka
(Figs. 19A–H, 131E)

Stenus koinobori Hromádka, 1980: 115; Herman, 2001: 2248; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♀ (NHMV), Nakayama Pass, Sapporo City, Hokkaido.

Other material examined. [HOKKAIDO]: 5 ♂5 ♀, Mt. Chisenupuri, Hokkaido, 20. vii. 2000, S. Nomura leg.; 1 ♂1 ♀, Sapporo Lake, Sapporo City, Hokkaido, 5. ix. 1984, T. Kishimoto leg.; 1 ♀, Ohsawaguchi, Nopporo, Hokkaido, 4. v. 2000, H. Sugaya leg.; 3 ♂1 ♀, Mt. Yôtei, Hokkaido, 31. viii. 1994, K. Ishii leg.; 4 ♂3 ♀, Mt. Kariba, Shiribeshi, Hokkaido, 13. vi. 1986, S. Nomura leg.; 1 ♂, Mt. Eniwa, Hokkaido, 20. vii. 1995, H. Hoshina leg.

Distribution. Japan: Hokkaido.

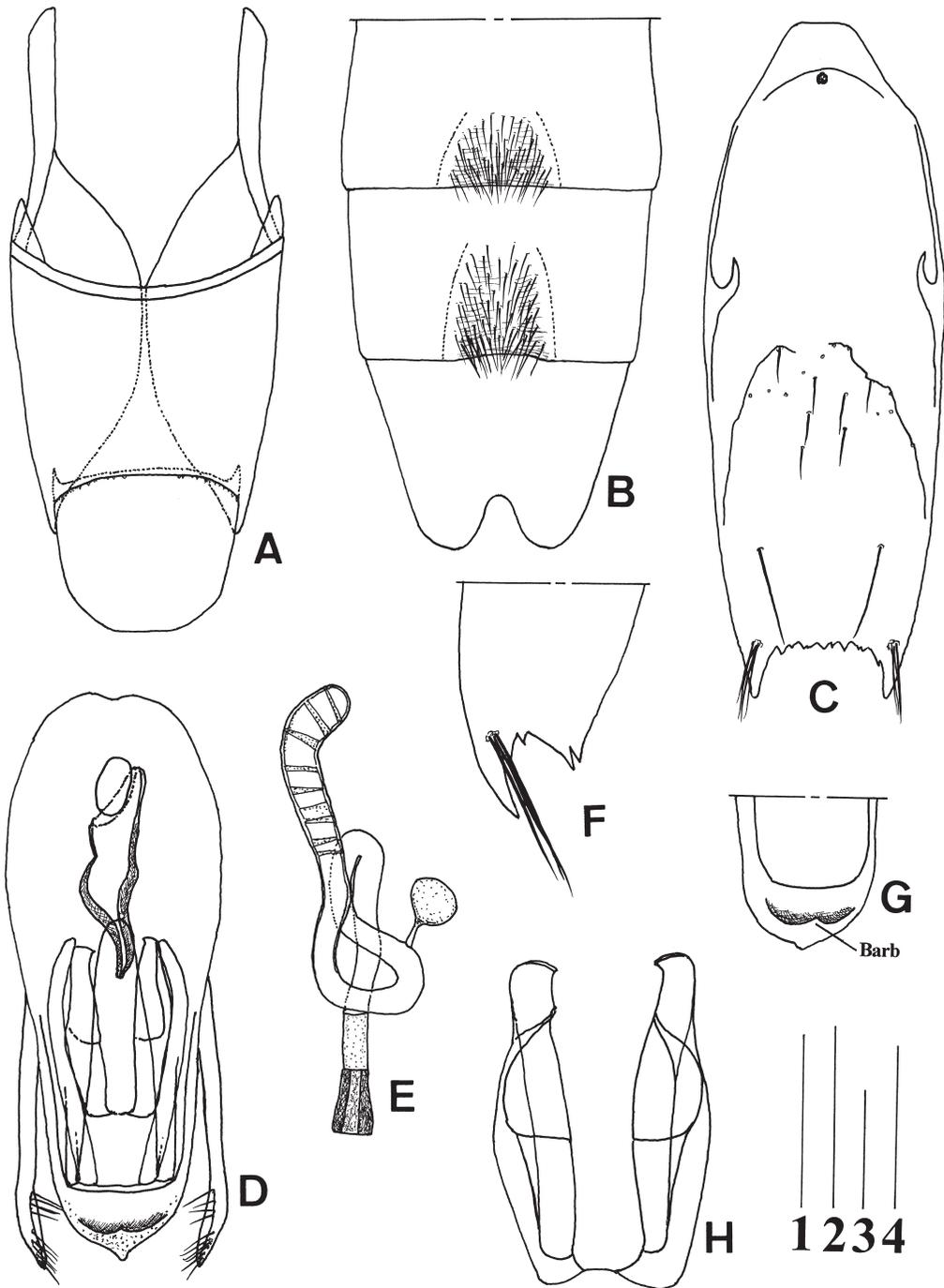


Fig. 19. *Stenus koinobori* Hromádka (Hokkaido: A, G, Eniwa, B, Mt. Chisenupuri, C, D, H, Sapporo, E, F, Mt. Kariba). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, aedeagus; E, spermatheca; F, posterior part of gonocoxite; G, apical part of aedeagus; H, endophallic expulsion hooks. Scale 1: 0.2 mm for A, D, 0.1 mm for E, F, H; scale 2: 0.3 mm for B; scale 3: 0.1 mm for C; scale 4: 0.2 mm for G.

Redescription. Male and female: Body 2.7–3.5 mm (fore body 1.3–1.7 mm) in length. Body moderately shining; head black, with median or clypeofrontal area yellowish brown to reddish brown; pronotum, elytra and abdomen reddish brown to brown; labrum yellowish brown to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows (or depressions), and sometimes also with a pair of large foveae behind antennal tubercles or near the middle on the lateral parts of interocular area; antennae short, very thin to thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen slightly expanded laterally, slightly tapering posteriorly to subparallel-sided; lateroventrites almost horizontal in position, thin, punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 19B) modified with a shallow depression on the 6th, a moderately deep, elongate depression on the 7th, and a nearly V-shaped emargination on the 8th ventrite; 9th tergum (Fig. 19A) with ventral apophyses long; 9th ventrite (Fig. 19C) with macrosetae very long, apicolateral teeth short, almost acute, apicolateral setae short to moderately long; 10th tergum (Fig. 19A) entire. Aedeagus (Fig. 19D) with median lobe moderately broad, minutely pointed with a small apicomedian cusp; apical sclerotized area almost semicircular, rounded apicolaterally, with a small barb at the median part of ventral side (Fig. 19G). Endophallus (Fig. 19D) with copulatory tube short, thick, slightly asymmetrical, with main tube strongly narrowing apicad behind the middle; expulsion hooks each flanked with a lateral flap (Fig. 19H), anterior plate incurved and pointed at anteromesial part; ventromedian bands with the fused broad median band becoming narrower anteriorly and the dorsally folded bands widely separated. Parameres (Fig. 19D) each weakly incurved at apical area, pointed at apex; apical area short, mesially with 4 short setae at base and 6 short setae near apex.

Female: Eighth ventrite well-rounded posteriorly; gonocoxites (Fig. 19F) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 19E) with capsule almost lost or very short, rounded apically; striped duct short to moderately long; duct thin, loosely coiled with 3 turns; gland with opening located on the lateral surface of duct between the 2nd and 3rd turns.

Biology and ecology. The beetles of *S. koinobori* inhabit leaf litter in the natural forests of lowlands to mountainous regions.

Remarks. *S. koinobori* is probably allied to *S. puthziellus*, but it is separable from the latter species by the body paler in color (Fig. 131E), the aedeagal median lobe with its apical sclerotized area having a ventral barb (Fig. 19G), the endophallic expulsion hook with a lateral flap (Fig. 19H), and the spermatheca shorter and thinner (Fig. 19E).

Etymology. The specific epithet of this species is derived from the Japanese term which means carp-shaped streamer, *koinobori*.

***Stenus puthziellus* Naomi**
(Figs. 20A–H, 131F)

Stenus puthziellus Naomi, 1997a: 2; Herman, 2001: 2364; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♀ (CBM), Mt. Hayachine, Iwate Pref., 17. vii. 1985, S. Nomura leg. Paratype: 1 ♀, same data as holotype.

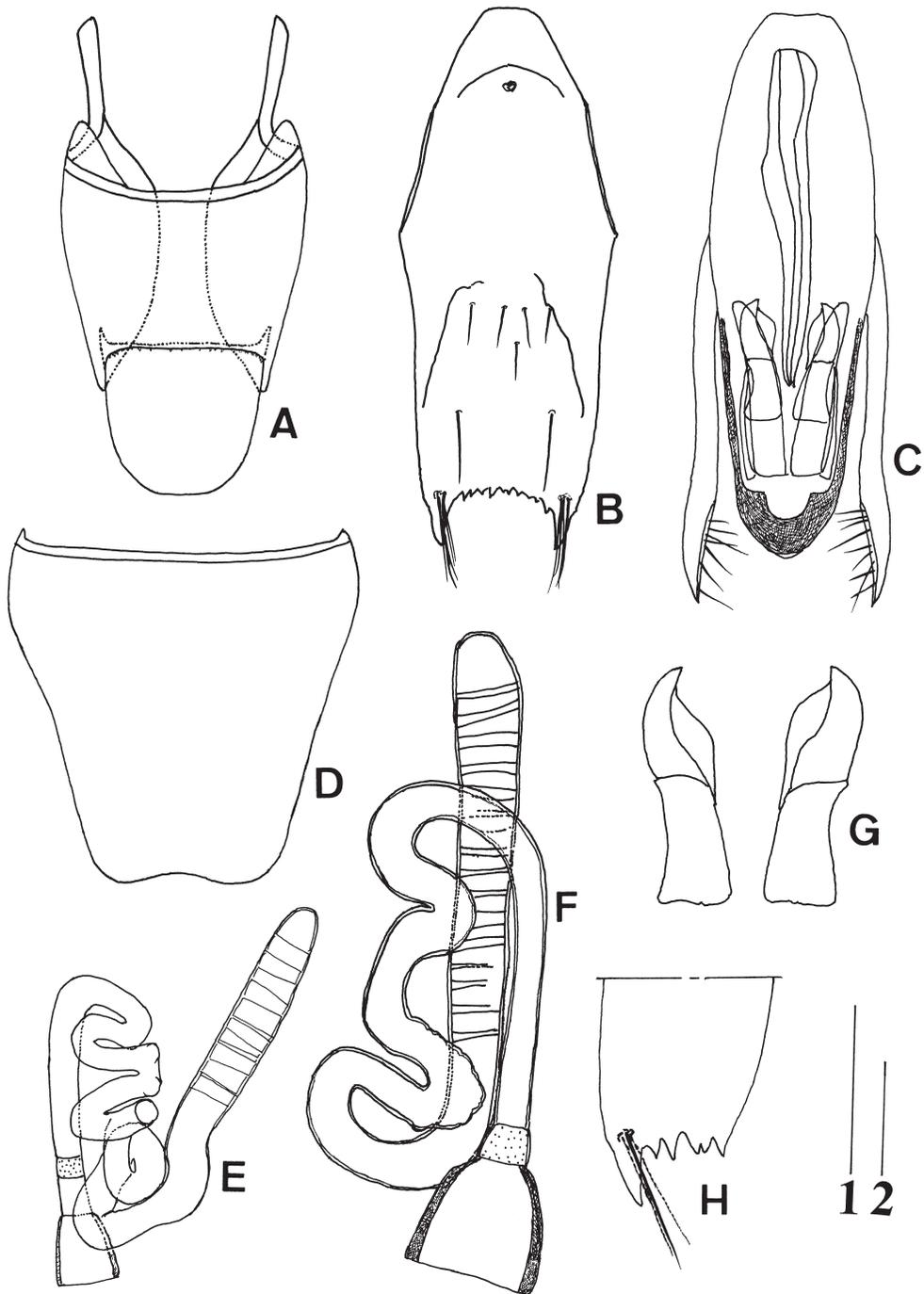


Fig. 20. *Stenus puthziellus* Naomii (Miyagi: A, B, D, E, Mt. Zao; Iwate: C, F–H, Mt. Hayachine). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, 8th ventrite of male; E, F, spermatheca; G, endophallic expulsion hooks; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, D, 0.1 mm for E, H, 0.05 mm for F; scale 2: 0.1 mm for B, C, 0.05 mm for G.

Other material examined. [HONSHU]: 2 ♂3 ♀, Summit of Mt. Yakushi in Mt. Hayachine, 3. vii. 2015, H. Yokozeki leg.; 4 ♀, Mt. Hayachine, Iwate Pref., 2. vii. 2015, I. Matoba leg.; 1 ♂1 ♀, Mt. Karita in Mt. Zaô, Zaô-cho, Miyagi Pref., 11. vi. 2014, H. Yokozeki leg.; 4 ♀, Mt. Zaô, Zaô-cho, Miyagi Pref., 11. vi. 2014, T. Matoba leg.

Distribution. Japan: Honshu (Iwate and Miyagi Prefs).

Redescription. Male and female: Body 3.2–3.5 mm (fore body 1.6–1.8 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark reddish brown to dark brown; labrum dark red to black; antennae and legs reddish brown to dark brown. Body with punctures small to moderately large, round to almost round, and also pronotum and elytra partially with coarse or subrugose punctures. Head moderately concave, with a pair of narrow to broad, longitudinal-oblique furrows or depressions; antennae short, thin; pronotum with surface uneven, with a median longitudinal furrow indistinct or a central hollow distinct; elytra with surface uneven; abdomen slightly expanded laterally, slightly tapering posteriorly to parallel-sided; lateroventrites horizontal in position, thin, punctate, tergoventrite sutures distinct.

Male: Abdomen (Fig. 20D) modified with an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 20A) with ventral apophyses relatively short; 9th ventrite (Fig. 20B) with macrosetae long, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 20A) rounded posteriorly. Aedeagus (Fig. 20C) with median lobe well-sclerotized, elongate, almost rounded apically; apical sclerotized area almost semicircular, basimedially with a large, U-shaped emargination. Endophallus (Fig. 20C) with copulatory tube having main tube long, thick; dorsolateral bands thin; expulsion hooks (Fig. 20G) relatively broad, with posterior plate truncate posteriorly; ventromedian bands relatively short, moderately broad. Parameres (Fig. 20C) moderately broad, each acutely pointed at apex; apical area relatively short, weakly swollen mesially at base, mesially also with 7 to 9 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 20H) each with apicolateral tooth short, acute, apicolateral setae moderately long. Spermatheca (Fig. 20E, F) with capsule short, rounded apically; striped duct moderately long to long; duct moderately long, moderately broad to broad, coiled with 6 to 9 turns.

Biology and ecology. The beetles of *S. puthziellus* inhabit leaf litter in the natural forests of mountainous regions.

Remarks. *S. puthziellus* is similar to *S. koinobori*, but it is separable from the latter species by the body darker in color (Fig. 131F), the aedeagal median lobe with its apical sclerotized area without a ventral barb (Fig. 20C), the endophallic expulsion hook simple laterally (Fig. 20G), and the spermatheca longer and thicker (Fig. 20E, F).

Etymology. This species is named after the third author of this paper, Volker Puthz.

***Stenus hagoromo* Naomi**

(Figs. 21A–H, 131G)

Stenus hagoromo Naomi, 1988: 38; Herman, 2001: 2211; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Mt. Omoto, Ishigaki Is., Okinawa Pref., 20. iii. 1978, S. Naomi leg. Paratypes: 1 ♂, Mt. Omoto, Ishigaki Is., Okinawa Pref., 20. iii. 1978, S. Naomi leg.; 1 ♂4 ♀, same locality, 22. iii. 1984, S. Nomura leg.; 2 ♀, same locality, 9. iv. 1986, S. Nomura leg.; 2 ♂4 ♀, same locality, 20. iii. 1978, S. Nomura leg.; 4 ♀, Kanpira fall, Iriomote Is., Okinawa Pref., 27. iii. 1984, S. Nomura leg.; 1 ♂1 ♀, Mt. Urabu, Yonaguni Is., Okinawa

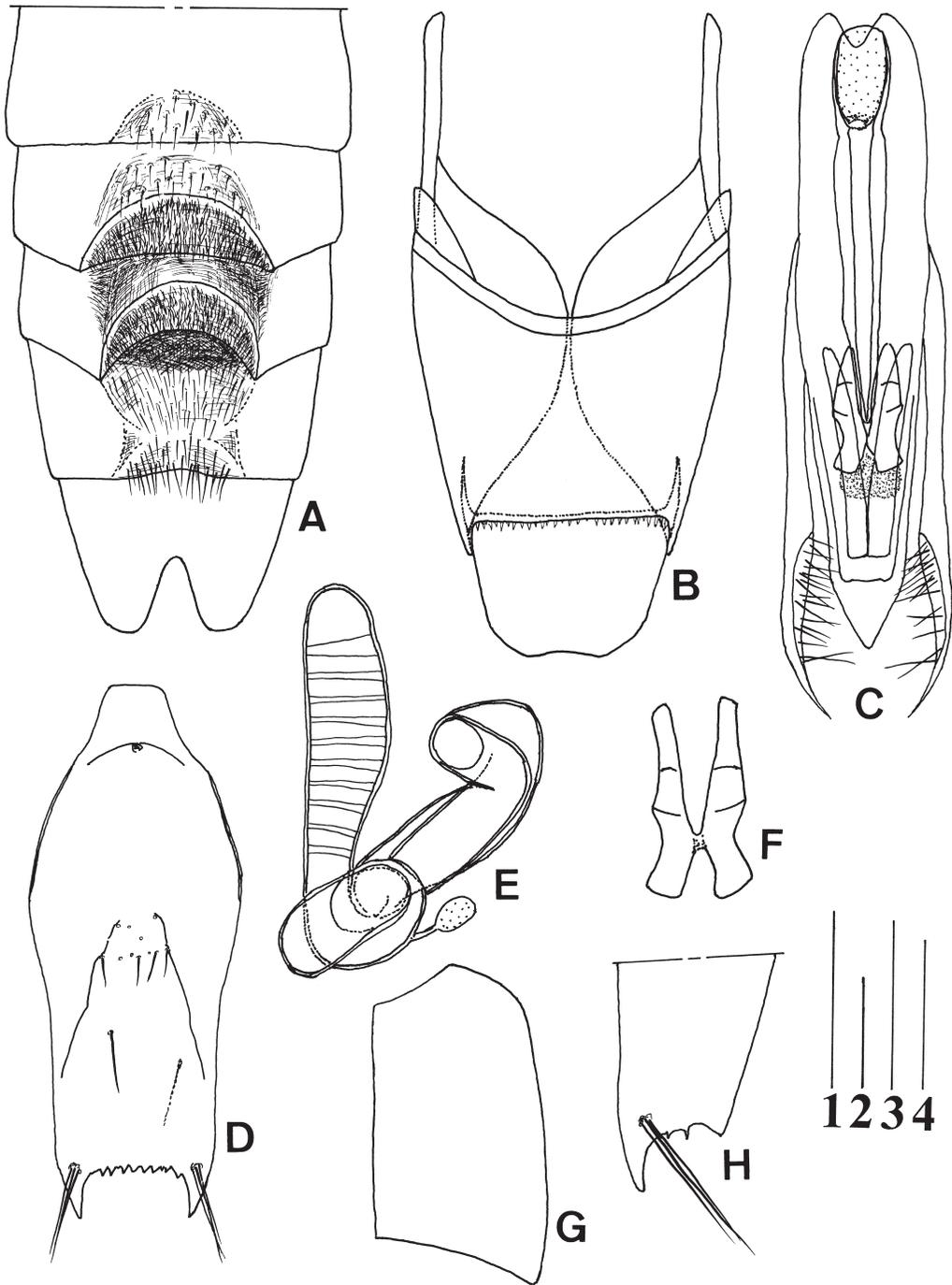


Fig. 21. *Stenus hagoromo* Naomi (Okinawa: A–C, E–H, Ishigaki Is., Mt. Omoto, D, Iriomote Is., Komi). A, 4th to 7th ventrites of male; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male; E, spermatheca; F, endophallic expulsion hooks; G, right elytra; H, posterior part of gonocoxite. Scale 1: 0.3 mm for A; scale 2: 0.1 mm for B–D; scale 3: 0.1 mm for E, F, H; scale 4: 0.3 mm for G.

Pref., 6. vi. 1983, S. Imasaka leg.

Other material examined. [NANSEI ISLS.]: 1 ♂1 ♀, Mt. Banna, Ishigaki Is., Okinawa Pref., 26. iii. 1993, I. Matoba leg.; 3 ♂6 ♀, Komi, Iriomote Is., Okinawa Pref., 13–16. iii. 2002, H. Sugaya leg.; 1 ♂, Ohtomi, Iriomote Is., Okinawa Pref., 21. iv. 1993, H. Kojima leg.; 1 ♂2 ♀, Mt. Inbi, Yonaguni Is., Okinawa Pref., 23. iv. 1993, H. Kojima leg.; 1 ♂2 ♀, Mt. Donan, Yonaguni Is., Okinawa Pref., 17. iii. 1993, S. Nomura leg.

Distribution. Japan: Nansei Isls. (Okinawa Pref.: Ishigaki Is., Iriomote Is., Yonaguni Is.).

Redescription. Male and female: Body 2.8–3.3 mm (fore body 1.4–1.8 mm) in length. Body moderately shining; head black, sometimes with median or clypeofrontal area reddish brown to dark red; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum dark reddish brown; antennae and legs yellowish brown. Body with punctures small to moderately large, round to almost round or elliptical, and also pronotum and elytra partially with coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique depressions, and also with a pair of large foveae behind antennal tubercles; antennae short to moderately long, thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct or a median hollow moderately distinct; elytra (Fig. 21G) with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites lost, tergoventrite sutures distinct.

Male: Abdomen (Fig. 21A) modified with a semicircle flat area on the 4th, a large, semilunar, broad, deep depression on the 5th, a broad, very shallow anteromedian depression and a large, very deep posteromedian depression on the 6th, a very large, moderately deep or deep anteromedian depression and a small, semilunar, transverse, shallow posteromedian depression on the 7th ventrite, and a very deep V-shaped emargination on the 8th ventrite; 9th tergum (Fig. 21B) with ventral apophyses long; 9th ventrite (Fig. 21D) with macrosetae moderately long, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 21B) very shallowly emarginate posteriorly. Aedeagus (Fig. 21C) with median lobe very slender, elongate; apical sclerotized area (Fig. 21C) triangular, pointed at apex. Endophallus (Fig. 21C) with copulatory tube having basal chamber ovoidal, main tube thick, long; expulsion hooks (Fig. 21F) fused at the posterior 2/3, each with anterior plate almost divided antero-posteriorly into 2 subplates, posterior plate a little broader than anterior one; ventromedian bands moderately long, moderately broad. Parameres (Fig. 21C) each falcate at apical area, very acicular at the most apical part; apical area very long, mesially with 16 to 18 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 21H) each with apicolateral tooth short, acute, apicolateral setae long. Spermatheca (Fig. 21E) with capsule broad, rounded apically; striped duct moderately long, broad to very broad; duct broad, coiled with 7 turns.

Biology and ecology. *S. hagoromo* is a common species. The beetles of this species inhabit the leaf litter in the subtropical natural forests of low mountainous regions.

Remarks. *S. hagoromo* is a sister species of *S. perspicabilis* Puthz, 2012 from Taiwan, but it is separable from the latter species by the abdominal lateroventrites lost in the 4th to 6th segments, the aedeagal median lobe with its apical sclerotized area larger (Fig. 21C), and the endophallic expulsion hook thinner (Fig. 21C). *S. hagoromo* is also separable from the Japanese species of *friebe*-subgroup by the conspicuous deep emargination of the 5th and 6th ventrites of male (Fig. A).

Etymology. The specific epithet of this species is derived from the Japanese name of a legendary robe of feathers worn by a celestial nymph, hagoromo.

Species group of *S. cephalotes* Sharp

The *cephalotes*-group is a very large, speciose group of species in *Stenus*, which at present consists of 2 subgroups (*cephalotes*-subgr. and *rufescens*-subgr.). This species group is at present widely distributed in the Oriental (India, Indonesia, Sumatra) and Palaeartic (Nepal, China, Taiwan, Korea and Japan) regions (Naomi, 2006, 2012; Puthz, 2012, 2013, 2018; Tang, *et al.*, 2010, 2017; etc.). This group seems to be worthy of considering a species group of *Stenus*, although no distinct apomorphic conditions are, as discussed later in detail, found enough for adequately characterizing the *cephalotes*-group as a monophyletic group.

Subgrouping of the *cephalotes*-group

On the basis of *S. rufescens* as the representative species, the *rufescens*-group was first established, without mentioning which species are classified in it, by Benick (1925) in his key, in which it is separated from the *similis*-gr., *latifrons*-gr. and *fornicatus*-gr. Naomi (2006) studied the Japanese species of *rufescens*-group in detail, and he characterized this group by using several characters (including length of body, color of body, abdominal modifications of male) and established 7 subgroups within it.

On the other hand, the *cephalotes*-group was established by Benick (1942), independently of the establishment of the *rufescens*-group (Puthz, 2008), based on 1 species *S. lacrimulus*, although he stated that the phylogenetic relationship of this species to *S. cephalotes* and *S. rufescens* is loose. After his study, Puthz (2012) briefly characterized this species group by using the abdominal structures (unmarginated, or marginated with paratergites or tergo-sternal sutures) and the form of paraglossae (oval). Naomi (2012) characterized this species group in detail by the use of 4 characters (length of body, color of body, abdominal modifications of male, shape of aedeagal median lobe) in order to separate it from the *asyura*-group. Since several groups of species had been each established only for a small number of Japanese species within the *cephalotes*-group in his early papers on the studies of Japanese *Stenus*, Naomi (2012) also synonymized these species groups with the *cephalotes*-group, and the *rufescens*-group was also synonymized with the *cephalotes*-group at that time.

The *cephalotes*-group and *rufescens*-group have not hitherto been regarded as monophyletic groups in the previous studies, owing to the absence of phylogenetically important apomorphies or synapomorphies for them. However, there seems to be 3 important characters (color of body, abdominal modifications of male, shape of aedeagal median lobe) in order for realizing how the species of these 2 previously established groups can be classified. This is because the present study shows that the peculiar distributions of the plesiomorphic and apomorphic conditions of the 3 characters observed among the species of these 2 groups, as discussed later in detail, may play a role as clues for discerning that the more advanced *rufescens*-group is found, relative to the more basal *cephalotes*-group. This suggests that both groups can be at least tentatively established taxonomically.

Therefore, we treated the 2 above-mentioned groups of species as subgroups of the *cephalotes*-group (*sensu lato*), namely, *cephalotes*-subgroup and *rufescens*-subgroup, based on the detailed analysis of the 3 taxonomic characters as below. It is concluded here that the *cephalotes*-group at present consists of 2 subgroups (*cephalotes*-subgr. and *rufescens*-subgr.).

Analysis of the 3 important characters of the *cephalotes*-subgr. and *rufescens*-subgr.

As having been pointed out by Naomi (2006, 2012), the color of body, the abdominal modifications of male, and the shape and structure of aedeagal median lobe are seemingly useful for characterizing the subgroups of *cephalotes*-group, because the extremely diverse conditions are found in almost all of the other characters among the species of *cephalotes*-group. We are to here analyse these 3 characters for each of the *cephalotes*-subgr. and *rufescens*-subgr., and determine which character conditions can be used as clues for diagnosing and thus establishing the *cephalotes*-group as well as its subgroups (*cephalotes*-subgr. and *rufescens*-subgr.).

Although various colorations of body are found among the species of *cephalotes*-group, the head tends to be more or less similar in color to the abdomen, while the pronotum tends to be more or less similar in color to the elytra. Furthermore, the color of pronotum and elytra and the color of head and abdomen each show considerable amounts of variations among the species of *cephalotes*-group, but the more taxonomically important difference for separating the *cephalotes*-subgr. from the *rufescens*-subgr. is found among the species of *cephalotes*-group, regarding the color of pronotum and elytra than the color of head and abdomen. Therefore, as far as the color of body is concerned, we take up only the color of pronotum and elytra and compare these two subgroups in terms of the color of pronotum and elytra.

(1). The *cephalotes*-subgroup

Color of pronotum and elytra. The pronotum and elytra are dark red or show darker colors than dark red (ranging from dark reddish brown to dark brown or almost black) in the 28 out of the 40 species of *cephalotes*-subgr. On the other hand, in the other 12 species, the pronotum and elytra similarly show darker colors in some specimens as in the 28 species, while they also show paler colors (i.e., reddish brown) in other specimens. Here, the presence of paler color on the pronotum and elytra seems to be apomorphic.

Abdominal modifications of male. The 6th to 8th, 7th to 8th, or 8th ventrites are modified with the flat area and/or shallow depression in addition to the emargination in the 8th ventrite in the 32 species. On the other hand, only in the other 8 species, the deeper depression(s) (e.g., moderately deep or very deep depressions) are found in the 1 or more ventrites (5th to 7th, 6th to 7th, or 7th ventrites) in addition to the emargination in the 8th ventrite. Here, the possessions of deeper depressions are considered to be apomorphic.

Aedeagal median lobe. In the 18 species of *cephalotes*-group, although the aedeagal median lobe is very often more or less bulbous at the base, it is wholly slender, narrow or moderately broad only at the base. The median lobe becomes more or less narrower mostly from near the middle toward the apicolateral corners. The apical sclerotized area of median lobe is semicircular and more or less rounded, or it is triangular to subtriangular (including elongate-subtriangular) and obtusely to acutely pointed at the apex. On the other hand, the median lobe is moderately broad to broad in the 20 species. Out of these 20 species, 9 species possess the apical emargination of median lobe, while 1 species possesses the apical truncation of median lobe. The other 2 species show other peculiar conditions. Namely, one (*S. inexoratus*) has the aedeagal median lobe with a median longitudinal line on the apical sclerotized area, while the other (*S. yoshitomii*) has the aedeagal median lobe without its distinct apicolateral corners. The latter, namely, the moderately broad to broad conditions of median lobe seem to be apomorphic.

When considering the above-mentioned diverse conditions of the 3 characters, no useful apomorphic conditions of characters are found for certain to consider the *cephalotes*-subgr. to be monophyletic. However, in order to separate the *cephalotes*-subgr. from the *rufescens*-subgr., the

cephalotes-subgr. may be, though incompletely but effectively, diagnosed by the combination of apomorphic and plesiomorphic conditions of characters described at the beginning of the *cephalotes*-subgr. (p. 59).

(2). The *rufescens*-subgroup

Color of pronotum and elytra. In the 32 species out of the 60 species of *rufescens*-subgr., the pronotum and elytra show more or less dark colors ranging from reddish brown through dark reddish brown to dark red near black or almost black. On the other hand, in the 27 species, the pronotum and elytra are pale yellowish brown through yellowish brown to reddish orange in some specimens, while they also show darker colors than reddish orange (ranging from reddish brown through dark reddish brown and dark red to almost black) in other specimens. (Note that we have no data regarding the color of one species *S. maiko*, because only one teneral male specimen was able to be examined for this species.) Here, the presence of paler color on the pronotum and elytra seems to be apomorphic.

Abdominal modifications of male. The 6th to 8th, 7th to 8th, or 8th ventrites are modified with the flat area and/or (very) shallow depression in addition to the emargination in the 8th ventrite in the 30 species. On the other hand, various modifications such as depressions, emarginations, protrusions, etc. are developed on the 3rd to 8th, 4th to 8th, 5th to 8th or 6th to 8th in the other 30 species. Furthermore, the slightly deep depression and also deeper depression(s) than the former (e.g., moderately deep, very deep depressions) are found on the 6th or 6th to 7th in the 29 species. Here, the possessions of deeper depressions are considered to be apomorphic.

Aedeagal median lobe. In the 13 species of *rufescens*-subgr., the aedeagal median lobe is similarly formed as in the *cephalotes*-subgr. regarding the shape and structure of basal to median part, but the apical sclerotized area is triangular to subtriangular (including elongate- or broad-subtriangular, subpentagonal) and acutely to very acutely pointed at the apex, always with a median longitudinal line on it. On the contrary, the median lobe is moderately broad to broad, and also more or less broad even at the apicolateral corners in other 16 species. And in the other 31 species, the median lobes are various in shape and structure as follows: Median lobe very narrow in about apical 1/2 (*S. miroku*), extremely narrow and awl-shaped in about apical 1/3 (*S. akojagai*), lacking its apical sclerotized area (*S. tateoitoi*), almost rounded at the apex (*S. mato-bai*), having a pair of large apicolateral protrusions (*S. bifurcatus*). The possession of a median longitudinal line on the apical sclerotized area of median lobe, and also the moderately broad to broad conditions of median lobe seem to be apomorphic.

When considering the above-mentioned highly diverse conditions of 3 characters, no useful apomorphic conditions of characters are also found for certain to consider the *rufescens*-subgr. to be monophyletic. However, in order to separate the *rufescens*-subgr. from the *cephalotes*-subgr., the *rufescens*-subgr. may be, though more or less incompletely but effectively, diagnosed by the combination of apomorphic conditions of characters described at the beginning of the *rufescens*-subgr. (p. 145).

Characterization and diagnosis of the *cephalotes*-group

During the course of this study, we examined in detail and analyzed a lot of external as well as internal (i.e., aedeagal and endophallic) characters in addition to the 3 taxonomically important characters as treated above. However, we failed to discover distinct apomorphic conditions for regarding the whole *cephalotes*-group as a monophyletic group. However, almost all species of this group are more or less easily distinguishable from all of the other species groups of East

Asia, only by the habitus and color of body (Figs. 131J–L, 132–134, 135A–J) and the structure of *Hypostenus*-abdomen. Thus, the *cephalotes*-group, which comprises the *cephalotes*-subgr. and *rufescens*-subgr., is tentatively treated taxonomically as a group of species in this paper, whose taxonomic position must be however rigorously studied in the future by using the modern methods of molecular phylogeny, etc. This group is, though only partially, separable from the presumably most allied species group (*satsuki*-group, many species of which have *Hemistenus*-type abdomen) by the habitus and color of body, the *Hypostenus*-type abdomen, etc.

Diagnostic characters of the *cephalotes*-group. Male and female: Legs each with 4th tarsomere strongly bilobed; abdomen almost always not having laterotergites nor tergoventrite sutures (*Hypostenus*-type). Male: Abdominal ventrites slightly to strongly modified with the flat areas, depressions of various depth (shallow to very deep), emarginations, etc. (Figs. 23A, D, 82E, I, 100F, H); 9th ventrite with a pair of more or less pointed apicolateral teeth (Fig. 23H); aedeagal median lobe various in shape and structure, not having the tricuspidate apex (Figs. 23F, 82B). Female: Gonocoxite with a more or less pointed apicolateral tooth (Figs. 23H, 82D); spermatheca having basic form (Figs. 23G, 82C).

Japanese fauna and species-units of the *cephalotes*-group

The *cephalotes*-group consists of 2 subgroups *cephalotes*-subgroup (40 species) and *rufescens*-subgroup (60 species), and thus 100 species in total from Japan. Since no species is distributed in Hokkaido and Nansei Islands, and their distributional range is at present strictly restricted to Honshu (central Chubu- and Kanto-Districts and western Kinki- and Chugoku-Districts in addition to Fukushima Pref. located at the southern part of Tohoku District), Shikoku and Kyushu. They all are brachypterous species, and each is indigenous to the Japanese Archipelago.

In the present study, the following 3 units of species are treated taxonomically in the *cephalotes*-subgroup, as units mainly for the purpose of species identification: (1) unit of 14 species beginning from *S. alter*, (2) unit of 11 species beginning from *S. kyotoensis*, and (3) unit of 8 species beginning from *S. kyotoensis*. The other 3 units of species also are treated as the similar taxonomic units in the *rufescens*-subgroup as follows: (1) unit of 12 species beginning from *S. yoshidai*, (2) unit of 28 species beginning from *S. matobai*, and (3) unit of 19 species beginning from *S. testaceopiceus*.

Since these units of species are more or less adequately diagnosed as done the beginning of the units by using several characters, they are no doubt supposed not to be polyphyletic. Some of the units of species seem to be actually considered to be geographical as well as more or less morphologically characterized (and thus presumably monophyletic) units. However, several other units of species seem to be basal (or paraphyletic?), relative to the units of species which are diagnosed (and also characterized) by a set or a combination of apomorphic conditions of characters. Thus, further studies are anyway needed to rigorously solve the problem as to whether these taxonomic units are monophyletic or not. We recommend that the readers here notice the limited value of such keys as for the species of the basal species-units.

The species having an aedeagus with the more or less bifurcated or emarginate apex, are found both in the *cephalotes*-subgr. (7 species) and in the *rufescens*-subgr. (1 species). In the present study, they are each classified as *incertae sedis* in their respective subgroups. The former 7 species is arranged at the end of the descriptive section of *cephalotes*-subgr., while the latter 1 species is so at the end of the descriptive section of *rufescens*-subgr.

A list of the Japanese species of the *cephalotes*-group

The *cephalotes*-subgroup

Unit of species 1

- alter* Puthz, 2003 Distribution: Japan (Kyushu).
cephalotes Sharp, 1889 Distribution: Japan (Kyushu).
oblongulus Naomi, 1998 Distribution: Japan (Kyushu).
inexoratus Puthz, 1993 Distribution: Japan (Honshu, Shikoku).
yoshitomii Naomi, 2015a Distribution: Japan (Shikoku).
coffeatus Naomi, 2012 Distribution: Japan (Shikoku).
ryugu Naomi, 1989b Distribution: Japan (Kyushu).
tsushimamontis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Kyushu).
akikoae Naomi, 2021 Distribution: Japan (Kyushu).
kaguyahime Naomi, 1990 Distribution: Japan (Kyushu).
otohime Naomi, 1990 Distribution: Japan (Kyushu).
dainichi Puthz, 2001 Distribution: Japan (Honshu).
amagasui Naomi, 2007 Distribution: Japan (Honshu, Shikoku).
ivanloebli Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).

Unit of species 2

- kyotoensis* Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
jamesashei Naomi, 2012 Distribution: Japan (Honshu).
cinanomontis Naomi & Nomura, 2015 Distribution: Japan (Honshu).
brevispinis Naomi, 2015a Distribution: Japan (Honshu).
incalcaratus Naomi, 2015 Distribution: Japan (Honshu).
inamatus Puthz, 1993 Distribution: Japan (Honshu).
inaestimatus Puthz, 1993 Distribution: Japan (Honshu).
sicyoideus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
keman Naomi, 1990 Distribution: Japan (Honshu).
 =*haniwa* Hromádka, 1990.
hoshinai Naomi, 2012 Distribution: Japan (Honshu).
regularis Naomi & Y. Watanabe, 2015 Distribution: Japan (Honshu).

Unit of species 3

- cohaerens* Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
warabi Naomi & Nomura, 1990 Distribution: Japan (Honshu).
himiko Naomi, 1989a Distribution: Japan (Honshu).
 =*syugen* Naomi, 1989 syn. nov.
subulifer Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
aoi Naomi & Puthz, 1993 Distribution: Japan (Honshu).
intrarius Naomi & Ito, 2018 Distribution: Japan (Honshu).
shojiroi Naomi, 2021 Distribution: Japan (Honshu).
glorificus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).

Incertae sedis

- inaspectus* Puthz, 1993 Distribution: Japan (Shikoku).
kochiensis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Shikoku).
imasakai Naomi, 1989 Distribution: Japan (Kyushu).
cosiciensis Naomi & Hayashi, 2017 Distribution: Japan (Kyushu).
inassuetus Puthz, 1993 Distribution: Japan (Shikoku).
daimio Naomi, 1989 Distribution: Japan (Kyushu).
takashiellus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Kyushu).

The *rufescens*-subgroup**Unit of species 1**

- yoshidai* Naomi, 1997 Distribution: Japan (Shikoku).
hirashimai Naomi, 1989 Distribution: Japan (Kyushu).
yamajii Naomi & Puthz, 1994a Distribution: Japan (Honshu).
gion Naomi & Ito, 2018 Distribution: Japan (Honshu).
inclarescens Puthz, 1993 Distribution: Japan (Honshu).
fulvidus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
notomontis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
obtusus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).
snodgrassi Naomi, 2021 Distribution: Japan (Honshu).
coiffaitiellus Naomi & Puthz, 1993 Distribution: Japan (Honshu).
productus Naomi, 2007 Distribution: Japan (Honshu).
maiko Naomi & Puthz, 1993 Distribution: Japan (Honshu).

Unit of species 2

- matobai* Naomi, 2012 Distribution: Japan (Honshu).
kagura Naomi & Puthz, 1993 Distribution: Japan (Honshu).
toshiharui Naomi, 1990 Distribution: Japan (Kyushu).
akome Naomi, 1989 Distribution: Japan (Honshu, Kyushu).
incumbens Naomi & Y. Watanabe, 2015 Distribution: Japan (Honshu).
amida Naomi, 1989 Distribution: Japan (Shikoku).
pediculifer Naomi & Nomura, 2015 Distribution: Japan (Shikoku).
yoshidaiellus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Shikoku).
rufescens Sharp, 1874 Distribution: Japan (Honshu).
acutatus Naomi, 2012 Distribution: Japan (Honshu).
ichikawai Naomi, 2006 Distribution: Japan (Honshu).
jukata Hromádka, 1982 Distribution: Japan (Honshu).
ferus Naomi, 2012 Distribution: Japan (Honshu).
deltoides Naomi, Nomura & Kamezawa, 2015 Distribution: Japan (Honshu).
ohtoensis Naomi, 2006 Distribution: Japan (Honshu).
cygnipenis Puthz, 2001 Distribution: Japan (Honshu).
agrestis Naomi, 2006 Distribution: Japan (Honshu).
olliformis Naomi, 2006 Distribution: Japan (Honshu).
 =*olliformis owasenus* Naomi, 2006 syn. nov.
ebisu Naomi, 2006 Distribution: Japan (Honshu).

wasabi Hromádka, 1982 Distribution: Japan (Honshu).
daigonis Naomi & Puthz, 1993 Distribution: Japan (Honshu).
ingens Naomi, 2006 Distribution: Japan (Honshu).
 =*ingens ryugatakensis* Naomi, 2006 syn. nov.
lubomiri Naomi, 2006 Distribution: Japan (Honshu).
ichihashii Naomi Distribution: Japan (Honshu).
 =*ichihashii miunensis* Naomi, 2006 syn. nov.
mikawanis Naomi, 1997b Distribution: Japan (Honshu).
gyrosus Naomi, 2006 Distribution: Japan (Honshu).
nakanei Hromádka, 1982 Distribution: Japan (Honshu).
 =*ignolabilis* Naomi, 1997b.
awajinis Naomi stat. nov. Distribution: Japan (Honshu).

Unit of species 3

testaceopiceus Bernhauer, 1938 Distribution: Japan (Honshu).
pubicornis Naomi, 1998a Distribution: Japan (Honshu).
volkeri Naomi, 1998a Distribution: Japan (Honshu).
okiensis Naomi & Shimada, 2008 Distribution: Japan (Honshu).
tsurusakii Naomi, 1998 Distribution: Japan (Honshu).
akojagai Hromádka, 1982 Distribution: Japan (Honshu).
miroku Naomi, 2006 Distribution: Japan (Honshu).
masatakai Naomi & Nomura, 1990 Distribution: Japan (Honshu).
gagyumontis Naomi, 1990a Distribution: Japan (Honshu).
incurvatus Naomi & Nomura, 2015 Distribution: Japan (Honshu, Shikoku).
okamotoi Naomi, 1989a Distribution: Japan (Honshu, Shikoku).
amma Naomi & Nomura, 1990 Distribution: Japan (Honshu, Shikoku).
enma Naomi, 1990a Distribution: Japan (Honshu).
uenoi Naomi & Nomura, 1990 Distribution: Japan (Honshu, Shikoku).
expansus Naomi & Ito, 2018 Distribution: Japan (Honshu).
masaakii Naomi & Nomura, 2015 Distribution: Japan (Honshu).
bosatsu Naomi, 1989 Distribution: Japan (Honshu).
usitatus Naomi & Nomura, 2015 Distribution: Japan (Honshu).
tateoitoi Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).

Incertae sedis

bifurcatus Naomi, 2011 Distribution: Japan (Honshu).

The *cephalotes*-subgroup

Diagnostic characters of the *cephalotes*-subgroup: Male and female: Pronotum and elytra often dark red through dark reddish brown to dark brown or almost black (Fig. 131J); abdominal ventrites of male usually modified only with flat area and/or shallow depressions (Fig. 23A, D). Male: Aedeagal median lobe wholly slender (Fig. 28D), narrow (Fig. 23F) or moderately broad only at base (Fig. 38A), and becoming more or less narrower mostly from near the middle toward apicolateral corners (Fig. 23F), with apical sclerotized area almost rounded (Fig. 27J), triangular or subtriangular without a median longitudinal line (Fig. 23F), otherwise median lobe

moderately broad to broad (Fig. 48A), often with an apical emargination (Figs. 48A, 60C) or an apical truncation (Fig. 54D).

Species unit 1 of the *cephalotes*-subgroup

Key to the Japanese species of the *cephalotes*-subgroup (1)

This is a key for a unit of *Stenus*-species (14 species) beginning with *S. alter* and almost adequately diagnosed with the combination of following character conditions: Abdominal ventrites of male slightly modified mainly with the flat area (Fig. 23A), shallower depression (Fig. 25A), shallower emargination (Fig. 23D); aedeagal median lobe becoming more or less narrower apicad almost behind the middle, with apical sclerotized area nearly triangular to triangular (Fig. 23F); copulatory tube with main tube almost straight, more or less thick at base, and attenuate, and not modified or only slightly modified into a curved tube (Fig. 35C), a subrhombic tube (Fig. 23B), etc.

Distribution: Honshu (Kinki and Chugoku Districts), Shikoku and Kyushu.

- 1(24) Male: Aedeagal median lobe less slender, especially in the posterior 1/2. Female: Spermatheca with duct not having apical chamber.
- 2(21) Male: Aedeagal median lobe narrower at apicolateral corners, with apical sclerotized area developed, more or less triangular or almost semicircular.
- 3(20) Male: Aedeagal median lobe with apicolateral corners more or less developed.
- 4(7) Male: Copulatory tube with main tube elongate-subrhombic in shape.
- 5(6) Male: Aedeagal median lobe with apical sclerotized area almost semicircular or broad-triangular in shape (Fig. 22F). Female: Spermatheca with basal duct moderately thick, and becoming thicker proximad (Fig. 22D) *S. alter* Puthz
- 6(5) Male: Aedeagal median lobe with apical sclerotized area subtriangular (Fig. 23F). Female: Spermatheca with basal duct thin, and not becoming thicker proximad (Fig. 23G) *S. cephalotes* Sharp
- 7(4) Male: Copulatory tube with main tube not rhombic nor subrhombic.
- 8(11) Male: Aedeagal median lobe more slender.
- 9(10) Male: Copulatory tube with basal tube (fused with basal chamber?) elongate-rectangular in shape (Fig. 28E); endophallic expulsion hook broader, with posterior plate fan-shaped posteriorly (Fig. 28F, I, J) *S. ryugu* Naomi
- 10(9) Male: Copulatory tube with basal tube subrhombic in shape (Fig. 30A); endophallic expulsion hook narrower, with posterior plate rod-like (Fig. 30F, I, J) ... *S. akikoe* Naomi
- 11(8) Male: Aedeagal median lobe less slender.
- 12(15) Male: Endophallic expulsion hook with posterior plate slightly hollowed mesially. Female: Spermatheca with duct having a fusiform or nearly fusiform apical chamber.
- 13(14) Male: Aedeagal median lobe with apical sclerotized area broader than long, and lacking a median longitudinal line (Fig. 24F); endophallic expulsion hook with lateral surface smooth (Fig. 24H) *S. oblongulus* Naomi
- 14(13) Male: Aedeagal median lobe with apical sclerotized area longer than broad, and having a median longitudinal line (Fig. 25J); endophallic expulsion hook laterally covered with very minute, pointed tubercles (Fig. 25E) *S. inexoratus* Puthz

- 15(12) Male: Endophallic expulsion hook with posterior plate solid mesially. Female: Spermatheca with duct lacking apical chamber.
- 16(17) Male: Ninth tergum with ventral apophysis thicker (Fig. 34A); endophallic expulsion hook with posterior plate atrophied into a much narrower plate (Fig. 34G)
.....*S. amagasui* Naomi
- 17(16) Male: Ninth tergum with ventral apophysis thinner; endophallic expulsion hook with posterior plate well-developed to be a much broader plate.
- 18(19) Male: Copulatory tube with main tube straight (Fig. 29D); endophallic expulsion hook with posterior plate narrower (Fig. 29F, G, I).....
.....*S. tsushimamontis* Naomi, Nomura & Puthz sp. nov.
- 19(18) Male: Copulatory tube with main tube slightly (Fig. 33F) or moderately (Fig. 33C) curved behind the middle; endophallic expulsion hook with posterior plate broader (Fig. 33H)
.....*S. dainichi* Puthz
- 20(3) Male: Aedeagal median lobe without apicolateral corners (Fig. 26D)
.....*S. yoshitomi* Naomi
- 21(2) Male: Aedeagal median lobe broader at apicolateral corners, with apical sclerotized area hardly developed.
- 22(23) Male: Aedeagal median lobe rounded at apicolateral corners (Fig. 27J, K); copulatory with main tube straight (Fig. 27J, K)
.....*S. coffeatus* Naomi
- 23(22) Male: Aedeagal median lobe obtusely angulate at apicolateral corners (Fig. 35C); copulatory with main tube moderately curved behind the middle (Fig. 35C).....
.....*S. ivanloebli* Naomi, Nomura & Puthz sp. nov.
- 24(1) Male: Aedeagal median lobe more slender, especially in the posterior 1/2. Female: Spermatheca with duct having a large apical chamber.
- 25(26) Male: Aedeagal median lobe less slender, and very slightly rounded laterally (Fig. 31H). Female: Spermatheca with duct having a mesially swollen apical chamber (Fig. 31G)
.....*S. kaguyahime* Naomi
- 26(25) Male: Aedeagal median lobe more slender, and almost straight laterally (Fig. 32D). Female: Spermatheca with duct having a subfusiform apical chamber (Fig. 32C).....
.....*S. otohime* Naomi

***Stenus alter* Puthz**
(Fig. 22A–H)

Stenus micuba Hromádka, 1982: 134 (in part).

Stenus alter Puthz, 2003: 15; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (paratype of *S. micuba*; NHMG), Shimabara, Unzen, Nagasaki Pref., 2. ix. 1934, Suenson leg.

Other material examined. [KYUSHU]: 2♂, Mt. Tara, Nagasaki Pref., 13. iv. 1982, S. Imasaka leg.; 2♂, Mt. Iwaya, Nagasaki Pref., 29. v. 1987, S. Nomura leg.; 1♂2♀, Mt. Inasa, Nagasaki City, Nagasaki Pref., 26. xi. 1990, S. Nomura leg.; 1♂1♀, Todoroki Valley, Nagasaki Pref., 1. vi. 1987, S. Nomura leg.; 2♂, Tanoo, Oomura City, Nagasaki Pref., 15. iii. 1994, S. Imasaka leg.; 1♂1♀, Mt. Unzen, Nagasaki Pref., 17. v. 1986, T. Ito leg.; 2♂3♀, Sanohara, Nakadoori Is., Nagasaki Pref., 29. iv. 1972, S. Kinoshita leg.; 5♂3♀, Mt. Tanna, Nakadoori Is., Nagasaki Pref., 16. viii. 1977, M. Ohishi leg.; 2♂1♀, Kashibaru, Saga Pref., 10. x. 1976, H. Ohishi leg.; 2♂, Mt. Tara,

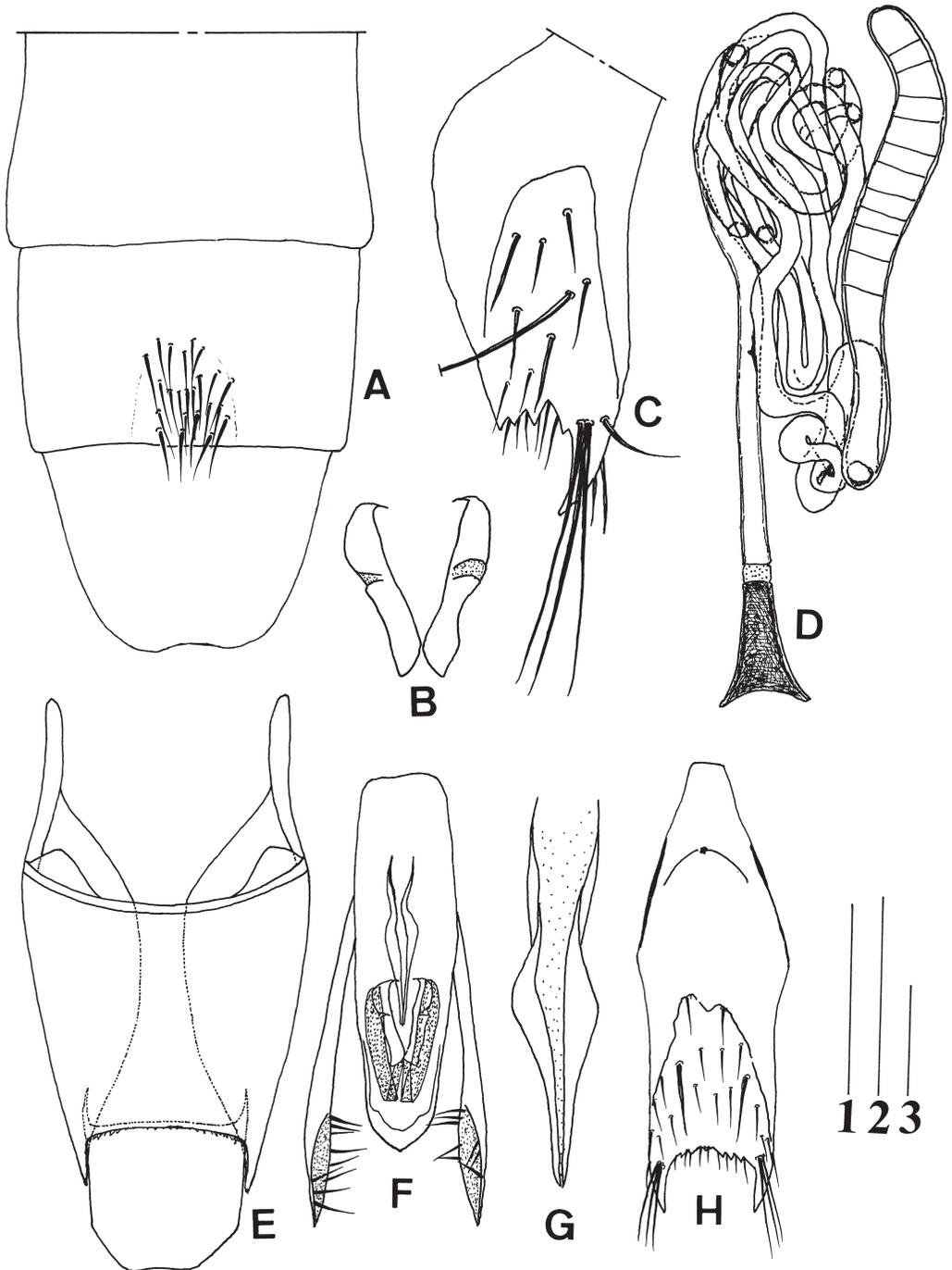


Fig. 22. *Stenus alter* Puthz (Nagasaki: A–B, E–H, Mt. Unzen, C, D, Todoroki Valley). A, 6th to 8th ventrites of male; B, endophallic expulsion hooks; C, gonocoxite; D, spermatheca; E, 9th and 10th terga of male; F, aedeagus; G, copulatory tube; H, 9th ventrite of male. Scale 1: 0.25 mm for A; scale 2: 0.1 mm for B–D, G, 0.2 mm for F, H; scale 3: 0.1 mm for E.

Saga Pref., 14. iv. 1985, S. Nomura leg.; 1♂1♀, Mt. Kyogatake, Saga Pref., 6. vi. 1983, S. Nomura leg.; 4♂11♀, Mt. Kokuzô, Ureshino-machi, Saga Pref., 1. x. 1997, S. Nomura leg.

Distribution. Japan: Kyushu (Nagasaki and Saga Prefs.).

Redescription. Male and female: Body 2.8–3.2 mm (fore body 1.5–1.9 mm) in length. Body moderately to strongly shining; head black, sometimes with median area dark red; pronotum, elytra and abdomen reddish brown to dark red or dark reddish brown; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface even to slightly uneven; abdomen subcylindrical, thin to moderately thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 22A) modified with an almost flat area on the 7th, and a very shallow emargination on the 8th ventrite; 9th tergum (Fig. 22E) with ventral apophyses moderately long; 9th ventrite (Fig. 22H) with macrosetae long, apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 22E) very shallowly emarginate posteriorly. Aedeagus (Fig. 22F) with median lobe slender, well-rounded at apicolateral corners, minutely pointed or obtuse at apex; apical sclerotized area almost semicircular or broad-subtriangular in shape, basally with an arcuate notch. Endophallus with copulatory tube (Fig. 22G) with basal chamber comprising 2 rods of equal length, main tube almost elongate-subrhombic in shape, acutely pointed at apex; expulsion hooks (Fig. 22B) each with anterior plate minutely incurved at anteromesial corner; ventromedian bands short, moderately broad. Parameres (Fig. 22F) each acutely pointed at apex; apical area long, moderately broad, mesially with 8 to 9 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 22C) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 22D) with capsule moderately large, rounded apically; striped duct long, thick; duct very long, thin to moderately thick, strongly coiled; basal valve very short; basal duct moderately long, moderately thick, becoming thicker proximad.

Biology and ecology. *S. alter* is a common species. The beetles of this species inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. micuba* was first newly described by Hromádka (1982), based on the specimens of *Stenus*-beetles collected from Japan (Shimabara, Nagasaki Pref.) and China (Chinkiang). After that, Puthz (2003) described *S. alter* as new, based on several specimens from Kyushu, and he designated a male paratype (Shimabara) of *S. micuba*, as the holotype of *S. alter*. *S. alter* and *S. micuba* are thus distributed in Japan (Kyushu) and China (Chinkiang), respectively, resulting in making *S. alter* be indigenous in Japan.

S. alter is very closely allied to *S. cephalotes*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area shorter, and almost semicircular or broad-subtriangular in shape (Fig. 22F). There are certainly variations regarding the structures of endophallic expulsion hooks and aedeagal parameres among these two species, but in *S. alter* the expulsion hook is usually shorter (Fig. 22B), and the apical area of paramere also seems to be shorter (Fig. 22F). *S. alter* is also allied to *S. micuba* from China, but it is separable from the latter by the expulsion hook with its apical plate much larger (Fig. 22F).

Stenus cephalotes Sharp

(Figs. 23A–J, 130J)

Stenus cephalotes Sharp, 1889: 331; Herman, 2001: 2118; Naomi & Puthz, 2013: 143.*Stenus nagasakianus* Bernhauer, 1936: 239.

Type material examined. The lectotype of *S. cephalotes* Sharp (♂, NHML) is herein designated with the labels written as follows: *Stenus cephalotes* Japan Lewis. Labels: Syntype; Japan Lewis; Sharp coll.; BM loan No. 8319; male-LEKTOTYPUS Puthz; *Stenus cephalotes* Sharp vid. Puthz 1968. (Note that the specimen designated as the lectotype lacks the left antenna.) Paralectotypes of *S. cephalotes* Sharp: 2 ♀, Nagasaki; 1 ex., with the abdomen missing; 4 ♂ 6 ♀ (several specimens are placed together on the same plate), Nagasaki 26. 3. 81; 1 ♂, Nagasaki 13. II.–21. IV. 81 (cP).

Holotype of *S. nagasakianus*: Holotype of *S. nagasakianus* is deposited in NHML (Puthz, 1967) and FMC.

Other material examined. [KYUSHU]: 1 ♂ 2 ♀, Mt. Yasuman, Hirado Is., Nagasaki Pref., 15. xi. 1986, S. Nomura leg.; 1 ♂, Mt. Shishiki, Hirado Is., Nagasaki Pref., 7. x. 1997, S. Nomura leg.; 1 ♂ 1 ♀, Nomozaki, Nagasaki Pref., 18. xii. 1977, S. Imasaka leg.

Distribution. Japan: Kyushu (Nagasaki Pref.).

Redescription. Male and female: Body 3.0–3.3 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black, sometimes with median area dark reddish brown; pronotum, elytra and abdomen dark red; labrum reddish brown; antennae and legs yellowish brown to pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or longitudinal furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, thin to moderately thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen modified with an elongate, flat area on the 7th (Fig. 23A), and a very shallow, arcuate emargination on the 8th ventrite (Fig. 23D); 9th tergum (Fig. 23J) with ventral apophyses moderately long; 9th ventrite (Fig. 23E) with macrosetae long, apicolateral teeth slightly short, acute, apicolateral setae long; 10th tergum (Fig. 23J) very shallowly emarginate posteriorly. Aedeagus (Fig. 23F) with median lobe elongate, weakly angulate (Fig. 23F) or rounded at apicolateral corners, obtusely pointed at apex; apical sclerotized area elongate-subtriangular in shape, basally with a shallow notch. Endophallus (Fig. 23F) with copulatory tube (Fig. 23B) with basal chamber long, comprising 2 thin rods of different length, main tube elongate-subrhombic in shape, acutely pointed at apex; expulsion hooks (Fig. 23I) elongate, each with anterior plate pointed or minutely incurved at anterior tip; ventromedian bands short, narrow. Parameres (Fig. 23F) long, moderately thick, each pointed at apex; apical area very long, weakly curved, mesially with 9 setae of various length.

Female: Eighth ventrite (Fig. 23C) almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 23H) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 23G) with capsule large, moderately long; striped duct moderately long, thick; duct very long, thin to moderately thick, strongly coiled; basal valve short; basal duct short, with an arrowhead-like structure at proximal part.

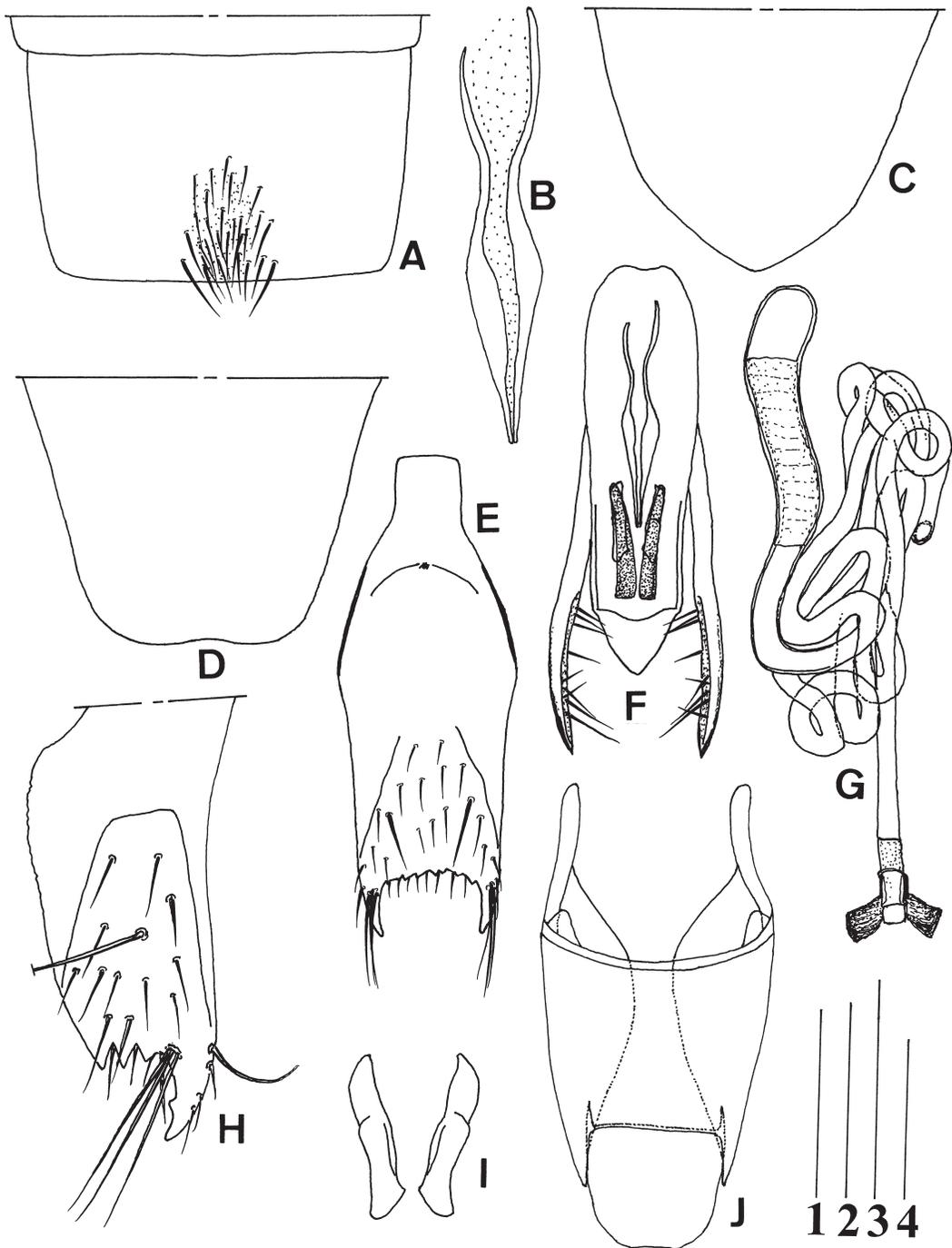


Fig. 23. *Stenus cephalotes* Sharp (Nagasaki: Nomozaki). A, 7th ventrite; B, copulatory tube; C, posterior part of 8th ventrite of female; D, posterior part of 8th ventrite of male; E, 9th ventrite of male; F, aedeagus; G, spermatheca; H, gonocoxite; I, endophallic expulsion hooks; J, 9th and 10th terga of male. Scale 1: 0.25 mm for A; scale 2: 0.1 mm for B, G-I, 0.2 mm for E, F; scale 3: 0.25 mm for C, D; scale 4: 0.2 mm for J.

Biology and ecology. The beetles of *S. cephalotes* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. cephalotes* is the representative species of the *cephalotes*-group. *S. cephalotes* is closely allied to *S. alter*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area longer and elongate-subtriangular in shape (Fig. 23F), the endophallic expulsion hook usually longer (Fig. 23I), and the paramere with its apical area longer (Fig. 23F).

Stenus oblongulus Naomi

(Figs. 24A–H, 131K)

Stenus oblongulus Naomi, 1998: 99; Herman, 2001: 2309; Naomi & Puthz, 2013: 143.

Type material examined. Holotype, ♂ (CBM), Miike, Mt. Kirishima, Kagoshima Pref., 8. v. 1985, S. Nomura leg. Paratypes: 2 ♂2 ♀, same data as holotype.

Other material examined. [KYUSHU]: 1 ♂, Koike, Miyazaki Pref., 15. viii. 1984, K. Ando leg.; 3 ♂3 ♀, Mt. Wanizuka, Tano-cho, Miyazaki Pref., 6. ix. 1993, S. Nomura leg.; 3 ♂3 ♀, Inohae Valley, Hokugô-cho, Miyazaki Pref., 27. iv. 1993, S. Nomura leg.; 4 ♂7 ♀, Asajinno, Tano, Miyazaki Pref., 7. v. 2017, T. Watanabe leg.; 1 ♂, Kawanaka Shrine, Aya, Miyazaki Pref., 8. v. 2017, T. Watanabe leg.

Distribution. Japan: Kyushu (Miyazaki and Kagoshima Prefs.).

Redescription. Male and female: Body 3.2–4.3 mm (1.6–2.0 mm) in length. Body moderately shining; head and abdomen dark red to black; pronotum and elytra dark red to dark red near black; body sometimes almost entirely reddish brown; labrum reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal or elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow or a hollow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 24C) modified with a semicircular flat area on the 7th, and a moderately deep emargination on the 8th ventrite (Fig. 24C); 9th tergum (Fig. 24A) with ventral apophyses moderately long; 9th ventrite (Fig. 24B) with macrosetae long to very long, apicolateral teeth long, very acute, apicolateral setae very long; 10th tergum (Fig. 24A) entire. Aedeagus (Fig. 24F) with median lobe elongate, obtuse at apicolateral corners, obtusely pointed at apex; apical sclerotized area subtriangular, basally with an arcuate notch. Endophallus (Fig. 24D) with copulatory tube having basal chamber elongate-ovoidal in shape (Fig. 24D), main tube simple, attenuate; dorsolateral bands thin; expulsion hooks (Fig. 24H) moderately large, each with anterior plate fused with posterior plate, narrowing anteriorly, acutely pointed at anterior tip, posterior plate well-rounded laterally, slightly hollowed mesially; ventromedian bands relatively short, thin. Parameres (Fig. 24F) slender, thin, each pointed at apex; apical area hardly or weakly swollen laterally, mesially with 11 to 14 setae.

Female: Eighth ventrite obtuse or minutely pointed posteromedially; gonocoxites (Fig. 24G) each with apicolateral tooth moderately long, very acute, apicolateral setae very long. Spermatheca (Fig. 24E) with capsule subovoidal, moderately large; striped duct very short; duct moder-

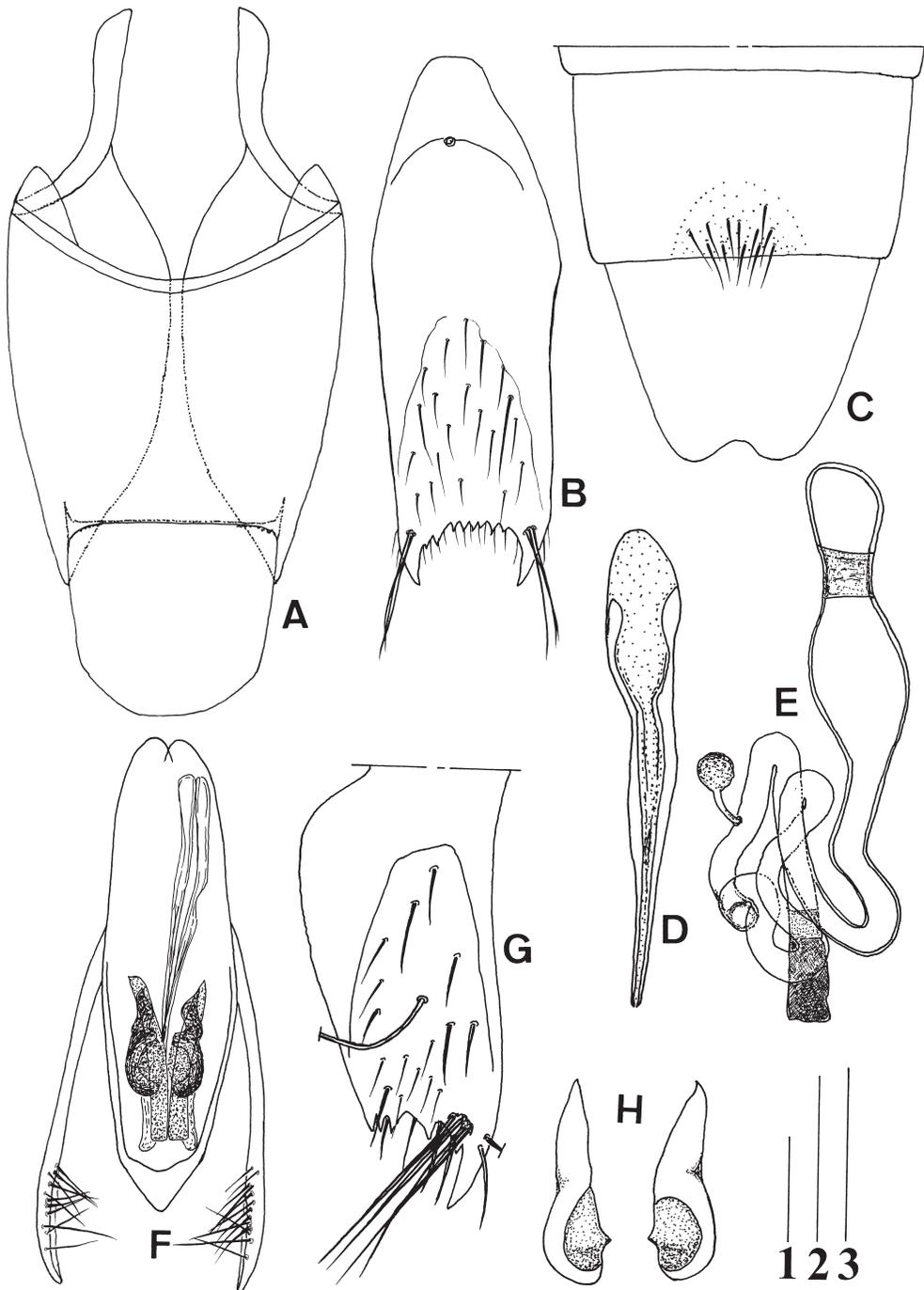


Fig. 24. *Stenus oblongulus* Naomi (Kagoshima: A–B, D–H, Mt. Kirishima; Miyazaki: C, Mt. Wanizuka). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th to 8th ventrites of male; D, copulatory tube; E, spermatheca; F, aedeagus; G, gonocoxite; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A, B, F; scale 2: 0.25 mm for C; scale 3: 0.1 mm for D, E, G, H.

ately long, moderately thick, loosely coiled with 6 turns, and also with a large, fusiform apical chamber; gland spherical, small, with opening situated on the lateral side of duct between the 1st and 2nd turns; basal valve very short; basal duct sclerotized, moderately thick.

Biology and ecology. The beetles of *S. oblongulus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. oblongulus* is allied to *S. inexoratus*, but it is separable from the latter species by the 7th ventrite of male posteromedially with a semicircular flat area (Fig. 24C), the aedeagal median lobe a little broader, with its apical sclerotized area shorter and broader (Fig. 24F), and the endophallic expulsion hook broader, with its posterior plate well-rounded laterally and smooth (Fig. 24H).

S. oblongulus shows variations regarding the structures of aedeagus and its endophallus. First, the apical sclerotized area of median lobe is varied in shape as follows: Broad-subtriangular to narrow-triangular, and gently rounded to acutely pointed at apex. Second, the endophallic expulsion hook is varied in structure, especially in length. In some cases it is similar in shape to the expulsion hook of *S. inexoratus* to some extent. However, since these two species are usually distinct regarding some important characters as described above, these variations are here considered to be infraspecific.

Stenus inexoratus Puthz

(Figs. 25A–J, 131 L)

Stenus inexoratus Puthz, 1993: 155; Herman, 2001: 2231; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (NHMG), Mt. Ishizuchi (1,400 m), Ehime Pref., 13–14. viii. 1980, Cl. Besuchet leg.

Other material examined. [HONSHU]: 1 ♂, Nikyûkyo, Hiroshima Pref., 5. iv. 1986, I. Okamoto leg.; 1 ♂, Mukobara-cho, Hiroshima Pref., 18. ix. 1986, I. Okamoto leg.; 1 ♂2 ♀, Hoesi-cho, Hiroshima Pref., 4. vii. 1986, I. Okamoto leg.; 2 ♂, Haigamine, Kure City, Hiroshima Pref., 12. iv. 1986, I. Okamoto leg.; 1 ♂3 ♀, Yasaka Valley, Miwa-cho, Yamaguchi Pref., 11. xi. 1998, S. Nomura leg.; 2 ♂2 ♀, Gomandô Valley, Kano-cho, Yamaguchi Pref., 12. xi. 1998, S. Nomura leg. [SHIKOKU]: 2 ♂2 ♀, Mt. Saragamine, Ehime Pref., 29. v. 1993, Lizhen Li leg.; 2 ♂1 ♀, Ryujindaira, Mt. Saragamine, Ehime Pref., 20. xi. 1993, M. Sakai leg.; 1 ♂, Sugitate, Matsuyama City, Ehime Pref., 26. xi. 1968, M. Sakai leg.; 4 ♂, Mt. Takanawa, Hokujo City, Ehime Pref., 8. v. 1993, N. Tsurusaki leg.

Distribution. Japan: Honshu (Hiroshima and Yamaguchi Prefs.) and Shikoku (Ehime Pref.).

Redescription. Male and female: Body 2.8–4.0 mm (Fore body 1.5–1.9 mm) in length. Body moderately shining; head black, sometimes with clypeofrontal area dark red, pronotum and elytra dark red, abdomen dark red to almost black; and also body sometimes almost entirely reddish brown; labrum reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures lost but often running very superficially or indistinctly.

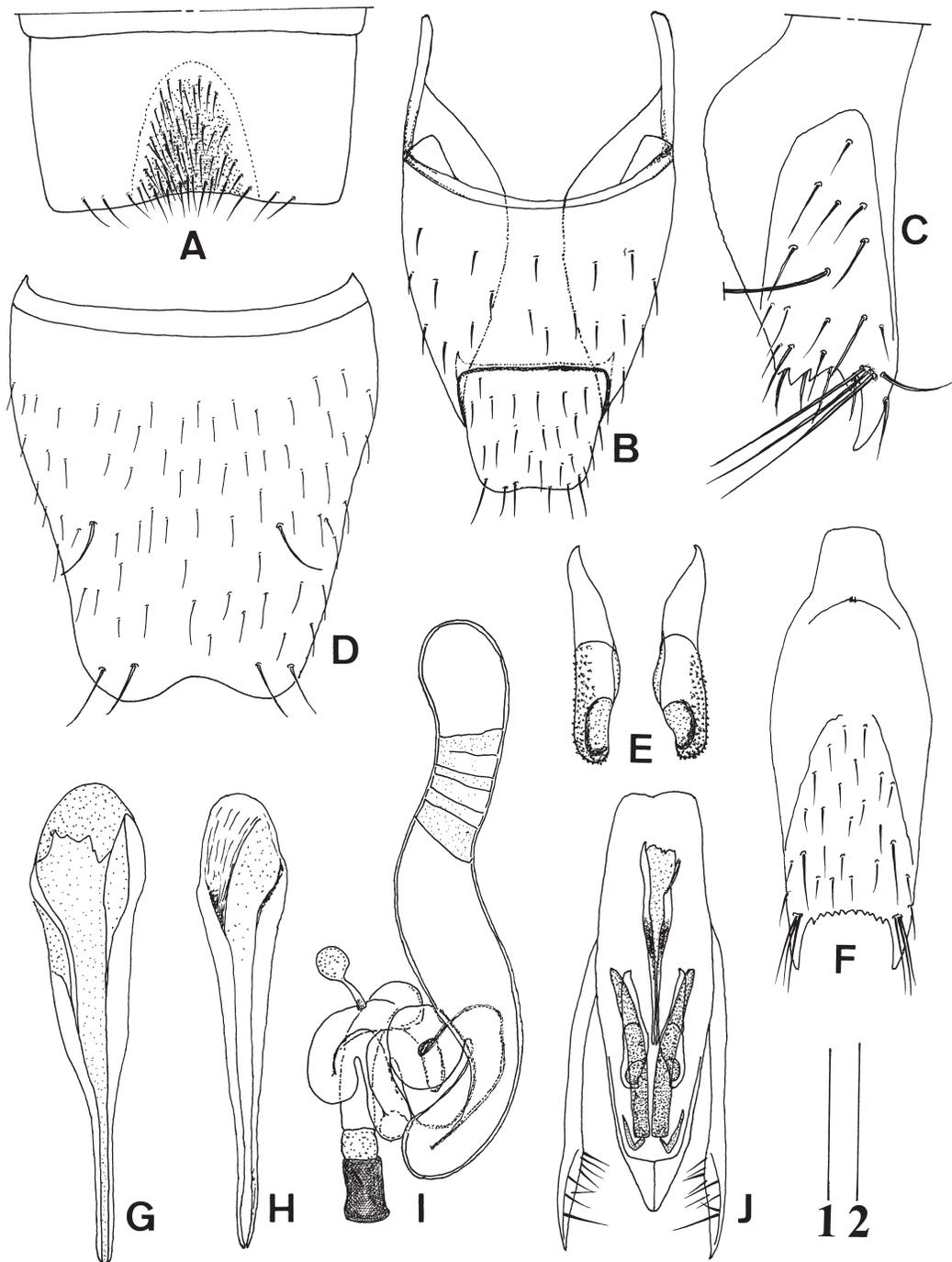


Fig. 25. *Stenus inexoratus* Puthz (Ehime: A, Saragamine; Hiroshima: B, C, E-G, I, J, Hoei, D, H, Nikyukyo). A, 7th ventrite of male; B, 9th and 10th terga of male; C, gonocoxite; D, 8th ventrite of male; E, endophallic expulsion hooks; F, 9th ventrite of male; G, H, copulatory tube; I, spermatheca; J, aedeagus. Scale 1: 0.25 mm for A; scale 2: 0.2 mm for B, D, F, J, 0.1 mm for C, E, G-I.

Male: Abdomen modified with or without a semicircular flat area on the 6th, always with a large, bell-shaped, shallow depression and also a very broad, arcuate posterior emargination (which is broader than the depression) on the 7th (Fig. 25A), and an arcuate emargination on the 8th ventrite (Fig. 25D); 9th tergum (Fig. 25B) with ventral apophyses relatively short; 9th ventrite (Fig. 25F) with macrosetae long, apicolateral teeth long, acute, apicolateral setae moderately long; 10th tergum (Fig. 25B) very shallowly emarginate posteriorly. Aedeagus (Fig. 25J) with median lobe slender, elongate; apical sclerotized area elongate-triangular in shape, with a thin, median longitudinal suture. Endophallus (Fig. 25J) with copulatory tube (Fig. 25G, H) having basal chamber large, ovoidal, main tube attenuate, broad at base, simply pointed at apex; dorso-lateral bands thin; expulsion hooks (Fig. 25E) elongate, each with anterior plate pointed at anterior tip, posterior plate slightly hollowed mesially, covered laterally with very minute, pointed tubercles; ventromedian bands long, relatively thin. Parameres (Fig. 25J) thin, each very acutely pointed at apex; apical area moderately long to long, weakly to moderately swollen mesially at base, mesially also with 7 to 12 setae of various length.

Female: Eighth ventrite obtuse or pointed posteromedially; gonocoxites (Fig. 25C) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 25I) with capsule large, subovoidal; striped duct short, thick; duct long, moderately thick to very thick, coiled, with a large, nearly fusiform apical chamber; gland spherical, small, with opening situated on the lateral side of duct between the 1st and 2nd turns; basal valve very short; basal duct short.

Biology and ecology. *S. inexoratus* is a common species. The beetles of this species inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. inexoratus* is allied to *S. oblongulus*, but it is separable from the latter species by the 7th ventrite of male posteromedially with a large, shallow depression (Fig. 25A), the aedeagal median lobe a little narrower, with its apical sclerotized area longer and narrower (Fig. 25J), and the endophallic expulsion hook narrower, with its posterior plate simple (or not swollen) laterally, and densely covered laterally with very minute, pointed tubercles (Fig. 25E).

***Stenus yoshitomii* Naomi**
(Fig. 26A–G)

Stenus yoshitomii Naomi, 2015a: 222.

Type material examined. Holotype: ♂ (EUMM), Yokono, Nishidani, Yanadani Vil., Ehime Pref., 16. x. 1993, M. Sakai leg. Paratypes: 1 ♀ (EUMM), same data as holotype; 1 ♂, Yokono (670 m), Yanadani Vil., Ehime Pref., 1–2. x. 1994, M. Sakai leg.; 1 ♀, same data as holotype, M. Sakai leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Redescription. Male and female: Body 2.9–3.8 mm (fore body 1.5–1.8 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red to dark reddish brown; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal or elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral

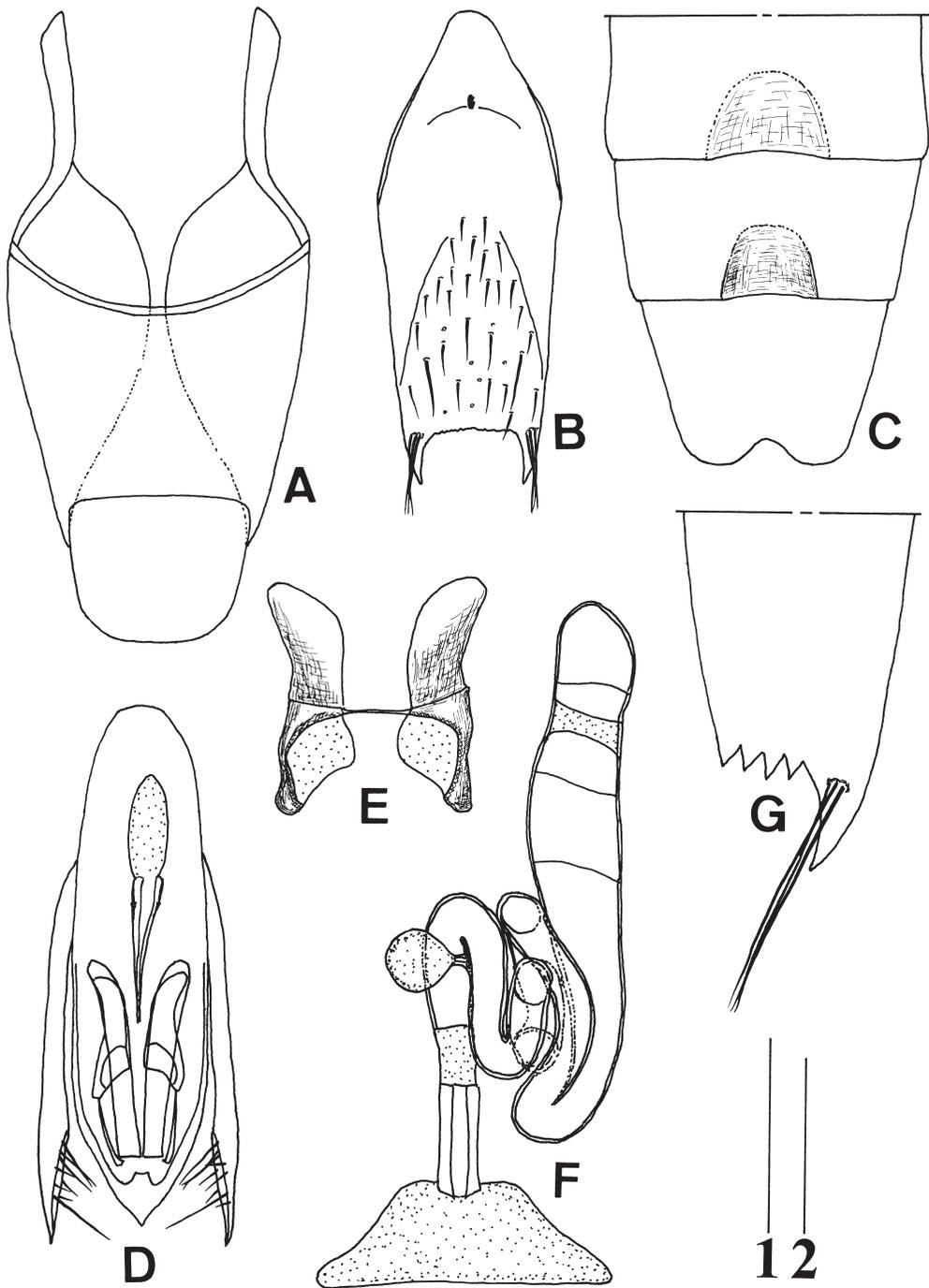


Fig. 26. *Stenus yoshitomii* Naomi (Ehime: Yanadani). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 6th to 8th ventrites of male; D, aedeagus; E, endophallic expulsion hooks; F, spermatheca; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A–B, D, 0.1 mm for E–G; scale 2: 0.3 mm for C.

sutures almost lost.

Male: Legs with femora moderately thick; abdomen (Fig. 26C) modified with a large, semi-circular, shallow depression on the 6th, a moderately deep depression on the 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 26A) with ventral apophyses long; 9th ventrite (Fig. 26B) with macrosetae moderately long, apicolateral teeth moderately long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 26A) almost rounded posteriorly. Aedeagus (Fig. 26D) with median lobe elongate, gently rounded and broadest at apicolateral corners, acutely pointed at apex; apical sclerotized area small, subtriangular, basally with a subtrapezoidal projection. Endophallus (Fig. 26D) with copulatory tube having basal chamber elongate-ovoidal in shape, main tube short, attenuate, acicular at apical part; dorsolateral bands very thin; expulsion hooks (Fig. 26E) moderately large, each with anterior plate weakly turning anterolaterally, posterior plate well-sclerotized laterally, broadly hollowed mesially; ventromedian bands moderately long, relatively thin. Parameres (Fig. 26D) each acutely pointed at apex; apical area long, strongly narrowed apicad, mesially with 8 to 9 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 26G) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 26F) with capsule moderately large; striped ductal area very thick but indistinct; duct moderately long, thick, tightly coiled with 6 turns, and with the distal-most part of duct forming a large, laterally slightly swollen, apical chamber which is crossed with 2 transverse lines; gland large, spherical, with opening located on the mesial side of duct a little distal from the 1st turn; basal valve short; basal duct sclerotized, with thick wall. Basal structure (Fig. 26F) truncated-conical in shape, membranous.

Biology and ecology. The beetles of *S. yoshitomi* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. yoshitomi* is closely allied to *S. coffeatus*, but it is separate from the latter species by the aedeagal median lobe broadest at the apicolateral corners (Fig. 26D), with its apical sclerotized area small but developed (Fig. 26D), the endophallic expulsion hook larger and broader (Fig. 26E), and the spermatheca with its tube less strongly coiled, distally with the apical chamber (Fig. 26F).

Etymology. This species is named after Dr. Hiroyuki Yoshitomi (Ehime University) who studies the taxonomy of some Coleopterous families and also the biology and descriptions of Coleopterous larvae.

***Stenus coffeatus* Naomi**
(Figs. 27A–M, 132A)

Stenus coffeatus Naomi, 2012: 291; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Cape Ashizuri, Kochi Pref., 5. v. 1988, T. Ito leg. Paratypes: 7 ♂9 ♀, same data as holotype; 11 ♂10 ♀, same locality, 6. v. 1988, T. Ito leg.; 2 ♂, same locality, 7. v. 1988, T. Ito leg.; 5 ♂6 ♀, same locality, 1–3. v. 1997, T. Ito leg.; 1 ♂4 ♀, Nametoko Valley, Uwajima City, Ehime Pref., 13. xi. 1998, S. Nomura leg.

Distribution. Japan: Shikoku (Kochi and Ehime Prefs.).

Redescription. Male and female: Body 3.5–4.3 mm (fore body 1.6–2.1 mm) in length. Body weakly or moderately shining; head and abdomen almost black to black; pronotum and elytra dark red; labrum reddish brown to dark brown; antennae and legs reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse

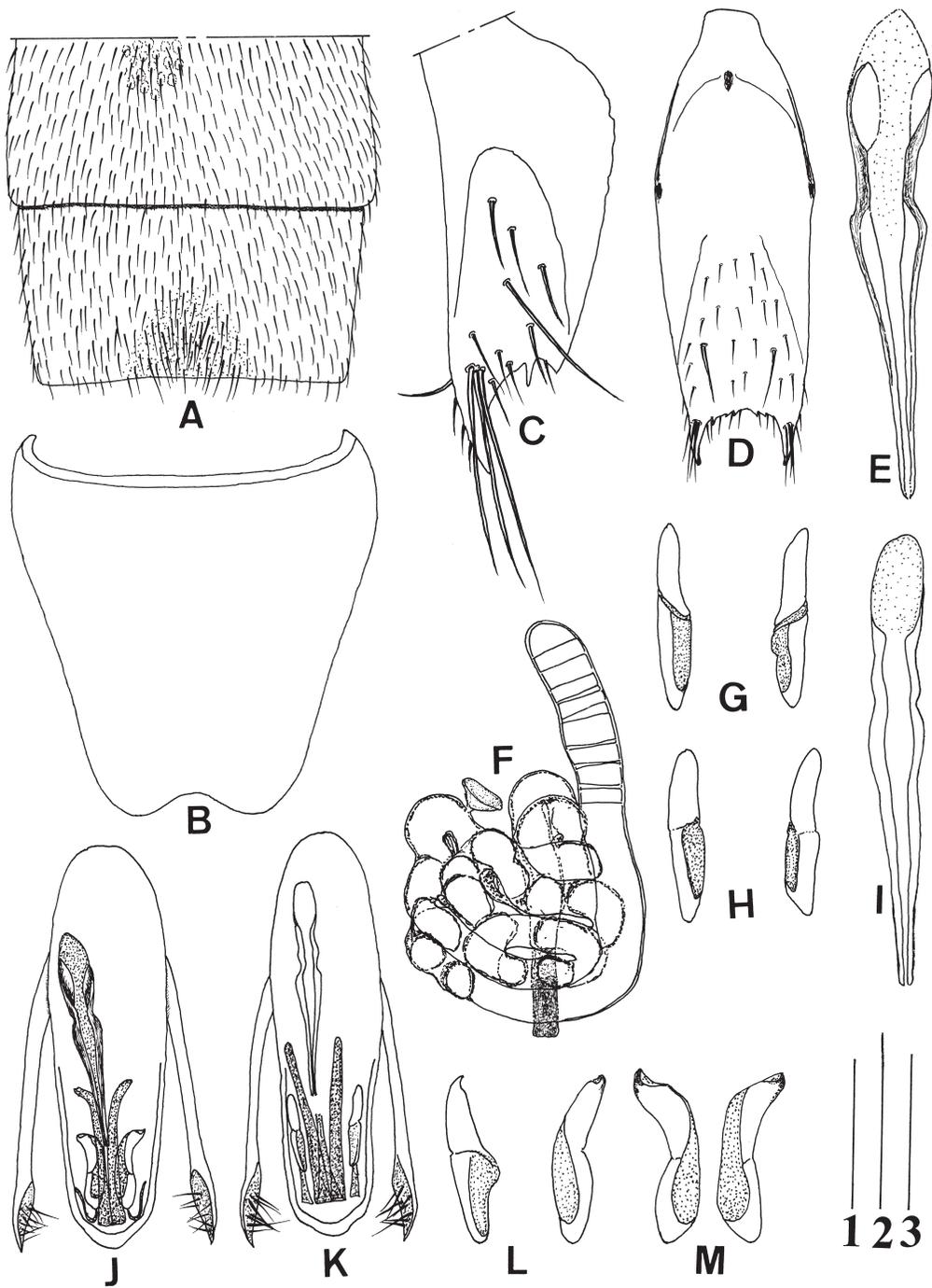


Fig. 27. *Stenus coffeatus* Naomi (Kochi: Cape Ashizuri). A, 6th and 7th ventrites of male; B, 8th ventrite of male; C, gonocoxite; D, 9th ventrite of male; E, I, copulatory tube; F, spermatheca; G, H, L, M, endophallic expulsion hooks; J, K, aedeagus. Scale 1: 0.25 mm for A; scale 2: 0.25 mm for B; scale 3: 0.2 mm for D, J, K, 0.1 mm for C, E, F-I, L, M.

punctures and elytra partially with large, coarse punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures running very superficially or indistinctly.

Male: Abdomen (Fig. 27) modified with a flat area on the 7th, and an arcuate, relatively broad emargination on the 8th ventrite (Fig. 27); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 27) with macrosetae slightly short, apicolateral teeth short, very acute, apicolateral setae short; 10th tergum almost rounded posteriorly. Aedeagus (Fig. 27J, K) with median lobe elongate, rounded at apicolateral corners, almost rounded apically; apical sclerotized hardly developed. Endophallus (Fig. 27J, K) with copulatory tube having basal chamber subovoidal, medium-sized (Fig. 27I) or large (Fig. 27E), main tube moderately long, attenuate; dorsolateral bands thin; expulsion hooks usually located in parallel, each hollowed mesially (Fig. 27M) or with posterior plate hollowed mesially (Fig. 27G, H), and also each hook slender, straight (Fig. 27G, H) or each with anterior plate more or less turning anterolaterally (Fig. 27L, M); ventromedian bands moderately long, very thin. Parameres (Fig. 27J, K) slender, very thin to thin, each very acutely pointed at apex; apical area short, moderately swollen mesially at base, mesially also with 8 to 10 setae.

Female: Eighth ventrite obtuse or almost rounded posteromedially; gonocoxites (Fig. 27C) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 27F) with capsule very small, rounded apically; striped duct moderately long, thick; duct long, moderately thick to thick, very tightly coiled; gland moderately large; basal valve short; basal duct sclerotized, short.

Biology and ecology. The beetles of *S. coffeatus* inhabit leaf litter heaped in the natural forests of plains and mountainous regions.

Remarks. *S. coffeatus* is closely allied to *S. yoshitomii*, but it is separable from the latter species by the aedeagal median lobe broadest before the middle (Fig. 27J, K), with its apical sclerotized area hardly developed (Fig. 27J, K), the endophallic expulsion hook smaller and narrower (Fig. 27G, H, L, M), and the spermatheca with its tube more strongly coiled, without apical chamber (Fig. 27F).

***Stenus ryugu* Naomi**
(Figs. 28A–J, 132B)

Stenus ryugu Naomi, 1989b: 51 (in part); Herman, 2001: 2375; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Mt. Shiratake, Tsushima Is., Nagasaki Pref., 17. x. 1983, S. Nomura leg. Paratypes: 2 ♂1 ♀, same data as holotype.

Other material examined. [KYUSHU]: 1 ♂1 ♀, Kamizaka, Tsushima Is., Nagasaki Pref., 21. iii. 1979, S. Tanaka leg.; 1 ♂2 ♀, Mt. Mitake, Tsushima Is., Nagasaki Pref., 16. vii. 1999, H. Hoshina leg.; 1 ♂2 ♀, Mt. Tatera, Tsushima Is., Nagasaki Pref., 18. x. 1983, S. Nomura leg.

Distribution. Japan: Kyushu (Nagasaki Pref.: Tsushima Is.).

Redescription. Male and female: Body 3.6–4.2 mm (fore body 1.6–1.9 mm) in length. Body weakly shining; head black, sometimes with clypeofrontal area dark brown near black; pronotum and elytra reddish brown to dark brown; abdomen reddish brown to dark brown near black or

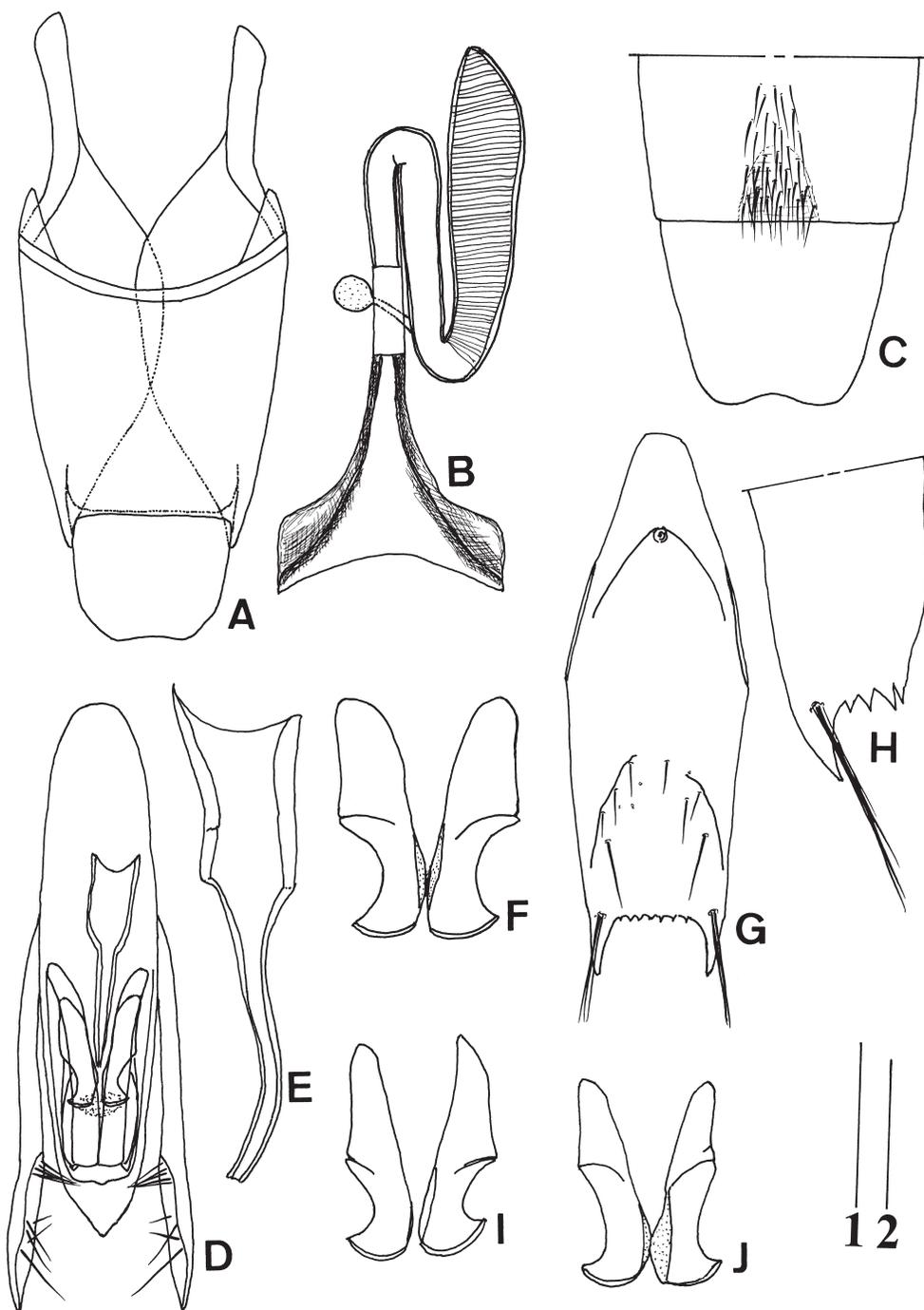


Fig. 28. *Stenus ryugu* Naomi (Nagasaka, Tsushima Is.: A, G, Himi, B, C, Mt. Mitake, D, F, J, Mt. Shiratake, E, I, Kamizaka, H, Tatera). A, 9th and 10th terga of male; B, spermatheca; C, 6th and 7th ventrites of male; D, aedeagus; E, copulatory tube; F, I, J, endophallic expulsion hooks; G, 9th ventrite of male; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, D, G, 0.1 mm for B, E, F, H-J; scale 2: 0.3 mm for C.

black; labrum dark red to almost black; antennae and legs reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum and elytra partially with coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 28C) modified with a flat area on the 7th, and an arcuate, broad emargination on the 8th ventrite; 9th tergum (Fig. 28A) with ventral apophyses long; 9th ventrite (Fig. 28G) with macrosetae long, apicolateral teeth moderately long, very acute, apicolateral setae very long; 10th tergum (Fig. 28A) very shallowly emarginate posteriorly. Aedeagus (Fig. 28D) with median lobe very slender, pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 28D) with copulatory tube (Fig. 28E) having main tube comprising basal tube (fused with basal chamber?) elongate-rectangular in shape, apical tube short, attenuate, thin (Fig. 28D), sometimes curved (Fig. 28E); dorsolateral bands very thin; expulsion hooks (Fig. 28F, G, H) moderately broad to broad, each with posterior plate strongly arcuately emarginate laterally, fan-shaped in the posterior part; ventromedian bands moderately long, moderately broad. Parameres (Fig. 28D) slender, each pointed at apex; apical area rather long, weakly swollen mesially at base, mesially also with a setal tuft at base and 4 to 5 setae of various length in the apical 1/2.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 28H) each with apicolateral tooth moderately long, very acute, apicolateral setae very long. Spermatheca (Fig. 28B) with capsule absent; striped duct moderately long, very thick, covered with very dense transverse stripes; duct short, moderately thick, with 2 turns; gland small, spherical, with opening located on the mesial side of duct near the 2nd turn; basal valve relatively short, basal duct fused with basal pouch which is strongly sclerotized and subconical.

Biology and ecology. The beetles of *S. ryugu* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. ryugu* is closely allied to *S. tsushimamontis*, but it is separable from the latter species by the abdominal modifications of male developed on the 7th and 8th ventrites (Fig. 28C), the aedeagal median lobe more slender (Fig. 28D), the endophallic expulsion hook broader, with its posterior plate more strongly expanded laterally at the posterolateral corner (Fig. 28F, I, J), and the spermatheca with its duct thinner (Fig. 28B). *S. ryugu* is also allied to *S. akikoe*, but it is easily separable from the latter species by the copulatory tube with its basal chamber elongate-rectangular in shape (Fig. 28E) and the aedeagal paramere shorter (Fig. 28D).

Etymology. The specific epithet of this species is derived from the Japanese term which means the imaginary palace appeared in an ancient Japanese folk tale, ryugu.

***Stenus tsushimamontis* Naomi, Nomura & Puthz sp. nov.**

(Fig. 29A–J)

Stenus ryugu Naomi, 1989b: 51 (in part).

Type material examined. Holotype: ♂ (KUMF), Izuhara, Tsushima Is., Nagasaki Pref., 20. x. 1983, S. Nomura leg. Paratypes: 1 ♂ 6 ♀, same data as holotype; 3 ♂ 2 ♀, Kamizaka, Tsushima Is., Nagasaki Pref., 27. iv. 1982, S. Nomura leg.; 2 ♂ 2 ♀ (paratypes of *S. ryugu*), Mehoro, Tsushima Is., Nagasaki Pref., 20. x. 1983, S. Nomura leg.; 2 ♂ (paratypes of *S. ryugu*), Tsushima Is., Naga-

saki Pref., 27. v. 1990, H. Makihara leg.

Other material examined. [KYUSHU]: 2♂1♀, Mt. Senpyomaki, Tsushima Is., Nagasaki Pref., 28. Iv. 1992, S. Nomura leg.

Distribution. Japan: Kyushu (Nagasaki Pref.: Tsushima Is.).

Description: Male and female: Body 3.4–4.3 mm (fore body 1.6–2.0 mm) in length. Body moderately shining; head black; pronotum dark reddish brown to dark brown; elytra reddish brown to dark reddish brown; abdomen dark brown to black; labrum dark red; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal, and also elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 29J) modified with an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 29A) with ventral apophyses very long; 9th ventrite (Fig. 29B) with macrosetae very long, apicolateral teeth short, acute, apicolateral setae long; 10th tergum (Fig. 29A) very shallowly emarginate posteriorly. Aedeagus (Fig. 29C) with median lobe slender, obtusely pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 29C) with copulatory tube (Fig. 29D) having main tube consisting of thick basal tube and stick-like apical tube; expulsion hooks (Fig. 29F, G, H) elongate, thin, each with anterior plate more or less curved laterally; ventromedian bands long, relatively thin. Parameres (Fig. 29C) each acutely pointed at apex; apical area rather long, weakly swollen mesially at base, mesially also with a setal tuft at base and 5 setae of various length in the apical 1/2 or 2/3.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 29H) each with apicolateral tooth moderately long, very acute, apicolateral setae very long. Spermatheca (Fig. 29E) with capsule hardly developed; striped duct long, very thick, covered with very dense transverse stripes; duct very short, very thick, with 2 turns; gland small, ovoidal, with opening located on the lateral side of duct near the 2nd turn; basal valve very short, basal duct very short; basal pouch almost conical.

Biology and ecology. The beetles of *S. tsushimamontis* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. ryugu* was first newly described from Tsushima Is. in Naomi (1989b). In the course of this study, a lot of *Stenus* specimens of the *cephalotes*-group from Tsushima Is. were examined. We noticed that two different species are included in the paratypes of *S. ryugu*, (*S. ryugu* and the other species), and the latter is here newly described as *S. tsushimamontis*, based on the material including some paratype specimens of *S. ryugu*.

S. tsushimamontis is closely allied to *S. ryugu*, but it is separable from the latter species by the abdominal modification of male developed only on the 8th ventrite (Fig. 29J), the aedeagal median lobe less slender (Fig. 29C), the endophallic expulsion hook narrower, with its posterior plate less strongly expanded laterally at the posterolateral corner (Fig. 29F, G, I), and the spermatheca with its duct thicker (Fig. 29E). *S. tsushimamontis* is also allied to *S. akikoeae*, but it is easily separable from the latter species by the aedeagal median lobe less slender and the paramere shorter (Fig. 29C).

Etymology. The specific epithet of this species is derived from the name of type locality, Tsushima and the Latin suffix *-montis* which means 'mountainous'.

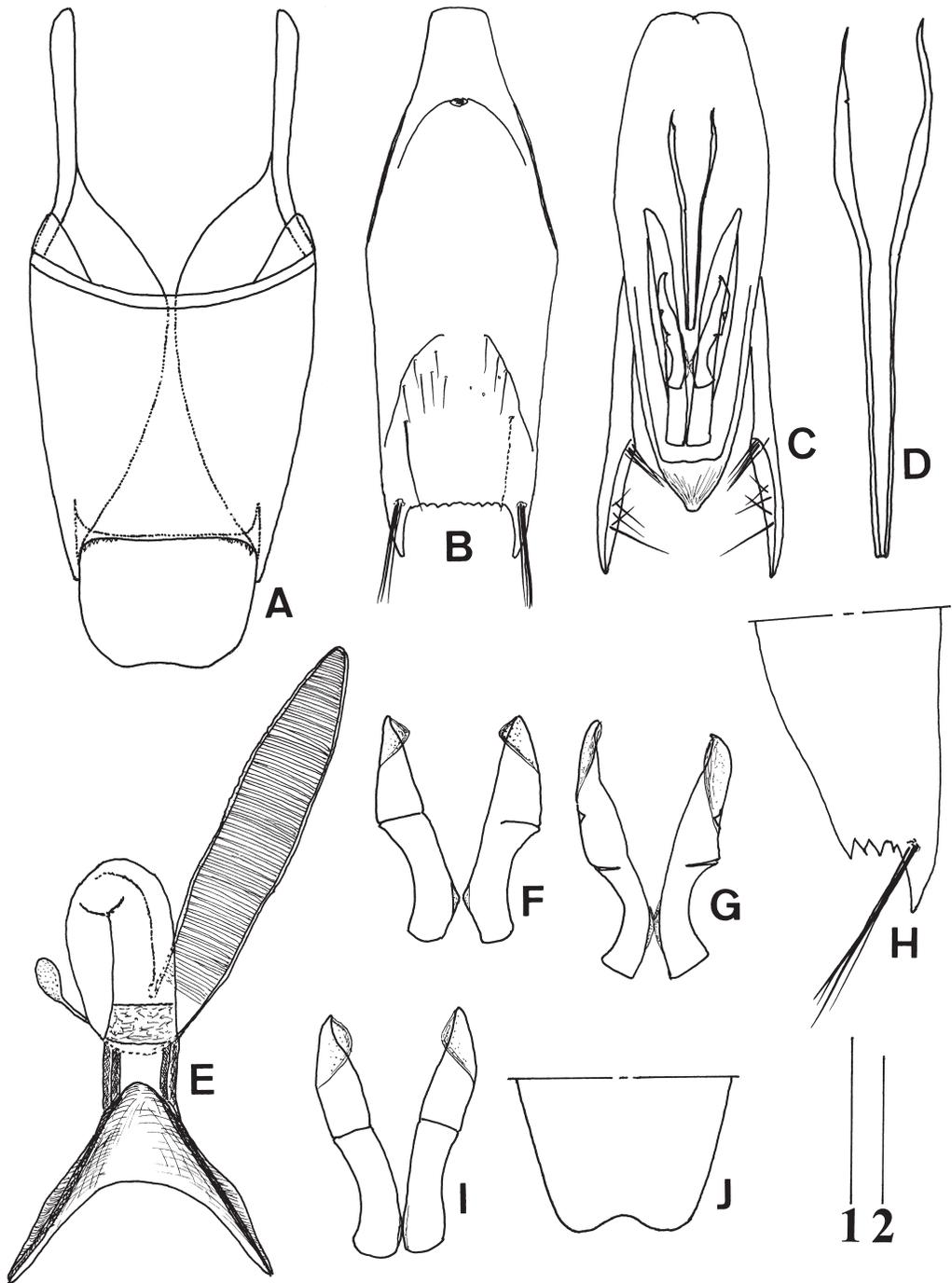


Fig. 29. *Stenus tsushimamontis* Naomi, Nomura & Puthz sp. nov. (Nagasaki, Tsushima Is.: A, Kamizaka, B, D, G, Izuhara, E, I, H, Mt. Senpyomaki, F, J, Mehoro). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, copulatory tube; E, spermatheca; F, G, I, endophallic expulsion hooks; H, posterior part of gonocoxite; J, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A–C, 0.1 mm for D–I; scale 2: 0.3 mm for J.

Stenus akikoe Naomi
(Fig. 30A–F)

Stenus akikoe Naomi, 2021a: 73.

Type material examined. Holotype: ♂ (KUMF), Tatera, Tsushima Is., Nagasaki Pref., 28. iv. 1967, H. Konishi.

Distribution. Japan: Kyushu (Nagasaki Pref.: Tsushima Is.).

Redescription. Male: Body 3.3 mm (fore body 1.6 mm) in length. Body moderately shining; head black; pronotum and abdomen dark reddish brown; elytra reddish brown; labrum dark red; antennae and legs reddish brown. Body with punctures small to moderately large, round to ovoidal, and also elytra (Fig. E) partially with large, subrugose punctures. Head moderately concave, with a pair of almost longitudinal furrows; antennae short, thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures almost lost.

Abdomen (Fig. 30D) modified with an arcuate, shallow, broad emargination on the 8th ventrite; 9th tergum (Fig. 30C) with ventral apophyses long; 9th ventrite (Fig. 30B) with macrosetae very long, apicolateral teeth long, very acute, apicolateral setae very long; 10th tergum (Fig. 30C) very shallowly emarginate posteromedially. Aedeagus (Fig. 30A) with median lobe very slender, pointed at apex; apical sclerotized area almost triangular. Endophallus (Fig. 30A) with copulatory tube having main tube moderately long, thick at base, attenuate; expulsion hooks (Fig. 30F) very elongate, thin; ventromedian bands long, moderately broad. Parameres (Fig. 30A) very long, moderately thick, each acutely pointed at apex; apical area extremely long, mesially with a setal tuft at base and 5 setae of various length in the apical 1/2 or 2/3.

Female: Unknown.

Biology and ecology. The beetle of *S. akikoe* inhabits leaf litter heaped in the natural forest of a low mountainous region.

Remarks. *S. akikoe* is allied to *S. ryugu* and *S. tsushimamontis*, but it is easily separable from the latter 2 species by the aedeagal median lobe more slender, the endophallic expulsion hook more slender and thinner (Fig. 30F), and the paramere longer (Fig. 30A).

Etymology. This species is named after the late wife of first author, Akiko Naomi.

Stenus kaguyahime Naomi
(Figs. 31A–H, 132C)

Stenus kaguyahime Naomi, 1990: 50; Herman, 2001: 2243; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Mt. Seburi, Saga Pref., 18. ix. 1977, H. Ohishi leg. Paratypes: 4 ♂ 2 ♀, same data as holotype.

Distribution. Japan: Kyushu (Saga Pref.).

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.7–1.9 mm) in length. Body moderately shining; head black with clypeofrontal area reddish brown; pronotum, elytra and abdomen reddish brown to dark brown; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum partially coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of

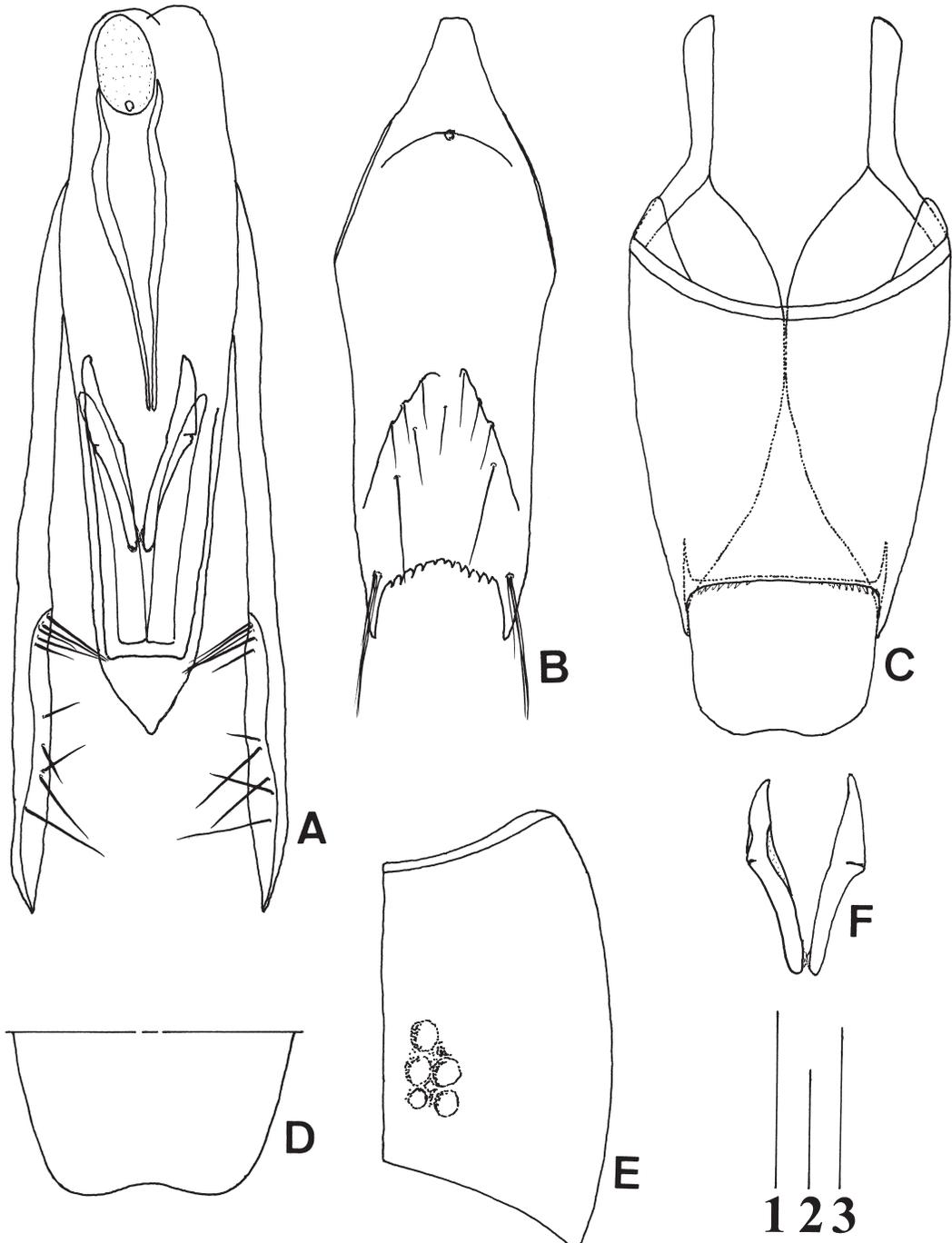


Fig. 30. *Stenus akikoeae* Naomi (Nagasaki: Tsushima Is., Tatera). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, posterior part of 8th ventrite of male; E, right elytron; F, endophallic expulsion hooks. Scale 1: 0.1 mm for A, F; scale 2: 0.1 mm for B, C; scale 3: 0.3 mm for D, E.

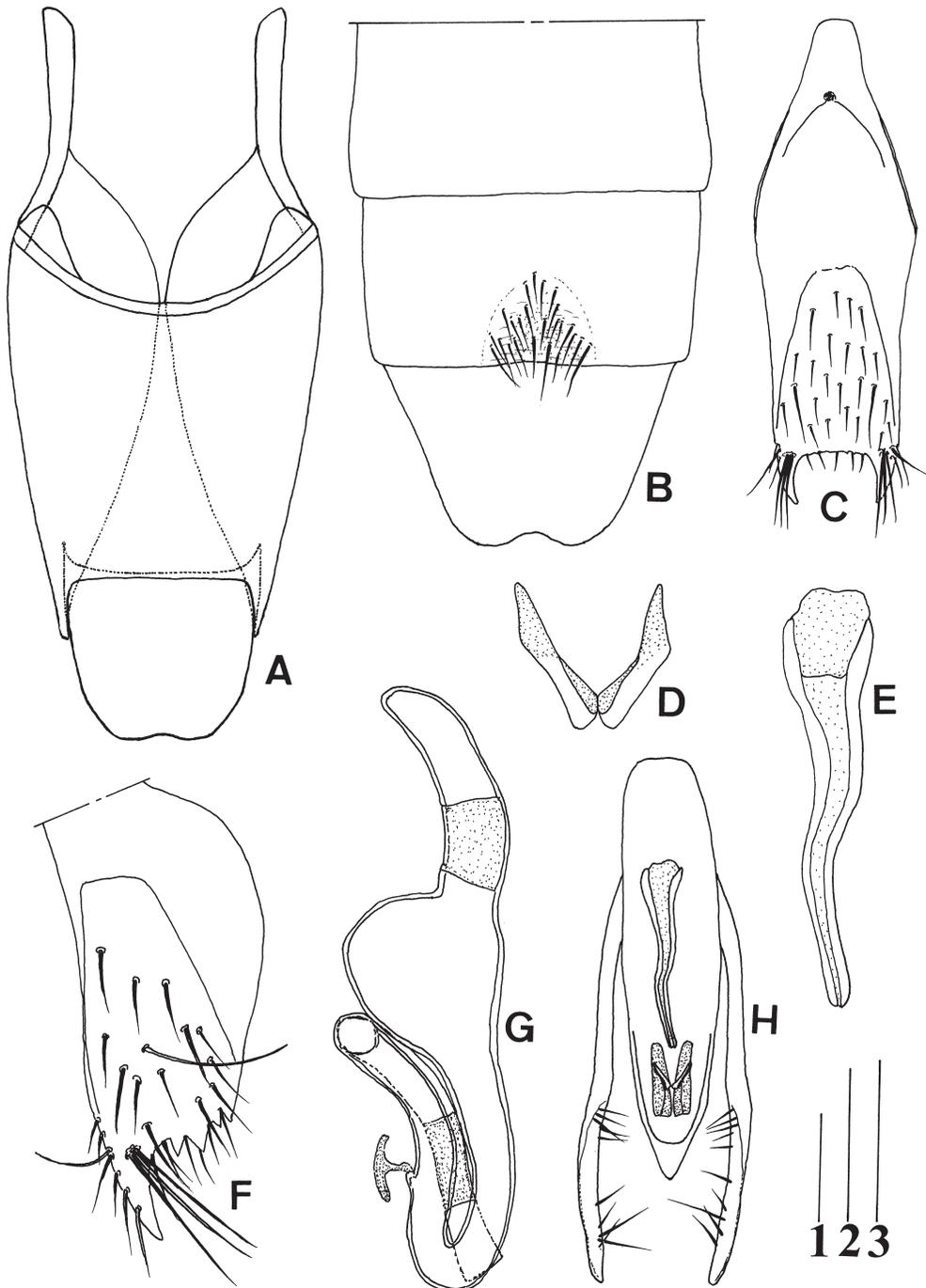


Fig. 31. *Stenus kaguyahime* Naomii (Saga: Mt. Seburi). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, endophallic expulsion hooks; E, copulatory tube; F, gonocoxite; G, spermatheca; H, aedeagus. Scale 1: 0.1 mm for A; scale 2: 0.25 mm for B; scale 3: 0.2 mm for C, H, 0.1 mm for E–G, 0.05 mm for D.

longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct; elytra with surface almost even to slightly uneven or uneven; abdomen subcylindrical, subparallel-sided; teroventrites and tergoventrites sutures almost lost.

Male: Abdomen (Fig. 31B) modified with a very shallow depression on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 31A) with ventral apophyses long; 9th ventrite (Fig. 31C) with macrosetae moderately long, apicolateral teeth short, acute, apicolateral setae relatively short; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 31H) with median lobe very slender, very slightly, uniformly rounded laterally, pointed at apex; apical sclerotized area small, almost elongate-triangular in shape. Endophallus (Fig. 31H) with copulatory tube (Fig. 31E) with main tube attenuate but twice slightly curved on its way; expulsion hooks (Fig. 31D) atrophied, connected to form a very small, V-shaped sclerite; ventromedian bands each very short, very narrow. Parameres (Fig. 31H) very long; apical area very long, mesially with a setal tuft at base and 5 setae of various length in about apical 1/2.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 31F) each with apicolateral tooth very long, very acute, apicolateral setae long. Spermatheca (Fig. 31G) with capsule long, moderately thick, weakly narrowing apicad; striped ductal area short, thick, entirely membranous; duct moderately thick to thick, short with 2 turns, with a large, mesially swollen apical chamber; gland with opening located on the lateral side of duct between the 1st and 2nd turns; basal valve moderately long; basal duct short, weakly sclerotized.

Biology and ecology. The beetles of *S. kaguyahime* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. kaguyahime* is allied to *S. otohime*, but it is separable from the latter species by the aedeagal median lobe broader, less strongly pointed at the apex, the spermatheca with a large, mesially swollen, apical chamber (Fig. 31G), and the paramere sparsely setose mesially (Fig. 31H).

Etymology. The specific epithet of this species is derived from the Japanese name of a Princess appeared in an ancient Japanese folk tale, Kaguyahime.

***Stenus otohime* Naomi**
(Fig. 32A–F)

Stenus kaguyahime Naomi, 1990: 48; Herman, 2001: 2317; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Mt. Seira, Imari City, Saga Pref., 28. v. 1984, S. Nomura leg. Paratypes: 1 ♂ 1 ♀, same data as holotype; 1 ♀, Imari City, Saga Pref., 29. vii. 1976, H. Ohishi leg.

Other material examined. [KYUSHU]: 1 ♂ 2 ♀, Mt. Seira, Imari City, Saga Pref., 5. iv. 1983, S. Nomura leg.

Distribution. Japan: Kyushu (Saga Pref.).

Redescription. Male and female: Body 3.4–4.5 mm (fore body 1.6–2.1 mm) in length. Body moderately shining; head and abdomen dark brown near black to black; pronotum and elytra dark reddish brown to dark brown; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum partially coarse punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or

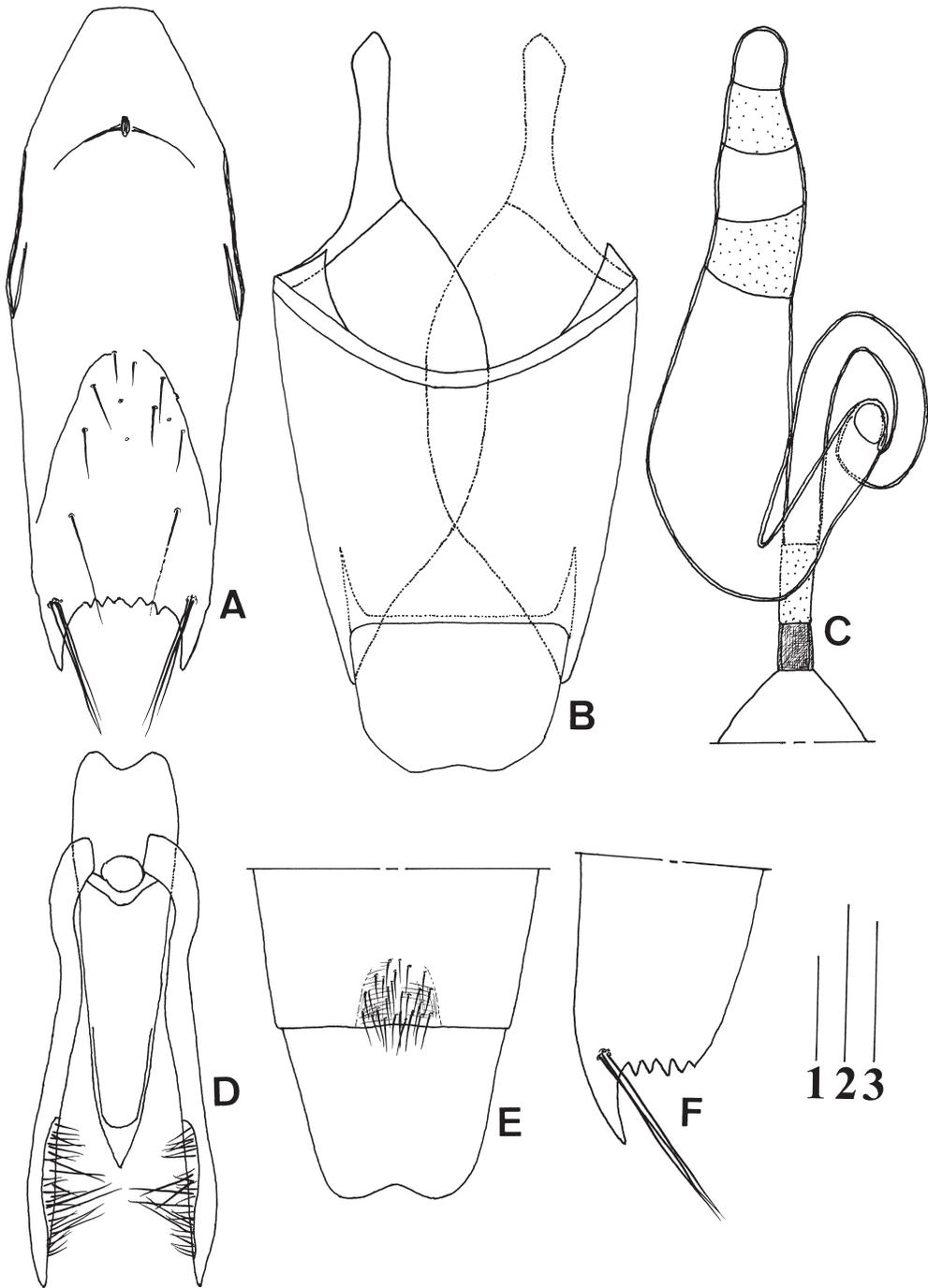


Fig. 32. *Stenus otohime* Naomii (Saga: Imari). A, 9th ventrite of male; B, 9th and 10th terga of male; C, spermatheca; D, aedeagus; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B; scale 2: 0.1 mm for C, F, 0.2 mm for D; scale 3: 0.3 mm for E.

depressions; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow hardly developed or very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; teroventrites and tergoventrites sutures lost.

Male: Abdomen (Fig. 32E) modified with a shallow depression on the 7th, and an arcuate, broad emargination on the 8th ventrite; 9th tergum (Fig. 32B) with ventral apophyses long; 9th ventrite (Fig. 32A) with macrosetae very long, apicolateral teeth moderately long, acute, apicolateral setae very long; 10th tergum shallowly emarginate posteriorly. Aedeagus (Fig. 32D) with median lobe very slender, attenuate, very acutely pointed at apex; apical sclerotized area small, almost elongate-triangular in shape. Parameres (Fig. 32A) very long, each curved mesially at base, with thick, robust pedicel; apical area very long, mesially with about 28 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 32F) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 32C) with capsule small, well-rounded apically; striped duct very thick, including 2 membranous parts; duct moderately thick, short with 4 turns, with a very large, subfusiform apical chamber; basal valve short; basal duct very short, sclerotized.

Biology and ecology. The beetles of *S. otohime* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. otohime* is allied to *S. kaguyahime*, but it is separable from the latter species by the aedeagal median lobe narrower, and more strongly pointed at the apex, the paramere very densely setose mesially (Fig. 32D) and the spermatheca with a very large, subfusiform apical chamber (Fig. 32C).

Etymology. The specific epithet of this species is derived from the Japanese name of a Princess appeared in an ancient Japanese folk tale, Otohime.

Stenus dainichi Puthz

(Figs. 33A–H, 132D)

Stenus dainichi Puthz, 2001: 50; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (SMNHS), Mt. Nachi (350 m), Wakayama Pref., 13. vii. 1999, V. Puthz leg.

Other material examined. [HONSHU]: 4♂1♀, Mt. Nachi, Wakayama Pref., 21. vii. 1984, T. Ito leg.

Distribution. Japan: Honshu (Wakayama Pref.).

Redescription. Male and female: Body 3.2–3.9 mm (fore body 1.4–1.9 mm) in length. Body moderately shining; head black, sometimes with clypeofrontal area reddish brown; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum reddish orange; antennae and legs clear yellow brown to reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum and elytra partially with coarse punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or almost longitudinal furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 33E) modified with a very shallow or shallow depression on the 7th,

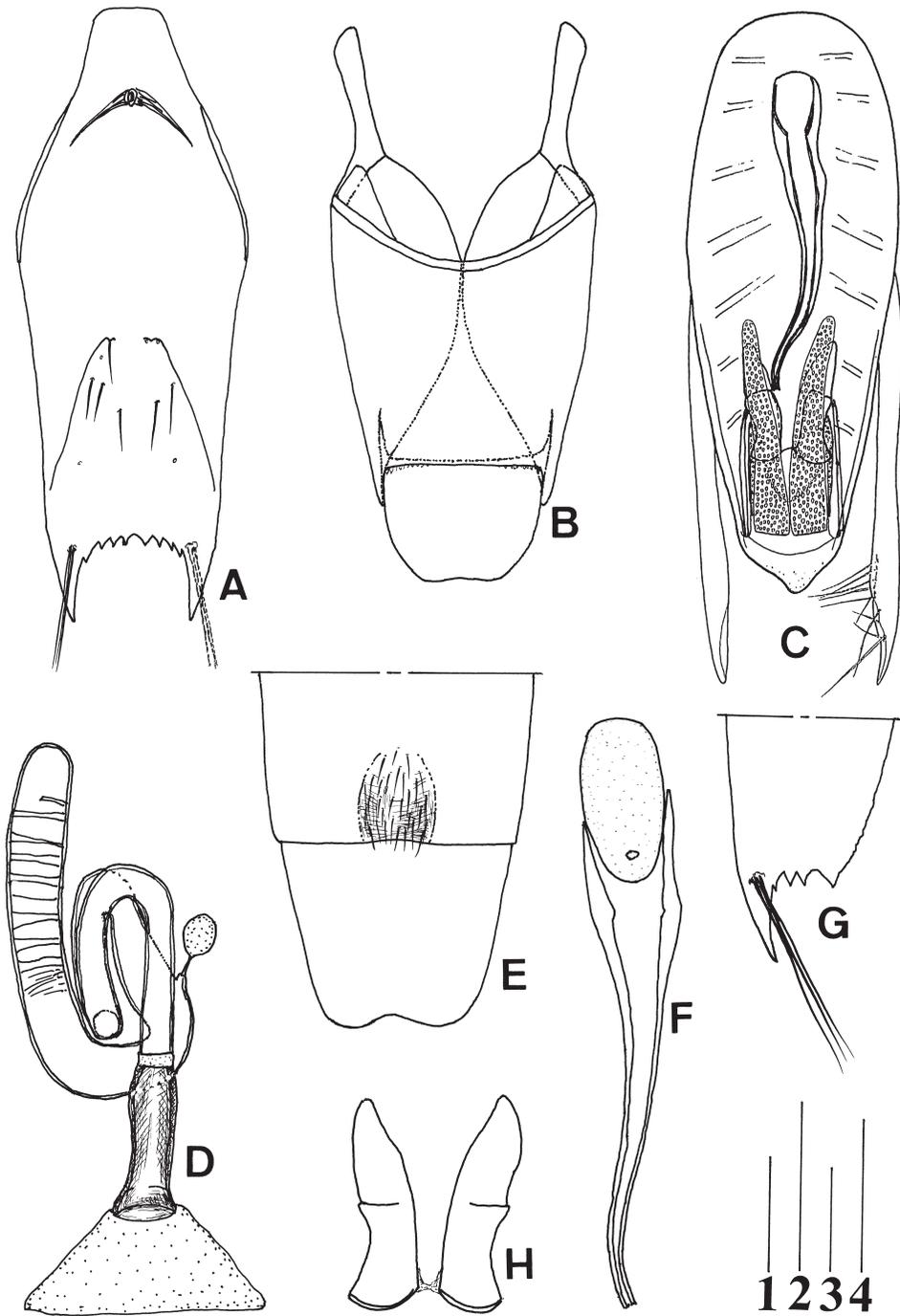


Fig. 33. *Stenus dainichi* Puthz (Wakayama: Mt. Nachi). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, spermatheca; E, 7th and 8th ventrites of male; F, copulatory tube; G, posterior part of gonocoxite; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A; scale 2: 0.2 mm for B, 0.1 mm for D, F–H; scale 3: 0.1 mm for C; scale 4: 0.3 mm for E.

and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 33B) with ventral apophyses moderately long; 9th ventrite (Fig. 33A) with apicolateral teeth very long, very acute, apicolateral setae very long; 10th tergum (Fig. 33B) very shallowly emarginate posteriorly. Aedeagus (Fig. 33C) with median lobe narrowly rounded at apicolateral corners, obtusely pointed at apex; apical sclerotized area nearly crescent, slightly protruding posteriorly at median part. Endophallus (Fig. 33C) with copulatory tube with main tube long, attenuate, slightly (Fig. 33F) or moderately (Fig. 33C) curved behind the middle; dorsolateral bands very thin; expulsion hooks (Fig. 33H) moderately broad, each with anterior plate obtusely pointed at anterior tip; ventromedian bands broad, slightly short. Parameres (Fig. 33C) long, moderately thick, each pointed at apex; apical area long, mesially with 10 setae of various length.

Female: Eighth ventrite obtuse posteomedially; gonocoxites (Fig. 33G) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 33D) with capsule moderately long, thick; striped duct moderately long, thick; duct slightly short, moderately thick to thick, coiled with 4 turns; gland small, ovoidal, with opening located on the lateral side of duct between the 3rd and 4th turns; basal valve very short; basal duct sclerotized, long, thick; basal pouch conical, membranous.

Biology and ecology. The beetles of *S. dainichi* inhabit leaf litter heaped in the deciduous natural forests of a low mountainous region.

Remarks. *S. dainichi* seems to be allied to *S. amagasui*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area less strongly developed (Fig. 33C), the endophallic copulatory tube with its main tube longer and curved (Fig. 33C, F), the expulsion hook with its posterior plate developed, about as large as anterior plate (Fig. 33H).

Etymology. The specific epithet of this species is derived from a Japanese name of Buddha, Dainichi.

Stenus amagasui Naomi

(Fig. 34A–G)

Stenus amagasui Naomi, 2007: 73; Naomi & Puthz, 2013: 144.

Type material examined. Holotype, 1 ♂ (CBM), Ohuchiyama Vil., Watarai-gun, Mie Pref., 11. iv. 1996, H. Ichihashi leg. Paratypes: 1 ♂1 ♀, Fujikawa, Ohmiya-cho, Watarai-gun, Mie Pref., 14. iii. 1996, H. Yokozeki leg; 1 ♂, Nako, Kisei-cho, Watarai-gun, 18. xii. 1998, A. Amagasu leg.; 4 ♂9 ♀, Nishiki, Kisei-cho, Watarai-gun, Mie Pref., 1. ii. 1997, A. Amagasu leg.; 3 ♂2 ♀, Minamimata, Ohuchiyama Vil., Mie Pref., 4. xi. 1996, K. Kanno leg.

Other material examined. [SHIKOKU]: 1 ♂1 ♀, Mt. Mayu, Tokushima City, Tokushima Pref., 20. iv. 2003, M. Inagaki leg.

Distribution. Japan: Honshu (Mie Pref.) and Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 2.9–3.5 mm (fore body 1.3–1.8 mm) in length. Body moderately shining; head black, sometimes with median or clypeofrontal area reddish brown; pronotum and elytra reddish brown to dark reddish brown; abdomen reddish brown to dark brown or almost black; labrum reddish brown; antennae and legs reddish brown. Body with punctures small to moderately large, round to elliptical, and pronotum partially with coarse to subrugose punctures and elytra also partially large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct;

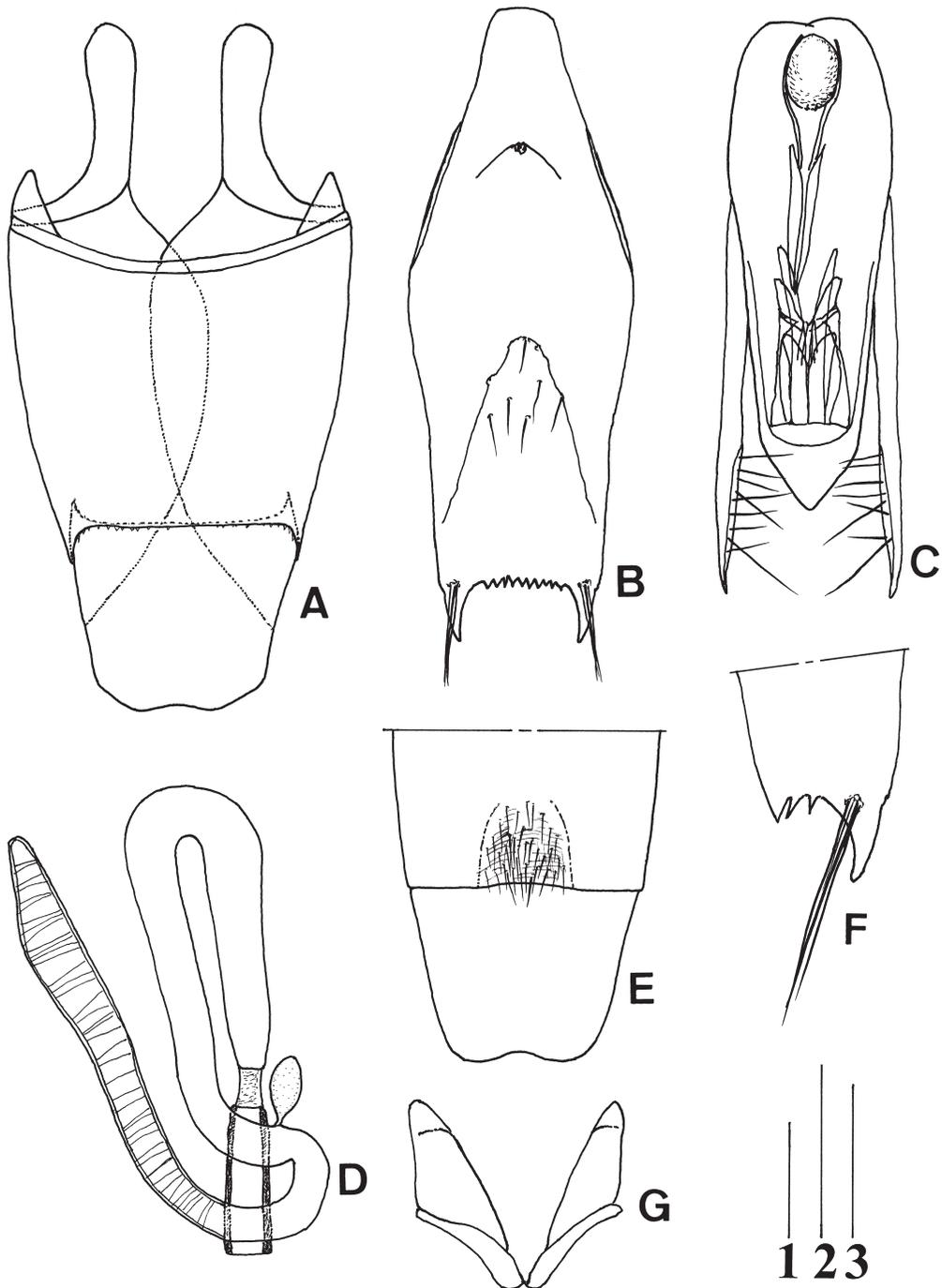


Fig. 34. *Stenus amagasui* Naomi (Mie: Nishiki). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, endophallic expulsion hooks. Scale 1: 0.1 mm for A–C; scale 2: 0.1 mm for D, F, 0.05 mm for G; scale 3: 0.3 mm for E.

elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrites sutures lost.

Male: Abdomen (Fig. 34E) modified with a slightly deep depression on the 7th, and a shallow, broad emargination on the 8th ventrite; 9th tergum (Fig. 34A) with ventral apophyses slightly short, very broad; 9th ventrite (Fig. 34B) with apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum shallowly emarginate posteromedially. Aedeagus (Fig. 34C) with median lobe almost rounded at apicolateral corners, pointed at apex; apical sclerotized area triangular, basally with an arcuate, broad notch. Endophallus (Fig. 34C) with copulatory tube with basal chamber large, ovoidal at base, main tube short, slightly thick, attenuate behind the middle; dorsolateral bands each thick at base; expulsion hooks (Fig. 34C, G) small, each with anterior plate broad-subtriangular in shape, posterior plate reduced to an oblique, very thin plate which is broadly connected with anterior plate; ventromedian bands each slightly short, broad at the posterior rim. Parameres (Fig. 34C) slender, each acutely pointed at apex; apical area very long, thin, mesially with 8 to 9 moderately long to long setae.

Female: Eighth ventrite obtuse posteromedially or almost rounded posteriorly; gonocoxites (Fig. 34F) each with apicolateral teeth long, almost acute, apicolateral setae very long. Spermatheca (Fig. 34D) with capsule very small, subconical; striped duct very long, moderately thick to thick, narrowing apicad in the apical 1/4; duct thick, short with 2 turns; gland small, almost ovoidal, with opening located on the duct near the 2nd turn; basal valve very short; basal duct moderately long and thick.

Biology and ecology. The beetles of *S. amagasui* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. amagasui* seems to be allied to *S. dainichi*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area more strongly developed (Fig. 34C), the copulatory tube with its main tube shorter and straight (Fig. 34C, F), the endophallic expulsion hook with its posterior plate reduced to an oblique, thin plate which is broadly connected with anterior plate (Fig. 34G).

Etymology. This species is named after Mr. A. Amagasu (Mie) who collected lots of *Stenus*-beetles which are designated as the paratype specimens.

***Stenus ivanloebli* Naomi, Nomura & Puthz sp. nov.**

(Figs. 35A–G, 132E)

Type material examined. Holotype: ♂ (KUMF), Nunobiki Fall, Kiwa-cho, Kumano City, Mie Pref., 1. vi. 1996, K. Kanno leg. Paratypes: 1 ♂ 3 ♀, same locality, 26. v. 1996, K. Akita leg.

Distribution. Japan: Honshu (Mie Pref.).

Description. Male and female: Body 3.3–3.9 mm (fore body 1.6–1.9 mm) in length. Body weakly shining; head black; pronotum, elytra and abdomen dark brown to dark red near black; labrum reddish brown to dark red; antennae and legs clear yellow brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 35E) modified with an elongate, flat area on the 7th, and a very shal-

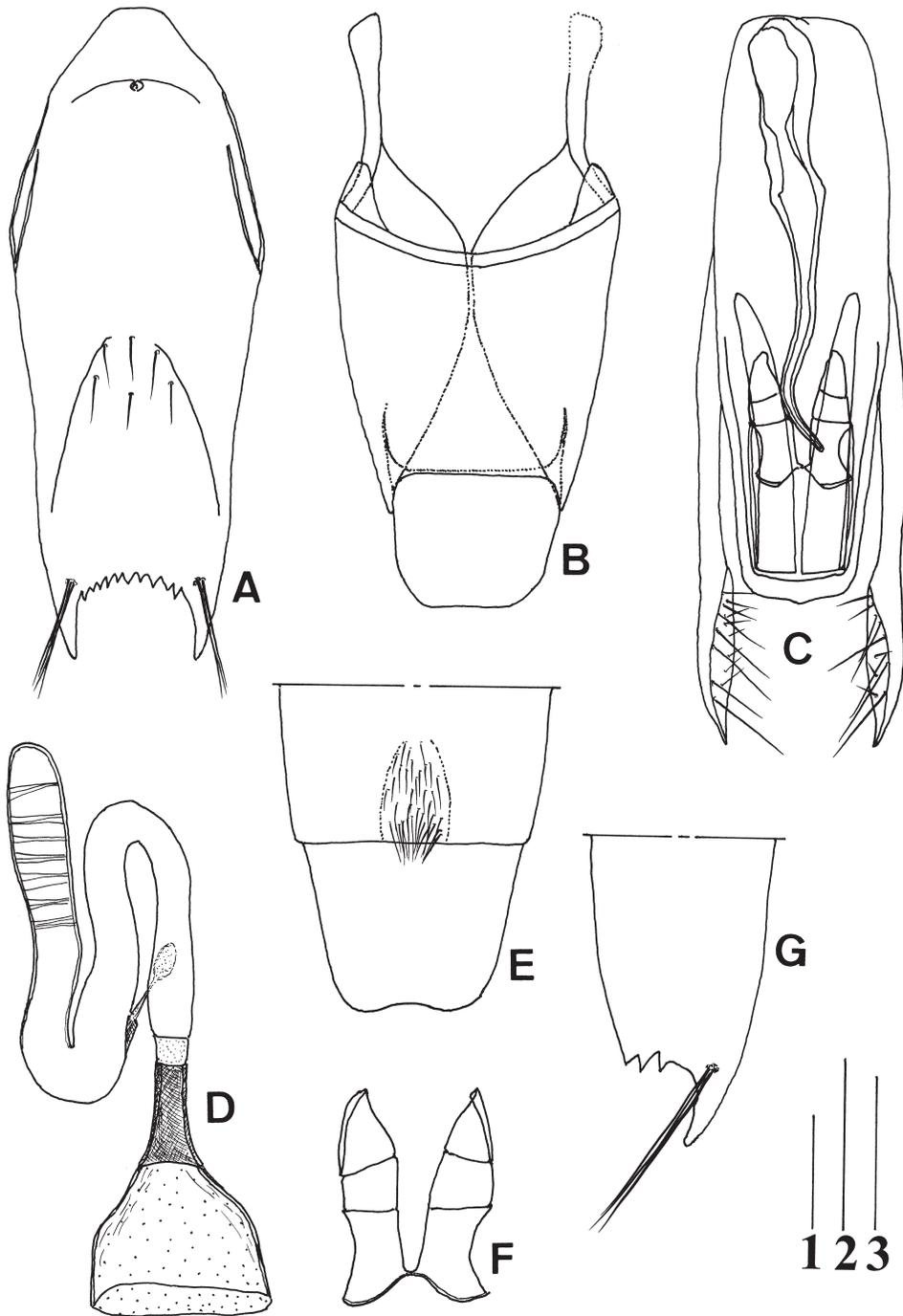


Fig. 35. *Stenus ivanloeblii* Naomi, Nomura & Puthz sp. nov. (Mie: Kiwa). A, 9th ventrite of male; B, 9th and 10th ventrites of male; C, aedeagus; D, spermatheca; E, 7th and 8th ventrites of male; F, endophallic expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.1 mm for A, C; scale 2: 0.2 mm for B, 0.1 mm for D, F, G; scale 3: 0.3 mm for E.

low, broad emargination on the 8th ventrite; 9th tergum (Fig. 35B) with ventral apophyses moderately long; 9th ventrite (Fig. 35A) with apicolateral teeth very long, very acute, apicolateral setae very long; 10th tergum (Fig. 35B) almost entire. Aedeagus (Fig. 35C) with median lobe elongate, obtusely angulate at apicolateral corners, subtruncate posteriorly, with a very minute, crescent apicomedian cusp; apical sclerotized area hardly developed, comprising a relatively thick posterior rim. Endophallus (Fig. 35C) with copulatory tube very long, with basal chamber large, elongate-ovoidal in shape, main tube attenuate, moderately curved behind the middle; dorsolateral bands very thin; expulsion hooks (Fig. 35H) moderately broad, each with anterior plate pointed at anterior tip, divided into 2 subplates; ventromedian bands broad, moderately long. Parameres (Fig. 35C) very long, moderately thick, each acutely pointed at apex; apical area very long, mesially with 11 to 14 setae of various length.

Female: Eighth ventrite pointed posteomedially; gonocoxites (Fig. 35G) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 35D) with capsule moderately long, thick; striped duct slightly short, thick; duct short, moderately thick to thick, coiled with 2 turns; gland very small, ovoidal, with opening located on the mesial side of duct near the 2nd turn; basal valve very short; basal duct sclerotized, moderately long, becoming thicker proximad; basal pouch bowl-shaped, membranous.

Biology and ecology. The beetles of *S. ivanloebli* inhabit leaf litter heaped in the deciduous natural forests of a low mountainous region.

Remarks. *S. ivanloebli* seems to be allied to *S. dainichi* and *S. amagasui*, but it is separable from the latter 2 species by the aedeagal median lobe subtruncate posteriorly (Fig. 35C), the copulatory tube longer (Fig. 35C), and the endophallic expulsion hook with its anterior plate divided into 2 subplates (Fig. 35F).

Etymology. This species is named after Dr. Ivan Löbl (Natural History Museum, Geneva) who studies the Scaphidiinae and Pselaphinae (Staphylinidae) and some other Coleopterous families.

Species unit 2 of the *cephalotes*-subgroup

Key to the Japanese species of the *cephalotes*-subgroup (2)

This is a key for a unit of *Stenus*-species (11 species) beginning with *S. kyotoensis* and almost adequately diagnosed with the combination of following character conditions: Aedeagal median lobe moderately broad to broad and also more or less broad even at apicolateral corners (Fig. 40A), or strongly narrowing apicad at least in the posterior 1/2 (Fig. 38A); copulatory tube very often variously modified into a tube with beak-shaped apex (Fig. 36F), a very short tube (Fig. 39E), an elongate-rhombic tube (Fig. 40H), a curved tube (Fig. 41E), a gourd-shaped tube (Fig. 43A), an elongate-conical tube (Fig. 45F), a thick, baculiform tube (Fig. 46C), etc.

Distribution: Honshu (Tohoku, Kanto, Chubu and Kinki Districts).

- 1(16) Male: Aedeagal paramere with apical area shorter than pedicel.
- 2(13) Male: Endophallic expulsions hooks more or less developed.
- 3(6) Male: Copulatory tube beak-shaped at apex; aedeagal paramere acicular at apex.
- 4(5) Male: Sixth ventrite without depression and 8th ventrite with a smaller emargination (Fig. 36D); endophallic expulsion hook with posterior plate angulate laterally (Fig. 36A)
*S. kyotoensis* Naomi, Nomura & Puthz sp. nov.

- 5(4) Male: Sixth ventrite with a deep depression (Fig. 37G) and 8th ventrite with a larger emargination (Fig. 37E); endophallic expulsion hook with posterior plate moderately rounded laterally (Fig. 37F) *S. jamesashei* Naomi
- 6(3) Male: Copulatory tube not beak-shaped at apex; aedeagal paramere obtusely pointed or narrowly rounded apically.
- 7(10) Male: Aedeagal median lobe pointed with an apicomedian cusp.
- 8(9) Male: Aedeagal median lobe with apical sclerotized area much narrower (Fig. 38A); endophallic expulsion hook with anterior plate slightly turning anterolaterally (Fig. 38A) *S. cinanomontis* Naomi & Nomura
- 9(8) Male: Aedeagal median lobe with apical sclerotized area much broader, (Fig. 39A); endophallic expulsion hook with anterior plate distinctly turning almost laterally (Fig. 39F)
.....*S. brevispinis* Naomi
- 10(7) Male: Aedeagal median lobe obtuse or rounded apically.
- 11(12) Male: Aedeagal median lobe obtuse at apex (Fig. 40A); Copulatory tube elongate-rhombic in shape (Fig. 40H)..... *S. incalcaratus* Naomi
- 12(11) Male: Aedeagal median lobe rounded apically (Fig. 41E); Copulatory tube baculiform, moderately curved (Fig. 41G)..... *S. inamatus* Puthz
- 13(2) Male: Endophallic expulsions hooks atrophied into a pair of small or very small pieces.
- 14(15) Male: Aedeagal median lobe broader in the posterior 1/2 (Fig. 45B); copulatory tube elongate-conical in shape (Fig. 45F)..... *S. hoshinai* Naomi
- 15(14) Male: Aedeagal median lobe narrower in the posterior 1/2 (Fig. 46D); copulatory tube baculiform (Fig. 46C)*S. regularis* Naomi & Watanabe
- 16(1) Male: Aedeagal paramere with apical area almost as long as or longer than pedicel.
- 17(20) Male: Aedeagal median lobe broadest near or before the middle, and becoming narrower toward apicolateral corners.
- 18(19) Male: Copulatory tube attenuate (Fig. 42E); endophallic expulsion hook lost (Fig. 42H) ..
.....*S. inaestimatus* Puthz
- 19(18) Male: Copulatory tube gourd-shaped (Fig. 43A); endophallic expulsion hook almost developed and membranous (Fig. 43D)*S. sicyoideus* Naomi, Nomura & Puthz sp. nov.
- 20(17) Male: Aedeagal median lobe becoming slightly broader from near the middle to apicolateral corners, and broadest at apicolateral corners (Fig. 44B).*S. keman* Naomi

***Stenus kyotoensis* Naomi, Nomura & Puthz sp. nov.**

(Figs. 36A–H, 132F)

Type material examined. Holotype: ♂ (KUMF), Mt. Ooe, Ooe-cho, Kyoto Pref., 4. ix. 2004, K. Mizuno leg. Paratypes: 9 ♂ 3 ♀, same data as holotype.

Distribution. Japan: Honshu (Kyoto Pref.).

Description. Male and female: Body 3.5–3.6 mm (fore body 1.5–1.6 mm) in length. Body moderately shining; head black; pronotum and abdomen dark reddish brown to dark brown; elytra reddish brown; labrum reddish brown to dark red; antennae and legs clear yellow brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head

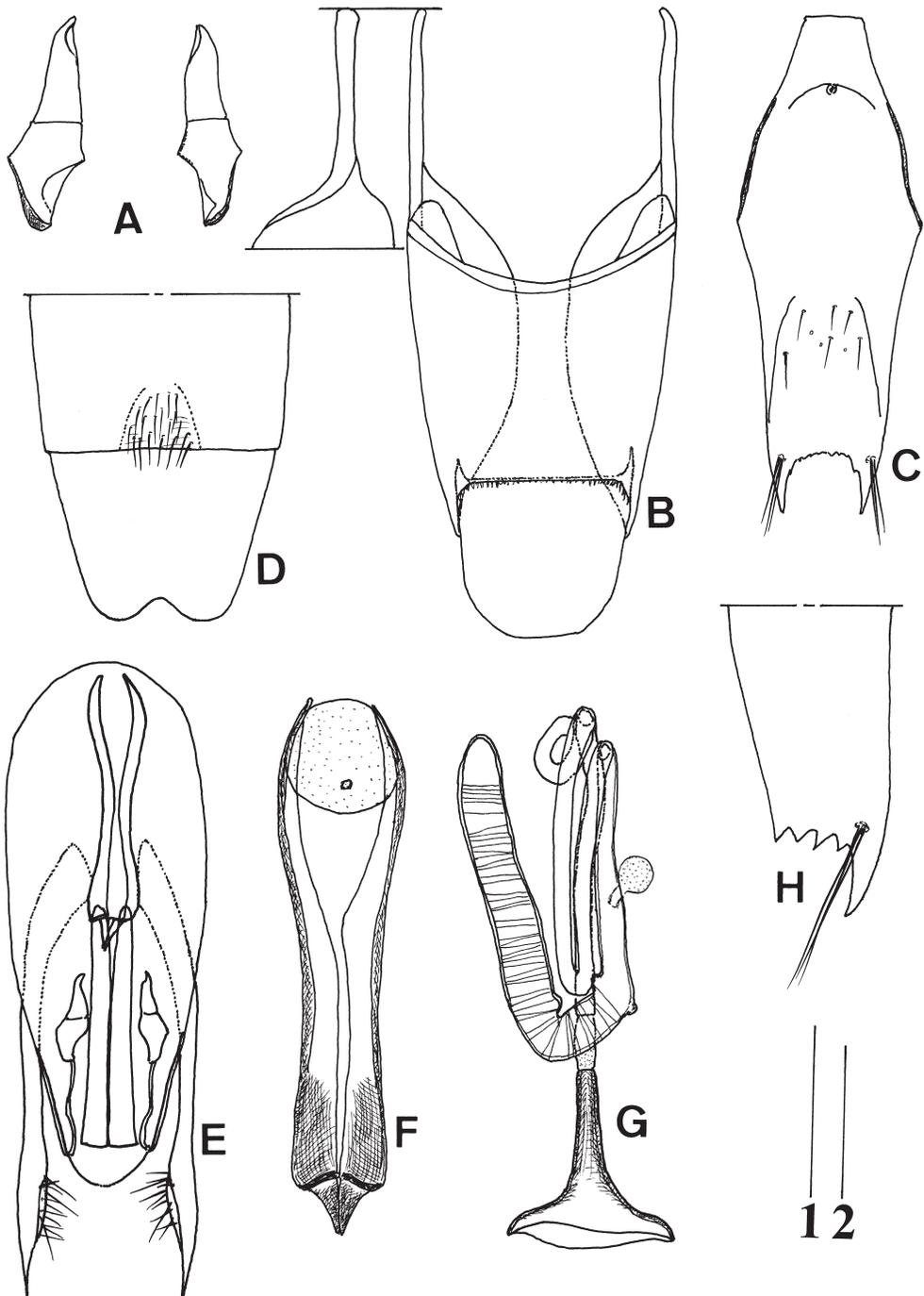


Fig. 36. *Stenus kyotoensis* Naomi, Nomura & Puthz sp. nov. (Kyoto: Ooe). A, endophallic expulsion hooks; B, 9th and 10th terga of male; C, 9th ventrite of male; D, 7th and 8th ventrites of male; E, aedeagus; F, copulatory tube; G, spermatheca; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A, F–H, 0.2 mm for B, C, E; scale 2: 0.3 mm for D.

moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface almost even to slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven; abdomen subcylindrical, thin to moderately thick, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 36D) modified with a flat area on the 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 36B) with ventral apophyses very long; 9th ventrite (Fig. 36C) with apicolateral teeth long, very acute, apicolateral setae slightly long; 10th tergum (Fig. 36B) entire. Aedeagus (Fig. 36E) with median lobe elongate-ovoidal in shape, almost rounded apically; apical sclerotized area hardly developed. Endophallus (Fig. 36E) with copulatory tube (Fig. 36F) moderately long, with basal chamber large, elongate-ovoidal in shape, main tube with basal tube baculiform, apical tube atrophied into a very small, beak-shaped tube; dorsolateral bands very thin; expulsion hooks (Fig. 36A) each with anterior plate almost pointed at anterior tip, posterior plate angulate at the middle of lateral part; ventromedian bands each moderately long, thin. Parameres (Fig. 36C) long, each acicular at apex; apical area long, mesially with 11 to 12 setae.

Female: Eighth ventrite obtuse posteomedially; gonocoxites (Fig. 36H) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 36G) with capsule narrowly rounded apically; striped duct very long, thick; duct moderately long, thin to moderately thick, coiled with 6 turns; gland small, spherical, with opening located on the middle of duct between the last and last 2nd turns; basal valve short; basal duct sclerotized, seamlessly connected with the dish-like, basal pouch.

Biology and ecology. The beetles of *S. kyotoensis* inhabit leaf litter heaped in the natural forests of a low mountainous region.

Remarks. *S. kyotoensis* seems to be allied to *S. jamesashei*, but it is separable from the latter species by the 8th ventrite of male with its posteromedian emargination much smaller (Fig. 36D), the aedeagal median lobe almost rounded apically (Fig. 36E), the endophallic expulsion hook with its posterior plate angulate at the middle of lateral part (Fig. 36A), and the spermatheca with its basal duct shorter (Fig. 36G).

Etymology. The specific epithet of this new species is derived from the name of type locality, Kyoto.

***Stenus jamesashei* Naomi**
(Fig. 37A–I)

Stenus jamesashei Naomi, 2012: 312; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mt. Hira, Shiga Pref., 7. viii. 1987, T. Ito leg. Paratypes: 5 ♂4 ♀, same data as holotype; 1 ♂6 ♀, same locality, 17. viii. 1986, T. Ito leg.; 1 ♂, same locality, 2. vi. 1957, T. Shibata leg.

Distribution. Japan: Honshu (Shiga Pref.).

Redescription. Male and female: Body 3.4–3.9 mm (fore body 1.6–1.8 mm) in length. Body weakly shining; head black; pronotum and elytra dark red; abdomen dark red near black to almost black; labrum reddish brown; antennae and legs yellowish brown to pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to

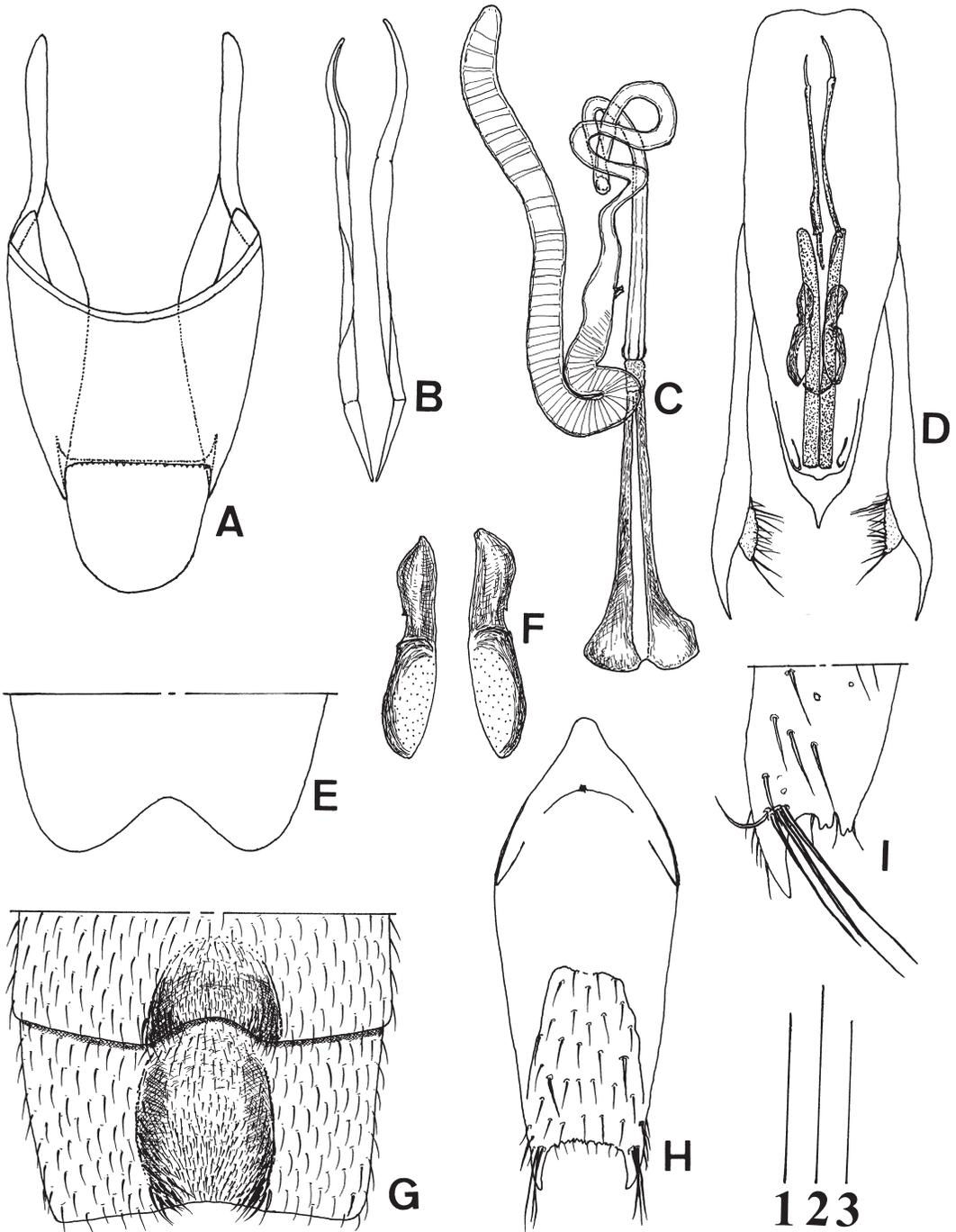


Fig. 37. *Stenus jamesashei* Naomi (Shiga: Mt. Hira). A, 9th and 10th terga of male; B, copulatory tube; C, spermatheca; D, aedeagus; E, posterior part of 8th ventrite of male; F, endophallic expulsion hooks; G, 6th and 7th ventrites of male; H, 9th ventrite of male; I, posterior part of gonocoxite. Scale 1: 0.2 mm for A, D, H, 0.1 mm for B, C, F, I; scale 2: 0.25 mm for G; scale 3: 0.25 mm for E.

thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct or indistinct; elytra with surface uneven; abdomen subcylindrical, thin to moderately broad, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures almost lost.

Male: Abdomen (Fig. 37G) modified with a very shallow depression on the 5th, a deep depression on the 6th, a deep anteromedian and a moderately deep depressions on the 7th, and a very large, very broad, deep emargination on the 8th ventrite (Fig. 37E); 9th tergum (Fig. 37A) with ventral apophyses very long; 9th ventrite (Fig. 37H) with macrosetae short, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 37A) almost rounded posteriorly. Aedeagus (Fig. 37D) with median lobe elongate, almost semicircular, narrow, very acutely pointed at apex with a moderately long, acicular apicomedian cusp. Endophallus (Fig. 37D) with copulatory tube (Fig. 37B) having basal chamber moderately large, comprising 2 curved rods of different length, main tube with basal tube baculiform, moderately thick, apical tube reduced into a short, triangular one; expulsion hooks (Fig. 37F) elongate, each with posterior plate moderately rounded laterally, narrowly pointed at posterior tip; ventromedian bands long, very narrow. Parameres (Fig. 37D) each acicular and mesially curved at apex; apical area long, moderately swollen mesially at base, with a membranous protuberance at base, on which the 15 to 19 setae of various length occur.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 37I) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 37C) with capsule very small, narrowly rounded apically; striped duct very long, thick; duct short, very thin to moderately thick, loosely coiled; gland with opening located on the duct a little proximal from the proximal part of striped duct; basal valve very short; basal duct very long, strongly sclerotized, becoming broader proximad.

Biology and ecology. The beetles of *S. jamesashei* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. When considering the common possession of such peculiar conditions as the very broad emargination of 8th ventrite of male, the spermatheca with its striped duct long or very long, etc. observed among *S. jamesashei*, *S. cinanomontis* and *S. brevispinis*, these 3 species seem to be closely allied one another, but *S. jamesashei* is easily separable from the latter 2 species by the aedeagal paramere with its apical area mesially having a conspicuous membranous protuberance at base (Fig. 37C), and the endophallic copulatory tube developed and much longer (Fig. 37B).

Etymology. The specific epithet of this species is named after the late Dr. James S. Ashe (Kansas University) who studied the Aleocharinae and some other staphylinid subfamilies.

***Stenus cinanomontis* Naomi & Nomura**
(Figs. 38A–F, 132G)

Stenus cinanomontis Naomi & Nomura, 2015: 196.

Type material examined. Holotype: ♂ (NMNST), Hyôgoe Pass, Minami-shinano, Nagano Pref., 16. xi. 1999, S. Nomura leg. Paratypes: 1 ♂ 2 ♀ (NMNST), same data as holotype; 5 ♂ 3 ♀, same data as above.

Other material examined. [HONSHU]: 3 ♂ 1 ♀, Shirabiso Highland, Ue-mura, Nagano Pref., 16. xi. 1999, S. Nomura leg.; 2 ♂ 3 ♀, Jizo Pass, Ue-mura, Nagano Pref., 16. xi. 1999, S. Nomura leg.

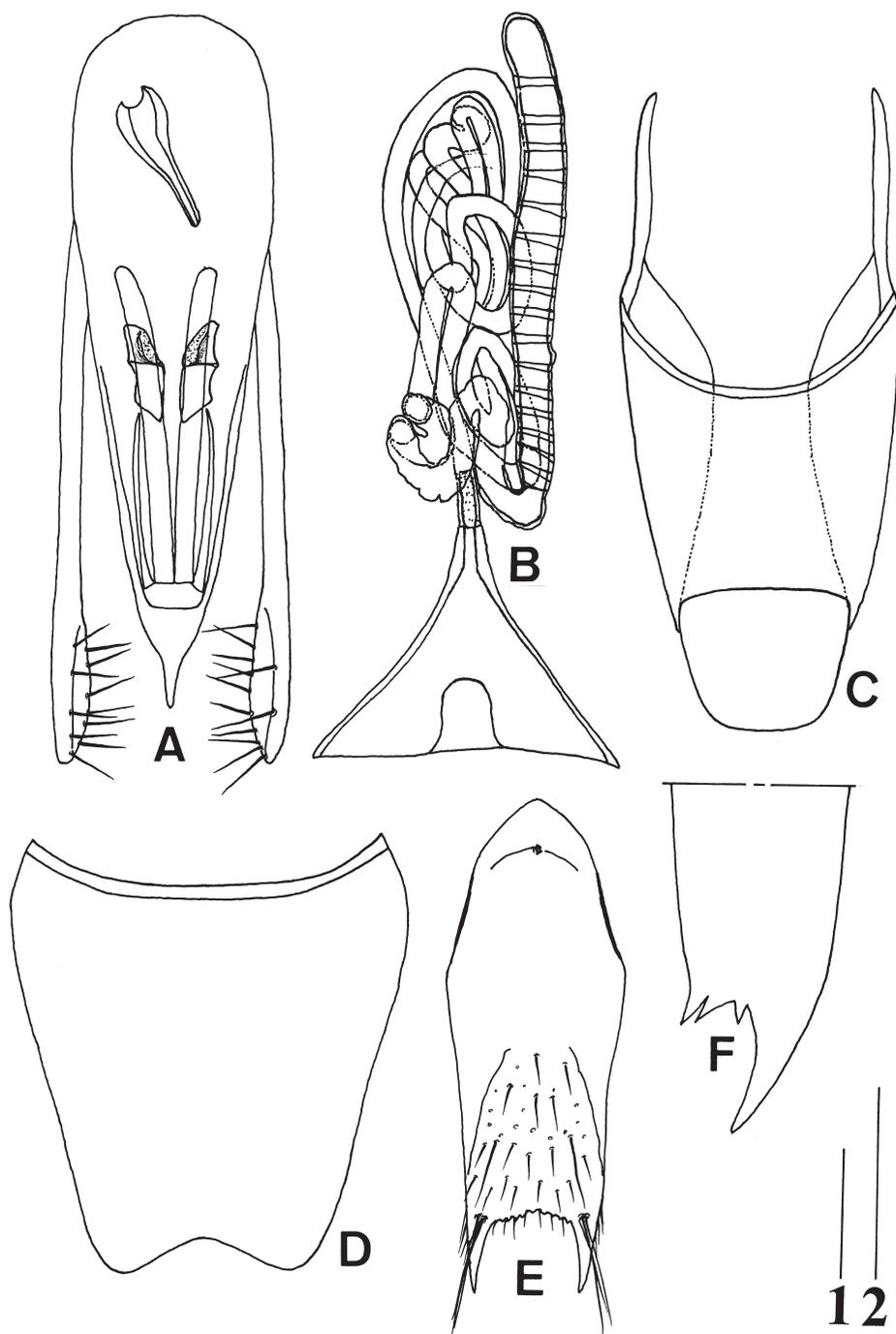


Fig. 38. *Stenus cinanomontis* Naomi & Nomura (Nagano: Hyôgoe Pass). A, aedeagus; B, spermatheca; C, 9th and 10th terga of male; D, 8th ventrite of male; E, 9th ventrite of male; F, posterior part of gonocoxite. Scale 1: 0.1 mm for A; scale 2: 0.1 mm for B, F, 0.2 mm for C–E.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male and female: Body 3.4–4.0 mm (fore body 1.6–1.9 mm) in length. Body weakly shining; head black; pronotum and elytra dark red; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to pale reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head shallowly concave, with a pair of mesially-curved furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergo-ventral sutures lost.

Male: Abdomen modified with a flat area or a very shallow depression on the 6th, a moderately deep depression on the 7th, and a very broad, subtriangular emargination on the 8th ventrite (Fig. 38D); 9th tergum (Fig. 38C) with ventral apophyses long; 9th ventrite (Fig. 38E) with macrosetae long, apicolateral teeth long, very thin, very acute, apicolateral setae long; 10th tergum (Fig. 38C) entire. Aedeagus (Fig. 38A) with median lobe elongate, becoming almost uniformly narrower apicad, subtriangular, narrow and strongly pointed with a thin, very long, subulate apicomedian cusp. Endophallus (Fig. 38A) with copulatory tube short, with main tube thick at base, narrowing apicad; dorsolateral bands thin; expulsion hooks each with anterior plate slightly turning apicolaterally, posterior plate pointed at posteromesial corner; ventromedian bands very long, thin. Parameres (Fig. 38A) slender, each narrowly rounded apically; apical area long, moderately swollen mesially, mesially also with 11 to 12 moderately long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 38F) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 38B) with capsule long, well-rounded apically; striped duct long, thick; duct very long, thin, almost tightly coiled; basal valve short; basal pouch very large, conical.

Biology and ecology. The beetles of *S. cinanomontis* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. cinanomontis* is probably allied to *S. brevispinis*, but it is separable from the latter species by the aedeagal median lobe much narrower at the apicolateral corners (Fig. 38A), with its apical sclerotized area having a longer apicomedian cusp (Fig. 38A), the copulatory tube longer (Fig. 38A), and the endophallic expulsion hook narrower, with its anterior plate slightly turning apicolaterally (Fig. 38A).

***Stenus brevispinis* Naomi**
(Fig. 39A–G)

Stenus brevispinis Naomi, 2015a: 221.

Type material examined. Holotype: ♂ (KUMF), Mt. Sobatsubu, Nakakawane-cho, Shizuoka Pref., 9. ix. 2004, T. Watanabe leg. Paratypes: 2♂5♀, same data as holotype; 2♂3♀, Mt. Ohfuda, Nakakawane-cho, Shizuoka Pref., 12. x. 2008, S. Naomi leg.; 1♀, same locality and date, T. Shimada leg.; 1♀, same locality, 13. x. 2008, T. Sakai leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 3.2–3.9 mm (fore body 1.6–1.8 mm) in length. Body weakly shining; head black; pronotum, elytra and abdomen dark red to dark brown; labrum reddish orange to dark reddish brown; antennae and legs yellowish brown to pale reddish brown.

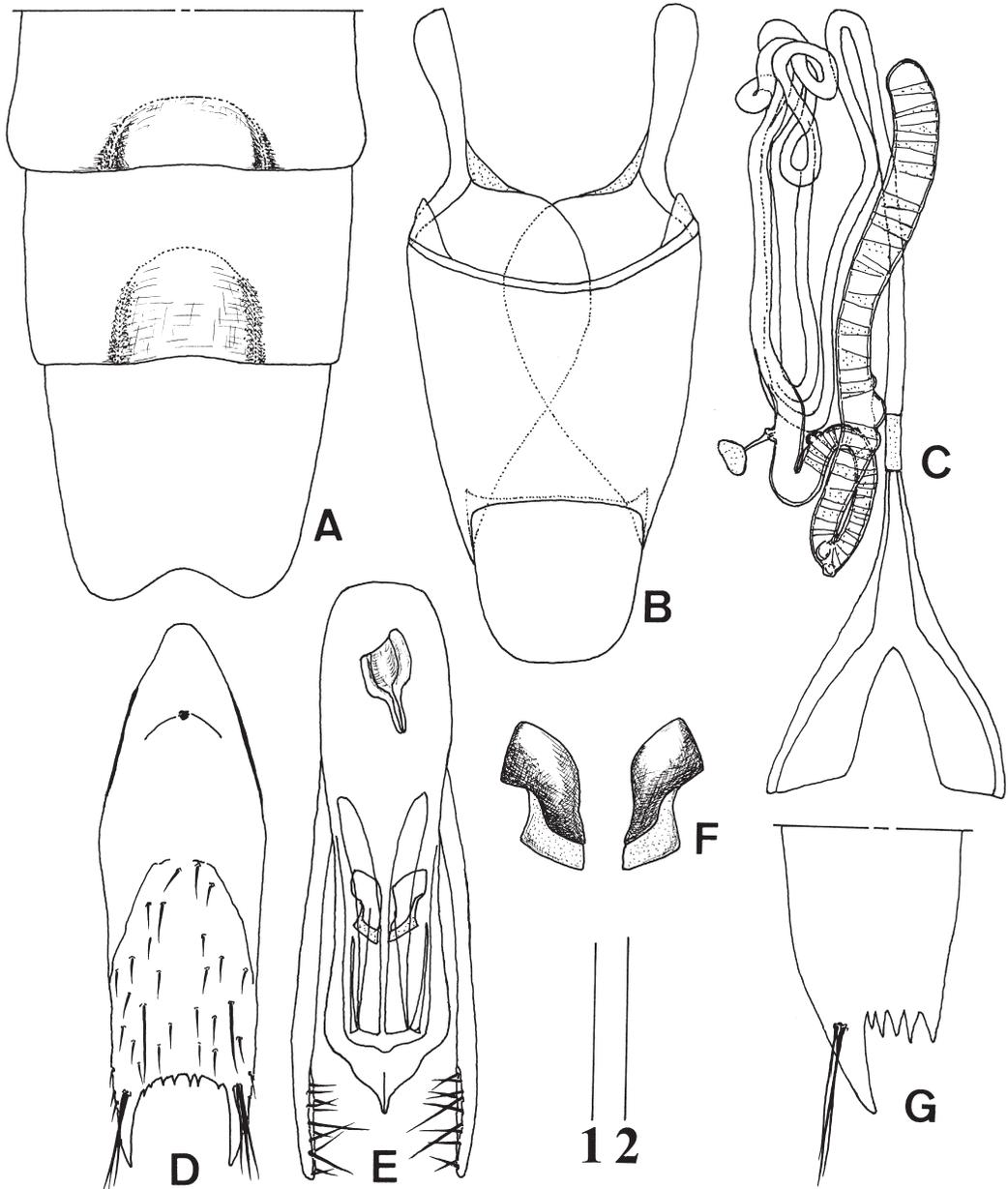


Fig. 39. *Stenus brevispinus* Naomi (Shizuoka: Mt. Sobatsubu). A, 6th to 8th ventrites of male; B, 9th and 10th terga of male; C, spermatheca; D, 9th ventrite of male; E, aedeagus; F, endophallic expulsion hooks, G, posterior part of gonocoxite. Scale 1: 0.2 mm for B, D, E, 0.1 mm for C, F, G; scale 2: 0.3 mm for A.

Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 39A) modified with a flat area on the 5th or on each of the 4th and 5th, a shallow depression on the 6th, a large, shallow or moderately deep depression on the 7th, and an almost arcuate, very broad, moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 39B) with ventral apophyses moderately long; 9th ventrite (Fig. 39D) with macrosetae long, apicolateral teeth very long, thin, very acute, apicolateral setae moderately long; 10th tergum (Fig. 39B) rounded posteriorly. Aedeagus (Fig. 39E) with median lobe elongate, weakly constricted around the apical 2/5, then becoming broader apicad to apicolateral corners, with a short apicomedian cusp; apical sclerotized area nearly triangular, weakly bisinuate laterally. Endophallus (Fig. 39E) with copulatory tube very short, main tube broad at base, very thin at apex; dorsolateral bands very thin; expulsion hooks (Fig. 39F) slightly small, each with anterior plate distinctly turning almost laterally; ventromedian bands each long, moderately broad. Parameres (Fig. 39E) each obtusely pointed at apex; apical area hardly swollen at base, mesially with 11 to 12 setae.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 39G) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 39C) with capsule very small, almost rounded apically; striped duct very long, moderately thick to thick; duct very long, thin to moderately thick, very loosely coiled for the most part; gland small, with opening located on the lateral side of duct a little proximal from the last 3rd turn; basal valve very thin, short; basal pouch very large, subconical.

Biology and ecology. The beetles of *S. brevispinus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. brevispinus* is probably allied to *S. cinanomontis*, but it is separable from the latter species by the aedeagal median lobe much broader at the apicolateral corners (Fig. 39E), with its apical sclerotized area having a shorter apicomedian cusp (Fig. 39E), the copulatory tube shorter (Fig. 39E), and the endophallic expulsion hook broader, with its anterior plate distinctly turning almost laterally (Fig. 39F).

Stenus incalcaratus Naomi

(Figs. 40A–I, 132H)

Stenus toshiharui Naomi, 1990: 46 (in part).

Stenus incalcaratus Naomi, 2015: 19.

Type material examined. Holotype: ♂ (CBM), Amagi Pass, Yugashima, Shizuoka Pref., 12. xi. 2000, T. Watanabe leg. Paratypes: 1 ♂ 1 ♀ (paratypes of *S. toshiharui*), Amagi Pass, Izu Peninsula, Shizuoka Pref., 23. vii. 1982, S. Naomi leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 3.8–3.7 mm (fore body 1.5–1.9 mm) in length. Body weakly to moderately shining; head black, sometimes with median area dark red to dark brown; pronotum and elytra reddish brown; abdomen reddish brown to brown or dark red; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface strongly uneven, with a median longitudinal furrow distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

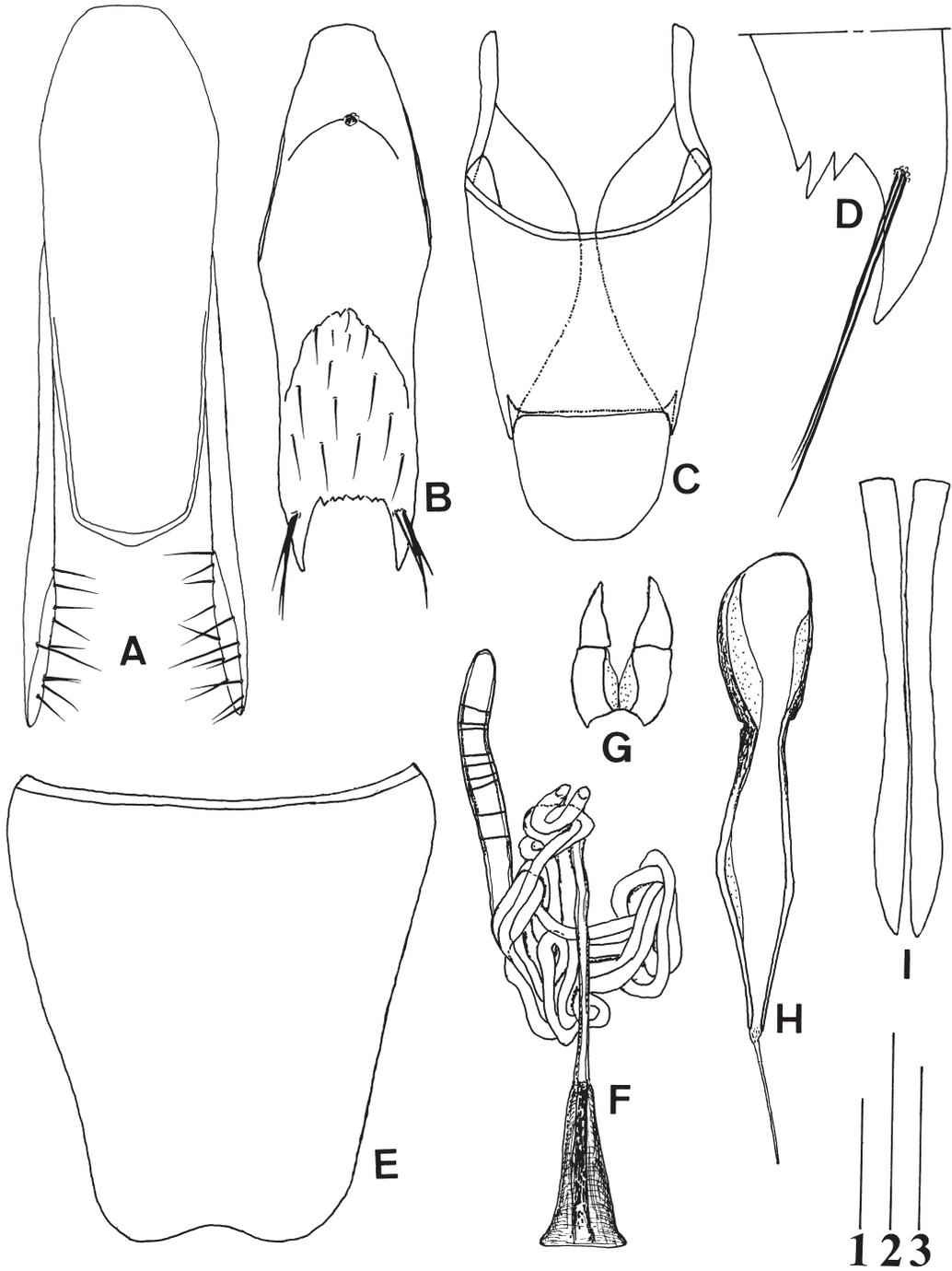


Fig. 40. *Stenus incalcaratus* Naomi (Shizuoka: Mt. Amagi). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, posterior part of gonocoxite; E, 8th ventrite of male; F, spermatheca; G, endophallic expulsion hooks; H, copulatory tube; I, ventromedian bands (outthrust condition). Scale 1: 0.1 mm for A; scale 2: 0.2 mm for B, E, 0.1 mm for F–I; scale 2: 0.2 mm for C, 0.05 mm for D.

Male: Abdomen modified with a very shallow depression on the 7th, and an arcuate, broad, shallow emargination on the 8th ventrite (Fig. 40E); 9th tergum (Fig. 40C) with ventral apophyses short; 9th ventrite (Fig. 40B) elongate, with apicolateral teeth very long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 40C) entire. Aedeagus (Fig. 40A) with median lobe obtusely angulate at apicolateral corner, obtuse at apex; apical sclerotized area hardly developed. Endophallus with copulatory tube (Fig. 40H) with basal chamber large, ovoidal, main tube elongate-rhombic in shape, apically with a very thin needle; expulsion hooks (Fig. 40G) very small, each with anterior plate acutely pointed at anterior tip, posterior plate minutely pointed at posterolateral part; ventromedian bands (Fig. 40I) slender. Parameres (Fig. 40A) very long, each narrowly rounded apically; apical area very long, slightly swollen laterally, mesially with 10 to 13 setae.

Female: Eighth ventrite acutely pointed posteromedially with a very short cusp; gonocoxites each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 40F) with capsule elongate; striped duct short, moderately thick; duct very long, very thin, with distal part moderately broad, tightly coiled; basal duct elongate-conical in shape, strongly sclerotized.

Biology and ecology. The beetles of *S. incalcaratus* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. incalcaratus* is allied to *S. inamatus*, but it is separable from the latter by the aedeagal median lobe obtusely angulate at the apicolateral corners, with its apical sclerotized area very thin (Fig. 40A), the copulatory tube elongate-rhombic in shape (Fig. 40H), and the endophallic expulsion hook much smaller, with its posterior plate (Fig. 40G) much shorter.

Stenus inamatus Puthz

(Figs. 41A–H, 132I)

Stenus inamatus Puthz, 1993: 149; Herman, 2001: 2227; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (NHMG), Shiga Highland (1,500 m), Jyoshin-etsu National Park, Nagano Pref., 23. vii. 1980, I. Löbl leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 2 ♂, Kaikake, Yuzawa-machi, Niigata Pref., 23. vi. 1996, K. Haga leg.; 1 ♂, Okutadami, Fukushima Pref., 23. vii. 1987, S. Nomura leg.; 2 ♂, Yagizawa, Yuzawa-machi, Niigata Pref., 20. v. 1995, K. Haga leg.

Distribution. Japan: Honshu (Niigata and Nagano Prefs.).

Redescription. Male and female: Body 3.3–3.8 mm (fore body 1.7–1.9 mm) in length. Body weakly shining; head black; pronotum and elytra dark red; abdomen reddish brown to brown or black; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows; antennae short, thin; pronotum with surface uneven, with a median longitudinal furrow hardly developed to very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites lost, tergoventral sutures sometimes present, very thin.

Male: Abdomen (Fig. 41D) modified with an arcuate, moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 41A) with ventral apophyses slightly short; 9th ventrite (Fig. 41B) with apicolateral teeth moderately long, acute, apicolateral setae slightly short; 10th tergum (Fig.

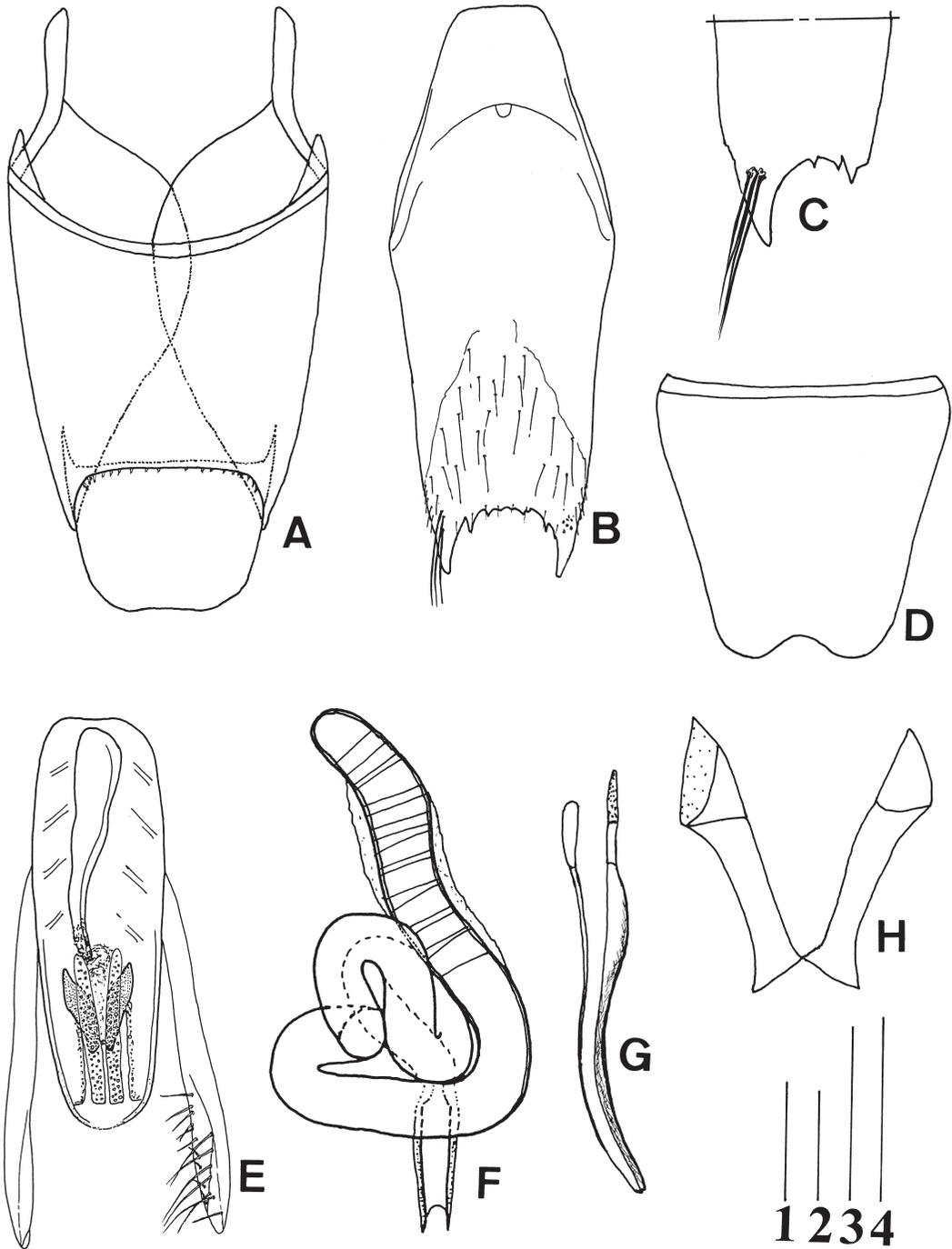


Fig. 41. *Stenus inamatus* Puthz (Niigata: A, G, H, Kaikake; Nagano: B–F, Shiga Highland). A, 9th and 10th terga of male; B, 9th ventrite of male; C, posterior part of gonocoxite; D, 8th ventrite of male; E, aedeagus; F, spermatheca; G, copulatory tube; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A, 0.05 mm for G; scale 2: 0.2 mm for B, E; scale 3: 0.1 mm for C, 0.2 mm for F, 0.05 mm for H; scale 4: 0.3 mm for D.

41A) very shallowly emarginate posteromedially. Aedeagus (Fig. 41E) with median lobe elongate, well-rounded apically; apical sclerotized area not developed. Endophallus (Fig. 41E) with copulatory tube (Fig. 41G) moderately long, attenuate, moderately curved; dorsolateral bands thin; expulsion hooks (Fig. 41E, H) thin, each with anterior plate almost triangular, much smaller than posterior plate; ventromedian bands short, thin. Parameres (Fig. 41E) long, thick, each narrowly rounded apically; apical area very long, mesially with 16 setae of various length.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 41C) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 41F) with capsule rounded apically; striped duct moderately long, thick; duct slightly short, thick, loosely coiled with 6 turns; basal valve short; basal duct moderately long.

Biology and ecology. The beetles of *S. inamatus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. inamatus* is allied to *S. inaestimatus*, but it is separable from the latter species by the aedeagal median lobe broader at the apical part, with its apical sclerotized area lost (Fig. 41E), the endophallic expulsion hook present (Fig. 41H), the paramere thicker, with its apical area shorter (Fig. 41E), and the spermatheca with its duct thicker (Fig. 41F).

Stenus inaestimatus Puthz

(Fig. 42A–H)

Stenus inaestimatus Puthz, 1993: 154; Herman, 2001: 2227; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (NHMG), Arimine (1,150 m), Kamini(i)kawa, Toyama Pref., 29. vii. 1980, I. Löbl leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Nakao, Mt. Yakedake, Takayama City, Gifu Pref., 2. vi. 2008, K. Mizuno leg.; 1 ♂, Nomugi Pass, Nagawa Vil., Nagano Pref., 8. viii. 1996, T. Kishimoto leg.; 1 ♂, Shimajima Val., Nagano Pref., 10. vii. 1966, Y. Watanabe leg.

Distribution. Japan: Honshu (Nagano, Gifu and Toyama Prefs.).

Redescription. Male and female: Body 2.9–3.6 mm (fore body 1.6–1.7 mm) in length. Body weakly shining; head black; pronotum and elytra dark red; abdomen dark reddish brown to almost black; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface even to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 42C) modified with a flat area or a very shallow or shallow depression on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 42A) with ventral apophyses moderately long; 9th ventrite (Fig. 42B) with macrosetae long, apicolateral teeth moderately long, very acute, apicolateral setae short; 10th tergum (Fig. 42A) shallowly emarginate posteromedially. Aedeagus (Fig. 42H) with median lobe slender, narrowly rounded apically; apical sclerotized area subtriangular, basally with an arcuate notch. Endophallus (Fig. 42H) with copulatory tube (Fig. 42E) straight, attenuate; expulsion hooks lost; ventromedian bands moderately long, thin. Parameres (Fig. 42H) long, each weakly incurved, narrowly rounded apically; apical area extremely long, almost as long as pedicel, mesially with 11 to 12 setae.

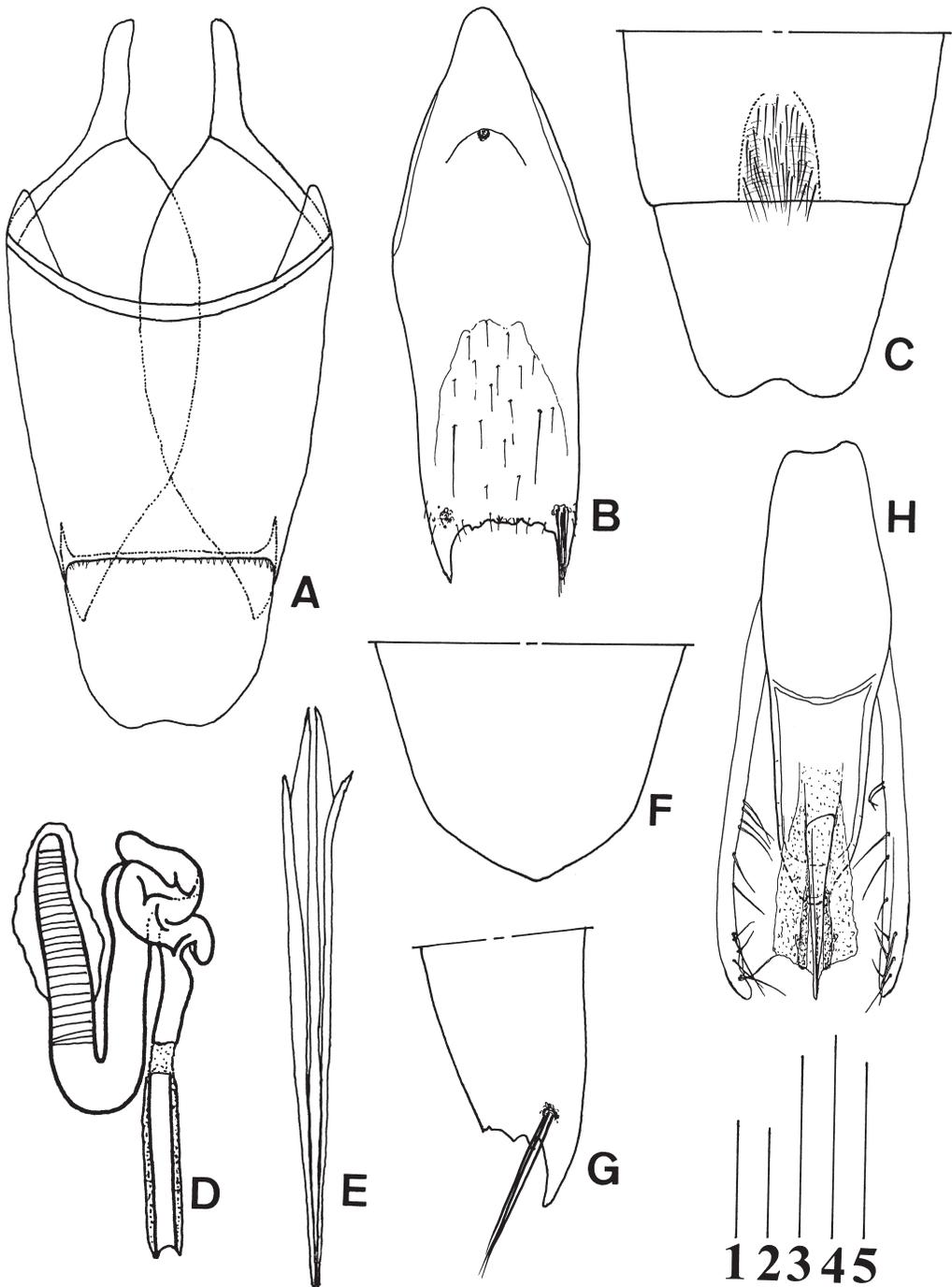


Fig. 42. *Stenus inaestimatus* Puthz (Nagano: A, E, Nomugi Pass; Toyama: B, D, F–H, Arimine; Nagano: C, Shimajima). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th and 8th ventrites of male; D, spermatheca; E, copulatory tube; F, posterior part of 8th ventrite of female; G, posterior part of gonocoxite; H, aedeagus. Scale 1: 0.1 mm for A; scale 2: 0.1 mm for B, H; scale 3: 0.3 mm for C; scale 4: 0.1 mm for D; scale 5: 0.05 mm for E, 0.2 mm for F, 0.1 mm for G.

Female: Eighth ventrite (Fig. 42F) obtuse posteromedially; gonocoxites (Fig. 42G) each with apicolateral tooth moderately long, acute, apicolateral setae very long. Spermatheca (Fig. 42D) with capsule very small; striped duct moderately long, thick; duct short, moderately thick to thick, tightly coiled; basal valve short; basal duct long.

Biology and ecology. The beetles of *S. inaestimatus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. inaestimatus* is allied to *S. inamatus*, but it is separable from the latter species by the aedeagal median lobe narrower at the apical part, with its apical sclerotized area subtriangular (Fig. 42H), the endophallic expulsion hook absent (Fig. 42H), the paramere thinner, with its apical area longer (Fig. 42H), and the spermatheca with its duct thinner (Fig. 42D).

Stenus sicyoideus Naomi, Nomura & Puthz sp. nov.
(Fig. 43A–F)

Type material examined. Holotype: ♂ (KUMF), Mt. Kisokomagadake (1,550 m), Nagano Pref., 21. ix. 1996, T. Kishimoto leg.

Distribution. Japan: Honshu (Nagano Pref.).

Description. Male: Body 4.3 mm (fore body 1.9 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown; abdomen dark reddish brown; labrum reddish brown; antennae and legs reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra (Fig. 43E) partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventral sutures each very thin, running in a superficial way.

Abdomen (Fig. 43F) modified with an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 43B) with ventral apophyses long; 9th ventrite (Fig. 43C) with macrosetae long, apicolateral teeth long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 43A) almost rounded posteriorly. Aedeagus (Fig. 43A) with median lobe elongate, rounded apically; apical sclerotized area narrow, almost bell-shaped, apically with several, very short setae, basimedially with an arcuate notch. Endophallus (Fig. 43A) with copulatory tube large, gourd-shaped; expulsion hooks (Fig. 43D) moderately large, degenerated into a pair of submembranous plates, each hook with anterior plate divided into 2 subplates by a transverse suture; ventromedian bands probably fused into a slightly short, broad band. Parameres (Fig. 43A) long, each pointed at apex; apical area extremely long, broad almost dorsoventrally, about as long as pedicel, mesially with 14 to 16 setae of various length.

Female: Unknown.

Biology and ecology. The beetle of *S. sicyoideus* inhabits leaf litter heaped in the natural forest of a high mountainous region.

Remarks. *S. sicyoideus* is allied to *S. keman*, but it is separable from the latter species by the aedeagal median lobe narrower at the apical part (Fig. 43A) and the endophallic expulsion hook with its anterior plate distinct in outline (Fig. 43D), and the paramere shorter, with its apical area broader dorsoventrally (Fig. 43A).

Etymology. The specific epithet of this new species is derived from the Latin adjective *sicyoideus*, which means 'gourd-shaped'. The beetle of this species has the gourd-shaped copulatory

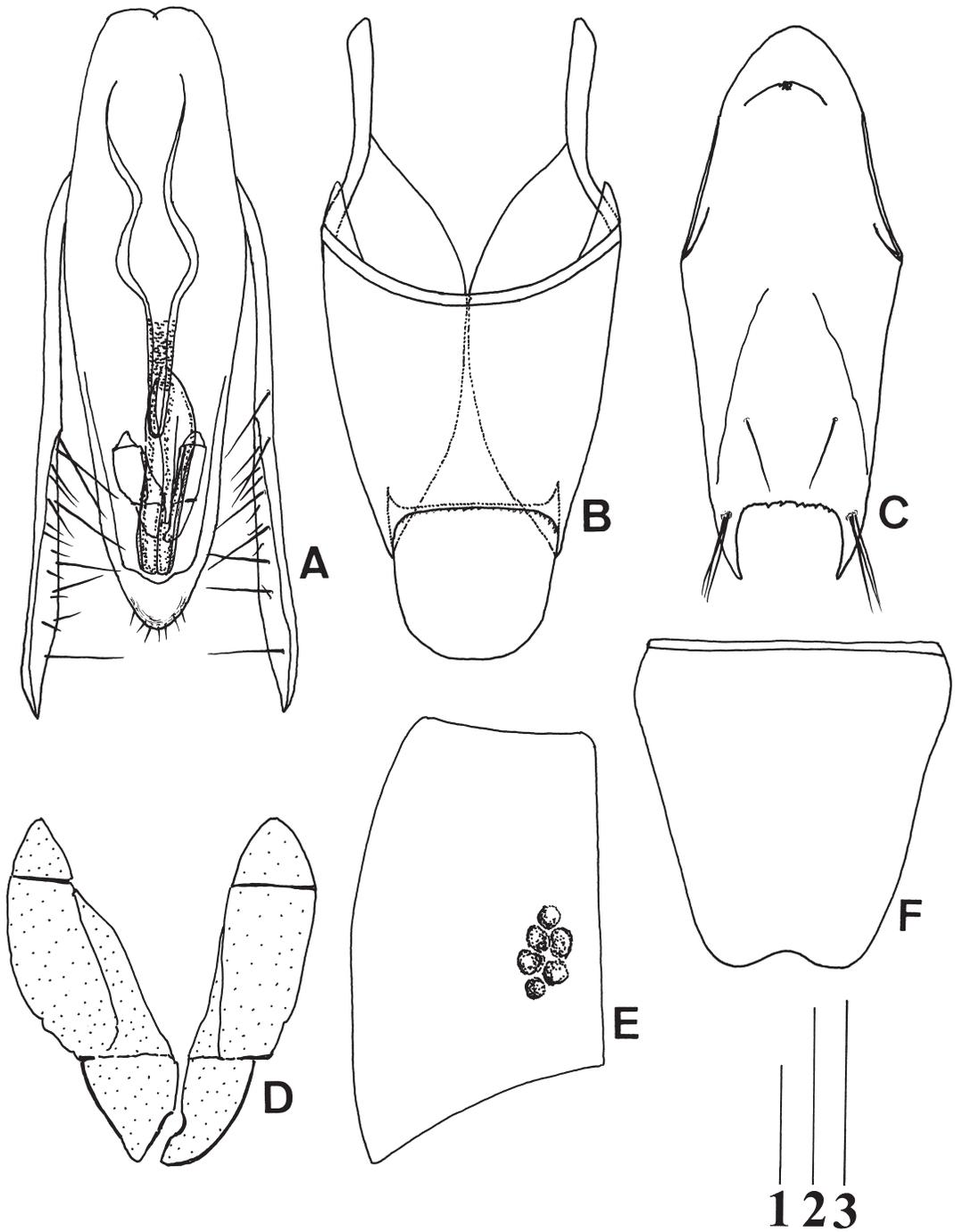


Fig. 43. *Stenus sicyoideus* Naomi, Nomura & Puthz sp. nov. (Nagano: Mt. Kisokomagadake). A, aedeagus; B, 9th and 10th terga of male; C, 9th ventrite of male; D, endophallic expulsion hooks; E, left elytron; F, 8th ventrite of male. Scale 1: 0.1 mm for A, 0.2 mm for F; scale 2: 0.2 mm for B, C, 0.05 mm for D; scale 3: 0.3 mm for E.

tube of endophallus.

***Stenus keman* Naomi**
(Figs. 44A–G, 132J)

Stenus keman Naomi, 1990: 45; Herman, 2001: 2245; Naomi & Puthz, 2013: 142.

Stenus haniwa Hromádka, 1990: 55.

Type material examined. Holotype of *S. keman*: ♂ (KUF), Nishihotakaguchi, Gifu Pref., 11. vi. 1980, S. Naomi leg. Paratypes of *S. keman*: 4 ♂1 ♀, same data as holotype; 1 ♂, Shinhotaka Spa, Gifu Pref., 10–12. vi. 1980, S. Naomi leg.

Holotype of *S. haniwa*: ♂ (AACO), Shiga (Highland) (1,500 m), Nagano Pr., Japan, 23. vii. 1980, A. Z. Smetana leg.

Other material examined. [HONSHU]: 1 ♂1 ♀, Shaka-shindo, Mt. Hakusan-shakadake, Mts. Hakusan, Ishikawa Pref., 12. vii. 2002, H. Hoshina leg.; 1 ♂, Nabetani, Tatunokuchi-cho, Ishikawa Pref., 29. iv. 1995, Y. Sugie leg.; 1 ♂1 ♀, Mt. Yatsu, Chino City, Nagano Pref., 19. viii. 1996, S. Nomura leg.; 1 ♂1 ♀, Utukushinomori, Kiyosato, Yamanashi Pref., 3. v. 2002, S. Nomura leg.; 1 ♂1 ♀, Mikuni Pass, Ohtaki Vil., Saitama Pref., 30. x. 1999, S. Nomura leg.

Distribution. Japan: Honshu (Chubu and Kanto Districts).

Redescription. Male and female: Body 3.7–4.3 mm (fore body 1.7–2.0 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown; abdomen dark reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 44E) modified with a very shallow depression on the 7th, and a moderately broad, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 44A) with ventral apophyses moderately long; 9th ventrite (Fig. 44C) with macrosetae long, apicolateral teeth long, very acute, apicolateral setae long; 10th tergum (Fig. 44A) almost rounded posteriorly. Aedeagus (Fig. 44B, F) with median lobe elongate, broadest at apicolateral corners, well-rounded apically; apical sclerotized area nearly semicircular, very broad, ventrally swollen, basimedially with a more or less narrow, arcuate, U-shaped or pentagonal notch. Endophallus (Fig. 44B) with copulatory tube gourd-shaped, slightly short to long, main tube ovoidal at base, attenuate apically; expulsion hooks with anterior plates indistinct in outline, posterior plates well-sclerotized, connected anteromesially, with the hook of each side ginkgo-leaf-like (Fig. 44B), elongate-triangular in shape, etc.; visible ventromedian bands moderately long and broad in stored condition, or very long (Fig. 44B) when they are pulled out while the copulatory tube is completely outthrust. Parameres (Fig. 44F) very long, each acutely pointed at apex; apical area extremely long, very thin, longer than pedicel, more or less serrate along ventral rim, mesially with 12 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 44G) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 44D) with capsule long, rounded apically; striped duct moderately long, thick; duct short, moderately thick to

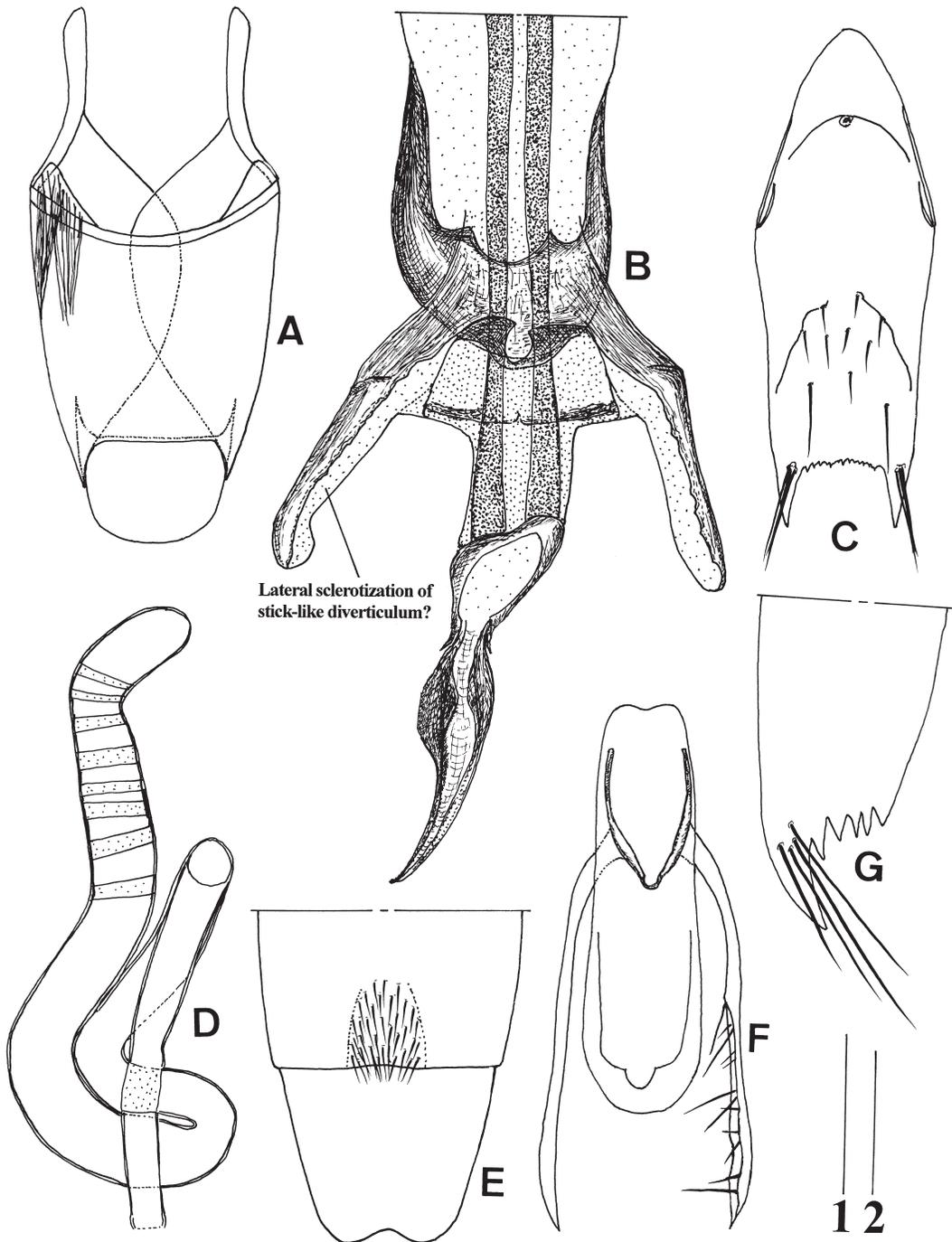


Fig. 44. *Stenus keman* Naomi (Nagano: A, Mt. Yatsu; Saitama: B, Mikuni Pass; Gifu: C–G, Nishihotakaguchi). A, 9th and 10th terga of male; B, apical part of aedeagus and outthrust endophallus; C, 9th ventrite of male; D, spermatheca; E, 7th and 8th ventrites of male; F, aedeagus; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, C, F, 0.1 mm for B, D, G; scale 2: 0.3 mm for E.

thick, with 4 turns; basal valve short; basal duct moderately long.

Biology and ecology. The beetles of *S. keman* inhabit leaf litter heaped in the natural forests of mountainous to high mountainous regions.

Remarks. *S. keman* is widely distributed in the Chubu District, Honshu, and we found that there are considerable variations regarding the shape of aedeagal median lobe, the structure of endophallic expulsion hooks, etc. First, the apical sclerotized area of median lobe has basimedi-ally a more or less narrow, arcuate or U-shaped notch in the males (e.g., Nishihotakaguchi, Gifu Pref.; Mt. Yatsu, Nagano Pref.), while it has a pentagonal notch in a male (Mt. Hakusan, Fukui Pref.). The shape of expulsion hook is difficult to grasp, because the anterior plate is submembranous so that the outline of expulsion hook cannot be depicted and thus described (see also the submembranous expulsion hook of *S. sicyoideus*; Fig. 43D). However, what we can regard as the posterior plate of expulsion hook is certainly different in shape among the males observed in the present study. Thus, the variations are secondly recognized as follows: The posterior plate is a gingko-leaf-like in the male (e.g., Mikuni Pass, Saitama Pref.; Kiyosato, Yamanashi Pref.), while it is elongate-triangular in shape in the male (Mt. Hakusan, Fukui Pref.). There are also other such variations as the length of copulatory tube and the degree of serration at the ventral rim of the apical area of paramere among the males collected from various localities.

Most of these variations seem to be obviously infraspecific among the local populations of *S. keman* because they are not distinctive so that they will not be considered to be the key characters of independent species. However, the male from Mt. Hakusan, Fukui shows certainly several unique conditions of taxonomically important characters as described above. This suggests that the *Stenus* local populations of Mt. Hakusan will be recognized as a different species from *S. keman* when performing the further detailed studies. However, we are not to here describe them as new to science because the specimens examined in the present study are not enough for doing it.

S. keman is allied to *S. sicyoideus*, but it is separable from the latter species by the aedeagal median lobe broader at the apical part (Fig. 44B) and the endophallic expulsion hook with its anterior plate indistinct in outline (Fig. 44B), and the paramere longer, with its apical area narrower dorsoventrally (Fig. 44F).

Etymology. The specific epithet of this species is derived from the Japanese name of the flowering plant genus *Lamprocapnos*, keman-sou.

***Stenus hoshinai* Naomi**

(Fig. 45A–I)

Stenus hoshinai Naomi, 2012: 299; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Chiburi-oné, Mt. Hakusan, Ishikawa Pref., 29. vi. 2002, H. Hoshina leg. Paratypes: 8 ♂ 3 ♀, same data as holotype; 1 ♂, same locality, 1. viii. 2002, H. Hoshina leg.

Distribution. Japan: Honshu (Ishikawa Pref.).

Redescription. Male and female: Body 3.6–4.0 mm (fore body 1.6–1.9 mm) in length. Head weakly shining; head black; pronotum and elytra dark red; abdomen dark reddish brown to dark brown; labrum reddish brown to dark red; antennae yellowish brown to reddish brown, sometimes with 1st and 2nd segments brown; legs reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra par-

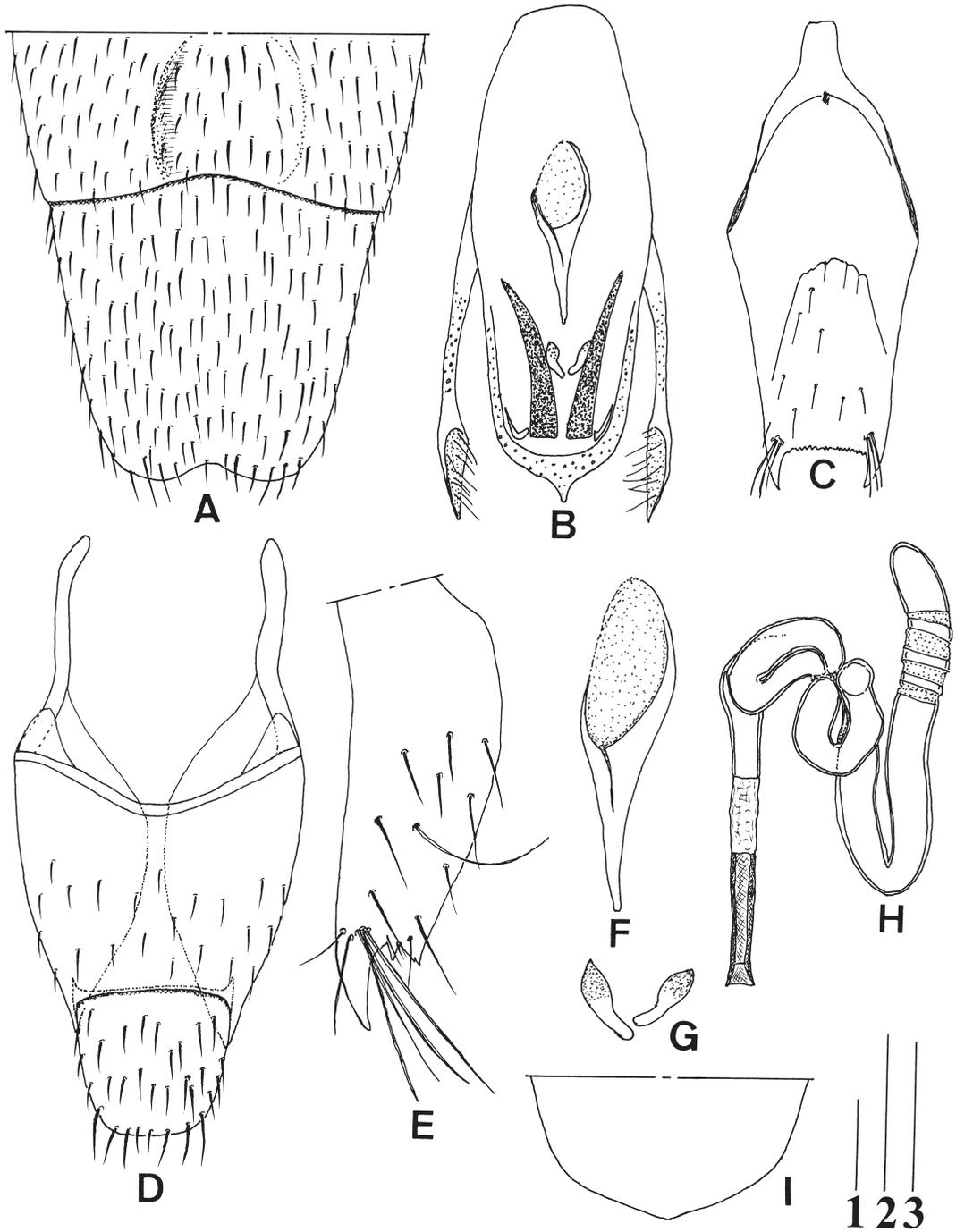


Fig. 45. *Stenus hoshinai* Naomi sp. nov. (Ishikawa: Mt. Hakusan). A, posterior part of 7th and 8th ventrites of male; B, aedeagus; C, 9th ventrite of male; D, 9th and 10th terga of male; E, gonocoxite; F, copulatory tube; G, endophallic expulsion hooks; H, spermatheca. Scale 1: 0.25 mm for A; scale 2: 0.2 mm for B–D, 0.1 mm for E–H; scale 3: 0.2 mm for I.

tially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin; pronotum with surface weakly uneven to uneven, with a median longitudinal furrow hardly developed to very indistinct; elytra with surface almost even to slightly uneven or uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventrite sutures obsolete.

Male: Abdomen (Fig. 45A) modified with a flat area on the 6th, a shallow depression on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 45D) with ventral apophyses long; 9th ventrite (Fig. 45C) with apicolateral teeth short, very acute, apicolateral setae short; 10th tergum (Fig. 45D) almost rounded posteriorly. Aedeagus (Fig. 45B) with median lobe broad, well-rounded at apicolateral corners, sparsely covered with very small pores on the margin of posterior part, with a moderately long, pointed apicomedian cusp; apical sclerotized area only weakly developed. Endophallus (Fig. 45B) with copulatory tube (Fig. 45F) having basal chamber large, ovoidal, main tube short, elongate-conical in shape; expulsion hooks (Fig. 45G) atrophied into a pair of very small sclerites; ventromedian bands slightly short, each moderately broad at the posterior rim. Parameres (Fig. 45B) each acutely pointed at apex, with pedicel sparsely covered with very small pores at the middle; apical area moderately long, distinctly swollen mesially at base, mesially also with 9 to 11 setae.

Female: Eighth ventrite (Fig. 45I) obtuse posteromedially; gonocoxites (Fig. 45E) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 45H) with capsule long, rounded apically; striped duct very short, moderately thick; duct moderately long, moderately thick to thick, almost loosely coiled; basal valve moderately long; basal duct long, thin.

Biology and ecology. The beetles of *S. hoshinai* inhabit leaf litter heaped in the natural forests of a high mountainous region.

Remarks. *S. hoshinai* is allied to *S. regularis*, but it is clearly separable from the latter species by the aedeagal median lobe broader, with its posterior part becoming narrower apicad to the apicolateral corners (Fig. 45B), the copulatory tube with its main tube elongate-conical in shape (Fig. F), the parameres shorter (Fig. 45B), and the spermatheca with its capsule and stripe duct thinner (Fig. 45H).

Etymology. This species is named after Dr. Hideto Hoshina (Fukui University) who studies the Staphylinidae (Scydmaeninae) and some other Staphylinoid groups.

Stenus regularis Naomi & Y. Watanabe
(Fig. 46A–G)

Stenus regularis Naomi & Watanabe, 2015: 108.

Type material examined. Holotype: ♂ (TUAA), Shirakawa Vil, Gifu Pref., 28. vii. 1986, K. Suzuki leg. Paratype: 1 ♀ (TUAA), same data as holotype.

Distribution. Japan: Honshu (Gifu Pref.).

Redescription. Male and female: Body 3.5–4.1 mm (fore body 1.7–1.9 mm) in length. Body weakly shining; head black; pronotum and abdomen dark brown; elytra reddish brown; labrum reddish brown to dark red; antennae and legs reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of

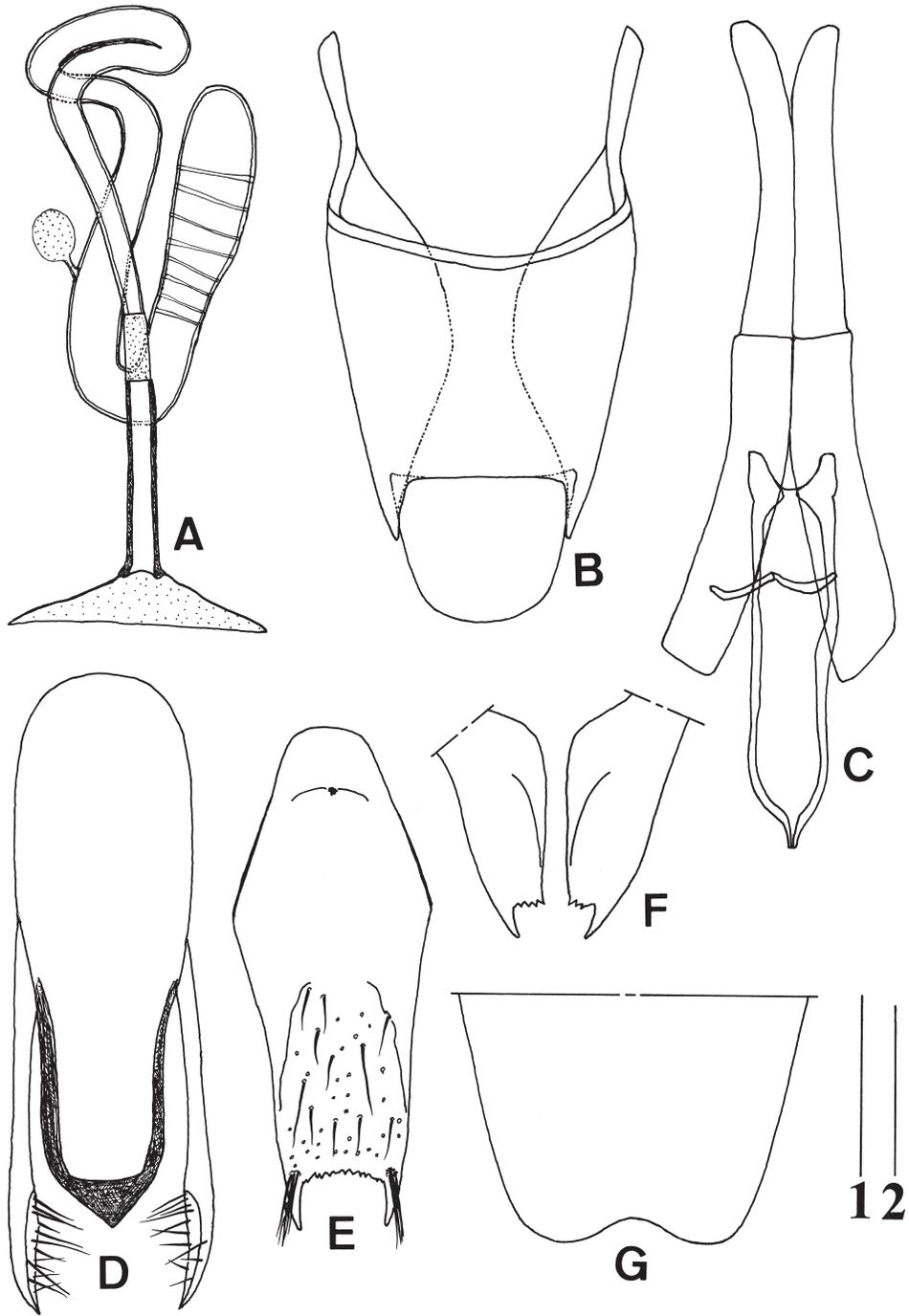


Fig. 46. *Stenus regularis* Naomi & Y. Watanabe (Gifu: Shirakawa). A, spermatheca; B, 9th and 10th terga of male; C, endophallus; D, aedeagus; E, 9th ventrite of male; F, gonocoxites; G, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for B, D-F and 0.1 mm for A, C; scale 2: 0.2 mm for G.

longitudinal-oblique furrows; pronotum slightly uneven, with a median longitudinal depression indistinct; elytra with surface uneven; Abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen modified with a very shallow depression on the 7th, and a broad, moderately deep emargination on the 8th ventrite (Fig. 46G); 9th tergum (Fig. 46B) with ventral apophyses slightly short; 9th ventrite (Fig. 46E) with apicolateral teeth each long, very acute; 10th tergum (Fig. 46B) almost rounded posteriorly. Aedeagus (Fig. 46D) with median lobe well-rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area almost broad-triangular in shape. Endophallus (Fig. 46C) with copulatory tube having main tube thick, baculiform, pointed at apex; expulsion hooks atrophied into a pair of small, thin, crescent rods which are connected each other; ventromedian bands each slightly short, moderately thick. Parameres (Fig. 46D) long, acutely pointed at apex; apical part long, moderately thick at base, mesially with 11 to 13 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 46F) each with apicolateral tooth moderately long, acute, apicolateral setae very long. Spermatheca (Fig. 46A) with capsule very large; striped duct short, thick to very thick; duct short, moderately thick to thick, with 5 turns; gland spherical, located on the lateral side of duct between the 4th and 5th turns; basal valve moderately long; basal duct long; basal pouch low cone-shaped, membranous.

Biology and ecology. The beetles of *S. regularis* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. regularis* is allied to *S. hoshinai*, but it is clearly separable from the latter species by the aedeagal median lobe narrower, with its posterior part subparallel-sided except for the apical part (Fig. 46D), the copulatory tube with its main tube subparallel-sided except for the apical part (Fig. 46C), the parameres longer (Fig. 46D), and the spermatheca with its capsule and stripe duct thicker (Fig. 46A).

Species unit 3 of the *cephalotes*-subgroup

Key to the Japanese species of the *cephalotes*-subgroup (3)

This is a key for a unit of *Stenus*-species (8 species) beginning with *S. cohaereus* and almost adequately diagnosed with the combination of following character conditions: Aedeagal median lobe usually broad, broad even at apicolateral corners (Fig. 48A), and often subtruncate at apex (Fig. 48A); endophallic expulsion hook with anterior plate always narrower than posterior plate (Fig. 51H); paramere with pedicel often thin (Fig. 51F) to very thin (Fig. 50B).

Distribution. Japan: Honshu (Chubu, Kinki and Chugoku Districts).

- 1(4) Male: Aedeagal paramere with apical area falcate or slightly falcate.
- 2(3) Male: Aedeagal median lobe with an elongate-triangular, flat apical sclerotized area (Fig. 47D); endophallic expulsion hooks separated each other (Fig. 47F).....
..... *S. cohaerens* Naomi, Nomura & Puthz sp. nov.
- 3(2) Male: Aedeagal median lobe apically with an arcuate, very broad emargination (Fig. 48A); endophallic expulsion hooks broadly fused each other (Fig. 48F).....
..... *S. warabi* Naomi & Nomura
- 4(1) Male: Aedeagal paramere with apical area not falcate.
- 5(8) Male: Aedeagal paramere with apical area mesially having a larger number of setae only

- in the basal 2/3 or in the apical part.
- 6(7) Male: Endophallic expulsion hook with posterior plate almost rounded or obtuse at apex (Fig. 49D, N); aedeagal paramere rounded apically (Fig. 49D) *S. himiko* Naomi
- 7(6) Male: Endophallic expulsion hook with posterior plate strongly protruding posterolaterally (Fig. 51H); parameres (Fig. 51F) each very acutely pointed at apex
..... *S. aoi* Naomi & Puthz
- 8(5) Male: Aedeagal paramere with apical area mesially having a smaller number of setae only at the middle.
- 9(12) Male: Aedeagal median lobe subtruncate apically; endophallic expulsion hook with posterior plate obliquely truncate or subtruncate posteriorly.
- 10(11) Male: Aedeagal median lobe with a very small (Fig. 50C) or small (Fig. 50B), subtriangular apicomedian protrusion; endophallic expulsion hook with posterior plate obliquely truncate ((Fig. 50K) *S. subulifer* Naomi, Nomura & Puthz sp. nov.
- 11(10) Male: Aedeagal median lobe with 4 very small, equidistantly located teeth along posterior margin (Fig. 54D); endophallic expulsion hook with posterior plate subtruncate posteriorly (Fig. 54E).....*S. glorificus* Naomi, Nomura & Puthz sp. nov.
- 12(9) Male: Aedeagal median lobe broad-subtriangular in shape at apical part; endophallic expulsion hook with posterior plate rounded posteriorly.
- 13(14) Male: Aedeagal median lobe with apical sclerotized area comprising narrow rim, shortly separated at the middle (Fig. 52A); copulatory tube with main tube thick at base and then attenuate and not curved apicad (Fig. 52A)*S. intrarius* Naomi & Ito
- 14(3) Male: Aedeagal median lobe with apical sclerotized area subrhombic, solid (Fig. 53C); copulatory tube with main tube almost attenuate, slightly bent near the apical 1/3 (Fig. 53G)*S. shojiroi* Naomi

***Stenus cohaerens* Naomi, Nomura & Puthz sp. nov.**

(Fig. 47A–G)

Stenus shuheii Naomi, 1990a: 2 (in part).

Type material examined. Holotype: ♂ (paratype of *S. shuheii*; KUMF), Onzui Valley, Hyogo Pref., 6. vi. 1984, S. Nomura leg. Paratypes: 1 ♂ 2 ♀, near Ningyôsen, Kagamino-cho, Okayama Pref., 26. vi. 2005, O. Yamaji leg.

Other material examined. [HONSHU]: 1 ♀, Kizetsu Valley, Tanabe City, Wakayama Pref., 15. vii. 1999, V. Puthz leg.

Distribution. Japan: Honshu (Wakayama, Hyogo and Okayama Prefs.).

Description. Male and female: Body 3.6–3.9 mm (fore body 1.7–1.8 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown to dark reddish brown; abdomen reddish brown to dark reddish brown or almost black; labrum reddish brown to dark reddish brown; antennae and legs yellow brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface almost even to slightly uneven; abdomen subcylindrical, thin to moderately thick, slightly tapering pos-

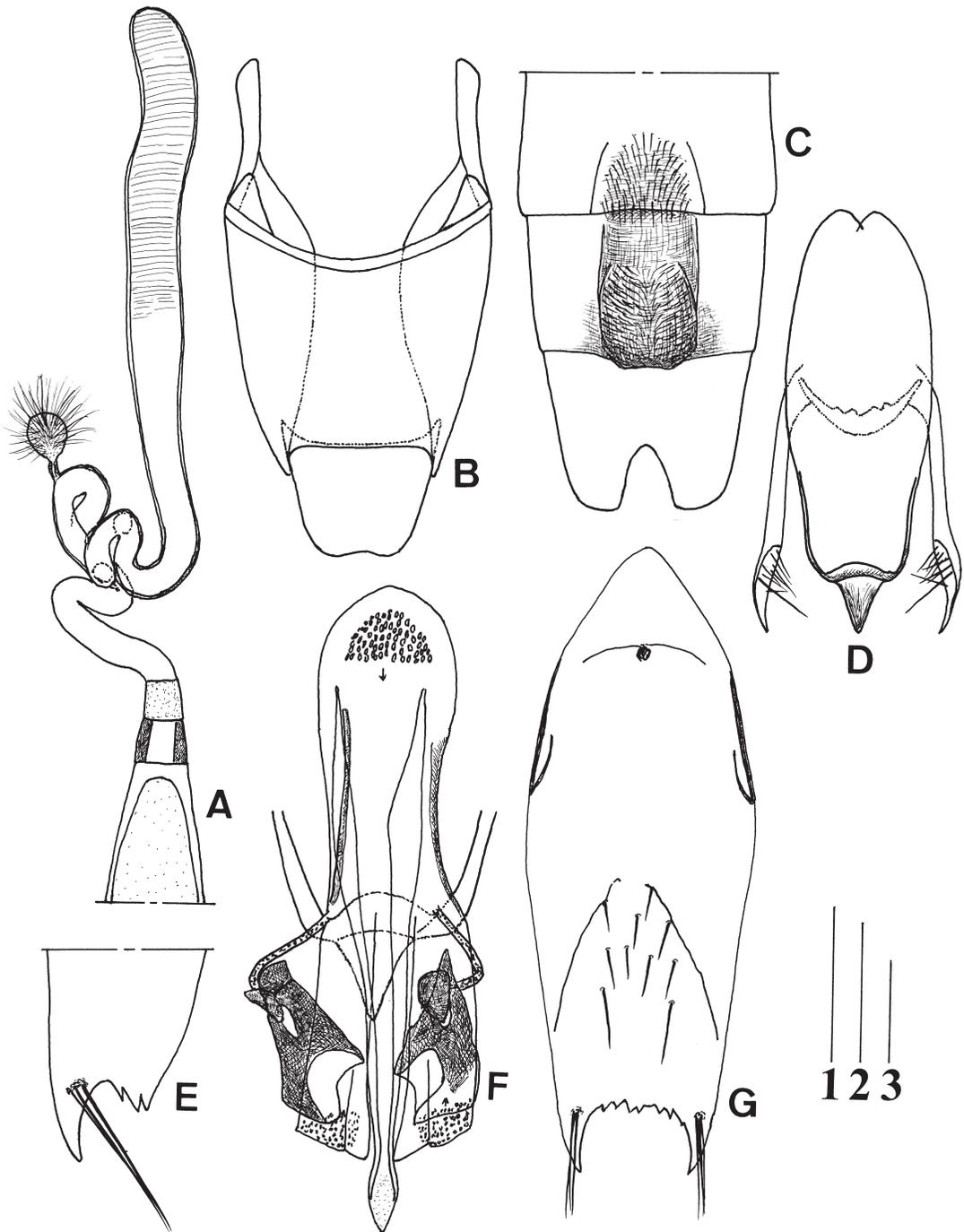


Fig. 47. *Stenus cohaerens* Naomi, Nomura & Puthz sp. nov. (Okayama: Kagamino). A, spermatheca; B, 9th and 10th ventra of male; C, 6th to 8th ventra of male; D, aedeagus; E, posterior part of gonocoxite; F, apical part of aedeagal median lobe with its outthrusted endophallus, G, 9th ventrite of male. Scale 1: 0.1 mm for A, E, F, 0.2 mm for B, D; scale 2: 0.3 mm for C; scale 3: 0.1 mm for G.

teriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 47C) modified with a moderately deep depression on the 6th, a deep depression (whose posterior protruded part is almost transverse-trapezoidal in shape) on the 7th, and a very deep, V-shaped emargination on the 8th ventrite; 9th tergum (Fig. 47B) with ventral apophyses short; 9th ventrite (Fig. 47G) with macrosetae short, apicolateral teeth slightly short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 47B) very shallowly emarginate posteromedially. Aedeagus (Fig. 47D) with median lobe moderately broad; apical sclerotized area flat, elongate-triangular in shape. Endophallus (Fig. 47F) with copulatory tube long, lanceolate at apex; dorsolateral bands thin; expulsion hooks strongly sclerotized, elongate-subtriangular in shape, each deeply emarginate posteriorly; ventromedian bands separated near the posterior rims, each broad, but their anterior parts fused to form a very broad band?; a pair of small sclerites located dorsally from the expulsion hooks. Parameres (Fig. 47D) each very acutely pointed at apex; apical area moderately long, slightly falcate, mesially with 8 to 10 setae.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 47E) each with apicolateral tooth moderately long, acute, apicolateral setae very long. Spermatheca (Fig. 47A) with capsule absent; striped duct long, thick; duct slightly short, moderately thick to thick, loosely coiled in the middle, with 6 turns; gland almost spherical, moderately large, covered densely with very thin ciliae, with opening located on the anterior side of duct near the 3rd turn; basal valve very short; basal duct short, a little broader than basal valve.

Biology and ecology. The beetles of *S. cohaerens* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. When *S. shuheii* was newly described by Naomi (1990a), 3 *Stenus*-beetles were there designated as the holotype and paratype specimens. After that, it was clarified in Naomi (2015) that two different species are included in those type specimens, namely *S. shuheii* and another species. The latter species is here described as new to science, by designating a paratype of *S. shuheii* as its holotype.

S. cohaerens is allied to *S. warabi*, but it is separable from the latter species by the 6th and 7th ventrites of male strongly modified with a moderately deep and deep depressions respectively (Fig. 47C), the aedeagal median lobe with its apical sclerotized area flat and elongate-triangular in shape (Fig. 47D), the endophallic expulsion hooks separated (Fig. 47F), the paramere much shorter (Fig. 47D), and the spermatheca with its duct much shorter (Fig. 47A).

Etymology. The specific epithet of this new species is derived from the Latin participle *cohaerens* which means 'cohered'. The beetles of this species have the endophallic ventromedian bands with their anterior parts cohered or fused to form a broad band.

***Stenus warabi* Naomi & Nomura**
(Fig. 48A–G, 132K)

Stenus warabi Naomi & Nomura, 1990: 48; Herman, 2001: 2436; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♀ (KUF), Mt. Hyonoson, Hyogo Pref., 5. vi. 1984, S. Nomura leg. Paratype: ♂, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Mt. Hyonoson, Hyogo Pref., 5. vi. 1996, H. Hoshina leg.; 1 ♀, Mt. Mimuro, Hyogo Pref., 7. vi. 1997, H. Hoshina leg.; 2 ♂ 1 ♀, Mt. Ushiro, Hyogo Pref., 10. v. 1997, H. Hoshina leg.

Distribution. Japan: Honshu (Hyogo Pref.).

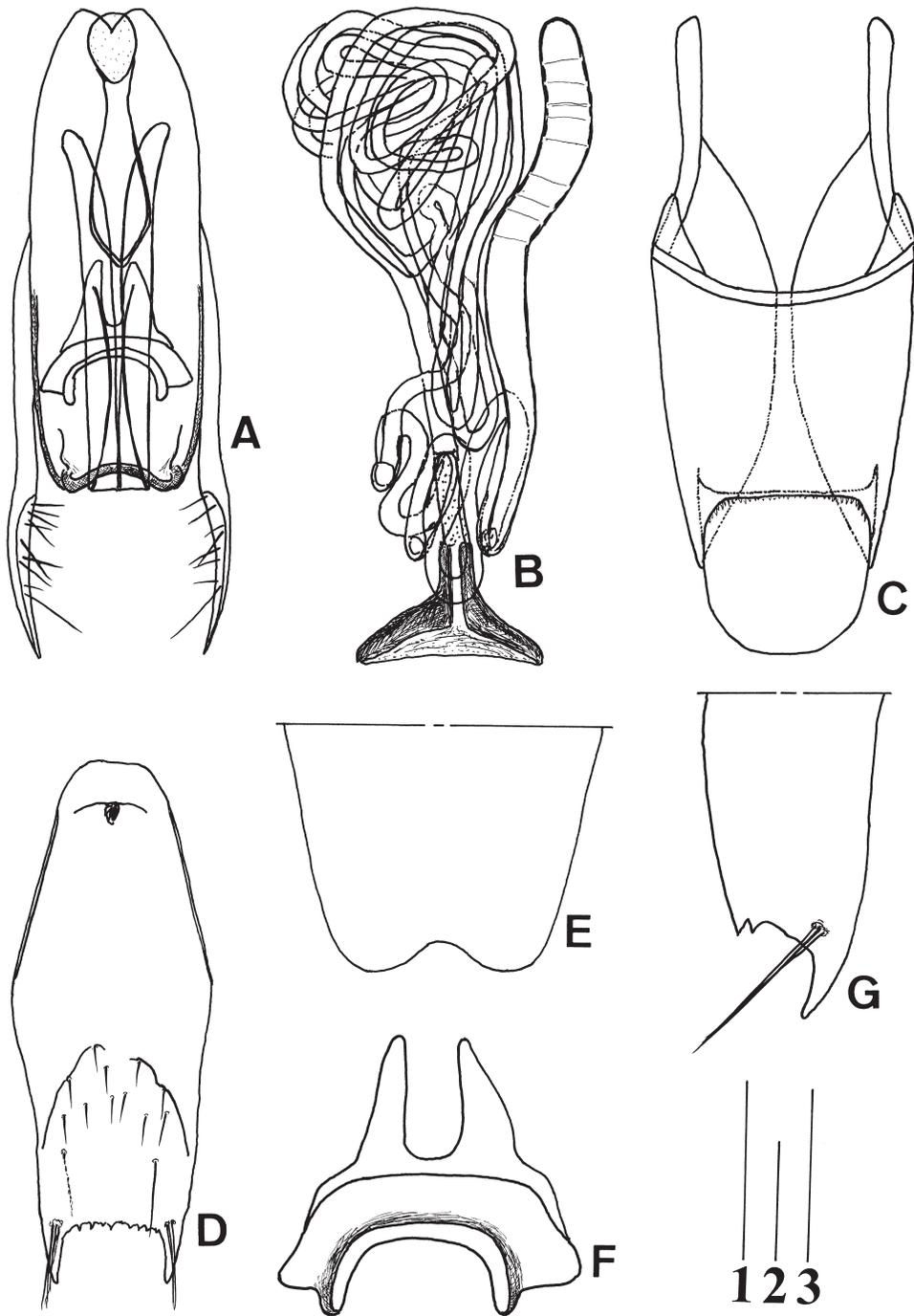


Fig. 48. *Stenus warabi* Naomi & Nomura (Hyogo: A, E, F, Mt. Hyonosen, B, G, Mt. Mimuro, C, D, Mt. Ushiro). A, aedeagus; B spermatheca; C, 9th and 10th terga of male; D, 9th ventrite of male; E, posterior part of 8th ventrite of male; F, endophallic expulsion hook (fused); G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, C, D, 0.1 mm for F, G; scale 2: 0.1 mm for B; scale 3: 0.2 mm for E.

Redescription. Male and female: Body 3.2–3.8 mm (fore body 1.5–1.8 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red to dark red near black; labrum reddish brown to dark reddish brown; antennae and legs yellow brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, thin to moderately thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 48E) modified with an elongate, very shallow depression sometimes on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 48C) with ventral apophyses long; 9th ventrite (Fig. 48D) with macrosetae very long, apicolateral teeth slightly short, thin, very acute, apicolateral setae moderately long; 10th tergum (Fig. 48C) entire. Aedeagus (Fig. 48A) with median lobe broad, apically with an arcuate, very broad emargination; apical sclerotized area not developed. Endophallus (Fig. 48A) with copulatory tube moderately long, with main tube very thick, broadest at about apical 1/3, obtusely pointed at apex; expulsion hooks (Fig. 48F) broadly fused each other, with a pair of thin anterior plates and also posteriorly with a very large, broad emargination, the lateral edge of which slightly protrudes posteriorly; ventromedian bands very long, broad. Parameres (Fig. 48A) very long, each very acutely pointed at apex; apical area very long, very thin, falcate, mesially with 8 to 10 setae.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 48G) each with apicolateral tooth short, falcate, acute, apicolateral setae very long. Spermatheca (Fig. 48B) with capsule short; striped duct moderately long, moderately thick; duct very long, thin to moderately thick, strongly coiled; basal valve moderately long; basal duct short, basal pouch low-conical in shape.

Biology and ecology. The beetles of *S. warabi* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. warabi* is allied to *S. cohaerens*, but it is separable from the latter species by the 6th and 7th ventrites of male not or only weakly modified with a very shallow depression, the aedeagal median lobe posteriorly with an emargination (Fig. 48A), the endophallic expulsion hooks fused (Fig. 48F), the paramere much longer (Fig. 48A), and the spermatheca with its duct much longer (Fig. 48B).

Etymology. The specific epithet of this species is derived from the Japanese name of a fern genus *Pteridium*, warabi.

Stenus himiko Naomi
(Figs. 49A–N, 132L)

Stenus himiko Naomi, 1989a: 4; Herman, 2001: 2214; Naomi & Puthz, 2013: 144.

Stenus syugen Naomi, 1989a: 6. **New synonym.**

Type material examined. Holotype of *S. himiko*: ♀ (KUF), Ohdaigahara, Nara Pref., 25–26. vi. 1981, S. Naomi leg. Paratype of *S. himiko*: 1 ♂, same data as holotype.

Holotype of *S. syugen*: ♂ (KUF), Mt. Gomanodan, Wakayama Pref., 22–23. vi. 1981, S. Naomi leg. Paratypes of *S. syugen*: 1 ♂ 3 ♀, same data as holotype.

Other material examined. [HONSHU]: 2 ♂ 1 ♀, Mt. Sanjo, Tenkawa Vil., Nara Pref., 28. vi.

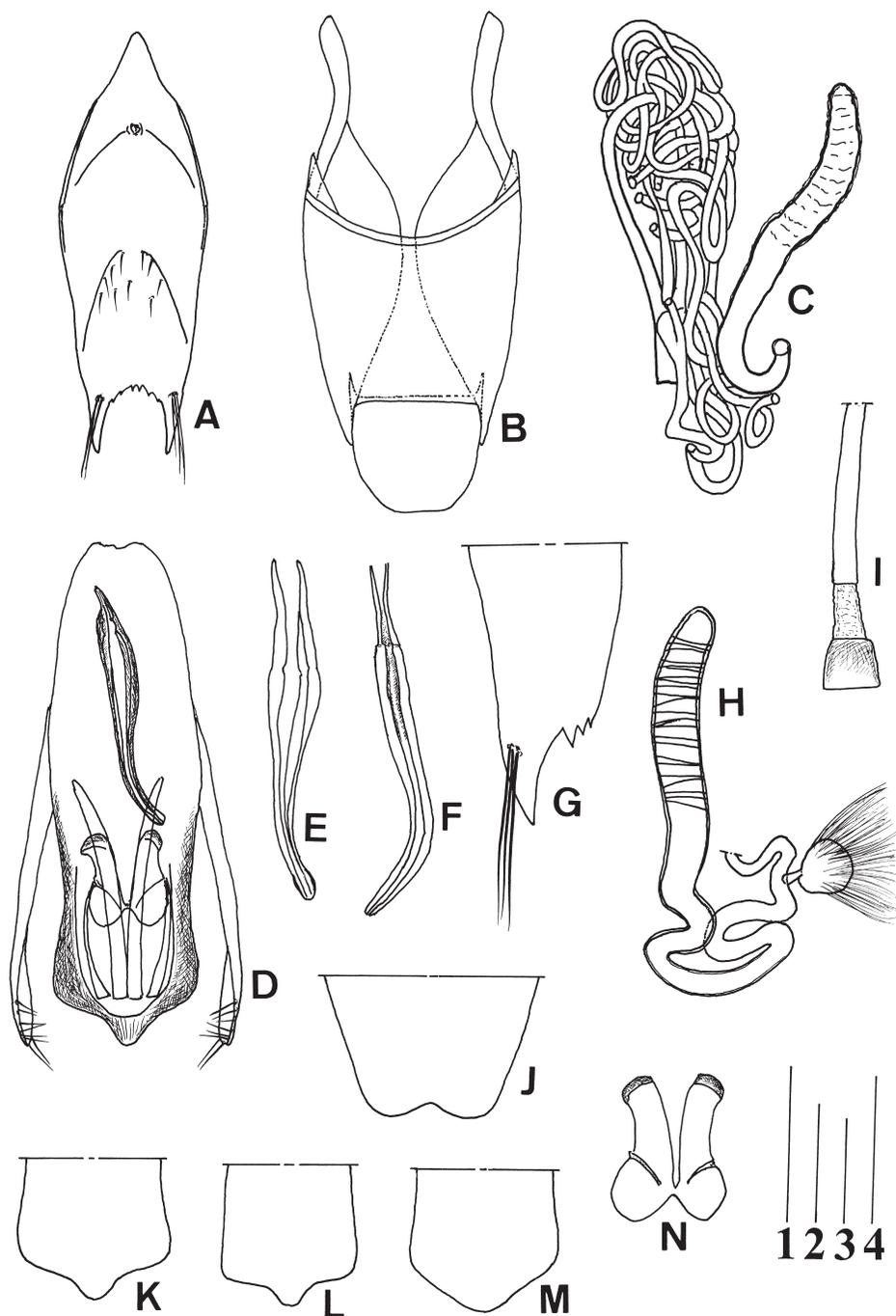


Fig. 49. *Stenus himiko* Naomi (Nara: A, B, D, G–J, Ohdaigahara, C, Mt. Wasamata, E, Mt. Oomine, K, Mt. Sanjyo, M, Mt. Miune; Wakayama: F, L, N, Mt. Gomanodan). A, 9th ventrite of male; B, 9th and 10th terga of male; C, I, H, spermatheca; D, aedeagus; E, F, copulatory tube; G, posterior part of gonocoxite; J, posterior part of 8th ventrite of male; K–M, apical part of f aedeagal median lobe; N, endophallic expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for E–G, N; scale 2: 0.05 mm for C; scale 3: 0.1 mm for D, K–M, 0.05 mm for H, I; scale 4: 0.2 mm for J.

1998, S. Nomura leg.; 1 ♂ 2 ♀, Mt. Oomine, Nara Pref., 1. vi. 1985, T. Ito leg.; 3 ♂, Mt. Wasamata, Kamikitayama, Nara Pref., 14–15. vi. 1997, T. Ito leg.; 3 ♂, Mt. Miune, Nara Pref., 28. v. 1994, K. Mizuno leg.; 2 ♂ 1 ♀, Mt. Misen, Nara Pref., 19. x. 1996, Y. Okuda leg.; 2 ♂ 1 ♀, Mt. Minamimata, Ouchiyama, Mie Pref., 4. xi. 1996, K. Kanno leg.;

1 ♂ 1 ♀, Mt. Senchiyogamine, Miyagawa Vil., Mie Pref., 2. ix. 1995, H. Yokozeki leg.; 1 ♂, Mt. Ryugadake, Daian-cho, Inabe-gun, Mie Pref., 4. xi. 1995, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie, Nara and Wakayama Prefs.).

Redescription. Male and female: Body 3.1–3.5 mm (fore body 1.5–1.6 mm) in length. Body weakly shining; head black; pronotum and elytra dark red to dark brown; abdomen dark red to dark brown or almost black; labrum reddish brown; antennae and legs reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum partially with subrugose punctures and elytra with large, subrugose punctures. Head shallowly to moderately concave, with a pair of narrow or broad, longitudinal-oblique furrows (or depressions); antennae short to moderately long, thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow distinct; elytra with surface uneven; hind tarsi each with 4th tarsomere strongly bilobed; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 49J) modified with a shallow emargination on the 8th ventrite; 9th tergum (Fig. 49B) with ventral apophyses thin, moderately long; 9th ventrite (Fig. 49A) with apicolateral setae very acute, apicolateral setae moderately long; 10th tergum (Fig. 49B) entire. Aedeagal median lobe (Fig. 49D) moderately broad, moderately broad and rounded even at apicolateral corners, apicomediaally with a narrow, obtuse, subtriangular apical sclerotized area. Endophallus (Fig. 49D) with copulatory tube (Fig. 49E, F) having main tube moderately long to long, curved, with or without a small swell at apex; dorsolateral bands long, thin; expulsion hooks (Fig. 49N) each with anterior plate almost rounded anteriorly, much longer than posterior plate, posterior plate almost rounded or obtuse at posterior tip; ventromedian bands long, very thin. Parameres (Fig. 49D) each rounded apically; apical area moderately long, elongate-spatulate in shape, mesially with 8 setae in the apical 1/2.

Female: Eighth ventrite obtuse or pointed posteromedially; gonocoxites (Fig. 49G) each with apicolateral teeth very acute, apicolateral setae very long. Spermatheca (Fig. 49C, H) with capsule developed or not; striped duct moderately long, moderately thick; duct very long, very thin but moderately thick at the most distal and proximal parts, strongly coiled; gland almost spherical, covered with long ciliae, with opening located on the duct near the last 6th or 7th turns (Fig. 49H).

Biology and ecology. The beetles of *S. himiko* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. Both *S. himiko* and *S. syugen* were described in Naomi (1989a) from the mountainous regions of Kii Peninsula, Kinki District of Honshu. They were first classified based mainly on the different shape of aedeagal median lobe (Naomi, 1989a, Fig. 49D, F). However, an amount of variations are observed as follows: The shape of median lobe is varied (Fig. 49K, L, M). The shape, length and thickness of copulatory tube are varied (Fig. 49E, G). The posterior margin of expulsion hook is also varied from the serrate, obliquely truncate condition to the simply rounded condition. Thus, it is inadequate to consider a particular form of median lobe to be the key character in order for separating *S. himiko* from *S. syugen*. Thus, *S. syugen* Naomi, 1989a is here newly placed in synonymy with *S. himiko* Naomi, 1989a.

S. himiko is allied to *S. subulifer*, but it is separable from the latter species by the aedeagal

median lobe apicomediaally with a subtriangular apical sclerotized area (Fig. 49D), the endophallic expulsion hook with its anterior plate shorter and almost rounded at the anterior part (Fig. 49N), and the spermatheca with its duct much longer and thinner (Fig. 49C).

Etymology. The specific epithet of this species is named after a princess of Yamataikoku, Himiko who supposedly existed during the 3rd century in the ancient Japan.

Stenus subulifer Naomi, Nomura & Puthz sp. nov.
(Fig. 50A–K)

Type material examined. Holotype: ♂ (KUMF), Onyu Pass, Fukui Pref., 16. vi. 2018, T. Ito leg. Paratypes: 1 ♂, same data as holotype; 1 ♂2 ♀, Mt. Hira, Shiga Pref., 17. viii. 1986, T. Ito leg.

Distribution. Japan: Honshu (Fukui Pref.).

Description. Male and female: Body 2.9–3.1 mm (fore body 1.4–1.5 mm) in length. Body moderately shining; head black; pronotum and abdomen reddish brown to dark red or almost black; elytra yellowish brown to reddish brown; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae very short to short, thin; pronotum with surface slightly uneven, with a median longitudinal depression hardly developed; elytra with surface slightly uneven or uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 50J) modified with a crescent emargination on the 8th ventrite; 9th tergum (Fig. 50E) with ventral apophyses moderately long; 9th ventrite (Fig. 50D) with macrosetae very short, apicolateral teeth short, acute, apicolateral setae short; 10th tergum (Fig. 50B) entire. Aedeagus (Fig. 50B, C) with median lobe broad, well-rounded at apicolateral corners, subtruncate apically, with a very small (Fig. 50C) or small (Fig. 50B) subtriangular apicomedian protrusion; apical sclerotized area hardly developed. Endophallus (Fig. 50A) with copulatory tube (Fig. 50H, I) having basal chamber ovoidal, main tube moderately long, almost attenuate, with basal tube demarcated by a line from apical tube; dorsal membrane covered densely with very small, round tubercles; expulsion hooks (Fig. 50A, K) connected by membrane along the broad range of mesial margins of hooks, each with posterior plate obliquely truncate, with (Fig. 50A) or without (Fig. 50K) serrate posterior margin; ventromedian bands long, moderately broad. Parameres (Fig. 50F) very thin, each acutely pointed at apex; apical area short, mesially with 4 short setae at base.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 50F) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 50G) with capsule short; striped duct moderately long, thick; duct moderately long, moderately thick, with 8 turns; gland slightly small, ovoidal, with opening located on the lateral side of duct between the 5th and 6th turns; basal valve very short; basal duct hardly developed.

Biology and ecology. The beetles of *S. subulifer* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. subulifer* is allied to *S. himiko*, but it is separable from the latter species by the aedeagal median lobe subtruncate at the apex, apicomediaally with a small or very small protrusion (Fig. 50D), the endophallic expulsion hook with its anterior plate longer and narrowly

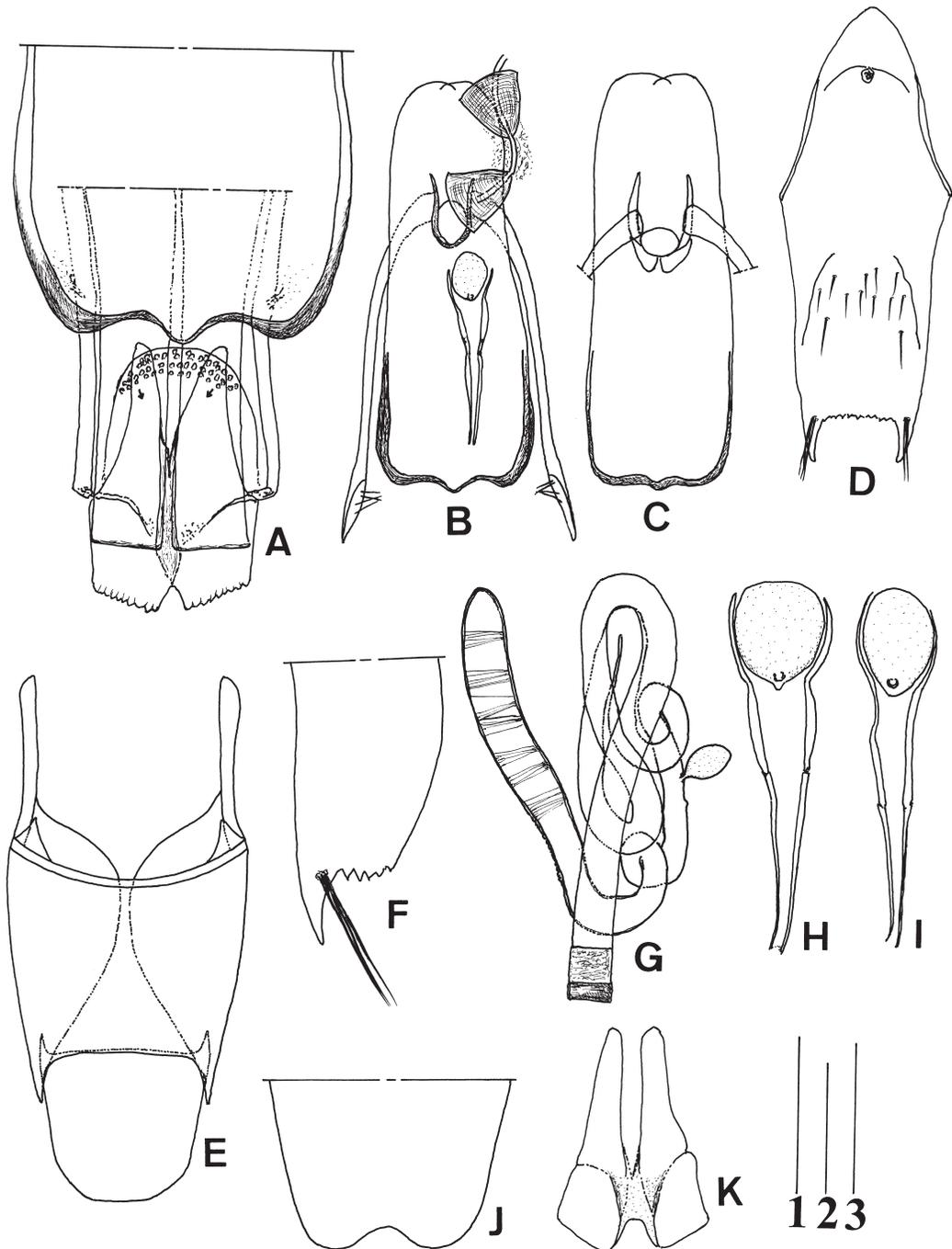


Fig. 50. *Stenus subulifer* Naomi, Nomura & Puthz sp. nov. (Shiga: A, B, E–H, J, Mt. Hira; Fukui: C, D, I, K, Onyu Pass). A, apical part of aedeagal median lobe with its outthrusted endophallus; B, C, aedeagus; D, 9th ventrite of male; E, 9th and 10th terga of male; F, posterior part of gonocoxite; G, spermatheca; H, I, copulatory tube; J, posterior part of 8th ventrite of male; K, endophallic expulsion hooks. Scale 1: 0.1 mm for A, F, H, I, K, 0.2 mm for B–E; scale 2: 0.05 mm for G; scale 3: 0.2 mm for J.

rounded at the anterior part (Fig. 50K), and the spermatheca with its duct much shorter and thicker (Fig. 50G). *S. subulifer* is also allied to *S. aoi*, but it is separable from the latter species by the 7th ventrite of male without modification, the aedeagal median lobe with its apical sclerotized area hardly developed (Fig. 50B, C), the endophallic expulsion hook with its posterior plate obliquely truncate (Fig. 50A, K), and the spermatheca with its duct longer and thinner (Fig. 50G).

Etymology. The specific epithet of this new species is derived from the Latin noun *subula* (awl) and the Latin particle *-fer* which means 'bearing' or 'having'.

***Stenus aoi* Naomi & Puthz**

(Figs. 51A–H, 133A)

Stenus aoi Naomi & Puthz, 1993: 305; Herman, 2001: 2059; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Masudani, Imajyo, Fukui Pref., 28. xi. 1982, H. Sasaji leg.

Other material examined. [HONSHU]: 1 ♂ 2 ♀, Otake, Ohno City, Fukui Pref., 16. v. 1961, Y. Hayashi leg.; 2 ♀ (cH), same data as above; 1 ♂ 2 ♀, Mt. Kyogatake, Hota, Katsuyama City, Fukui Pref., 5. xi. 2007, T. Watanabe leg.

Distribution. Japan: Honshu (Fukui Pref.).

Redescription. Male and female: Body 3.0–3.6 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black; pronotum and abdomen reddish brown to dark red; elytra yellowish brown to reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head shallowly to moderately concave, with a pair of narrow or broad, longitudinal-oblique furrows (or depressions); antennae short, thin; pronotum with surface almost even to slightly uneven, with a median longitudinal depression or central hollow very indistinct or indistinct; elytra with surface almost smooth or slightly uneven or uneven; hind tarsi each short, with 4th tarsomere distinctly bilobed, about 1/2 times as long as the 5th, each lobe sometimes thick; abdomen subcylindrical, slightly tapering posteriorly to parallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 51A) modified with a flat area on the 6th, a very shallow depression on the 7th, and a broad-subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 51B) with ventral apophyses moderately long; 9th ventrite (Fig. 51G) with macrosetae short, apicolateral teeth moderately long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 51B) shallowly emarginate posteromedially. Aedeagus (Fig. 51F) with median lobe broad, well-rounded at apicolateral corners, subtruncate and very weakly bisinuate apically or with a very small apicomedian protrusion; apical sclerotized area narrow, anteriorly with a pair of small teeth. Endophallus (Fig. 51F) with copulatory tube (Fig. 51D) having basal chamber very large, main tube very broad at base, subulate in the apical 1/2; expulsion hooks (Fig. 51H) each with posterior plate strongly protruding posterolaterally; ventromedian bands long, each moderately broad near posterior margin. Parameres (Fig. 51F) each very acutely pointed at apex; apical area long, mesially with 12 almost short setae.

Female: Eighth ventrite obtuse or pointed posteromedially; gonocoxites (Fig. 51E) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 51C) with capsule

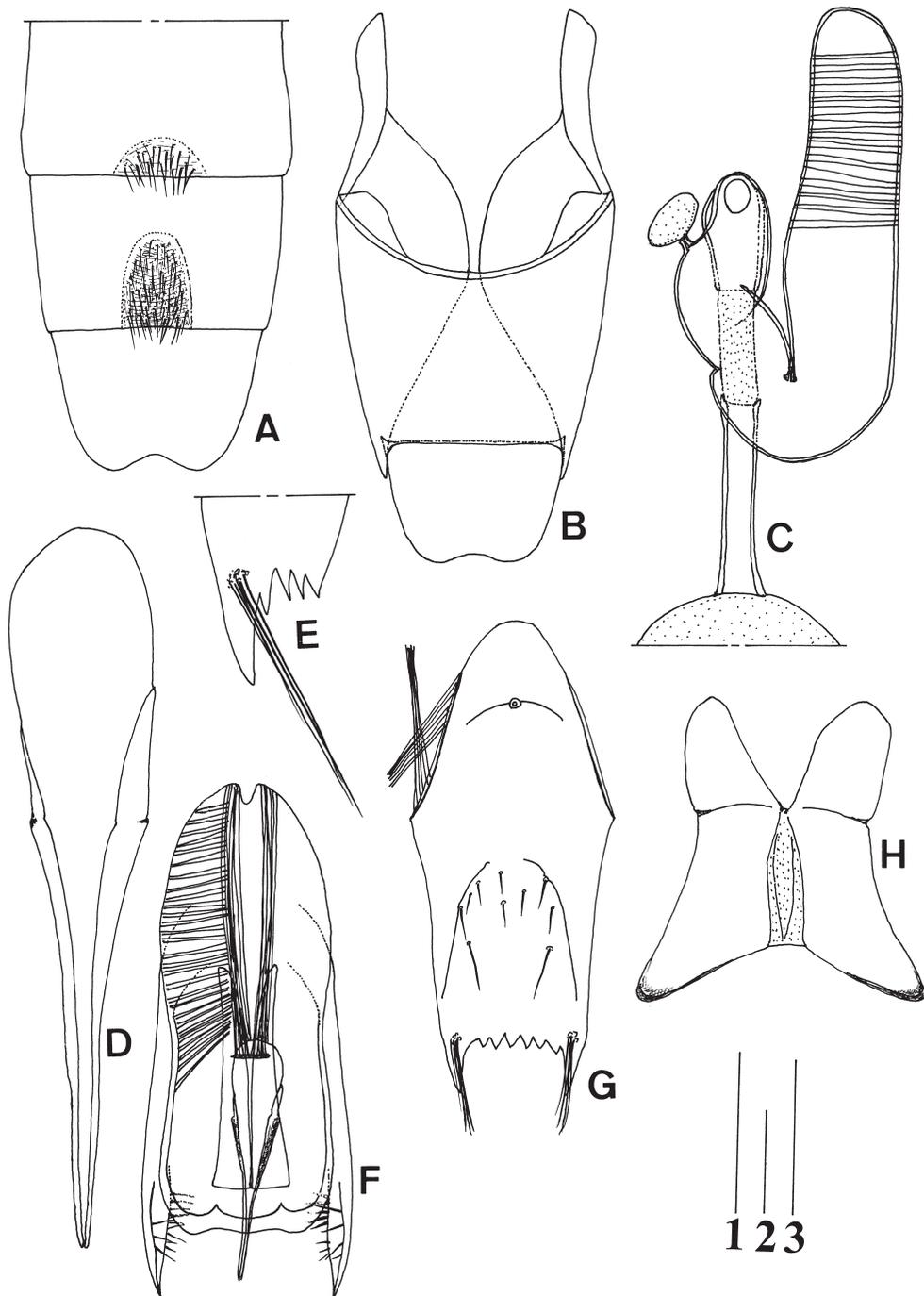


Fig. 51. *Stenus aoi* Naomi & Puthz (Fukui: Otake). A, 6th to 8th ventrites of male; B, 9th and 10th terga of male; C, spermatheca; D, copulatory tube; E, posterior part of gonocoxite; F, aedeagus; G, 9th ventrite of male; H, endophallic expulsion hooks. Scale 1: 0.3 mm for A; scale 2: 0.1 mm for B, F, G and 0.05 mm for C, E; scale 3: 0.05 mm for D, H.

short, rounded apically; striped duct moderately long, very thick; duct short, thick to very thick, with 2 distinct turns; gland with opening located on the lateral side of duct a little distal from the 1st turn; basal valve moderately long; basal duct very long; basal pouch very large, bowl-shaped.

Biology and ecology. The beetles of *S. aoi* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. aoi* is allied to *S. subulifer*, but it is separable from the latter species by the 7th ventrite of male with a deeper depression (Fig. 51A), the aedeagal median lobe hardly swollen at the apicomedian part (Fig. 51F), the endophallic expulsion hook with its posterior plate strongly protruding posterolaterally (Fig. 51H), and the spermatheca with its duct shorter and thicker (Fig. 51C).

When Naomi & Puthz (1993) described *S. aoi* as new species, they erroneously reported that Naomi (1989a) misidentified *S. aoi* for *S. rufescens* Sharp, 1874. It was however true that Naomi misidentified *S. coiffaitiellus* Naomi & Puthz, 1993 for *S. rufescens*. This is obvious when the illustration of aedeagus (Fig. 1A) in Naomi (1989a) is the aedeagus of *S. coiffaitiellus*.

Etymology. The specific epithet of this species is derived from the Japanese name of the flowering plant family Malvaceae, aoi.

Stenus intrarius Naomi & Ito

(Figs. 52A–G, 133B)

Stenus intrarius Naomi & Ito, 2018: 91.

Type material examined. Holotype: ♂ (OMNHO), Oisugi Forest, Kutsuki, Shiga Pref., 19. vi. 2007, T. Ito leg. Paratypes: 2 ♂3 ♀, same data as holotype; 1 ♂1 ♀, same locality, 1. iv. 2002, K. Mizuno leg.; 4 ♂3 ♀, same locality, 28. x. 2008, T. Ito leg.; 1 ♂4 ♀, same locality, 25. ix. 2011, T. Ito leg.; 2 ♂5 ♀, same locality, 5. v. 2016, T. Ito leg.; 1 ♂, Ashiu, Miyama-cho, Kyoto Pref., 15. viii. 1992, T. Ito leg.; 1 ♀, same locality, 22. vii. 2000, K. Mizuno leg.; 3 ♂1 ♀, same locality, 14. vi. 2009, T. Ito leg.; 4 ♂, same locality, 22. ix. 2015, T. Ito leg.

Distribution. Japan: Honshu (Shiga and Kyoto Prefs.).

Redescription. Male and female: Body 2.8–3.2 mm (fore body 1.4–1.5 mm) in length. Body weakly shining or dull; head black; pronotum, elytra and abdomen dark red to brown or black; labrum dark red to black; antennae reddish brown to dark red; legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with coarse to subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique furrows or depressions; antennae short, thin; pronotum with surface slight uneven to uneven, with a median longitudinal furrow very indistinct; elytra with surface even to slightly uneven or uneven; hind tarsi each short, 4th tarsomere distinctly bilobed; abdomen almost cylindrical to subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 52E) modified with an elongate, shallow depression on the 7th, and a broad emargination on the 8th ventrite; 9th tergum (Fig. 52D) with ventral apophyses thin, relatively short; 9th ventrite (Fig. 52C) with macrosetae short, apicolateral teeth acute, apicolateral setae short; 10th tergum shallowly emarginate posteriorly. Aedeagus (Fig. 52A) with median lobe elongate, moderately broad, weakly constricted near the middle, broad and obtusely angulate at apicolateral corners, broad-subtriangular in shape at the apical part, obtuse at apex; apical sclerotized area very short, shortly separated at the middle, covered with very small, pointed tubercles.

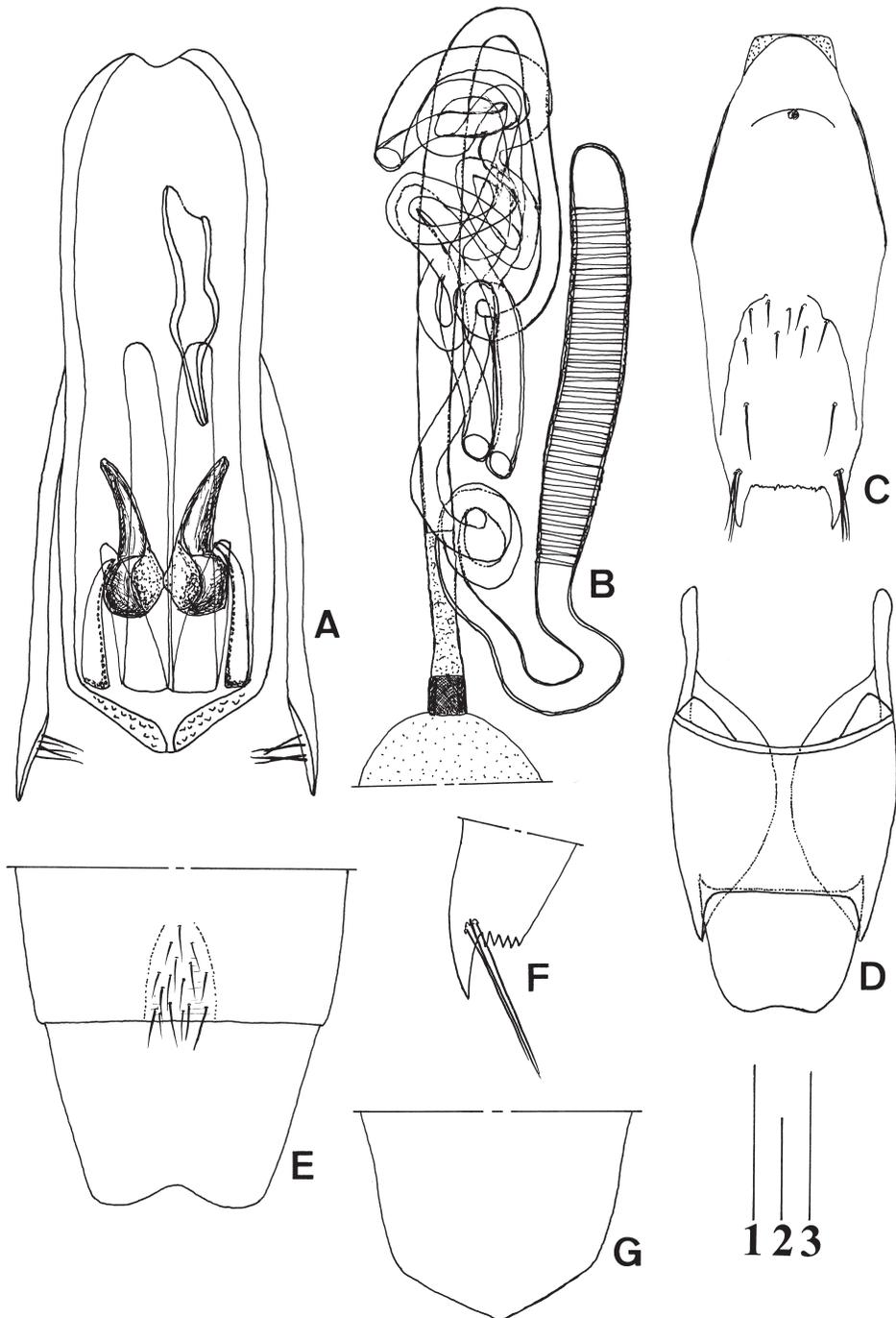


Fig. 52. *Stenus intrarius* Naomi & Ito (Shiga, Oisugi: A, C, G; Kyoto: B, D–F, Asiu). A, aedeagus; B, spermatheca; C, 9th ventrite of male; D, 9th and 10th terga of male; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, posterior part of 8th ventrite of female. Scale 1: 0.1 mm for A, G, 0.05 mm for B, 0.2 mm for D, F; scale 2: 0.1 mm for C; scale 3: 0.2 mm for E.

Endophallus (Fig. 52A) with copulatory tube having basal chamber thick, main tube thick at base, attenuate toward apex; dorsolateral bands moderately long, broad, each with a line of small dots along mesial margin; expulsion hooks each tadpole-shaped, weakly sclerotized mesially, with anterior plate thin, attenuate, posterior plate subcircular, gently rounded posteriorly; ventro-median bands with basal bands very long, broad, and dorsally folded bands short, broad, divergent anteriorly. Parameres (Fig. 52A) rather thin, slender, each acutely pointed at apex; apical area short, only weakly swollen mesially at base, mesially also with 4 to 5 moderately long setae, glabrous at the most apical part.

Female: Eighth ventrite obtuse or pointed posteromedially (Fig. 52G); gonocoxites (Fig. 52F) each with apicolateral tooth moderately long, acute, apicolateral setae very long. Spermatheca (Fig. 52B) with capsule short, thick, rounded apically; striped duct very long, thick; duct very long, relatively thin to moderately thick, loosely or moderately coiled except for straight duct from base to 1st bent; basal valve very long; basal sclerotized duct very short.

Biology and ecology. The beetles of *S. intrarius* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. intrarius* is allied to *S. shojiroi* and *S. glorificus*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical sclerotized area hardly developed and shortly separated at the middle (Fig. 52A), and the copulatory tube with its main tube thicker at base (Fig. 52A), and the endophallic expulsion hook with its anterior plate slightly turning anterolaterally (Fig. 52A).

***Stenus shojiroi* Naomi**
(Fig. 53A–G)

Stenus shojiroi Naomi, 2021: 68.

Type material examined. Holotype: ♂ (KUMF), Ashiu, Kyoto Pref., 5. ix. 1992, T. Ito leg.

Distribution. Japan: Honshu (Kyoto Pref.).

Redescription. Male: Body 3.2 mm (fore body 1.5 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red; labrum dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum and elytra partially with coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short, thin; pronotum with surface slightly uneven, with a median longitudinal depression indistinct; elytra with surface uneven; hind tarsi each short, with 4th tarsomere distinctly bilobed, each lobe thick; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 53E) modified with a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 53B) with ventral apophyses long; 9th ventrite (Fig. 53A) with macrosetae very short, apicolateral teeth slightly short, acute, apicolateral setae slightly short; 10th tergum (Fig. 53B) entire. Aedeagus (Fig. 53C) with median lobe broad in about apical 1/2, broadest a little before apicolateral corners, broad-subtriangular at the apical part, obtuse at apex; apical sclerotized area (Fig. 53D) transverse, subrhombic, declivous apicad when seen from ventral side, slightly uneven, covered sporadically with a very small, pointed tubercles, submembranous at the narrow, most apical part. Endophallus (Fig. 53C) with copulatory tube (Fig. 53G) having basal chamber ovoidal, main tube short, almost attenuate, slightly bent near the apical 1/3; dorsolateral bands moderately broad; dorsal membrane densely covered with extremely small tubercles; expulsion

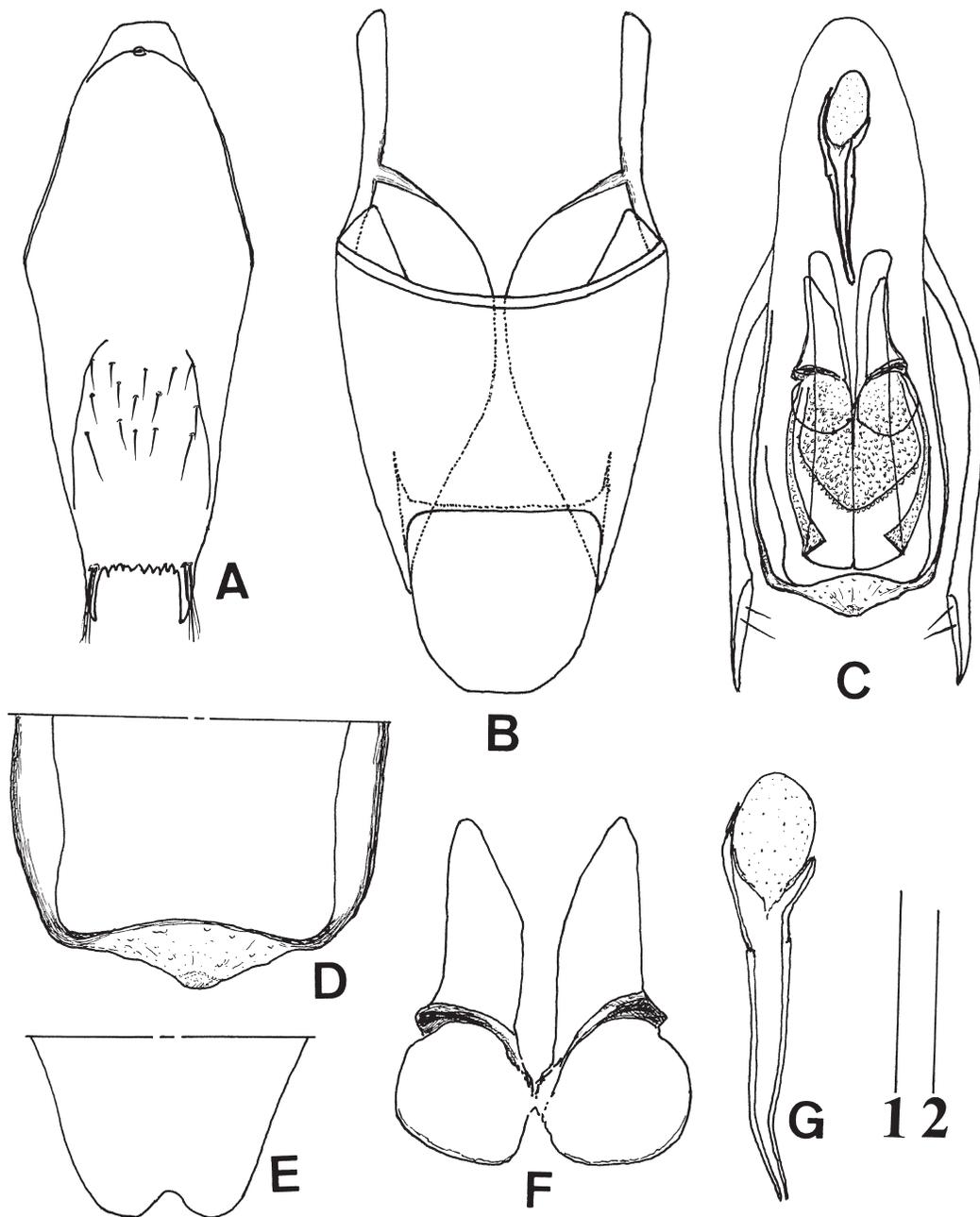


Fig. 53. *Stenus shojiroi* Naomi. (Kyoto: Asiu). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, apical part of aedeagal median lobe; E, posterior part of 8th ventrite of female; F, endophallic expulsion hooks; G, copulatory tube. Scale 1: 0.2 mm for A–C, 0.1 mm for D, F, G; scale 2: 0.25 mm for E.

hooks (Fig. 53F) each tadpole-shaped, with anterior plate elongate, almost pointed or obtuse at anterior tip, clearly demarcated from posterior plate, posterior plate subcircular; ventromedian bands very long, very broad. Parameres (Fig. 53C) very thin, each moderately curved mesially, acutely pointed at apex; apical area moderately long, mesially with 2 short setae near base.

Female: Unknown.

Biology and ecology. The beetle of *S. shojiroi* inhabits leaf litter heaped in the natural forest of a mountainous region.

Remarks. *S. shojiroi* is closely allied to *S. glorificus*, but it is separable from the latter species by the aedeagal median lobe very weakly protruding posteriorly to form the transverse, subrhombic apical sclerotized area (Fig. 53D), the endophallic dorsal membrane covered with smaller tubercles (Fig. 53C), and the endophallic expulsion hook with its posterior plate rounded posteriorly (Fig. 53F).

Etymology. This species is named after younger brother of first author, Dr. Shojiro Naomi (Kumamoto) who contributed to the clarification of the beetle fauna of Kumamoto Pref., Kyushu.

***Stenus glorificus* Naomi, Nomura & Puthz sp. nov.**

(Fig. 54A–F)

Type material examined. Holotype: ♂ (KUMF), Ashiu, Kyoto Pref., 5. ix. 1992, T. Ito leg.

Distribution. Japan: Honshu (Kyoto Pref.).

Description. Male: Body 3.2 mm (fore body 1.5 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red; labrum reddish brown; antennae and legs reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique depressions; antennae short, thin; pronotum with surface slightly uneven, with a median longitudinal depression hardly developed; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 54C) modified with a very shallow depression on the 7th, and a moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 54A) with ventral apophyses long; 9th ventrite (Fig. 54B) with macrosetae very short, apicolateral teeth short, acute, apicolateral setae short; 10th tergum (Fig. 54A) very shallowly emarginate posteromedially. Aedeagus (Fig. 54D) with median lobe broad, subtruncate at apex, with 4 very small, equidistantly located teeth along posterior margin; apical sclerotized area much transverse, with surface slightly uneven, very sporadically covered with a very small, pointed tubercles. Endophallus (Fig. 54E) with copulatory tube (Fig. 54F) having main tube almost attenuate, very slightly curved near the apical 1/3; dorso-lateral bands extremely long; dorsal membrane covered densely with small, elongate tubercles; expulsion hooks each with anterior plate elongate, slightly narrowing anteriorly, posterior plate subtruncate posteriorly, minutely serrate along posterior margin; ventromedian bands very long, very broad. Parameres (Fig. 54D) very thin, each slightly curved mesially before the base of apical area, very acutely pointed at apex; apical area moderately long, mesially with 2 short setae before the middle.

Female: Unknown.

Biology and ecology. The beetle of *S. glorificus* inhabits leaf litter heaped in the natural forest of a mountainous region.

Remarks. *S. glorificus* is closely allied to *S. shojiroi*, but it is separable from the latter species by the aedeagal median lobe subtruncate, with 4 very small, equidistantly located teeth along the posterior margin (Fig. 54D), the endophallic dorsal membrane covered with larger tubercles (Fig. 54E), and the endophallic expulsion hook with its posterior plate almost truncate posteriorly (Fig. 54E).

Etymology. The specific epithet of this new species is derived from the Latin adjective *glori-*

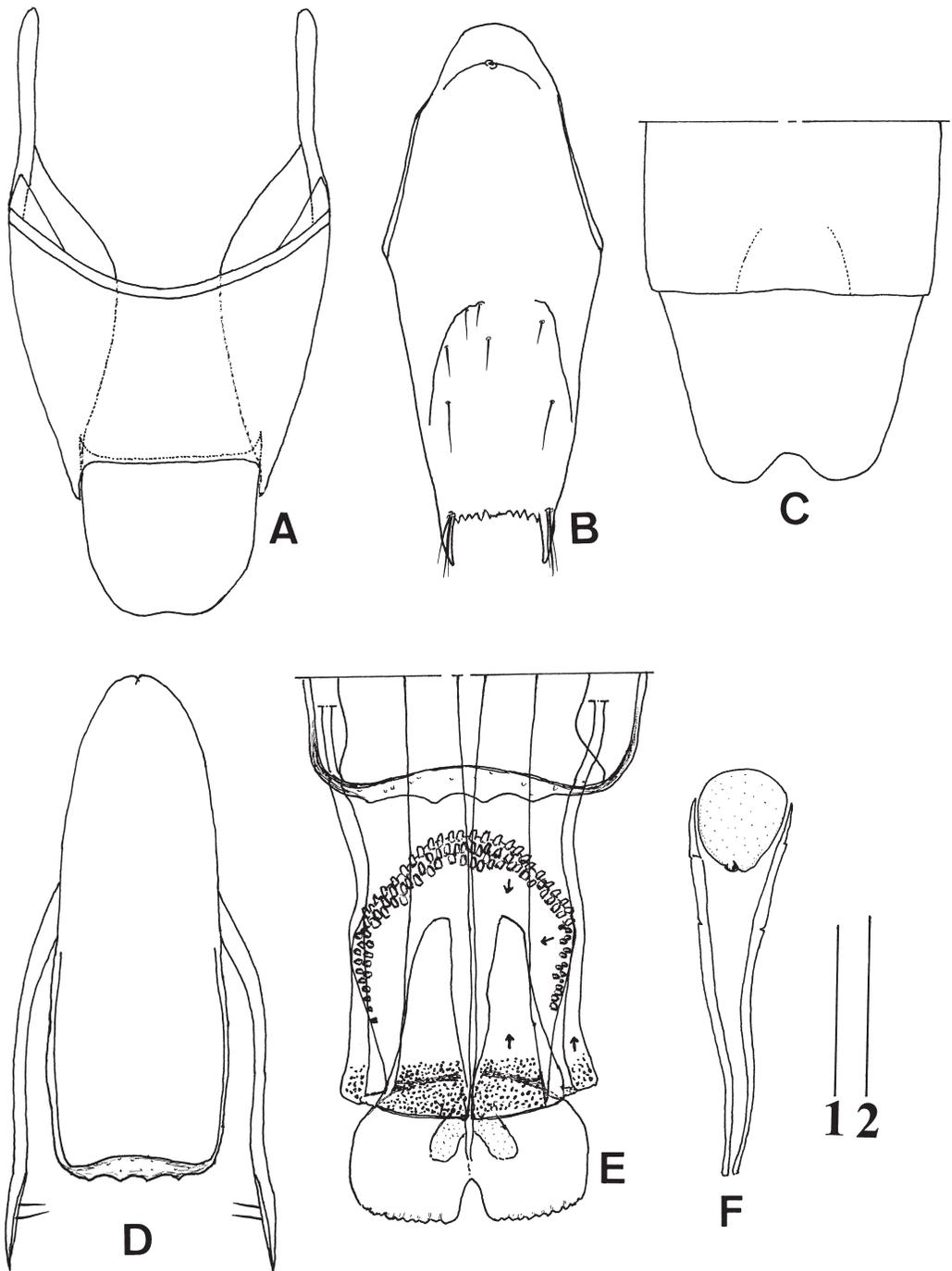


Fig. 54. *Stenus glorificus* Naomi, Nomura & Puthz sp. nov. (Kyoto: Asiu). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th and 8th ventrites of male; D, aedeagus; E, apical part of aedeagal median lobe with its outthrusted endophallus; F, copulatory tube. Scale 1: 0.2 mm for A, B, D, 0.1 mm for E, F; scale 2: 0.3 mm for C.

ficus which means 'glorious.'

Incertae sedis

Key to the Japanese species of the *cephalotes*-subgroup (4)

This is a key for a unit of *Stenus*-species (7 species) beginning with *S. inaspectus* and adequately diagnosed with the combination of following character conditions: Body dark (dark red to dark red near black or dark reddish brown near black) to black in color (Fig. 133C–F); aedeagal median lobe moderately broad to broad, broad even at apicolateral corners (Fig. 55C), and always with an apical or apicomedian emargination of various size and shape (Fig. 57D); copulatory tube usually simple in structure, attenuate and weakly curved (Fig. 55C).

Distribution. Japan: Shikoku and Kyushu.

- 1(10) Male: Abdominal modifications slightly developed in the 6th to 8th or the 7th to 8th segments.
- 2(9) Male: Copulatory tube not bent apically; aedeagal paramere with apical area not spatulate.
- 3(6) Male: Aedeagal median lobe with apicomedian emargination about 1/3 times as broad as the breadth of median lobe at apicolateral corners.
- 4(5) Male: Aedeagal median lobe with apicomedian emargination semicircular (Fig. 55C); copulatory tube with anterior plate turning anteriorly (Fig. 55G) *S. inaspectus* Puthz
- 5(4) Male: Aedeagal median lobe with apicomedian emargination subtriangular (Fig. 56D); copulatory tube with anterior plate turning anterolaterally (Fig. 56C)
..... *S. kochiensis* Naomi, Nomura & Puthz sp. nov.
- 6(3) Male: Aedeagal median lobe with apical emargination broader than half the breadth of median lobe at apicolateral corners.
- 7(8) Male: Aedeagal median lobe with apical emargination semicircular (Fig. 57D); endophallic expulsion hook with posterior plate strongly protruding laterally (Fig. 57F)
..... *S. imasakai* Naomi
- 8(7) Male: Aedeagal median lobe with apical emargination subtriangular (Fig. 59D); endophallic expulsion hook with posterior plate not protruding laterally (Fig. 59F)
..... *S. inassuetus* Puthz
- 9(2) Male: Copulatory tube distinctly bent apically (Fig. 58E); aedeagal paramere with apical area slightly spatulate (Fig. 58D) *S. cosiciensis* Naomi & Hayashi
- 10(1) Male: Abdominal modifications well-developed in the 4th to 8th segments.
- 11(12) Male: Aedeagal median lobe with apically-located emargination much broader (Fig. 60C); endophallic expulsion hook with anterior plate turning apicolaterally (Fig. 60C)
..... *S. daimio* Naomi
- 12(11) Male: Aedeagal median lobe with apically-located emargination much narrower (Fig. 61A); endophallic expulsion hook with anterior plate slightly turning apicomediaally (Fig. 61A) *S. takashiellus* Naomi, Nomura & Puthz sp. nov.

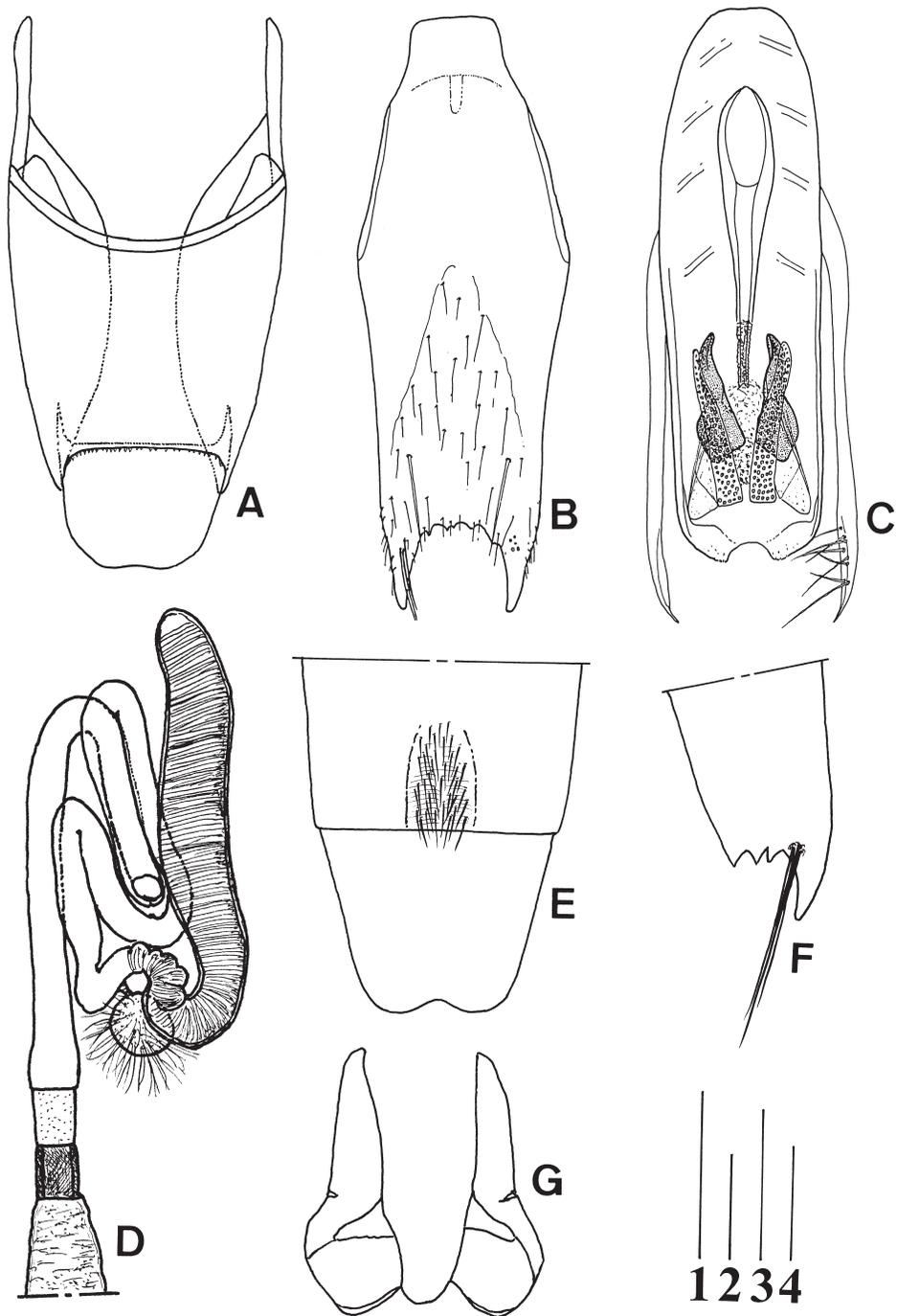


Fig. 55. *Stenus inaspectus* Puthz (Kochi: A, G, Mt. Irazu; Ehime: B, C, Mt. Ishizuchi, D, F, Shirasa Pass, E, Mt. Odami). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, endophallic expulsion hooks. Scale 1: 0.2 mm for A, 0.1 mm for D, F; scale 2: 0.1 mm for B, C; scale 3: 0.3 mm for E; scale 4: 0.05 mm for G.

***Stenus inaspectus* Puthz**
(Figs. 55A–G, 133D)

Stenus inaspectus Puthz, 1993: 159; Herman, 2001: 2227; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (NHMG), via Mt. Ishizuchi (1,000 m), Ehime Pref., 14. viii. 1980, I. Löbl leg.

Other material examined. [SHIKOKU]: 1 ♂ 1 ♀, Shirasa Pass, Saijyo City, Ehime Pref., 9. vi. 2013, H. Yokozeki leg.; 1 ♂, Mt. Odami, Ehime Pref., 2. ix. 1993, M. Yamamoto leg.; 2 ♂ 1 ♀, Mt. Irazu, Higashitsuno Vil., Kochi Pref., 24. v. 2005, T. Watanabe leg.

Distribution. Japan: Shikoku (Ehime and Kochi Prefs.).

Redescription. Male and female: Body 4.0–4.4 mm (fore body 1.8–2.0 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red near black to black; labrum dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or medially-curved furrows; antennae short, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, moderately thick to thick, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 55E) modified with a very shallow depression on the 7th, and an almost arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 55A) with ventral apophyses moderately long; 9th ventrite (Fig. 55B) with macrosetae very long, apicolateral teeth long, almost acute, apicolateral setae short; 10th tergum (Fig. 55B) very shallowly emarginate posterolaterally. Aedeagus (Fig. 55C) with median lobe moderately broad, rounded at apicolateral corners, with a semicircular, apicomedian emargination. Endophallus (Fig. 55C) with copulatory tube without basal constriction, main tube long, attenuate; dorsolateral bands each broad at posterior rim; expulsion hooks each with anterior plate thin, turning anteriorly, slightly incurved at anterior tip, much narrower than posterior plate; ventromedian bands short. Parameres (Fig. 55C) each very acute at apex; apical area slightly short, thin, mesially with 8 setae.

Female: Eighth ventrite obtuse posterolaterally; gonocoxites (Fig. 55F) each with apicolateral tooth long, almost acute, apicolateral setae very long. Spermatheca (Fig. 55D) with capsule hardly developed; striped duct very long, thick to very thick, extending proximally to the last 2nd turn; duct moderately long, moderately thick, loosely coiled with 8 turns; gland large, spherical, covered densely with long, very thin ciliae, with opening located on the posterior side of duct between the last 2nd and 3rd turns; basal valve short, about as long as sclerotized basal duct.

Biology and ecology. The beetles of *S. inaspectus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. inaspectus* is probably allied to *S. kochiensis*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination semicircular (Fig. 55C) and the endophallic expulsion hooks almost positioned in parallel with each other (Fig. 55G).

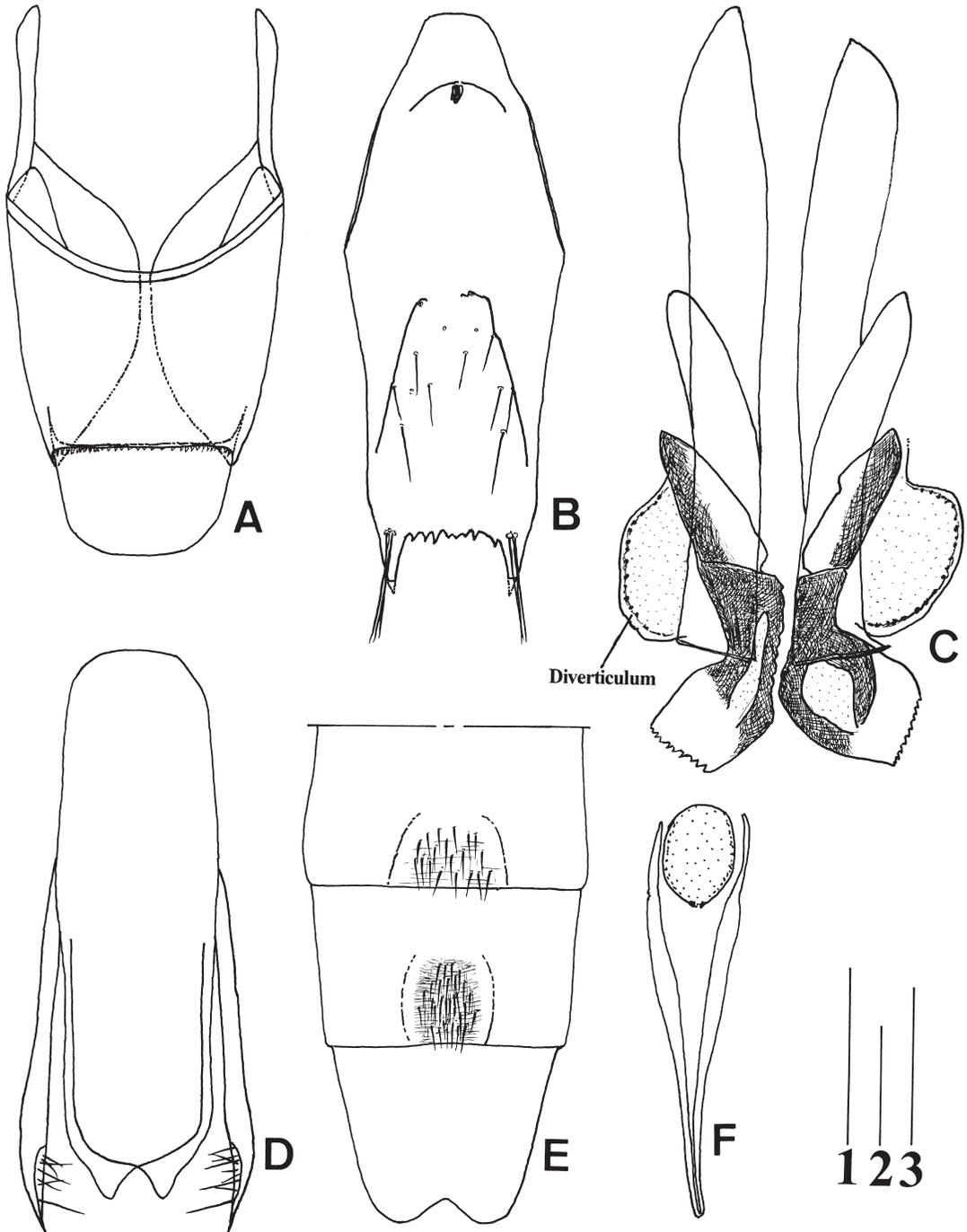


Fig. 56. *Stenus kochiensis* Naomi, Nomura & Puthz sp. nov. (Kochi: Oki Is.). A, 9th and 10th terga of male; B, 9th ventrite of male; C, endophallic expulsion hooks, ventromedian bands and diverticulum; D, aedeagus; E, 6th to 8th ventrites of male; F, copulatory tube. Scale 1: 0.2 mm for A, 0.05 mm for C, 0.1 mm for F; scale 2: 0.1 mm for B, D; scale 3: 0.3 mm for E.

***Stenus kochiensis* Naomi, Nomura & Puthz sp. nov.**
(Fig. 56A–F)

Type material examined. Holotype: ♂ (KUMF), Oki Is., Tosa (Kochi Pref.), 5. v. 1988, T. Ito leg.

Distribution. Japan: Shikoku (Kochi Pref.: Oki Is.).

Description. Male: Body 3.3 mm (fore body 1.7 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, thin, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 56E) modified with a flat area on the 6th, a very shallow depression on the 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 56A) with ventral apophyses long; 9th ventrite (Fig. 56B) with macrosetae long, apicolateral teeth long, apicolateral setae long; 10th tergum (Fig. 56B) entire. Aedeagus (Fig. 56D) with median lobe moderately broad, rounded at apicolateral corners, with a subtriangular apicomedian emargination, the lateral side of which protrudes posteriorly and is obtuse. Endophallus with copulatory tube (Fig. 56F) having main tube attenuate; expulsion hooks (Fig. 56C) almost X-shaped, asymmetrically sclerotized, with anterior plate turning anterolaterally, posterior plate minutely serrate posteriorly; ventromedian bands (Fig. 56C) broad. Parameres (Fig. 56D) short, each very acute at apex; apical area very short, thin, mesially with 7 to 9 setae.

Female: Unknown.

Biology and ecology. *S. kochiensis* is insular and thus may be endemic to Oki Island, off Kochi Pref. The beetle of this species inhabits leaf litter heaped in the natural forest of Oki Is.

Remarks. *S. kochiensis* is allied to *S. inaspectus*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination subtriangular (Fig. 56D) and the endophallic expulsion hooks almost X-shaped (Fig. 56C).

Etymology. The specific epithet of this new species is derived from the name of type locality, Kochi.

***Stenus imasakai* Naomi**
(Figs. 57A–G, 133D)

Stenus imasakai Naomi, 1989: 163; Herman, 2001: 2223; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Nishisonogi-gun, Nagasaki Pref., 23. iv. 1978, S. Imasaka leg. Paratypes: 2♂1♀, same data as holotype.

Other material examined. [KYUSHU]: 1♂2♀, Shirakashi, Ohseto-cho, Nagasaki Pref., 18. v. 1997, S. Nomura leg.; 2♂1♀, Iwaseto Valley, Sotome-cho, Nagasaki Pref., 18. v. 1997, S. Nomura leg.; 2♂1♀, Tsugane-otoshi Waterfall, Ooseto-machi, Nagasaki Pref., 5. vii. 1996, S. Nomura leg.

Distribution. Japan: Kyushu (Nagasaki Pref.).

Redescription. Male and female: Body 3.5–4.0 mm (fore body 1.6–1.9 mm) in length. Body

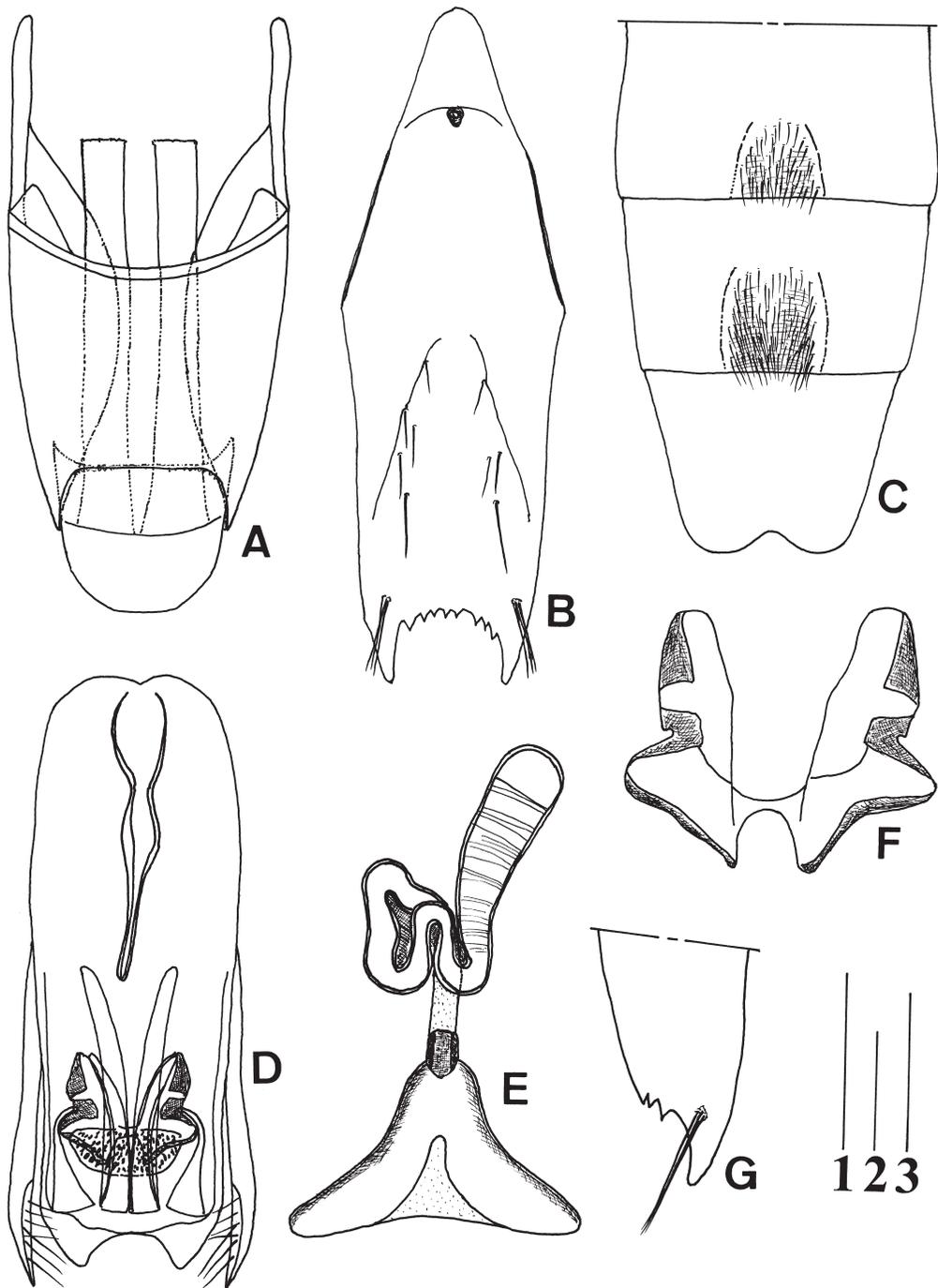


Fig. 57. *Stenus imasakai* Naomi (Nagasaki: A, B, D, F, Ooseto, C, Shirakashi, E, G, Iwaseto). A, 9th and 10th terga of male, with a pair of longitudinal, ligament-like membranous bands; B, 9th ventrite of male; C, 6th to 8th ventrites of male; D, aedeagus; E, spermatheca; F, endophallic expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, 0.1 mm for E, G; scale 2: 0.1 mm for B, D, 0.05 mm for F; scale 3: 0.3 mm for C.

moderately to strongly shining; head black; pronotum and elytra dark red; abdomen dark red near black to black; labrum reddish brown to dark red; antennae and legs yellowish brown to pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventral sutures very thin, present only in the 3rd to 4th segments.

Male: Abdomen (Fig. 57C) modified with a very shallow depression on the 6th, a shallow depression on the 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 57A) with ventral apophyses long; 9th ventrite (Fig. 57B) with macrosetae long, apicolateral teeth obtusely pointed, apicolateral setae short; 10th tergum (Fig. 57B) entire. Aedeagus with median lobe (Fig. 57D) broad, rounded at apicolateral corners, with a very broad, semicircular apical emargination. Endophallus (Fig. 57D) with copulatory tube having basal chamber ovoidal, main tube subfusiform at base, attenuate; dorsolateral bands each very thick at base; expulsion hooks (Fig. 57F) moderately large, each broad, with lateral rim almost uniquely sclerotized, posterior plate strongly protruding laterally; ventromedian bands moderately long, thin. Parameres (Fig. 57D) short, each acutely pointed at apex; apical area moderately long, slightly swollen laterally, mesially with 7 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 57G) each with apicolateral tooth slightly short, obtusely pointed, apicolateral setae moderately long. Spermatheca (Fig. 57E) with capsule very thick, well-rounded apically; striped duct moderately long, very thick distally, strongly narrowing proximad; duct short, thin to moderately thick with 4 turns; basal valve slightly long, basal duct very short; basal pouch almost subconical, submembranous.

Biology and ecology. The beetles of *S. imasakai* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. imasakai* is allied to *S. inaspectus* and *S. kochiensis*, but it is separable from the latter 2 species by the aedeagal median lobe with its apically-located emargination much broader (Fig. 57D), the copulatory tube with its basal constriction distinct, and the endophallic expulsion hook with its posterior plate strongly protruding laterally (Fig. 57F).

Etymology. This species is named after Mr. Shoichi Imasaka (Kurume) who collected the *Stenus*-beetles designated as the type specimens.

***Stenus cosiciensis* Naomi & Hayashi**
(Figs. 58A–H, 133E)

Stenus cosiciensis Naomi & Hayashi, 2017: 249.

Type material examined. Holotype: ♂ (KUMF), Mt. Otake (310m), Shimo-koshiki Is., Koshiki Isls., Kagoshima Pref., 24. v. 2014, M. Yoshida leg. Paratypes: 3 ♂3 ♀, same locality as holotype, 23–24. v. 2014, M. Yoshida leg.; 1 ♂4 ♀ (OMNHO, cH), same locality, 23–24. v. 2014, Y. Hayashi leg.; 1 ♂, same locality, 23–24. v. 1994, T. Ueno leg.

Distribution. Japan: Kyushu (Kagoshima Pref.: Koshiki Isls.).

Redescription. Male and female: Body 3.7–4.1 mm (fore body 1.7–1.8 mm) in length. Body moderately to strongly shining; head and abdomen almost black to black; pronotum and elytra

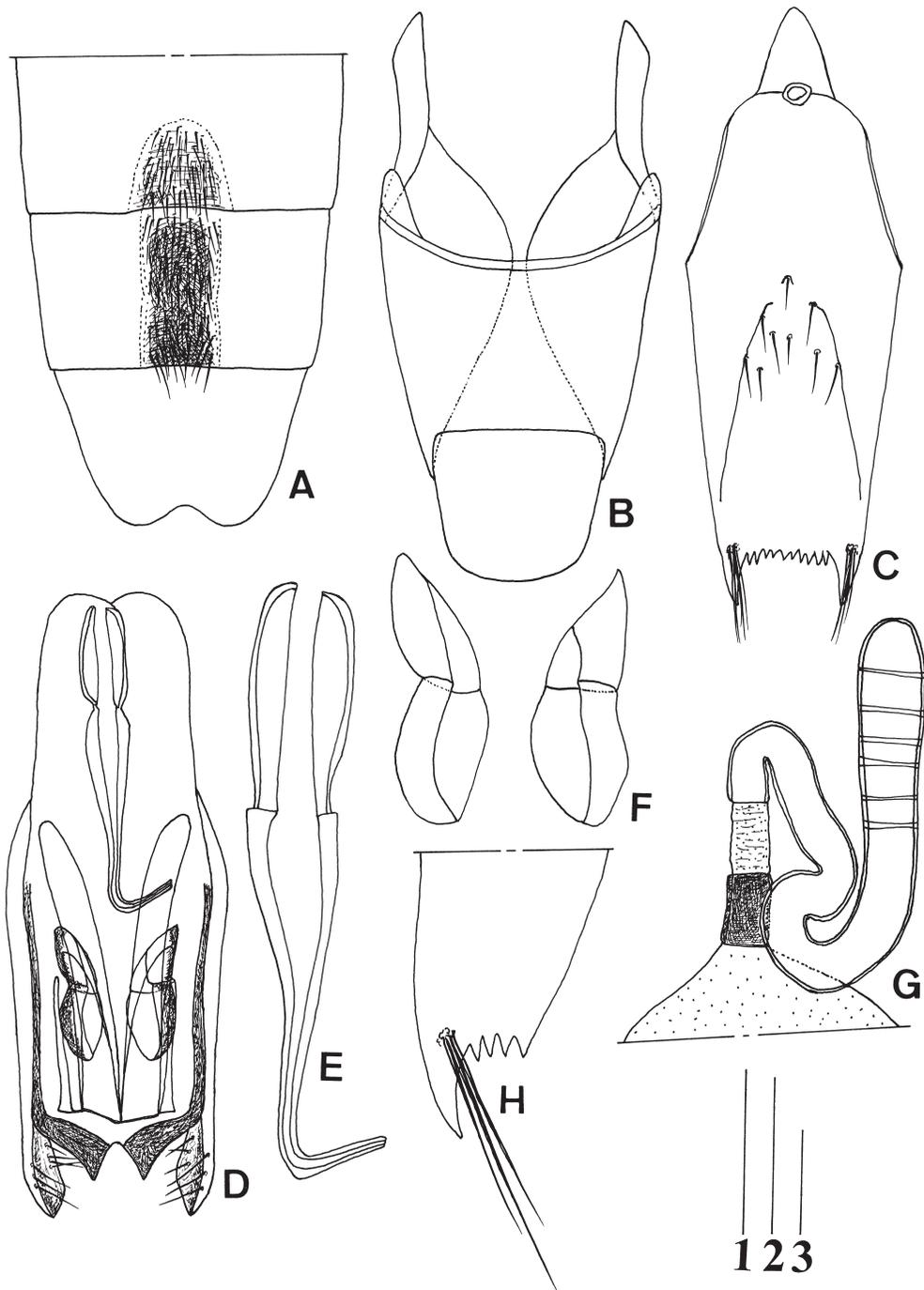


Fig. 58. *Stenus cosiciensis* Naomi & Hayashi (Kagoshima: Shimokoshiki Is., Mt. Odake). A, Sixth to 8th ventrites of male; B, 9th and 10th terga of male; C, 9th ventrite of male; D, aedeagus (ventral view); E, copulatory tube; F, endophallic expulsion hooks; G, spermatheca; H, apical part of gonocoxite. Scale 1: 0.3 mm for A; scale 2: 0.2 mm for B; scale 3: 0.1 mm for C, D and 0.05 mm for E–H.

dark red near black; labrum reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 58A) modified with a flat area or a very shallow depression on the 6th, a longitudinal, shallow depression on the 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 58B) with ventral apophyses moderately long; 9th ventrite (Fig. 58C) with apicolateral teeth slightly short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 58B) rounded posteriorly. Aedeagus (Fig. 58D) with median lobe moderately broad, almost angulate at apicolateral corners, with a slightly narrow, V-shaped apicomedian emargination, the lateral side of which protrudes posteriorly and is very acute. Endophallus (Fig. 58D) with copulatory tube (Fig. 58E) having basal chamber almost elliptical, large to very large, main tube attenuate, distinctly bent apically; dorsolateral bands thin; expulsion hooks (Fig. 58F) slightly asymmetrical, each with anterior plate a little smaller than posterior plate, posterior plate moderately rounded laterally; ventromedian bands long, very broad. Parameres (Fig. 58D) short, each almost rounded apically; apical area slightly spatulate, mesially with 6 to 7 setae.

Female: Eighth ventrite obtuse posteromedially or almost rounded posteriorly; gonocoxites (Fig. 58H) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 58G) with capsule short, rounded apically; striped duct short, thick; duct short, thick, with 3 turns; basal valve slightly short, about as long as sclerotized basal duct; basal pouch bowl-shaped, membranous.

Biology and ecology. *S. cosiciensis* is insular and thus may be endemic to Koshiki Islands off Kagoshima Pref. The beetles of this species inhabit leaf litter heaped in the natural forests of a low mountainous region.

Remarks. *S. cosiciensis* is allied to *S. inassuetus*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination narrower (Fig. 58D), the copulatory tube beak-shaped at the apical part (Fig. 58E), the endophallic expulsion hook with its posterior plate rounded posteriorly (Fig. 58F), and the spermatheca with its duct shorter and movable (Fig. 58G).

Stenus inassuetus Puthz

(Fig. 59A–H)

Stenus inassuetus Puthz, 1993: 157; Herman, 2001: 2227; Naomi & Puthz, 2013: 144.

Stenus uneme Naomi, 1989a: 8 (in part).

Type material examined. Holotype: ♂ (NHMG), Omogo (900 m), Mt. Ishizuchi, Ehime Pref., I. Löbl & Cl. Besuchet leg. Paratype (paratype of *S. uneme*): ♂, Omogo, Ehime Pref., 15. vi. 1981, S. Naomi leg.

Other material examined. [SHIKOKU]: 1 ♂ 1 ♀, Mt. Tsurugi, Tokushima Pref., 17. vii. 1971, M. Yoshida leg.; 1 ♂, Omogo, Mt. Ishizuchi, Ehime Pref., 23. vii. 1989, M. Sakai leg.; 1 ♂ 1 ♀, same locality, 29. iv. 1989, T. Ito leg.; 1 ♂, Mt. Odami, Ehime Pref., 2. ix. 1993, Yamamoto leg.; 1 ♂, same locality, 21. vii. 1993, M. Sakai leg.

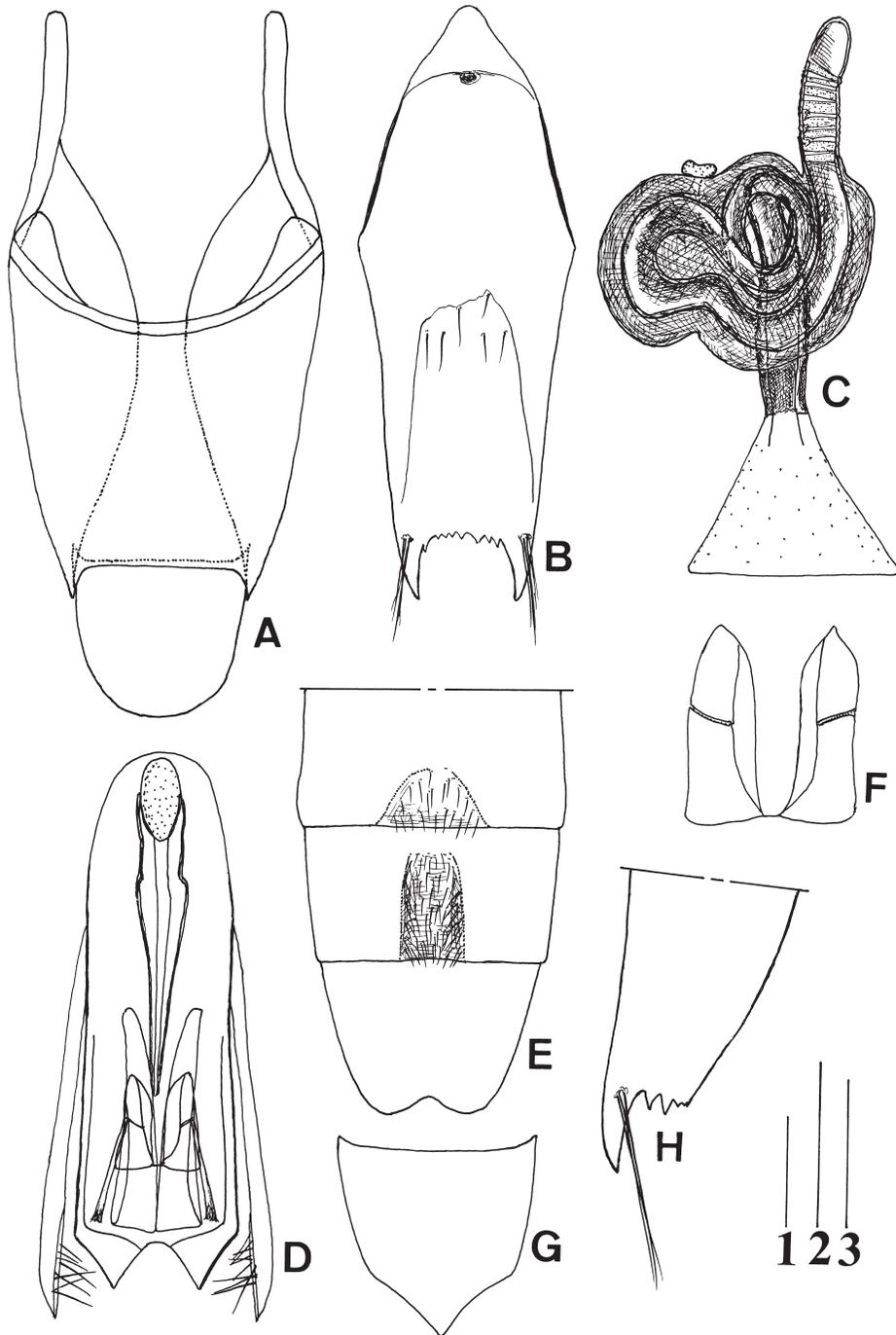


Fig. 59. *Stenus inassuetus* Puthz (Tokushima, A, B, Mt. Tsurugi; Ehime, C, D, F–H, Omogo, E, Mt. Odami). A, 9th and 10th terga of male; B, 9th ventrite of male; C, spermatheca; D, aedeagus; E, 6th to 8th ventrites of male; F, endophallic expulsion hooks; G, 10th tergum of female; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B, D, 0.05 mm for F; scale 2: 0.1 mm for C, 0.2 mm for G; scale 3: 0.3 mm for E.

Distribution. Japan: Shikoku (Tokushima and Ehime Prefs.).

Redescription. Male and female: Body 3.1–3.6 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red to dark reddish brown; labrum dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially- curved furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow distinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 59E) modified with a flat area on the 6th, an elongate, very shallow or shallow depression on the 7th, and a broad, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 59A) with ventral apophyses long; 9th ventrite (Fig. 59A) with apicolateral teeth long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 59A) almost rounded posteriorly. Aedeagus (Fig. 59D) elongate, with median lobe elongate, becoming broader from the middle to the broadest apicolateral corners, with a broad, subtriangular apical emargination (or with a pair of very acute, broadly separated, apicolateral protrusions). Endophallus (Fig. 59D) with copulatory tube with basal chamber elongate, main tube thick at base, attenuate; dorsolateral bands thin; expulsion hooks (Fig. 59F) each broad, with anterior plate pointed at anterior tip, with or without a very small cusp, posterior plate almost truncate posteriorly; ventromedian bands moderately long, moderately broad. Parameres (Fig. 59D) each acutely pointed at apex; apical area moderately long, slightly swollen laterally, mesially with 8 to 10 setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 59H) each with apicolateral tooth very long, very acute, apicolateral setae very long; 10th tergum (Fig. 59G) distinctly pointed apicomediaally, almost triangular at apical part. Spermatheca (Fig. 59C) with capsule moderately long; striped duct slightly short, moderately thick; duct moderately long, moderately thick, tightly coiled, presumably fixed in position and thus immovable by the unusual sclerotization developed between the running ducts; basal pouch conical, membranous.

Biology and ecology. The beetles of *S. inassuetus* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. inassuetus* is allied to *S. cosiciensis*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination broader (Fig. 59D), the copulatory tube simply attenuate (Fig. 59D), the endophallic expulsion hook with its posterior plate almost truncate posteriorly (Fig. 59F), and the spermatheca with its duct longer and immovable (Fig. 59C).

***Stenus daimio* Naomi**
(Figs. 60A–F, 133F)

Stenus daimio Naomi, 1989: 162; Herman, 2001: 2155; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUMF), Nagasaki City, Nagasaki Pref., 6. xi. 1977, H. Ohishi leg. Paratypes: 3 ♀, same data as holotype.

Distribution. Japan: Kyushu (Nagasaki Pref.).

Redescription. Male and female: Body 4.0–4.3 mm (fore body 1.9–2.1 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark reddish brown near black;

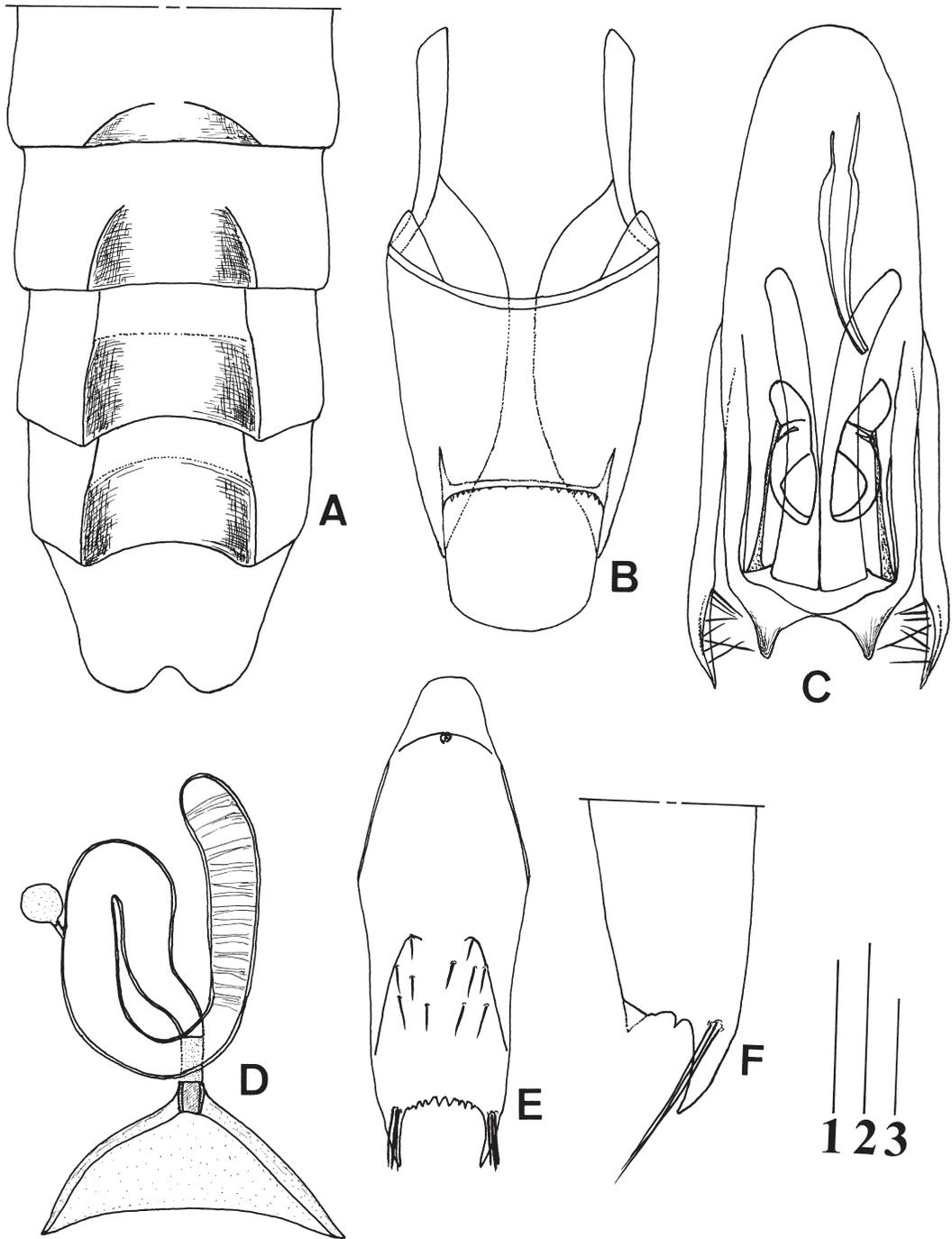


Fig. 60. *Stenus daimio* Naomi (Nagasaki: Nagasaki City). A, 4th to 7th ventrites of male; B, 9th and 10th terga of male; C, aedeagus; D, spermatheca; E, 9th ventrite of male; F, posterior part of gonocoxite. Scale 1: 0.3 mm for A; scale 2: 0.2 mm for B, E, 0.1 mm for D, F; scale 3: 0.1 mm for C.

labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long to long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 60A) modified with a transverse, slightly deep depression on the 4th, a large, moderately deep depression on the 5th, a very large, very deep depression on the each of 6th and 7th, and a small, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 60B) with ventral apophyses long; 9th ventrite (Fig. 60E) with apicolateral teeth long, thin, very acute, apicolateral setae short; 10th tergum (Fig. 60B) rounded posteriorly. Aedeagus (Fig. 60C) with median lobe broad, with a very broad, apical emargination (or a pair of almost acute, very widely separated, apicolateral protrusions). Endophallus (Fig. 60C) with copulatory tube having main tube slightly short, attenuate, weakly curved behind the middle; dorsolateral bands thin; expulsion hooks (Fig. F) moderately large, each with anterior plate turning apicolaterally, posterior plate well-rounded laterally; ventromedian bands long, very broad. Parameres (Fig. 60C) short, each acutely pointed at apex; apical area slightly short, moderately swollen laterally, mesially with 8 setae.

Female: Eighth ventrite obtuse or minutely pointed posteromedially; gonocoxites (Fig. 60F) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 60D) with capsule very short, rounded apically; striped duct moderately long, thick; duct short, thick, with 2 turns; gland slightly small, spherical, with opening located on the lateral side of duct between the 2nd and 3rd turns; basal valve short, basal duct very short, almost embedded into the distal part of basal pouch which is low-conical in shape.

Biology and ecology. The beetles of *S. daimio* inhabit leaf litter heaped in the natural forests of lowlands.

Remarks. *S. daimio* is allied to *S. takashiellus*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination much broader (Fig. 60C), the endophallic expulsion hook with its anterior plate broader and rounded or angulate at the anterior tip (Fig. 60C), and the spermatheca with its duct much shorter and thinner (Fig. 60D).

In *S. daimio* the 8th ventrite of female is the same in shape as in the other congeners, but in one female examined, the apical part is triangular, which is unusual in the females of the species of *cephalotes*-group. At least in the same female, furthermore, the 10th tergum has a triangular apex, as in the 8th ventrite.

Etymology. The specific epithet of this species is derived from the Japanese lord of medieval period, daimio.

Stenus takashiellus Naomi, Nomura & Puthz sp. nov.

(Fig. 61A–G)

Type material examined. Holotype: ♂ (KUMF), Mt. Morotsuka, Morotsuka, Miyazaki Pref., 30. vii. 2016, T. Watanabe leg. Paratypes: 6 ♂1 ♀, Mt. Mukôzaka, Gokase, Miyazaki Pref., 13. v. 2017, T. Watanabe leg.

Distribution. Japan: Kyushu (Miyazaki Pref.).

Description. Male and female: Body 3.6–4.2 mm (fore body 1.9–2.1 mm) in length. Body

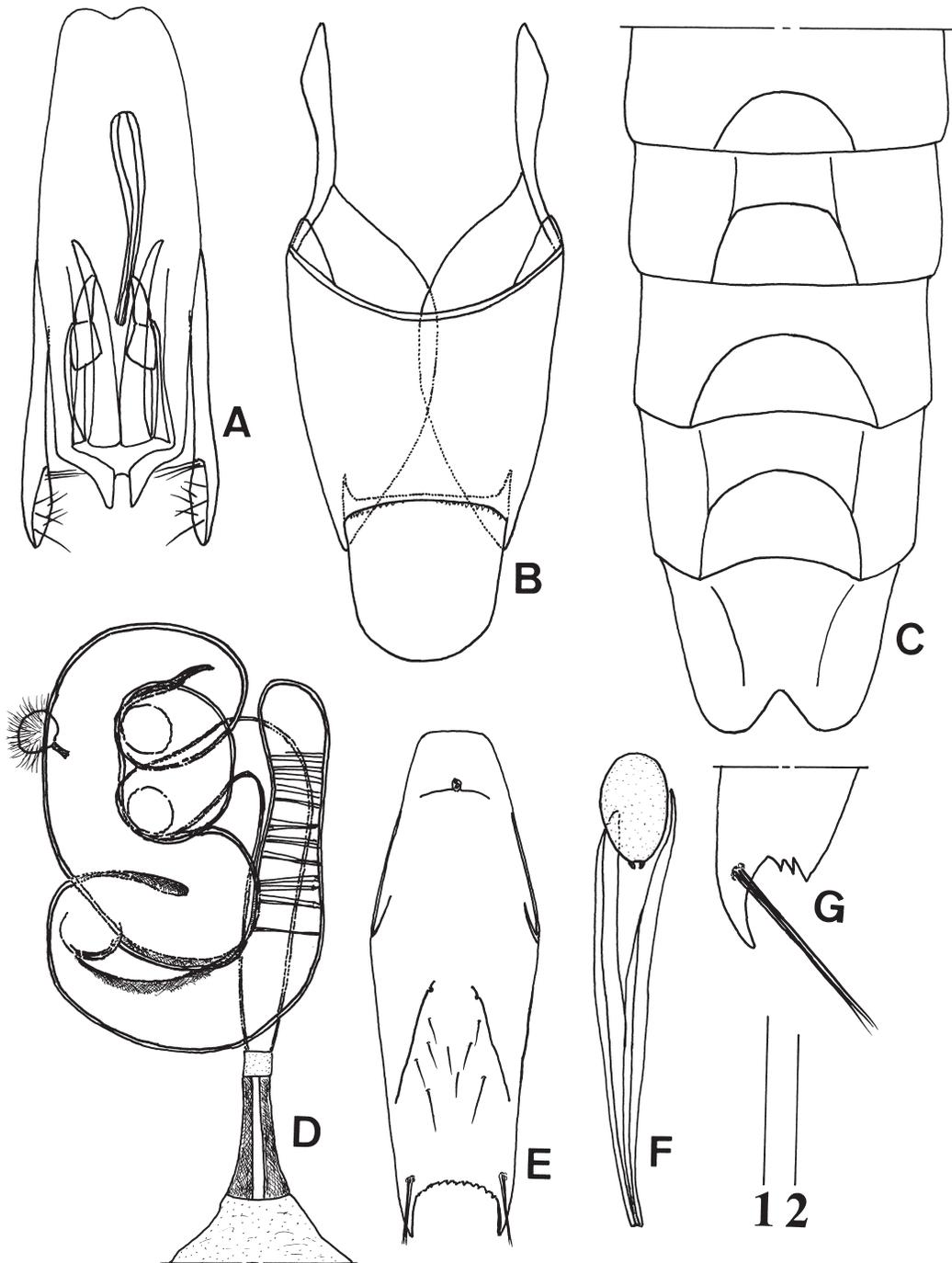


Fig. 61. *Stenus takashiellus* Naomi, Nomura & Puthz sp. nov. (Miyazaki: A, B, E, Mt. Morotsuka, C, D, F, G, Mt. Mukôzaka). A, aedeagus; B, 9th and 10th terga of male; C, 4th to 8th ventrites of male; D, spermatheca; E, 9th ventrite of male; F, copulatory tube; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, E, 0.1 mm for D, F, G; scale 2: 0.3 mm for C.

moderately shining; head and abdomen almost black to black; pronotum almost black; elytra dark red; labrum reddish brown to dark reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 61C) modified with a semilunar flat area on the 3rd, a slightly deep depression on the 4th, a moderately deep depression on the 5th, a very large, very deep depression on the each of 6th and 7th, and a subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 61B) with ventral apophyses very long; 9th ventrite (Fig. 61E) with macrosetae very short, apicolateral teeth short, thin, very acute, apicolateral setae short; 10th tergum (Fig. 61B) rounded posteriorly. Aedeagus (Fig. 61A) with median lobe moderately broad, with a very narrow, apicomedian emargination (or a pair of very narrowly separated, thin apicomedian projections). Endophallus (Fig. 61A) with copulatory tube (Fig. 61F) having main tube moderately long, attenuate; dorsolateral bands moderately broad; expulsion hooks each with anterior plate almost pointed at anterior tip, narrower than posterior plate; ventromedian bands moderately long, moderately broad at posterior rim in stored condition. Parameres (Fig. 61A) each almost rounded apically; apical area short, moderately swollen, mesially with a setal tuft at base and 6 setae in the apical 2/3.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 61F) each slightly falcate, with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 61D) with capsule half-spherical; striped duct moderately long, thick to very thick; duct moderately long, thick to very thick, tightly coiled with 6 or 7 turns; gland moderately large, spherical, densely covered with short, very thin ciliae, with opening located on the lateral side of duct between the last 3rd and 4th turns; basal valve very short, very narrow; basal duct moderately long, becoming thicker proximad.

Biology and ecology. The beetles of *S. takashiiellus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. takashiiellus* is allied to *S. daimio*, but it is separable from the latter species by the aedeagal median lobe with its apically-located emargination much narrower (Fig. 61A), the endophallic expulsion hook with its anterior plate thinner and almost pointed at the anterior tip (Fig. 61A), and the spermatheca with its duct much longer and thicker (Fig. 61D). The 10th tergum has a triangular apex at least in one female examined.

Etymology. This species is named after Mr. Takashi Watanabe (Kanagawa) who collected the *Stenus*-beetles designated as the type specimens.

The *rufescens*-subgroup

Diagnostic characters of the *rufescens*-subgroup. Male and female: Pronotum and elytra often pale (pale yellowish brown through yellowish brown to reddish orange) (Fig. 134E) to dark in color (i.e., darker color than reddish orange) (Fig. 135G); abdominal ventrites of male very often strongly modified with the moderately deep, deep and/or very deep depressions, emarginations, etc. (Figs. 82E, I, 100F, H, 02F, G). Male: Aedeagal median lobe similarly formed as in the *cephalotes*-subgr. but apical sclerotized area often triangular (Fig. 87G) to subtriangular (includ-

ing elongate- or broad-subtriangular, subpentagonal) (Figs. 83A, 90A, 102A) and acutely (Fig. 102A) to very acutely (Fig. 94E) pointed at apex, with a median longitudinal line on it (Fig. 94E), otherwise, median lobe often moderately broad to broad and more or less broad even at apicolateral corners (Figs. 64A, 112B), or showing some other various forms (Figs. 107C, 108B, 121C).

Species unit 1 of the *rufescens*-subgroup

Key to the Japanese species of the *rufescens*-subgroup (1)

This is a key for a unit of *Stenus*-species (12 species) beginning with *S. yoshidai* and probably diagnosed with the combination of following character conditions: Body sometimes tricolor (Fig. 133J) or pronotum and elytra often with yellowish tinge; aedeagal median lobe often moderately broad to broad, and also more or less broad even at apicolateral corners (Fig. 63C); endophallic expulsion hook often with posterior plate protruding posterolaterally (Fig. 66F).

Distribution. Japan: Honshu (Chubu, Kinki and Chugoku Districts), Shikoku and Kyushu.

- 1(22) Male and female: Body no less than 2.8 mm in length. Male: Aedeagal median lobe with apical sclerotized area entirely glabrous.
- 2(15) Male: Aedeagus median lobe with apical sclerotized area not having apicomedian protrusion.
- 3(12) Male: Aedeagal paramere more or less thicker and not curved mesially.
- 4(11) Male: Aedeagal paramere extending posteriorly beyond apex of median lobe.
- 5(8) Male: Endophallic expulsion hook not turning anterolaterally.
- 6(7) Male: Aedeagal median lobe not expanded laterally at apicolateral corners, with apical sclerotized area having a median longitudinal suture (Fig. 62E); endophallic expulsion hook slightly turning anteromesially (Fig. 62E).....*S. yoshidai* Naomi
- 7(6) Male: Aedeagal median lobe distinctly expanded laterally at apicolateral corners, with apical sclerotized area not having a median longitudinal suture (Fig. 63C); endophallic expulsion hook turning anteriorly (Fig. 63E)*S. hirashimai* Naomi
- 8(5) Male: Endophallic expulsion hook turning anterolaterally.
- 9(10) Male: Copulatory tube with main tube swollen laterally at base, and thick and obtuse at apex (Fig. 64A); expulsion hook with posterior plate acute at posterior tip (Fig. 64A).....
.....*S. yamajii* Naomi & Puthz
- 10(9) Male: Endophallic copulatory tube with main tube thick at base, and subulate at apex (Fig. 65B); expulsion hook with posterior plate usually obtuse at posterior tip (Fig. 65F, G)*S. gion* Naomi & Ito
- 11(4) Male: Aedeagal paramere not extending posteriorly beyond apex of median lobe (Fig. 66D) *S. inclarescens* Puthz
- 12(3) Male: Aedeagal paramere thinner, and slightly curved mesially.
- 13(14) Male: Aedeagal median lobe very minutely pointed at apicomedian part (Fig. 71D); copulatory tube with main tube attenuate (Fig. 71G)*S. coiffaitiellus* Naomi & Puthz
- 14(13) Male: Aedeagal median lobe obtuse and submembranous at apicomedian part (Fig. 72B); copulatory tube with main tube spatulate apically (Fig. 72F) *S. productus* Naomi
- 15(2) Male: Aedeagus median lobe with apical sclerotized area having an apicomedian protrusion.

- 16(21) Male: Copulatory tube with main tube not swollen medially; endophallic expulsion hook with posterior plate not broadened posteriad.
- 17(20) Male: Copulatory tube with main tube not curved apically; endophallic expulsion hook with anterior plate not rounded laterally.
- 18(19) Male: Aedeagal median lobe with a short, rounded apicomedian protrusion (Fig. 67C); paramere with apical area mesially with thick setae at base (Fig. 67C)
 *S. fulvidus* Naomi, Nomura & Puthz sp. nov.
- 19(18) Male: Aedeagal median lobe with a short, truncate apicomedian protrusion (Fig. 68A); paramere with apical area mesially glabrous at base (Fig. 68A)
 *S. notomontis* Naomi, Nomura & Puthz sp. nov.
- 20(17) Male: Copulatory tube with main tube moderately curved apically (Fig. 69F); Endophallic expulsion hook with anterior plate moderately rounded laterally (Fig. 69G).....
 *S. obtusus* Naomi, Nomura & Puthz sp. nov.
- 21(16) Male: Copulatory tube with main tube strongly swollen laterally near the middle (Fig. 70E); Endophallic expulsion hook with posterior plate distinctly broadened posteriad (Fig. 70F) *S. snodgrassi* Naomi
- 22(1) Male and female: Body 2.5 mm in length. Male: Aedeagal median lobe with apical sclerotized area having apicomedian subtriangular portion very sparsely setose along posterior margin (Fig. 73B)..... *S. maiko* Naomi & Puthz

***Stenus yoshidai* Naomi**
(Figs. 62A–F, 133G)

Stenus yoshidai Naomi, 1997: 757; Herman, 2001: 2438; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Nakatani, Shishikui, Kaifu, Tokushima Pref., 24. ix. 1973, M. Yoshida leg. Paratypes: 1 ♂ 1 ♀, same data as holotype.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 3.4–3.8 mm (fore body 1.7–1.8 mm) in length. Body moderately shining; head black with median area dark red; pronotum and elytra dark red to brown; abdomen reddish brown to dark reddish brown; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, moderately thick to thick, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 62D) modified with a flat area or a very shallow depression on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 62B) with ventral apophyses moderately long; 9th ventrite (Fig. 62C) with macrosetae long, apicolateral teeth moderately long, very acute, apicolateral setae very long; 10th tergum (Fig. 62B) very shallowly emarginate posteromedially. Aedeagus (Fig. 62E) with median lobe obtusely angulate at apicolateral corners, obtusely pointed at apex; apical sclerotized area almost broad-subpentagonal in shape, with a median longitudinal suture. Endophallus (Fig. 62E) with copulatory tube moderately long, with basal chamber ovoidal, main tube thick, obtusely pointed at apex; dorsolateral

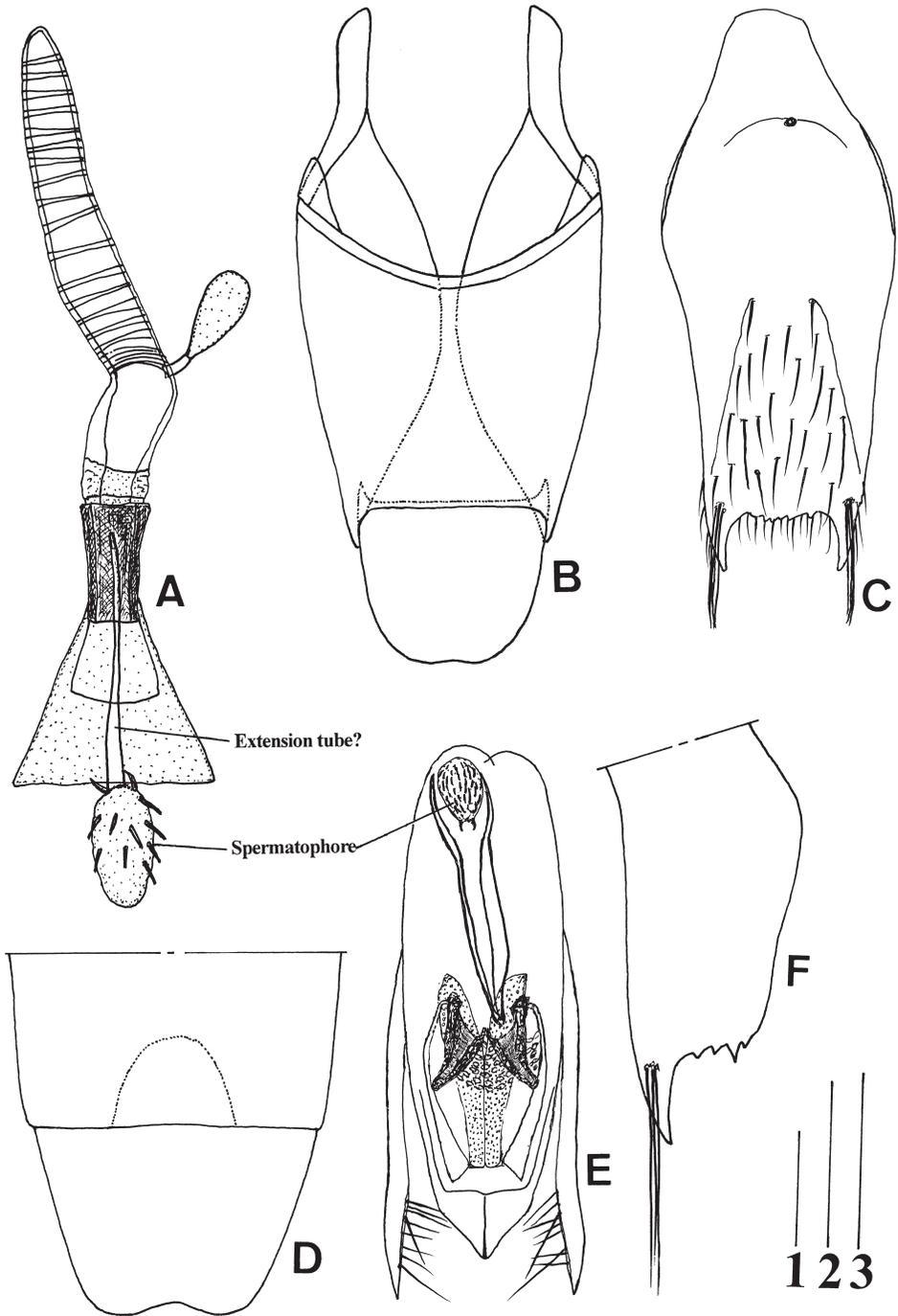


Fig. 62. *Stenus yoshidai* Naomi (Tokushima: Nakatani). A, spermatheca; B, 9th and 10th terga of male; C, 9th ventrite of male; D, 7th and 8th ventrites of male; E, aedeagus; F, gonocoxite. Scale 1: 0.05 mm for A, 0.1 mm for B, C, E; scale 2: 0.2 mm for D; scale 3: 0.1 mm for F.

bands broad at base; expulsion hooks connected each other at the mesial corners of posterior plate, each slightly turning anteromesially, with anterior plate very small, posterior plate horn-like, anteromesially with a large, nearly semicircular emargination; ventromedian bands slightly short, each becoming slightly broader anteriorly. Parameres (Fig. 62E) each acutely pointed at apex; apical area moderately long, mesially with 9 setae of various length.

Female: Eighth ventrite slightly obtuse posteromedially; gonocoxites (Fig. 62F) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 62A) with capsule very small, narrowing apicad; striped duct long, thick; duct extremely short, thick, with 1 turn; gland elongate-ovoidal in shape, with opening located on the lateral side of duct near the 1st turn; basal valve very short; basal duct moderately long, becoming slightly thicker distad.

Biology and ecology. The beetles of *S. yoshidai* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. yoshidai* is probably allied to *S. hirashimai*, but it is separable from the latter species by the aedeagal median lobe broadest near the middle (Fig. 62E), the copulatory tube with its main tube thicker (Fig. 62E), the endophallic expulsion hook with its anterior plate much shorter (Fig. 62E), the paramere shorter (Fig. 62E), and the spermatheca with its duct shorter (Fig. 62A).

In the endophallic expulsion hook of *S. yoshidai*, it is difficult to grasp where the anterior and posterior plates are in the Fig. 62E because of the very small size of anterior plate. The anterior plate is a very small plate located at the anterior tip of expulsion hook, and the dorsolateral band is inserted at the basilateral side of anterior plate (Fig. 62E).

In a male beetle of *S. yoshidai* that we examined, it was certainly observed that a spermatophore is stored in the basal chamber of copulatory tube (Fig. 62E). It is ovoidal and sparsely covered with thin, peg-like setae. It also has a pair of black teeth at the apical end, which are basically equal in structure and location to those of *S. aestivus* (Naomi, 2018). Furthermore, in the genital chamber of a female beetle, an ovoidal structure was also found (Fig. 62A). This seems no doubt to be also a spermatophore which was supposedly deposited by a male during the copulation, when considering its size and structure covered with thin, peg-like setae. It was observed that an elongate duct extends anteriorly from the apical end of spermatophore between the black teeth (Fig. 62A). Since we do not make sure of the previous condition of the duct stored within the spermatophore during the pre-copulatory stage, further studies will be needed to confirm whether or not it is a spermatophore extension tube Gack and Peschke, 1994).

Etymology. This species is named after Mr. Masataka Yoshida (Tokushima) who collected the *Stenus*-beetles designated as the type specimens.

***Stenus hirashimai* Naomi**
(Figs. 63A–G, 133H)

Stenus hirashimai Naomi, 1989: 49; Herman, 2001: 2214; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Mt. Hiko, Fukuoka Pref., 4. ix. 1977, H. Ohishi leg. Paratypes: 4 ♀, same data as holotype.

Other material examined. [KYUSHU]: 1 ♂ 1 ♀, Mt. Hiko, Fukuoka Pref., 21. v. 1986, S. Nomura leg.; 1 ♂, Mt. Fukuchi, Nogata City, Fukuoka Pref., 21. iv. 1985, S. Nomura leg.

Distribution. Japan: Kyushu (Fukuoka Pref.).

Redescription. Male and female: Body 3.5–4.1 mm (fore body 1.7–2.0 mm) in length. Body

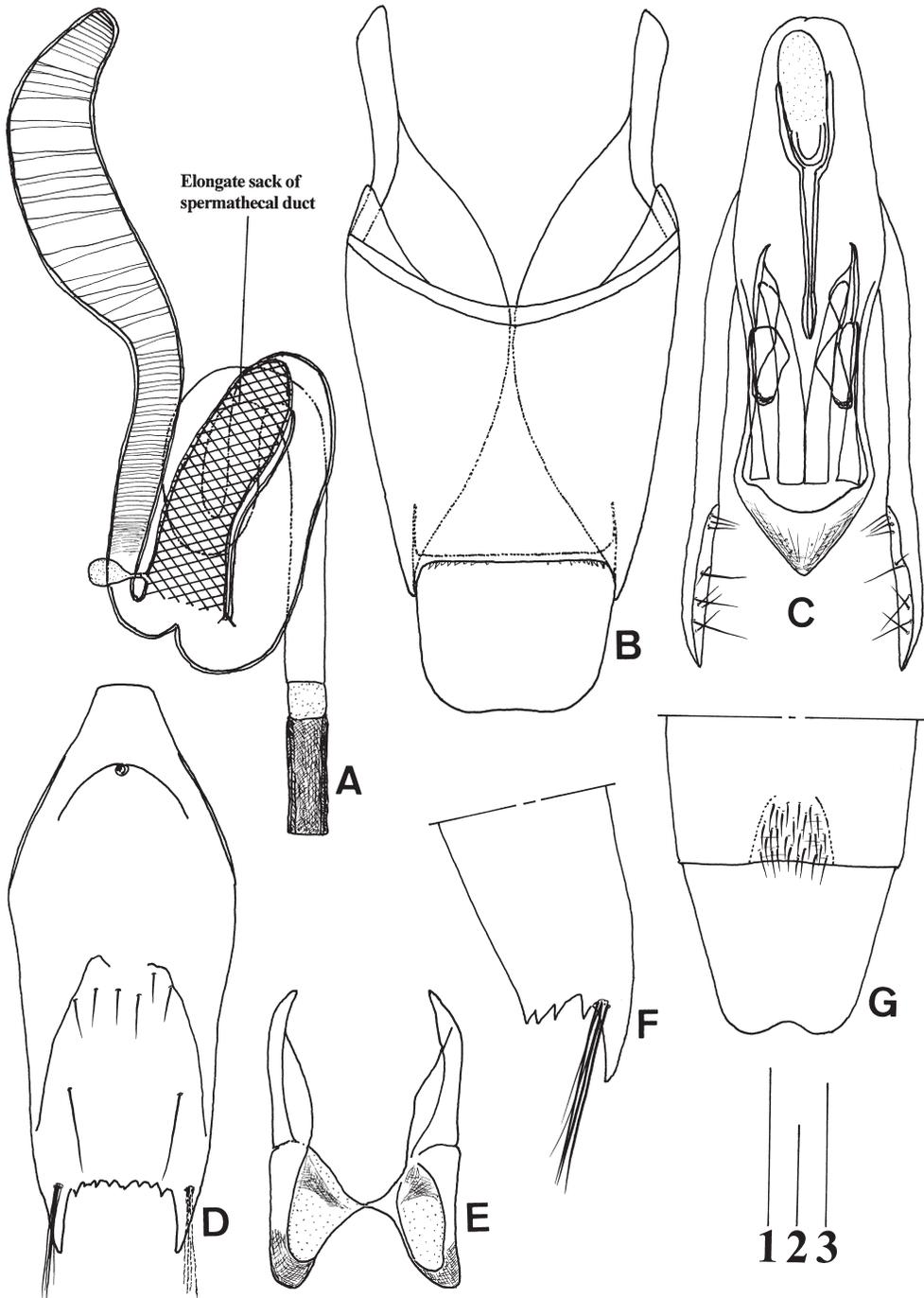


Fig. 63. *Stenus hirashimai* Naomi (Fukuoka: Mt. Hiko). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male; E, endophallic expulsion hooks; F, posterior part of gonocoxite; G, 7th and 8th ventrites of male. Scale 1: 0.1 mm for A, F; scale 2: 0.1 mm for B–D, 0.05 mm for E; scale 3: 0.3 mm for G.

moderately shining; head black; pronotum and elytra reddish brown to dark red or dark brown; abdomen dark red to dark brown or almost black; labrum reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or longitudinal furrows (or depressions); antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven or strongly uneven, each sometimes with a mediolateral keel at base and also with a longitudinal depression on each side of basal keel; abdomen subcylindrical, thin to moderately thick or thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 63G) modified with a shallow depression on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum with ventral apophyses long; 9th ventrite (Fig. 63D) with macrosetae very long, apicolateral teeth long, very acute, apicolateral setae long; 10th tergum very shallowly emarginate posteriorly. Aedeagus (Fig. 63C) with median lobe elongate, distinctly expanded laterally and obtusely angulate at apicolateral corners, obtusely pointed at apex; apical sclerotized area large, subtriangular, basally with a broad, arcuate emargination. Endophallus (Fig. 63C) with copulatory tube having basal chamber elongate-ovoidal in shape, main tube relatively short, almost needle-shaped; dorsolateral bands broad; expulsion hooks (Fig. 63E) each with anterior plate turning anteriorly; ventromedian bands moderately long, moderately broad. Parameres (Fig. 63C) long, each acutely pointed at apex; apical area very long, hardly swollen mesially at base, mesially also with 3 short setae at base and 6 to 7 setae in the apical 2/3.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 63F) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 63A) with capsule lost; striped duct very long, thick to very thick; a unique, large, elongate sack located between the striped duct and spermathecal duct, the basilateral part of which has a small, ovoidal gland; duct short, moderately thick to very thick with 3 turns; basal valve very short; basal duct sclerotized, moderately long.

Biology and ecology. The beetles of *S. hirashimai* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. hirashimai* is very unique in having the spermatheca with a large, elongate sack located between the striped duct and spermathecal duct (Fig. 133A). It is also noteworthy to point out that such a large sack is found only in the spermatheca of *S. hirashimai* among the species of Japanese *Stenus*.

S. hirashimai is probably allied to *S. yoshidai*, but it is separable from the latter species by the aedeagal median lobe broadest at the apicolateral corners (Fig. 63C), the copulatory tube with its main tube thinner (Fig. 63C), the endophallic expulsion hook with its anterior plate much longer (Fig. 63E), the paramere longer (Fig. 63C), and the spermatheca with its duct longer (Fig. 63A).

Etymology. This species is named after Dr. Yoshihiro Hirashima (Kyushu University, Fukuoka) who studied the taxonomy of Hymenoptera.

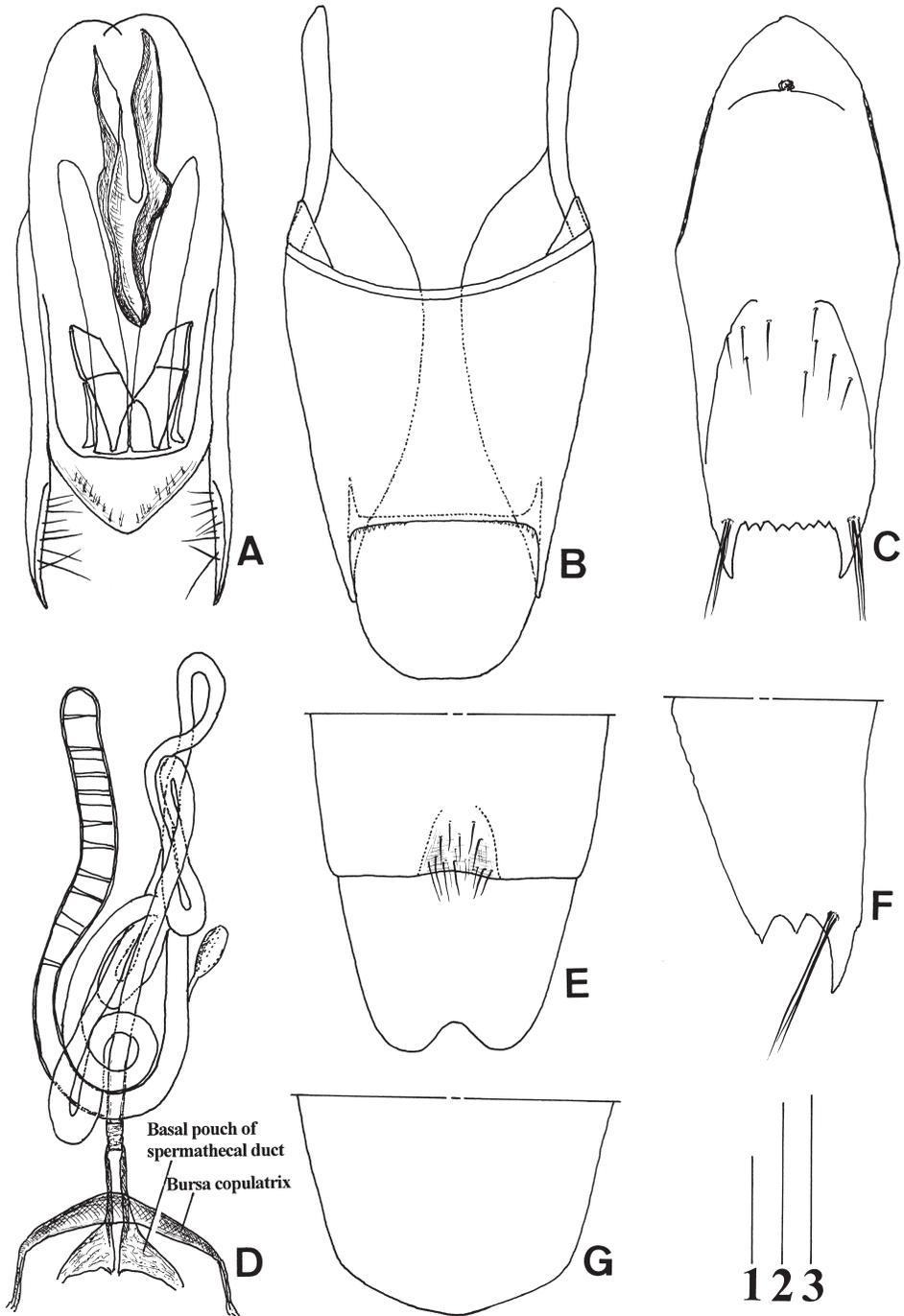


Fig. 64. *Stenus yamajii* Naomi & Puthz (Okayama: Niimi). A, aedeagus; B, 9th and 10th terga of male; C, 9th ventrite of male; D, spermatheca and bursa copulatrix; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, posterior part of 8th ventrite of female. Scale 1: 0.1 mm for A–C; scale 2: 0.1 mm for D, F, 0.2 mm for G; scale 3: 0.3 mm for E.

Stenus yamajii Naomi & Puthz
(Fig. 64A–G)

Stenus yamajii Naomi & Puthz, 1994a: 305; Herman, 2001: 2438; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Mt. Kenashigasen, Shinsho Vil., Okayama Pref., 4. v. 1989, O. Yamaji leg.

Other material examined. [HONSHU]: 1 ♀, Mt. Kenashi, Tottori City, Tottori Pref., 23. v. 1989, N. Tsurusaki leg. 2 ♂2 ♀, Hisaka, Niimi City, Okayama Pref., 8. v. 2004, O. Yamaji leg.

Distribution. Japan: Honshu (Tottori and Okayama Prefs.).

Redescription. Male and female: Body 3.0–3.8 mm (fore body 1.6–1.8 mm) in length. Body weakly shining; head black, usually with median area reddish brown to dark red; pronotum and elytra reddish brown; abdomen dark red to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to oval, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface uneven, with a median longitudinal furrow or a hollow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventrite sutures obsolete, extremely thin.

Male: Abdomen (Fig. 64E) modified with a shallow depression on the 7th, and a moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 64B) with ventral apophyses long; 9th ventrite (Fig. 64C) with apicolateral teeth short, very acute, apicolateral setae long; 10th tergum (Fig. 64B) entire. Aedeagus (Fig. 64A) with median lobe broad, moderately rounded at apicolateral corners, obtuse at apex; apical sclerotized area broad-subtriangular in shape. Endophallus (Fig. 64A) with copulatory tube moderately long, with basal chamber well-developed, a little shorter than main tube, main tube baculiform, swollen laterally at base, thick and obtuse at apex; dorsolateral bands very thin; expulsion hooks each moderately broad, with posterior plate angulate or pointed at the middle of mesial part, acute at posterior tip; ventromedian bands very long, very broad. Parameres (Fig. 64A) slender, each very acutely pointed at apex; apical area long, mesially with 9 setae.

Female: Eighth ventrite (Fig. 64G) almost rounded posteriorly; gonocoxites (Fig. 64F) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 64D) with capsule very short, well-rounded apically; striped duct long, moderately thick; duct long, thin to moderately thick, loosely coiled; gland elongate-spherical in shape, with opening located on the lateral side of duct between the last and last 2nd turns.

Biology and ecology. The beetles of *S. yamajii* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. yamajii* is allied to *S. gion*, but it is separable from the latter species by the aedeagal median lobe shorter, with its apical sclerotized area more developed (Fig. 64A), the endophallic expulsion hook broader (Fig. 64F), and the spermatheca with its duct much thinner (Fig. 64D).

Etymology. This species is named after Mr. Osamu Yamaji (Okayama) who collected the *Stenus*-beetles designated as the type specimens.

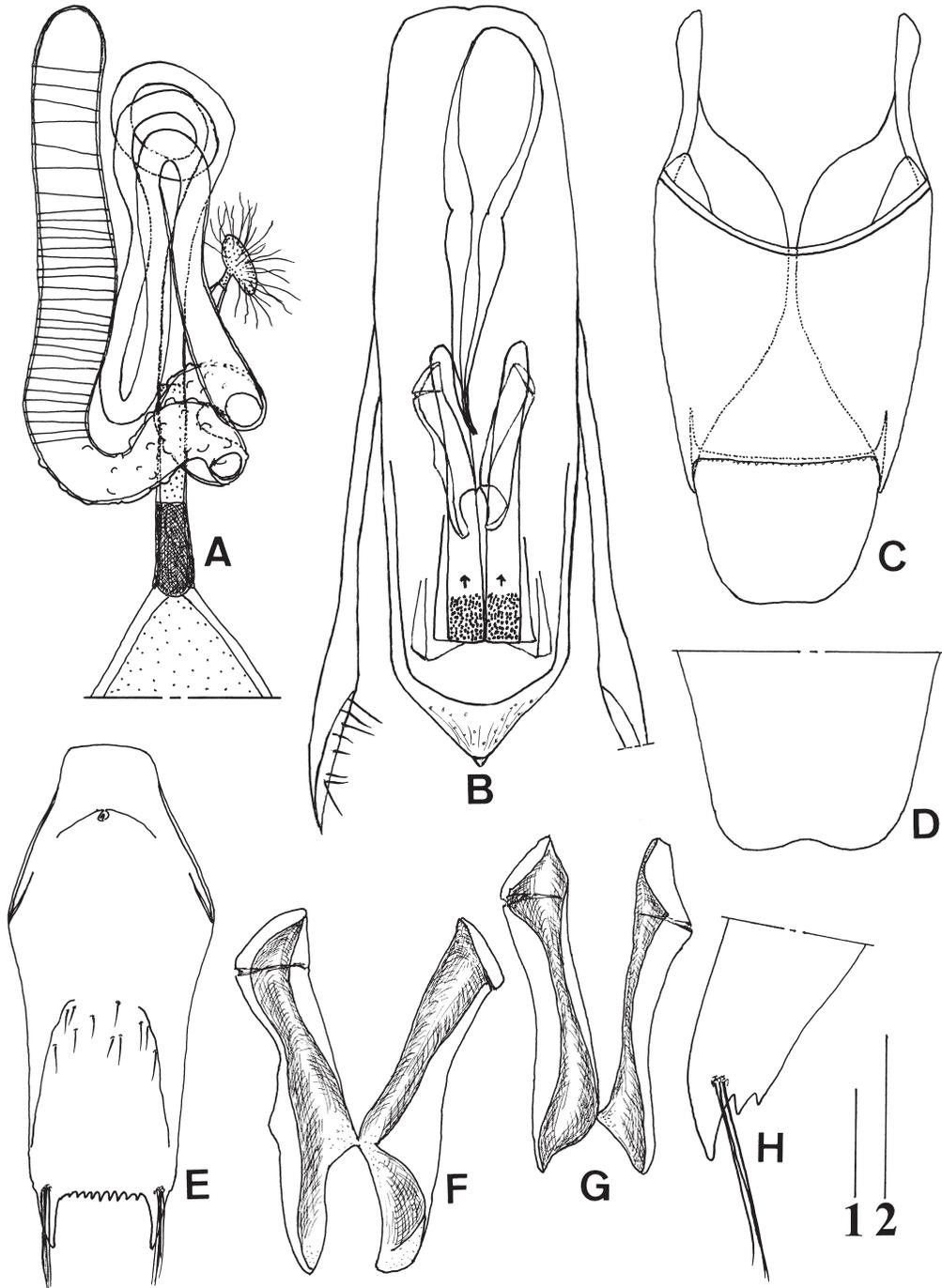


Fig. 65. *Stenus gion* Naomi & Ito (Kyoto: A, E, H, Asiu, B–D, F, Mt. Yuragadake, G, Maizuru). A, spermatheca; B, aedeagus; C, 9th and 10th terga of male; D, posterior part of 8th ventrite of male; E, 9th ventrite of male; F, G, endophallic expulsion hooks; H, posterior part of gonocoxite. Scale 1: 0.05 mm for A, 0.1 mm for C, E; scale 2: 0.1 mm for B, H, 0.2 mm for D, 0.05 mm for F, G.

Stenus gion Naomi & Ito
(Figs. 65A–H, 133I)

Stenus gion Naomi & Ito, 2018: 93.

Type material examined. Holotype: ♂ (OMNHO), Ashiu, Kyoto Pref., 5. ix. 1992, T. Ito leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Mihama Pass, Maizuru City, Kyoto Pref., 15. vi. 2013, T. Ito leg.; 1 ♂, Mt. Yuragadake, Maizuru City, Kyoto Pref., 7. vi. 2010, K. Mizuno leg.

Distribution. Japan: Honshu (Kyoto Pref.).

Redescription. Male and female: Body 3.3–3.5 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown to dark red or almost black; abdomen dark red to dark brown or almost black; labrum reddish brown to dark red near black; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique furrows; antennae very short to short, very thin; pronotum with surface slightly uneven, with a median longitudinal depression hardly developed or very indistinct; elytra a with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 65D) modified with an arcuate, very shallow emargination on the 8th ventrite; 9th tergum (Fig. 65C) with ventral apophyses moderately long; 9th ventrite (Fig. 65E) with apicolateral teeth long, thin, very acute, apicolateral setae moderately long; 10th tergum (Fig. 65C) very shallowly emarginate posteromedially. Aedeagus (Fig. 65B) with median lobe elongate, subparallel-sided, obtusely angulate at apicolateral corners, obtusely pointed at apex; apical sclerotized area weakly developed, anteriorly with an arcuate, very broad emargination. Endophallus (Fig. 65B) with copulatory tube having basal chamber very large, elongate-ovoidal in shape, main tube thick at base, attenuate, slightly curved and subulate at apex; dorsolateral bands thin, each without dots on the surface; expulsion hooks (Fig. 65F, G) connected each other at the mesial corners of posterior plates (Fig. 65F), with anterior plate very small, almost triangular, posterior plate elongate, usually obtuse at posterior end; ventromedian bands long, moderately broad. Parameres (Fig. 65B) each very acutely pointed at apex; apical area very long, moderately broad dorsoventrally, mesially with 5 short setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 65H) each with apicolateral tooth short, thick, almost acute, apicolateral setae very long. Spermatheca (Fig. 65A) with capsule short, well-rounded apically; striped duct long, very thick; duct long, thin to moderately thick or thick, loosely coiled, sparsely tuberculate on the surface of the distal part of duct near striped duct; gland large, sparsely covered with very thin, moderately long ciliae, with opening located on the lateral side of duct between the last 5th and 6th turns; basal valve long; basal duct moderately long.

Biology and ecology. The beetles of *S. gion* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. gion* is allied to *S. yamajii*, but it is separable from the latter species by the aedeagal median lobe longer, with its apical sclerotized area less developed (Fig. 65B), the endophallic expulsion hook thinner (Fig. 65F, G), and the spermatheca with its duct much thicker (Fig. 65D).

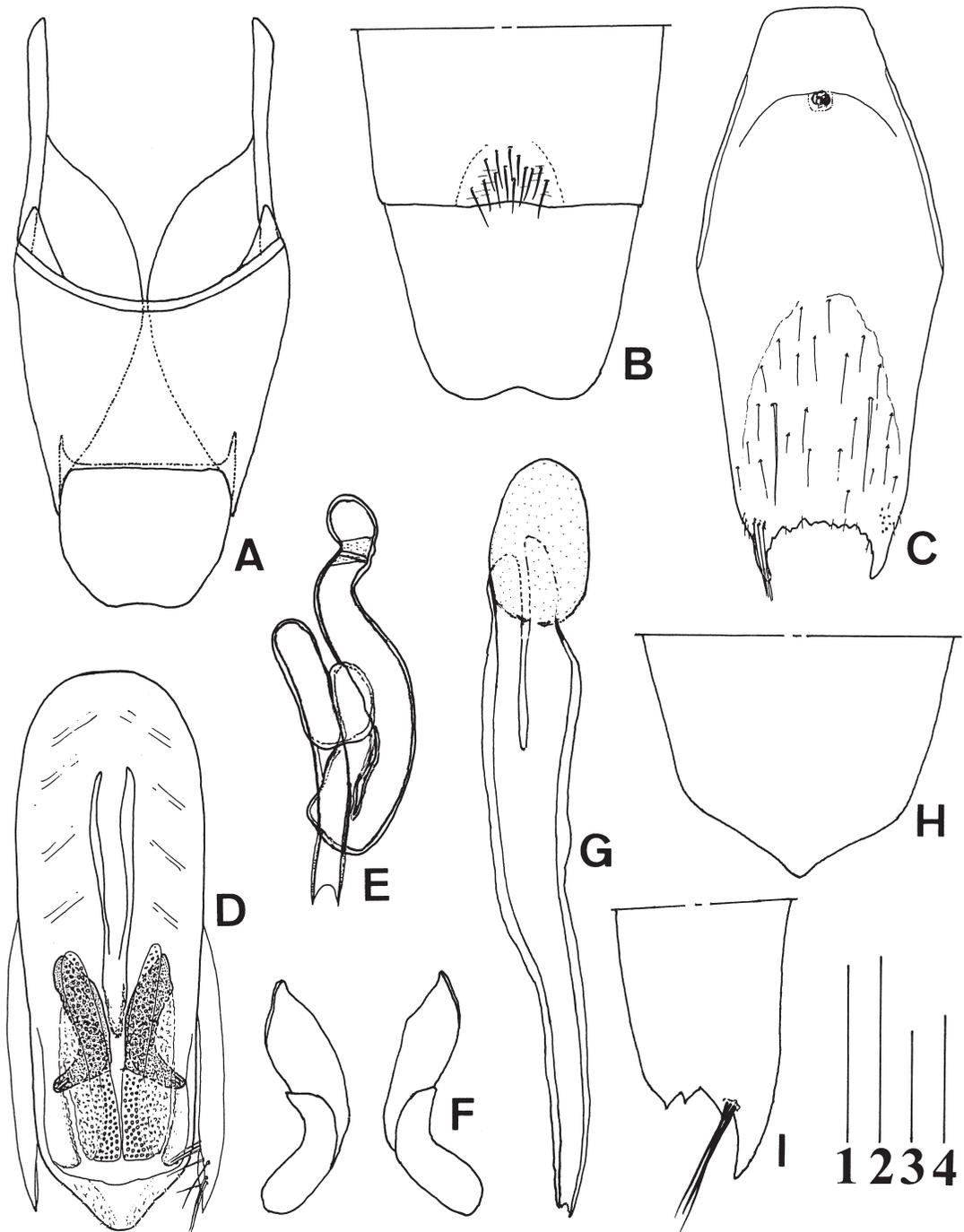


Fig. 66. *Stenus inclarescens* Puthz (Ishikawa: A, B, F, G, Fukamizu; Toyama: C–E, H, I, Fukusawa). A, 9th and 10th terga of male; B, 7th and 8th ventrites of male; C, 9th ventrite of male; D, aedeagus; E, spermatheca; F, endophallic expulsion hooks; G, copulatory tube; H, posterior part of 8th ventrite of female; I, posterior part of gonocoxite. Scale 1: 0.2 mm for A, H, 0.1 mm for F, G, I; scale 2: 0.3 mm for B; scale 3: 0.1 mm for C, D; scale 4: 0.1 mm for E.

Etymology. The specific epithet of this species is derived from the name of a summer festival in Kyoto, Gion.

***Stenus inclaescens* Puthz**
(Figs. 66A–I, 133J)

Stenus inclaescens Puthz, 1993: 151; Herman, 2001: 2228; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (NHMG), Fukusawa (200 m), Kamini(i)kawa, Toyama Pref., 29. vii. 1980, I. Löbl leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 4 ♂4 ♀, Fukumizu, Hakui City, Ishikawa Pref., 11. v. 1995, T. Kishimoto leg.

Distribution. Japan: Honshu (Toyama and Ishikawa Prefs.).

Redescription. Male and female: Body 3.3–3.6 mm (fore body 1.7–1.8 mm) in length. Body moderately shining; head black with median area reddish brown; pronotum and abdomen reddish brown to dark reddish brown; elytra pale yellowish brown to yellowish brown; labrum reddish brown; antennae and legs yellowish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short, very thin; pronotum with surface slightly uneven, with a median longitudinal depression hardly developed; elytra a with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly or subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 66B) modified with a very shallow depression on the 7th, and an arcuate, very shallow emargination on the 8th ventrite; 9th tergum (Fig. 66A) with ventral apophyses very long; 9th ventrite (Fig. 66C) with macrosetae very long, apicolateral teeth short, almost acute, apicolateral setae moderately long; 10th tergum (Fig. 66A) very shallowly emarginate posteromedially. Aedeagus (Fig. 66D) with median lobe moderately broad, well-rounded at apicolateral corners, narrowly rounded apically; apical sclerotized area broad-subtriangular in shape. Endophallus (Fig. 66D) with copulatory tube (Fig. 66G) having main tube baculiform but slightly sinuous; expulsion hooks (Fig. 66D, F) each distinctly curved laterally, with anterior plate obtusely pointed or pointed at anterior tip; ventromedian bands slightly short, moderately broad. Parameres (Fig. 66D) short, moderately thick, each acutely pointed at apex; apical area short, becoming distinctly thinner apicad, mesially with 8 setae.

Female: Eighth ventrite obtuse or distinctly pointed (Fig. 66H) posteromedially; gonocoxites (Fig. 66I) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 66E) with capsule half-spherical; striped duct short; duct slightly short, moderately thick, coiled with 4 turns.

Biology and ecology. The beetles of *S. inclaescens* inhabit leaf litter heaped in the natural forests of lowlands.

Remarks. *S. inclaescens* is allied to *S. fulidus*, *S. notomontis* and *S. obtusus*, but it is separable from the latter 3 species by the aedeagal median lobe not protruding posteriorly at the apico-median part (Fig. 66D), and the paramere shorter and not reaching the apex of median lobe (Fig. 66D).

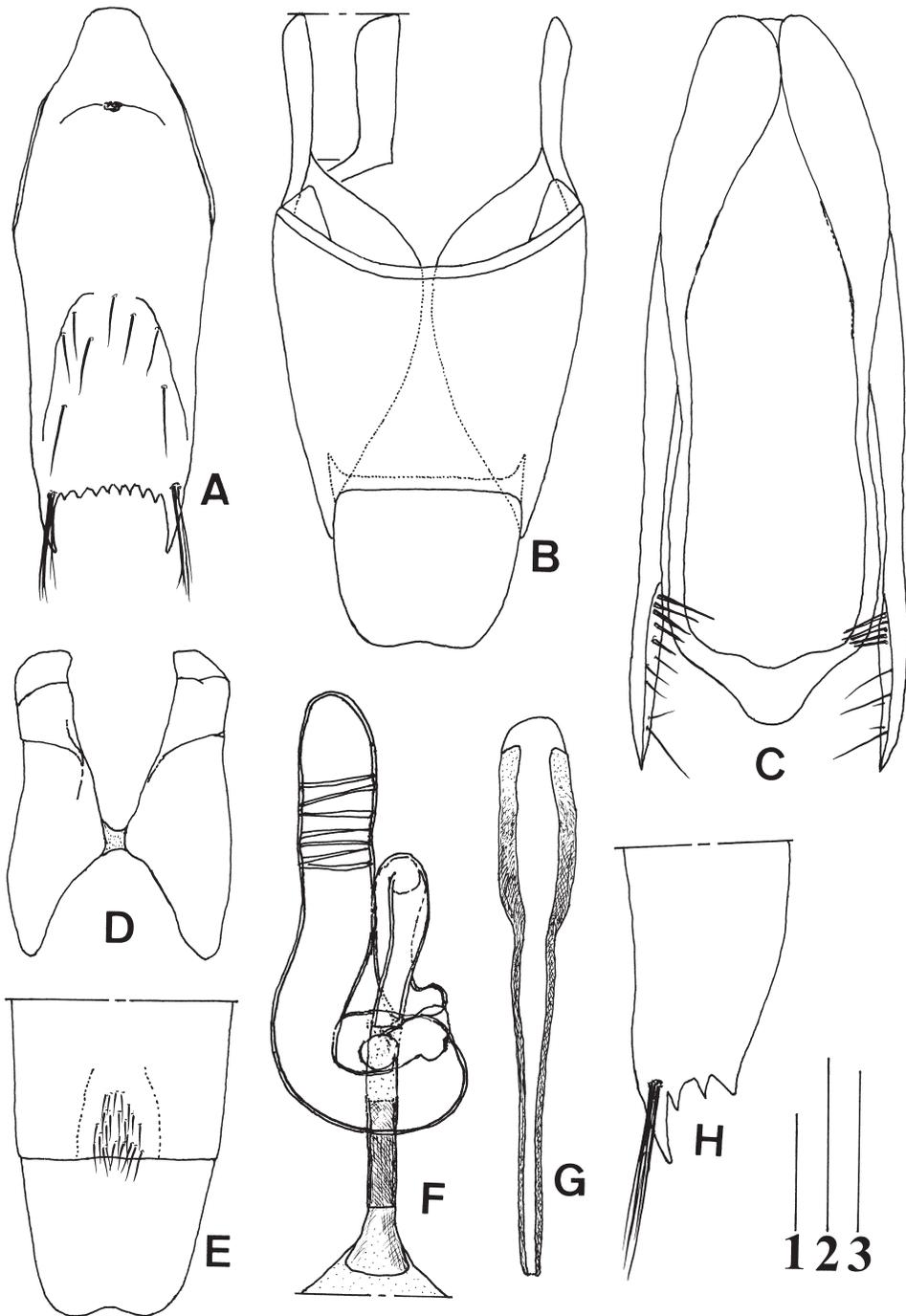


Fig. 67. *Stenus fulvidus* Naomi, Nomura & Puthz sp. nov. (Ishikawa: Nabetani). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, endophallic expulsion hooks; E, 7th and 8th ventrites of male; F, spermatheca; G, copulatory tube; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B; scale 2: 0.1 mm for C, F–H, 0.05 mm for D; scale 3: 0.5 mm for E.

Stenus fulvidus Naomi, Nomura & Puthz sp. nov.

(Fig. 67A–H)

Type material examined. Holotype: ♂ (KUMF), Nabetani, Tatsunokuchi-cho, Ishikawa Pref., 28. v. 1995, Y. Sugie leg. Paratypes: 2♂1♀, same data as holotype; 1♂, same locality, 7. vi. 1995, Y. Sugie leg.; 1♂, Shiyutani-cho, Fukui City, Fukui Pref., 9. vii. 2001, H. Hoshina leg.

Distribution. Japan: Honshu (Ishikawa and Fukui Prefs.).

Description. Male and female: Body 3.2–3.5 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black; pronotum and abdomen dark red; elytra almost yellowish brown to reddish brown; labrum reddish brown; antennae and legs reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal depression hardly developed to very indistinct or indistinct; elytra with surface almost even to slightly uneven or uneven, and also sometimes centrally with a pair of vague, infuscate, round maculae; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 67E) modified with a flat area on the 7th, and an arcuate, broad, very shallow emargination on the 8th ventrite; 9th tergum (Fig. 67B) with ventral apophyses slightly short, broad when seen laterally; 9th ventrite (Fig. 67A) with macrosetae long, apicolateral teeth moderately long, thin, very acute, apicolateral setae long; 10th tergum (Fig. 67C) very shallowly emarginate posteriorly. Aedeagus (Fig. 67C) with median lobe almost rounded at apicolateral corners, with a short, rounded apicomedian protrusion; apical sclerotized area very shallowly, arcuately emarginate apicolaterally. Endophallus with copulatory tube (Fig. 67G) having basal chamber elongate, main tube slender, very slightly attenuate; expulsion hooks (Fig. 67D) each with anterior plate divided anteroposteriorly into two subplates, much smaller than posterior plate, posterior plate obtusely angulate at posterior tip. Parameres (Fig. 67C) each acutely pointed at apex; apical area very long, mesially with 4 or 5 thick setae at base and 5 thin setae of various length in the apical 1/2 or 2/3.

Female: gonocoxites (Fig. 67H) each with apicolateral tooth moderately long, thin, very acute, apicolateral setae very long. Spermatheca (Fig. 67F) with capsule large, almost rounded apically; striped duct very short, thick; duct short, slightly thin to thick, coiled with 7 turns; basal valve moderately long; basal duct moderately long.

Biology and ecology. The beetles of *S. fulvidus* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. fulvidus* is allied to *S. notomontus*, but it is separable from the latter species by the aedeagal median lobe with the rounded apicomedian protrusion (Fig. 67C), the paramere with its apical area mesially with 4 or 5 thick setae at base (Fig. 67C), and the endophallic expulsion hook with its anterior plate divided into two subplates (Fig. 67D).

Etymology. The specific epithet of this new species is derived from the Latin adjective *fulvidus* which means 'somewhat tawny'. The elytra of this species are sometimes tawny in color, which is unusual in the Japanese species of *cephalotes*-group.

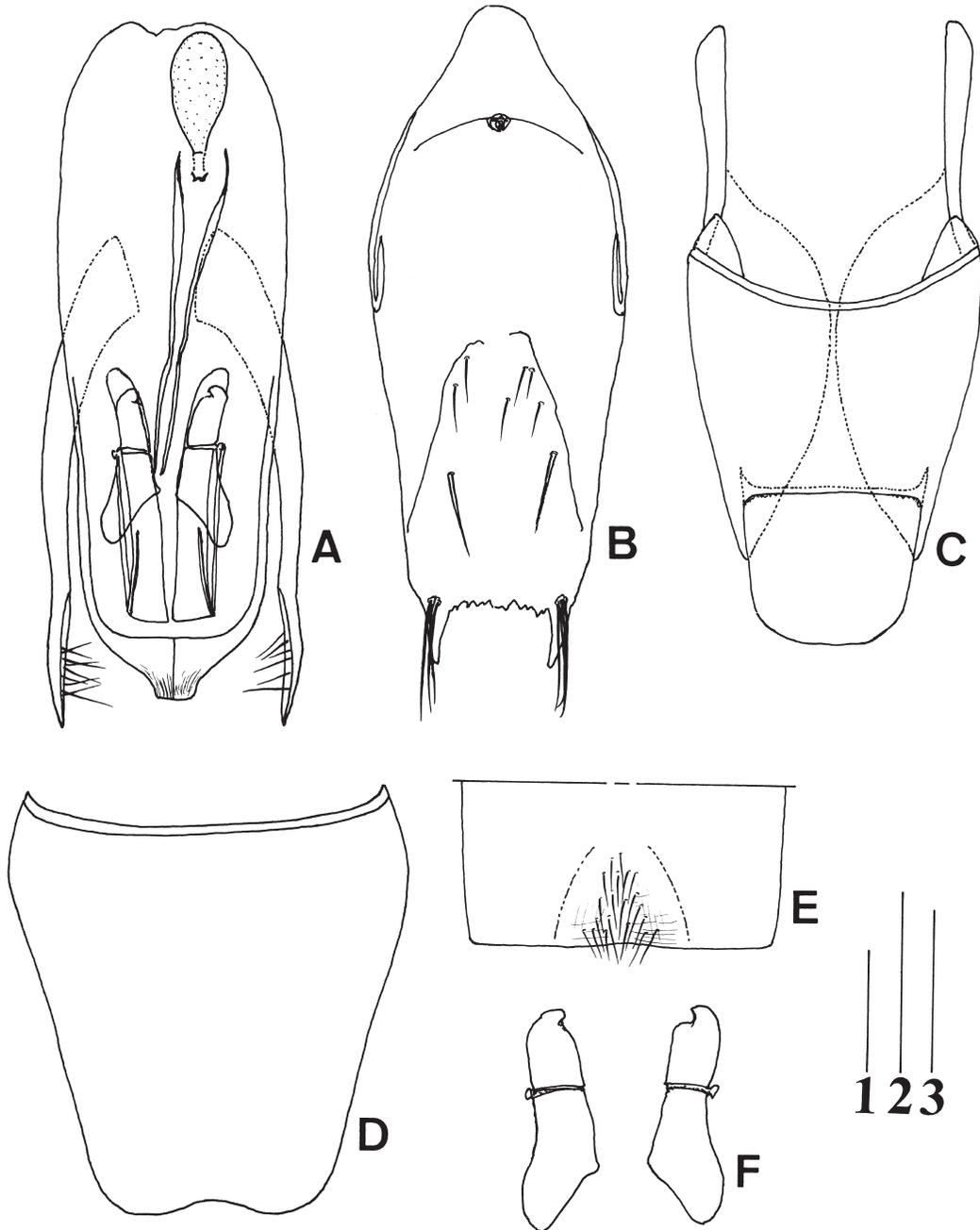


Fig. 68. *Stenus notomontis* Naomi, Nomura & Puthz sp. nov. (Ishikawa: Mt. Horyu). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, 8th ventrite of male; E, 7th ventrite of male; F, endophallic expulsion hooks. Scale 1: 0.1 mm for A, B; scale 2: 0.2 mm for C, D, 0.1 mm for F; scale 3: 0.25 mm for E.

Stenus notomontis Naomi, Nomura & Puthz sp. nov.

(Fig. 68A–F)

Type material examined. Holotype: ♂ (KUMF), Mt. Horyu, Noto Peninsula, Ishikawa Pref.,

6. v. 1961, Y. Hayashi leg.

Distribution. Japan: Honshu (Ishikawa Pref.).

Description. Male: Body 3.6 mm (fore body 1.7 mm) in length. Body moderately shining; head black; pronotum and abdomen dark red to dark brown; elytra reddish brown; labrum reddish brown to dark red near black; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique depressions; antennae moderately long, thin; pronotum with surface slightly uneven, with a median longitudinal depression indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Abdomen (Fig. 68E, D) modified with a flat area on the 7th (Fig. 68E), and an arcuate, very shallow emargination on the 8th ventrite (Fig. 68D); 9th tergum (Fig. 68C) with ventral apophyses long; 9th ventrite (Fig. 68B) with macrosetae very long, apicolateral teeth short, thin, acute, apicolateral setae long; 10th tergum (Fig. 68C) entire. Aedeagus (Fig. 68A) with median lobe moderately broad, well-rounded at apicolateral corners, with a short, truncate apicomedian protrusion; apical sclerotized area with a median longitudinal line. Endophallus (Fig. 68A) with copulatory tube having main tube slender, almost baculiform, with basal tube demarcated a little before the middle by a weak constriction from apical tube; dorsolateral bands very thin; expulsion hooks (Fig. 68F) each with anterior plate minutely incurved mesially at anterior tip, posterior plate angulate at the middle of mesial part, turning posterolaterally behind the angulation; ventromedian bands moderately long, broad. Parameres (Fig. 68A) each very acutely pointed at apex; apical area long, thin, mesially with 6 to 9 setae.

Female: Unknown.

Biology and ecology. The beetle of *S. notomontis* inhabits leaf litter heaped in the natural forest of a low mountainous region.

Remarks. *S. notomontis* is allied to *S. fulvidus*, but it is separable from the latter species by the aedeagal median lobe with the truncate apicomedian protrusion (Fig. 68A), the endophallic expulsion hook with its anterior plate entirely solid (Fig. 68F), and the paramere with its apical area glabrous at base (Fig. 68A).

Etymology. The specific epithet of this new species is derived from the name of type locality, Noto and the genitivus of Latin noun *mons* (masculine), *montis* which means 'of mountain'.

***Stenus obtusus* Naomi, Nomura & Puthz sp. nov.**

(Fig. 69A–H)

Type material examined. Holotype: ♂ (KUMF), Nabetani, Tatsunokuchi-cho, Ishikawa Pref., 7. vi. 1995, Y. Sugie leg. Paratypes: 1 ♂ 2 ♀, same data as holotype.

Distribution. Japan: Honshu (Ishikawa Pref.).

Description. Male and female: Body 3.3–3.5 mm (fore body 1.6–1.7 mm) in length. Body moderately shining; head black; pronotum and abdomen dark red to almost black; elytra yellowish brown to reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to

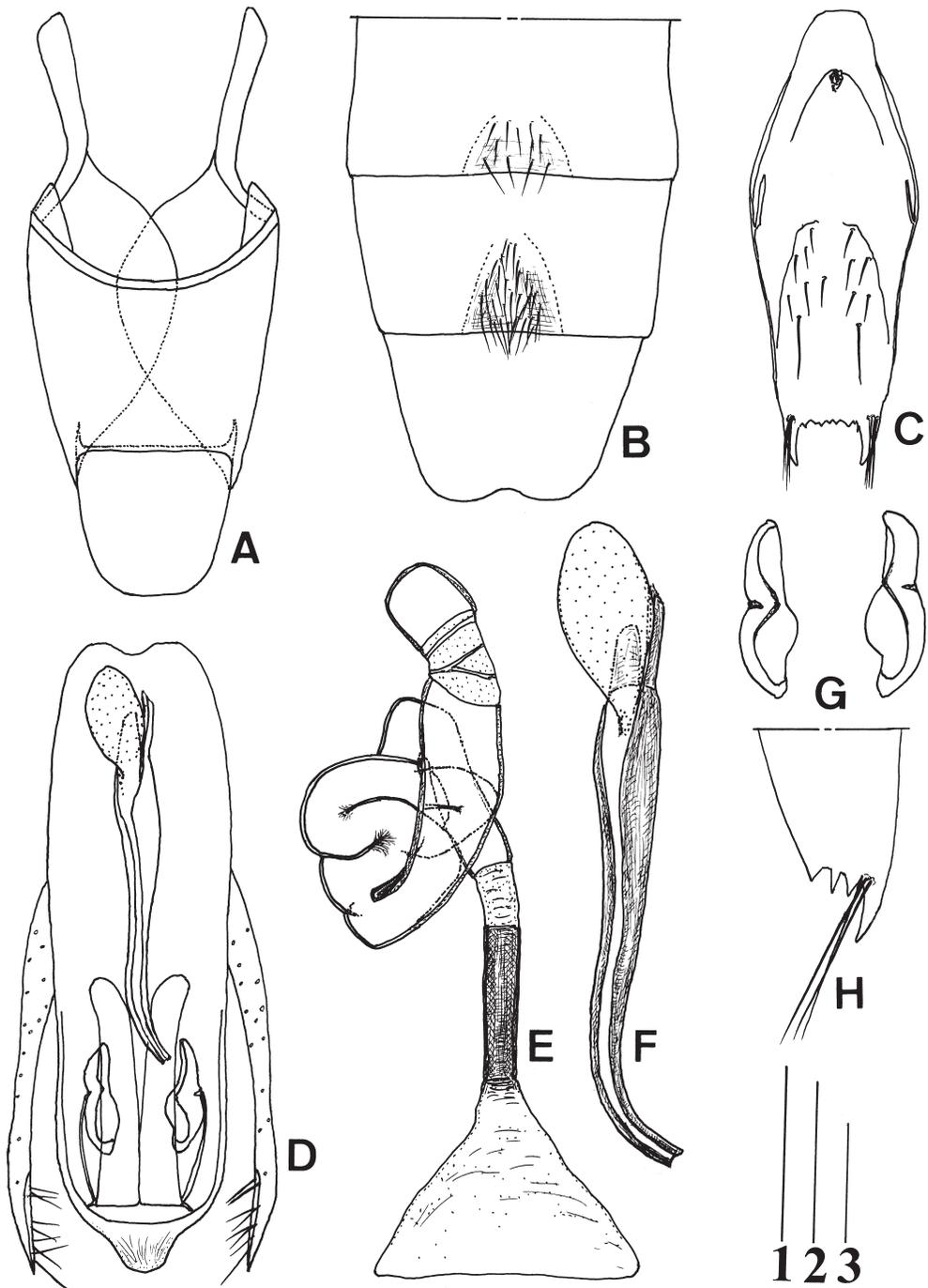


Fig. 69. *Stenus obtusus* Naomi, Nomura & Puthz sp. nov. (Ishikawa: Nabetani). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, aedeagus; E, spermatheca; F, copulatory tube; G, endophallic expulsion hooks; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, C, 0.1 mm for E–H; scale 2: 0.25 mm for B scale 3: 0.1 mm for D.

uneven, with a median longitudinal depression very indistinct or indistinct; elytra a with surface slightly uneven or uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 69B) modified with a flat area on the 6th, a very shallow depression on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 69A) with ventral apophyses long; 9th ventrite (Fig. 69C) with macrosetae long, apicolateral teeth short, very acute, apicolateral setae slightly short; 10th tergum (Fig. 69C) almost rounded posteriorly. Aedeagus (Fig. 69D) with median lobe rounded at apicolateral corners, with a moderately long, almost rounded apicomedian protrusion; apical sclerotized area shallowly, arcuately emarginate apicolaterally. Endophallus (Fig. 69D) with copulatory tube (Fig. 69F) having main tube very long, moderately curved apically; expulsion hooks (Fig. 69G) each somewhat hollow mesially, with anterior and posterior plates each moderately rounded laterally. Parameres (Fig. 69D) each covered sporadically with very small pores on the surface of pedicel, acutely pointed at apex; apical area short, mesially with 8 to 9 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 69H) each with apicolateral tooth short, acute, apicolateral setae slightly short. Spermatheca (Fig. 69E) with capsule large; striped duct very short, thick; duct moderately long, moderately thick to thick, tightly coiled; basal valve short; basal duct very long; basal pouch large, conical, membranous.

Biology and ecology. The beetles of *S. obtusus* inhabit leaf litter heaped in the natural forests of a lowland (or a low mountainous region?).

Remarks. *S. obtusus* is allied to *S. fulvidus* and *S. notomontus*, but it is separable from the latter 2 species by the aedeagal median lobe with the moderately long apicomedian protrusion (Fig. 69D), the endophallic expulsion hook somewhat hollow mesially (Fig. 69G), and the paramere with its apical area short (Fig. 69D).

Etymology. The specific epithet of this new species is derived from the Latin adjective *obtusus* which means 'obtuse.' The 8th ventrite of female abdomen is obtuse posteromedially.

***Stenus snodgrassi* Naomi**
(Fig. 70A–G)

Stenus snodgrassi Naomi, 2021: 65.

Type material examined. Holotype: ♂ (KUMF), Sengodani, Takefu, Fukui Pref., Y. Oyama leg.

Distribution. Japan: Honshu (Fukui Pref.).

Description. Male: Body 3.3 mm (fore body 1.6 mm) in length. Body moderately shining; head black; pronotum almost black; elytra yellowish brown; abdomen reddish brown to dark brown; labrum reddish brown; antennae with basal segments yellowish brown, apical segment dark red; legs yellowish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal depression very indistinct; elytra (Fig. C) with surface almost even; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Abdomen (Fig. 70B) modified with a slightly deep depression area on the 6th, a large, moderately deep median depression (which unusually becomes deeper and broader anteriorly) on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum as in Fig. 70A; 9th ven-

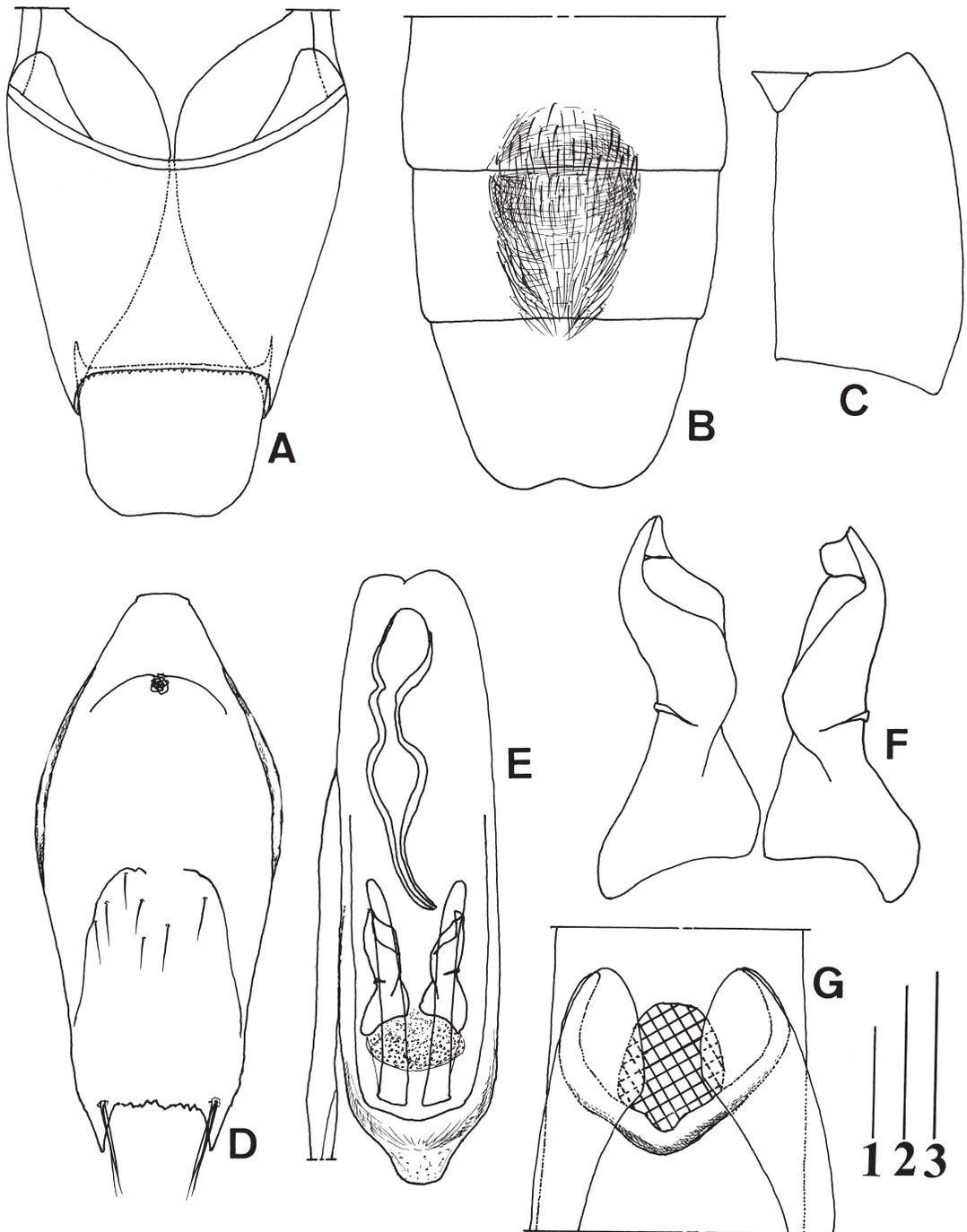


Fig. 70. *Stenus snodgrassi* Naomi (Fukui: Takefu). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, mesoscutellum and right elytron; D, 9th ventrite of male; E, aedeagus; F, endophallic expulsion hooks; G, basal foramen of aedeagal median lobe. Scale 1: 0.1 mm for A, D, E; scale 2: 0.25 mm for B, C; scale 3: 0.05 mm for F, 0.1 mm for G.

trite (Fig. 70D) with apicolateral teeth very short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 70A) very shallowly emarginate posteriorly. Aedeagus (Fig. 70E) with median lobe slender, rounded at apicolateral corners, with a moderately long, subtruncate apicomedian protrusion; apical sclerotized area shallowly, arcuately emarginate apicolaterally; basal foramen (Fig. 70G) with its posterior sclerotized rim anteromedially having a small notch and extending anteriorly to form an almost C-shaped additional frame. Endophallus (Fig. 70D) with copulatory tube long, having basal chamber almost ovoidal, main tube strongly swollen laterally near the middle, and then thin and moderately curved apically; expulsion hooks (Fig. 70F) each moderately constricted at the middle, with posterior plate distinctly broadened posteriad, strongly protruding almost posterolaterally. Parameres (Fig. 70E, G) each with pedicel moderately thick.

Female: Unknown.

Biology and ecology. The beetle of *S. snodgrassi* inhabits leaf litter heaped in the natural forest of a lowland.

Remarks. *S. snodgrassi* is a distinct species due to the impressive coloration of body by the tawny elytra and the 7th ventrite of male with its median depression unusually becoming deeper anteriorly. This species is allied to *S. fulvidus*, *S. notomontus* and *S. obtusus*, but it is separable from the latter 3 species by the aedeagal median lobe more slender (Fig. 70E), the copulatory tube with its main tube strongly swollen in a subfusiform shape in the middle (Fig. 70E), and the endophallic expulsion hook more strongly constricted at the middle (Fig. 70F), in addition to the afore-mentioned impressive character conditions of this species.

Etymology. This new species is named after an American morphologist, the late Dr. Robert E. Snodgrass (United States Department of Agriculture) who made important contributions to the development of the principles of insect morphology.

***Stenus coiffaitiellus* Naomi & Puthz**
(Figs. 71A–J, 133K)

Stenus coiffaitiellus Naomi & Puthz, 1993: 303; Herman, 2001: 2132; Naomi & Puthz, 2013: 144.

Stenus rufescens Hromádka, 1982: 131 (in part).

Type material examined. Holotype: ♂ (SMNHS), Shimajiyama, Ise City, Mie Pref., 27. vii. 1957, H. Coiffait leg. Paratype: 1 ♂ (cP), same data as holotype.

Other material examined. [HONSHU]: 3 ♂2 ♀, Mt. Aomine, Toba, Mie Pref., 17. viii. 1988, T. Ito leg.; 3 ♂3 ♀, Koraibiro, Ise City, Mie Pref., 10. i. 1998, M. Yokozeki leg.; 1 ♂, Mt. Kuragatake, Ishikawa Pref., 4. v. 1964, Y. Hayashi leg.; 4 ♂5 ♀, Minami-rokuroshi, Oono City, Fukui Pref., 3. vii. 2001, H. Hoshina leg.

Distribution. Japan: Honshu (Ishikawa, Fukui and Mie Prefs.).

Redescription. Male and female: Body 3.2–3.5 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head black, usually with median area dark red; pronotum reddish orange to reddish brown or dark red; elytra reddish orange through yellowish or reddish brown to dark red; abdomen reddish brown to dark brown, with apical segments almost black, or dark red near black; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse puncture and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or longitudinal furrows (or depressions);

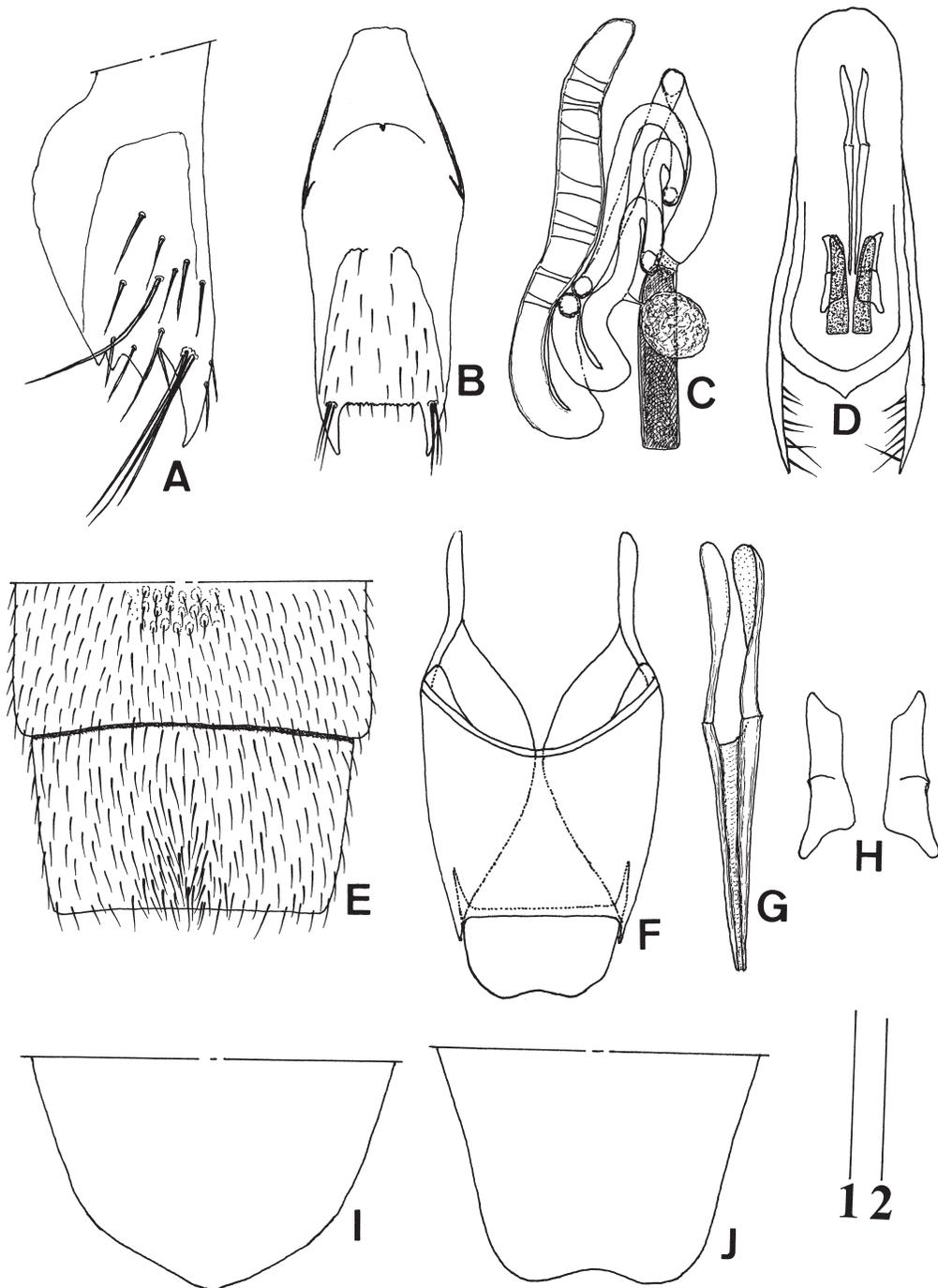


Fig. 71. *Stenus coiffaitiellus* Naomi & Puthz (Mic: A–C, Aomine, D, E, G, H, Koraihiro, Toba, F, I, J). A, gonocoxite; B, 9th ventrite of male; C, spermatheca; D, aedeagus; E, 6th and 7th ventrites of male; F, 9th and 10th terga of male; G, copulatory tube; H, endophallic expulsion hooks; I, posterior part of 8th ventrite of female; J, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, C, G, H, 0.2 mm for B, D, F, I, J; scale 2: 0.25 mm for E.

antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, weakly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Male: Abdomen modified with a flat area on the 7th (Fig. 71E) and a broad, shallow emargination on the 8th (Fig. 71J) ventrites; 9th tergum (Fig. F) with ventral apophyses slightly short; 9th ventrite (Fig. 71B) with apicolateral teeth short, very acute, apicolateral setae short; 10th tergum (Fig. 71F) shallowly emarginate posteromedially. Aedeagus (Fig. 71D) with median lobe broadest, much rounded and also more or less expanding laterally at anterolateral corners, very minutely pointed at apicomedian part; apical sclerotized area only weakly developed. Endophallus (Fig. 71D) with copulatory tube (Fig. 71G) having rods of basal chamber very long, each thin, main tube slightly short, thin, attenuate; expulsion hooks (Fig. 71H) each protruding both at anterolateral and posterolateral corners; ventromedian bands very short, thin. Parameres (Fig. 71D) slender, long, each very acutely pointed at apex; apical area long, mesially with 8 setae.

Female: Eighth ventrite (Fig. 71I) obtuse posteromedially; gonocoxites (Fig. 71A) each with apicolateral teeth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 71C) with capsule elongate; striped duct moderately long, thick; duct long, thin to moderately thick or thick, coiled with 10 turns; gland very large, spherical, with opening located on the duct between the 7th and 8th turns; basal valve very short; basal duct well-developed, strongly sclerotized, moderately thick.

Biology and ecology. The beetles of *S. coiffatiellus* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. coiffatiellus* is allied to *S. productus*, but it is separable from the latter species by the aedeagal median lobe very minutely pointed and solid at the apicomedian part (Fig. 71D), the copulatory tube with its main tube attenuate (Fig. 71G), and the spermatheca with its proximal part of duct and basal duct much thinner (Fig. 71C).

In *S. coiffatiellus*, there are 3 forms of variations regarding the coloration of body as follows: (1) Head black, with clypeofrontal area and median longitudinal swollen area dark red, pronotum and elytra reddish orange to reddish brown, abdomen dark red to dark red near black, or reddish brown with apical segments dark red near black; (2) head black, pronotum and abdomen dark red near black, elytra yellowish brown to reddish brown; (3) head black, pronotum, elytra and abdomen dark red to dark red near black. The 1st form tends to be found in the specimens from Mie Pref., while the 2nd and 3rd forms tend to be found in the specimens from Fukui Pref.

Etymology. This species is named after a French staphylinist, the late Dr. Henri Coiffait (Faculty of Science, Toulouse) who contributed to the Staphylinid taxonomy of Europe. He collected the *Stenus*-beetles designated as the type specimens of this species.

***Stenus productus* Naomi**
(Figs. 72A–J, 133L)

Stenus productus Naomi, 2007: 71; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Kawakami, Omiya, Watarai-gun, Mie Pref., 11. ii. 1997, F. Ichikawa leg. Paratypes: 1 ♂, Sazaraura, Nansei-cho, Watarai-gun, Mie Pref., 3. iii. 1998, A. Amagasu leg.; 2 ♂4 ♀, Kajiya Pass, Yokowa, Ise City, Mie Pref., 23. ii. 1997, F.

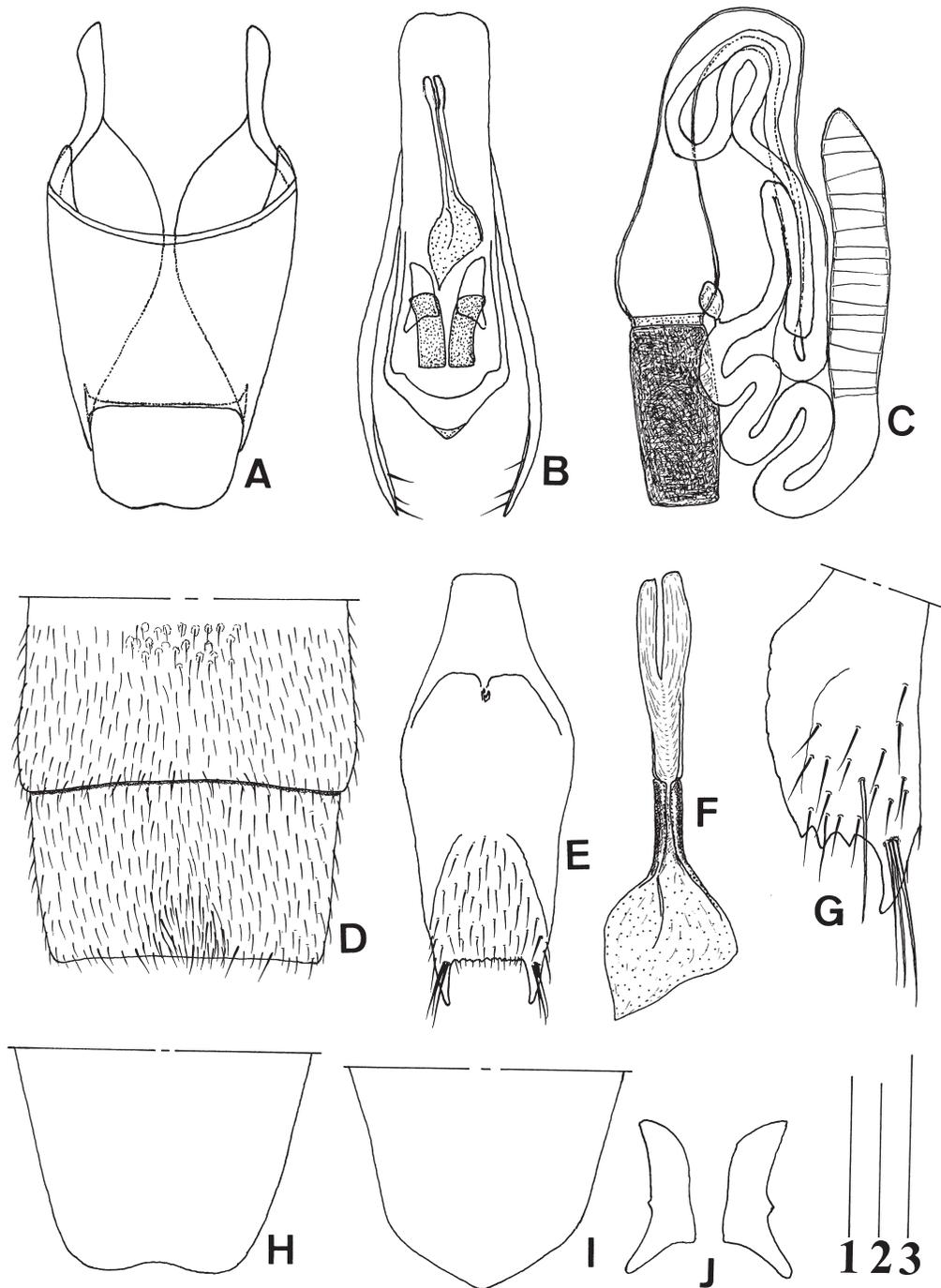


Fig. 72. *Stenus productus* Naomi (Mic: A, Sazaraura, B, D, F, H, J, Tsurugi Pass, C, E, G, Watarai, I, Fujisaka Pass). A, 9th and 10th terga of male; B, aedeagus; C, spermatheca; D, 6th and 7th ventrites of male; E, 9th ventrite of male; F, copulatory tube; G, gonocoxite; H, posterior part of 8th ventrite of male; I, posterior part of 8th ventrite of female; J, endophallic expulsion hooks. Scale 1: 0.2 mm for A, B, E, I, 0.1 mm for C, F, G, J; scale 2: 0.25 mm for D; scale 3: 0.25 mm for H.

Ichikawa leg.; 1 ♂, Oshibuchi, Nansei City, Mie Pref., 13. iii. 1994, H. Yokozeki leg.; 1 ♂6 ♀, Tsurugi Pass, Ise City, Mie Pref., 31. i. 1998, A. Amagasu leg.; 2 ♂1 ♀, Sengyu Shrine, Nanto, Watarai-gun, Mie Pref., 11. ii. 1997, F. Ichikawa leg.; 1 ♂5 ♀, Fujisaka Pass, Nanto-cho, Watarai-gun, Mie Pref., 14. iii. 1996, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 2.8–3.7 mm (fore body 1.4–1.7 mm) in length. Body weakly or moderately shining; head black, sometimes with median area dark red; pronotum and elytra reddish orange to reddish brown or dark red; abdomen dark red to almost black; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small (as on the 6th abdominal segment; Fig. 72D) to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 72D) modified with a flat area on the 7th, and a broad, very shallow emargination on the 8th (Fig. 72H) ventrite; 9th tergum (Fig. 72A) with ventral apophyses slightly short; 9th ventrite (Fig. 72E) with apicolateral teeth very short, acute, apicolateral setae short; 10th tergum (Fig. 72A) very shallowly emarginate posteromedially. Aedeagus (Fig. 72B) with median lobe broadest, angulate and also moderately expanding laterally at anterolateral corners, very minutely pointed at apicomedian part, obtuse and submembranous at the apicomedian part; apical sclerotized area subtriangular, basally with a large, arcuate emargination. Endophallus (Fig. 72B) with copulatory tube (Fig. 72F) having basal chamber very long, main tube spatulate, asymmetrical, acute at apex; expulsion hooks (Fig. 72J) each with posterior plate strongly protruding at posterolateral corners; ventromedian bands very short, moderately broad. Parameres very long, very thin, each moderately curved mesially, strongly pointed at apex; apical area long, mesially with 3 setae.

Female: Eighth ventrite (Fig. 72I) obtuse posteromedially; gonocoxites (Fig. 72G) each with apicolateral teeth long, almost acute, apicolateral setae long. Spermatheca (Fig. 72C) with capsule hardly developed; striped duct moderately long, very thick; duct long, thin to moderately thick in most length of duct, extremely thick at base, loosely coiled; gland very small, almost fusiform, with opening located on the duct between the last 5th and 6th turns; basal valve extremely short; basal duct robust, extremely thick.

Biology and ecology. The beetles of *S. productus* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. productus* is allied to *S. coiffatiellus*, but it is separable from the latter species by the aedeagal median lobe obtuse and submembranous at the apicomedian part (Fig. 72B), the copulatory tube with its main tube spatulate (Fig. 72F), and the spermatheca with its proximal part of duct and basal duct much thicker (Fig. 72C).

***Stenus maiko* Naomi & Puthz**

(Fig. 73A–F)

Stenus maiko Naomi & Puthz, 1993: 306; Herman, 2001: 2271; Naomi & Puthz, 2013: 144.

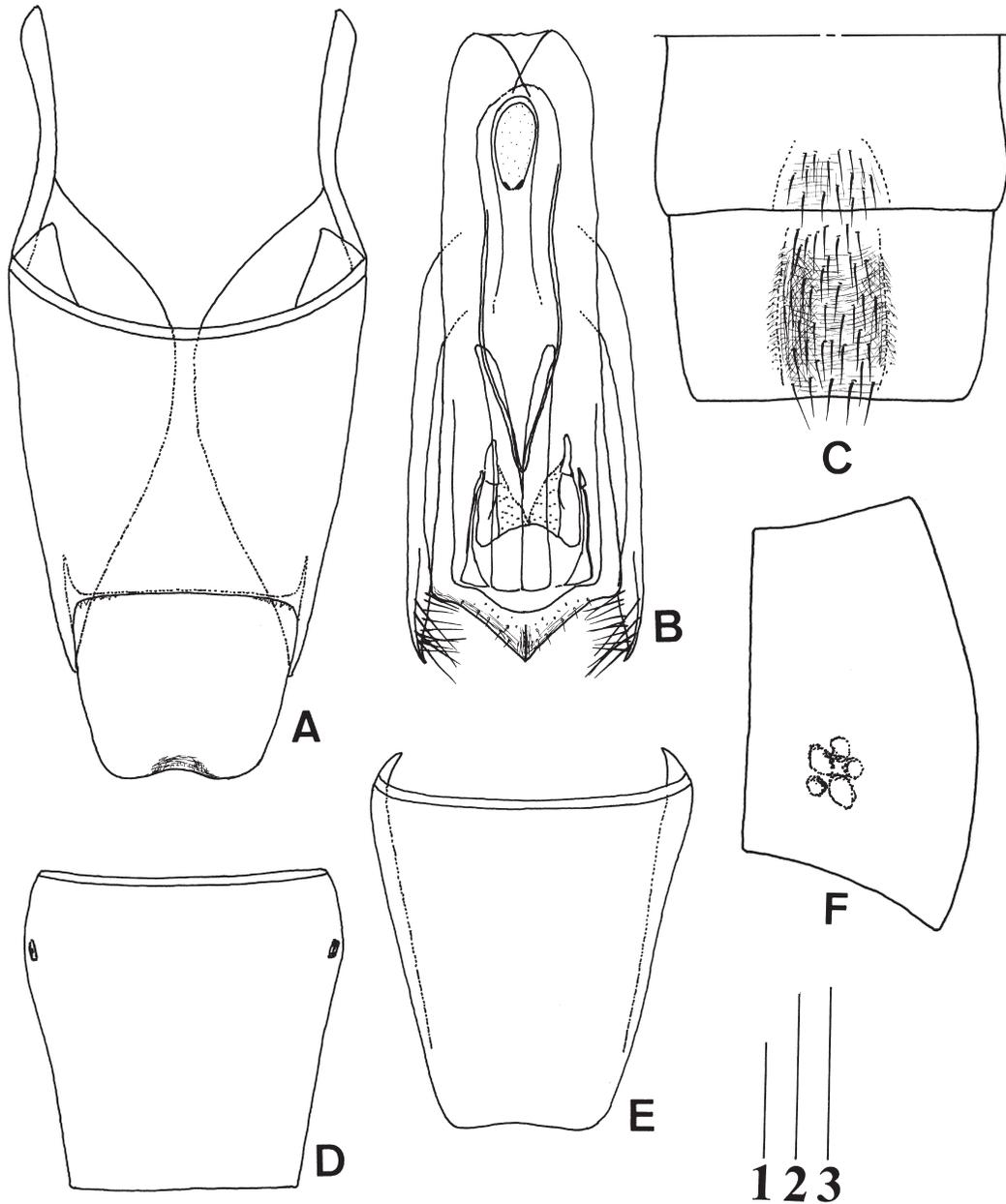


Fig. 73. *Stenus maiko* Naomi & Puthz (Shiga: Mt. Ibuki). A, 9th and 10th terga of male; B, aedeagus; C, 6th and 7th ventrites of male; D, 8th tergum of male; E, 8th ventrite of male; F, right elytron. Scale 1: 0.1 mm for A, B; scale 2: 0.2 mm for C, F; scale 3: 0.2 mm for D, E.

Type material examined. Holotype: ♂ (cP), Mt. Ibuki, Shiga Pref., 1. xi. 1973, K. Sawada leg.

Distribution. Japan: Honshu (Shiga Pref.).

Redescription. Male: Body 2.5 mm (fore body 1.3 mm) in length. Body weakly shining; head dark brown, with median area reddish brown to brown; pronotum and elytra pale yellowish brown; abdomen yellowish brown to pale brown, becoming paler in color posteriorly; labrum pale

yellowish brown; antennae and legs yellowish brown to dark brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large (Fig. 73F), subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 73C) modified with a flat area on the 6th, an elongate, shallow depression on the 7th, and a very broad, very shallow emargination on the 8th (Fig. 73E) ventrite; 9th tergum (Fig. 73A) with ventral apophyses long; 10th tergum (Fig. 73A) shallowly, arcuately emarginate posteromedially. Aedeagus (Fig. 73B) with median lobe broadest, well-angulate and moderately expanding laterally at anterolateral corners, acute at apex; apical sclerotized area with its apico-median subtriangular portion narrower than the breadth of median lobe at apicolateral corners, basally with an arcuate, broad emargination, medially with an incomplete longitudinal line, and also with very sparse, very short, thin setae along posterior margin. Endophallus (Fig. 73B) with copulatory tube having main tube very thick, strongly tapering apicad behind the middle; dorso-lateral bands thick at base; expulsion hooks each subtriangular, with anterior plate narrowed anteriorly, almost acute at anterior tip, much smaller and narrower than posterior plate; ventromedian bands moderately long, moderately broad. Parameres (Fig. 73B) each acutely pointed at apex; apical area long, slightly swollen mesially, mesially also with 13 setae.

Female: Unknown.

Biology and ecology. *S. maiko* is a rare species which is known only by the teneral adult beetle designated as the holotype specimen. The beetle of this species inhabits leaf litter heaped in the natural forest of a mountainous region.

Remarks. *S. maiko* is allied to *S. coiffatiellus* and *S. productus*, but it is separable from the latter two species by the aedeagal median lobe acute at the apex (Fig. 73B) and the copulatory tube with its main tube very thick (Fig. 73B). The description of this species is based on a teneral specimen of male.

Etymology. The specific epithet of this species is derived from the Japanese name of apprentice dancer, maiko.

Species unit 2 of the *rufescens*-subgroup

Key to the Japanese species of the *rufescens*-subgroup (2)

This is a key for a unit of *Stenus*-species (28 species) beginning with *S. matobai* and probably diagnosed with the combination of following character conditions: Third, 4th or 5th to 8th ventrites often variously modified with depressions, emarginations, ridges, etc. (Fig. 77C); 6th and 7th ventrites often developed with moderately deep and/or deeper depressions (Fig. 94E); aedeagal median lobe slender (Fig. 75G) to slightly or moderately broad (Fig. 92B), or rarely moderately broad at base and also moderately broad even at apicolateral corners (Fig. 80A), usually with apical sclerotized area triangular (Fig. 87G) to subtriangular (Fig. 77F), very often having a thin, apicomedian cusp and also a median longitudinal line (Fig. 100B); paramere with apical area usually long, slender and very acutely pointed at apex (Fig. 88B).

Distribution. Japan: Honshu (Chubu, Kinki and Chugoku Districts), Shikoku and Kyushu.

1(38) Male: Aedeagal median lobe with apical sclerotized area not having a median longitudi-

- nal line or having a median longitudinal line running at most in about apical 2/3; endophallic expulsion hooks various in shape.
- 2(33) Male: Endophallic expulsion hook dorsally without any process. Female: Spermatheca with basal duct usually thin to moderately thick, and about as broad as proximal part of spermathecal duct (as far as the spermatheca is known.)
- 3(4) Male: Aedeagal median lobe almost rounded apically (Fig. 74F).....*S. matobai* Naomi
- 4(3) Male: Aedeagal median lobe not rounded apically.
- 5(16) Male: Copulatory tube not or hardly modified, namely, attenuate, almost straight or only slightly curved.
- 6(7) Male: Aedeagal median lobe with apical sclerotized area hardly developed (Fig. 76C); endophallic expulsion hook with anterior plate antero-posteriorly divided into 2 subplates (Fig. 76E).....*S. toshiharui* Naomi
- 7(6) Male: Aedeagal median lobe with apical sclerotized area more or less developed; endophallic expulsion hook with anterior plate not divided into 2 subplates.
- 8(9) Male: Endophallic expulsion hook with posterior plate strongly curved laterally, pointed at apex (Fig. 75E).....*S. kagura* Naomi & Puthz
- 9(8) Male: Endophallic expulsion hook with posterior plate not curved laterally, rounded or obtusely angulate at posterolateral part.
- 10(15) Male: Eighth ventrite more deeply emarginate posteriorly or posteromedially; endophallic expulsion hook with posterior plate rounded at posterolateral part.
- 11(12) Male: Endophallic expulsion hook with posterior plate covered with very minute tubercles at posterolateral part (Fig. 77J); aedeagal paramere less strongly pointed at apex (Fig. 77C).....*S. akome* Naomi
- 12(11) Male: Endophallic expulsion hook with posterior plate smooth at posterolateral part; aedeagal paramere more strongly pointed at apex.
- 13(14) Male: Aedeagal median lobe narrower at apicolateral corners (Fig. 85E); endophallic expulsion hook narrower (Fig. 85A)..... *S. jukata* Hromádka
- 14(13) Male: Aedeagal median lobe broader at apicolateral corners (Fig. 86A); endophallic expulsion hook broader (Fig. 86G)..... *S. ferus* Naomi
- 15(10) Male: Eighth ventrite more shallowly emarginate posteriorly (Fig. 88F); endophallic expulsion hook with posterior plate obtusely angulate at posterolateral part (Fig. 88G).....
.....*S. ohtoensis* Naomi
- 16(5) Male: Copulatory tube variously modified with distinct curvature, thickening, etc.
- 17(28) Male: Copulatory tube with apical tube normally, smoothly jointed with basal tube, almost always without a distinct joint or demarcation line between the basal and apical tubes.
- 18(23) Male: Copulatory tube not or only slightly curved on its way.
- 19(22) Male: Aedeagal median lobe with apical sclerotized area covered at least partially with the parallel or apically converging, longitudinal lines.
- 20(21) Male: Aedeagal median lobe rounded at apicolateral corners, with apical sclerotized area almost triangular (Fig. 78A); copulatory tube extremely aciculate at apex (Fig. 78B).....
..... *S. incumbens* Naomi & Y. Watanabe
- 21(20) Male: Aedeagal median lobe obtusely angulate at apicolateral corners, with apical sclerotized area subpentagonal (Fig. 83A); copulatory tube obtusely pointed at apex (Fig. 83C)
.....*S. acutatus* Naomi
- 22(19) Male: Aedeagal median lobe with apical sclerotized area having a median longitudinal

- line in the apical 3/4 (Fig. 82B)*S. rufescens* Sharp
- 23(18) Male: Copulatory tube once or twice strongly curved or bent on its way.
- 24(27) Male: Copulatory tube once strongly curved or bent on its way.
- 25(26) Male: Aedeagal median lobe with apical sclerotized area elongate-subtriangular in shape, with a median longitudinal line in about apical 2/3 (Fig. 84C); endophallic expulsion hook not protruding mesially (Fig. 84G)*S. ichikawai* Naomi
- 26(25) Male: Aedeagal median lobe with apical sclerotized area triangular, without a median longitudinal line (Fig. 87G); endophallic expulsion hook mesially protruding at the middle of mesial part (Fig. 87G)*S. deltoides* Naomi, Nomura & Kamezawa
- 27(24) Male: Copulatory tube twice strongly curved on its way (Fig. 89B)*S. cygnipenis* Puthz
- 28(17) Male: Copulatory tube with apical tube arising from the dorsal surface near or a little proximal from the apex of basal tube
- 29(30) Male: Copulatory tube hardly constricted between basal chamber and main tube (Fig. 90C).....*S. agrestis* Naomi
- 30(29) Male: Copulatory tube distinctly constricted between basal chamber and main tube.
- 31(32) Male Copulatory tube having basal tube baculiform, slightly thickening apicad (Fig. 91C); endophallic expulsion hook with posterior plate not tadpole-shaped (Fig. 91 F, G) ..
.....*S. olliformis* Naomi
- 32(31) Male: Copulatory tube with basal tube fusiform (Fig. 92C); endophallic expulsion hook with posterior plate tadpole-shaped (Fig. 92F).....*S. ebisu* Naomi
- 33(2) Male: Endophallic expulsion hook dorsally with a thin, almost Y-shaped process. Female: Spermatheca with basal duct extremely thick, and much broader than proximal part of spermathecal duct.
- 34(35) Male: Aedeagal median lobe with apical sclerotized area subtriangular, very acutely pointed at apex with a long apicomedian cusp (Fig. 79C); endophallic expulsion hook with anterior plate about as broad as posterior plate (Fig. 79I) *S. amida* Naomi
- 35(34) Male: Aedeagal median lobe with apical sclerotized area not subtriangular, pointed at apex with an extremely minute apicomedian cusp; endophallic expulsion hook with anterior plate different in breadth from posterior plate.
- 36(37) Male: Aedeagal median lobe with apical sclerotized area much broader (Fig. 80A); endophallic expulsion hook with anterior plate narrower than posterior plate (Fig. 80A).....
.....*S. pediculifer* Naomi & Nomura
- 37(36) Male: Aedeagal median lobe with apical sclerotized area much narrower (Fig. 81C); endophallic expulsion hook with anterior plate broader than posterior plate (Fig. 81G).....
.....*S. yoshidaiellus* Naomi, Nomura & Puthz sp. nov.
- 38(1) Male: Aedeagal median lobe with apical sclerotized area having a median longitudinal line completely or almost completely running from the base to apex; and also endophallic expulsion hooks usually with anterior plates more or less diverging anteriorly and posterior plates more or less converging posteriorly, and also almost always with anterior plate demarcated by suture from posterior plate.
- 39(44) Male: Copulatory tube moderately or strongly twice curved or bent on its way.
- 40(41) Male: Endophallic expulsion hooks connected each other at mesial angulate corners a little behind the middle of posterior plates (Fig. 93D)*S. wasabi* Hromádka
- 41(40) Male: Endophallic expulsion hooks if connected each other, connected at mesial angulate corners before the middle of posterior plates.
- 42(43) Male: Endophallic expulsion hooks connected each other at the mesial angulate corners a

- little before the middle of posterior plates (Fig. 94I, J); each hook with posterior plate nearly tetragonal and broader at base (Fig. 94I, J) *S. daigonis* Naomi & Puthz
- 43(42) Male: Endophallic expulsion hooks if connected each other, connected at or near the basimésial corners of posterior plates (Fig. 95H–I); each hook with posterior plate elongate-subtriangular in shape and narrower at base (Fig. 95E–G) *S. ingens* Naomi
- 44(39) Male: Copulatory tube not or very weakly curved on its way.
- 45(48) Male: Copulatory tube with main tube thinner, and not swollen at subapical part.
- 46(47) Male: Copulatory tube thinner (Fig. 96D); endophallic expulsion hook with anterior plate slightly curved mesially at anterior tip (Fig. 96H) *S. lubomiri* Naomi
- 47(46) Male: Copulatory tube thicker (Fig. 97E); endophallic expulsion hooks with anterior plate not curved mesially at anterior tip (Fig. 97H)..... *S. ichihashii* Naomi
- 48(45) Male: Copulatory tube with main tube thicker, and more or less swollen at subapical part.
- 49(52) Male: Copulatory tube with a straight apicomédian process.
- 50(51) Male: Copulatory tube submembranous at subapical portion, with a shorter apicomédian process (Fig. 98C); endophallic expulsion hook with posterior plate moderately broad, and shorter than anterior plate (Fig. 98E) *S. mikawanis* Naomi
- 51(50) Male: Copulatory tube solid at subapical portion, with a longer apicomédian process (Fig. 99C); endophallic expulsion hook with posterior plate slender, and longer than anterior plate (Fig. 99H)..... *S. gyrosus* Naomi
- 52(49) Male: Copulatory tube with an almost or nearly beak-shaped process at apex.
- 53(54) Male: Seventh ventrite posteromedially modified with a shallower depression which is more shallowly emarginate posteriorly (Fig. 100F); aedeagal median lobe with apical sclerotized area elongate-subtriangular in shape (Fig. 100B) *S. nakanei* Hromádka
- 54(53) Male: Seventh ventrite posteromedially modified with a deeper depression which is more deeply emarginate posteriorly (Fig. 101F); aedeagal median lobe with apical sclerotized area subpentagonal (Fig. 101B)..... *S. awajinis* Naomi

***Stenus matobai* Naomi**

(Fig. 74A–H)

Stenus matobai Naomi, 2012: 279; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CMB), Kotonotaki, Susami City, Wakayama Pref., 20. ii. 1997, I. Matoba leg. Paratypes: 1 ♀, same data as holotype; 1 ♂, same locality, 26. x. 1992, I. Matoba leg.; 1 ♀, Hirai, Kozagawa-cho, Wakayama Pref., 30. iii. 1990, I. Matoba leg.; 1 ♀, same locality, 16. vii. 1999, M. Maruyama leg.; 1 ♀, same locality, 14. vii. 1999, V. Puthz leg.

Distribution. Japan: Honshu (Wakayama Pref.).

Redescription. Male and female: Body 2.5–3.3 mm (fore body 1.6–1.9 mm) in length. Body moderately shining; head black; pronotum, elytra and abdomen dark red to dark reddish brown; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to elliptical, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct to distinct; elytra with surface even to slightly uneven; abdomen subcylindrical, moderately thick to thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrites sutures

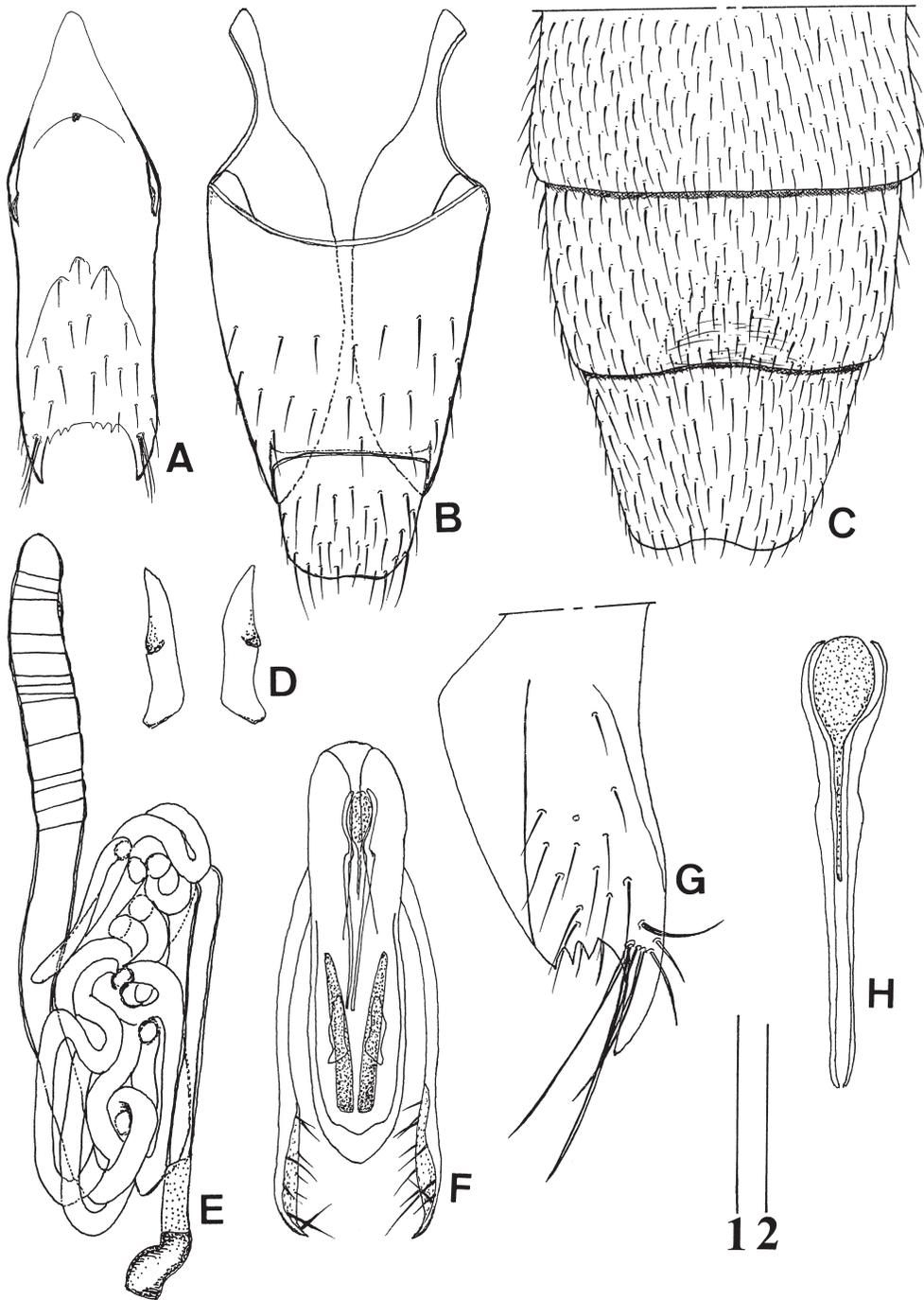


Fig. 74. *Stenus matobai* Naomi (Wakayama: A–D, F, H, Kotonotaki, E, G, Hirai). A, 9th ventrite of male; B, 9th and 10th terga of male; C, 6th to 8th ventrites of male; D, endophallic expulsion hooks; E, spermatheca; F, aedeagus; G, gonocoxite; H, copulatory tube. Scale 1: 0.2 mm for A, B, F, 0.1 mm for D, E, G, H; scale 2: 0.25 mm for C.

lost.

Male: Abdomen (Fig. 74C) modified with a very shallow depression on the 7th, and a shallow, arcuate emargination on the 8th ventrite; 9th tergum (Fig. 74B) with ventral apophyses moderately long; 9th ventrite (Fig. 74A) with apicolateral teeth short, very acute, apicolateral setae short; 10th tergum (Fig. 74B) very shallowly emarginate posteromedially. Aedeagus (Fig. 74F) with median lobe slender, thin, well-rounded at apicolateral corners, almost rounded apically; apical sclerotized area almost crescent, basimedially with a broad, subtriangular emargination. Endophallus (Fig. 74F) with copulatory tube (Fig. 74H) with basal chamber ovoidal, main tube moderately long, attenuate; expulsion hooks (Fig. 74D) thin, each with anterior plate acutely pointed at anterior tip; ventromedian bands moderately long, very thin. Parameres (Fig. 74F) long, each weakly incurved and very acutely pointed at apex, with pedicel very thin, moderately curved mesially; apical area very long, mesially with 9 to 10 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 74G) each with apicolateral setae very long, very acute, apicolateral setae very long. Spermatheca (Fig. 74E) with capsule small; striped duct moderately long, very thick; duct very long, thin, tightly coiled; basal valve short; basal duct sclerotized, weakly twisted before the middle.

Biology and ecology. The beetles of *S. kagura* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. matobai* are allied to *S. kagura*, but it is separable from the latter species by the elytra darker in coloration (dark red to dark reddish brown), the aedeagal median lobe broader at the apical part, with its apical sclerotized area almost rounded apically (Fig. 74F), the endophallic expulsion hook with its posterior plate protruding posterolaterally at the posterolateral corner (Fig. 74D), and the spermatheca with its duct thinner (Fig. 74E).

Etymology. This species is named after Mr. Isao Matoba (Wakayama) who collected the *Stenus*-beetles designated as the type specimens.

***Stenus kagura* Naomi & Puthz**

(Figs. 75A–I, 134A)

Stenus kagura Naomi & Puthz, 1993: 308; Herman, 2001: 2243; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: 1 ♂ (SMNHS), Mitsuishi, Okayama Pref., 21. v. 1973, K. Sawada leg. Paratypes: 2 ♀ (cP), same data as holotype.

Other material examined. [HONSHU]: 5 ♂4 ♀, Mt. Kuma, Bizen City, Okayama Pref., 9. xi. 1988, S. Nomura leg.

Distribution. Japan: Honshu (Okayama Pref.).

Redescription. Male and female: Body 3.2–3.6 mm (fore body 1.4–1.6 mm) in length. Body weakly or moderately shining; head black, with median area dark red near black to almost black; pronotum and elytra reddish brown to dark reddish brown; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures small to moderately large, round to ovoidal, and also pronotum and elytra partially coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct or indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, moderately thick to thick, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrites sutures lost.

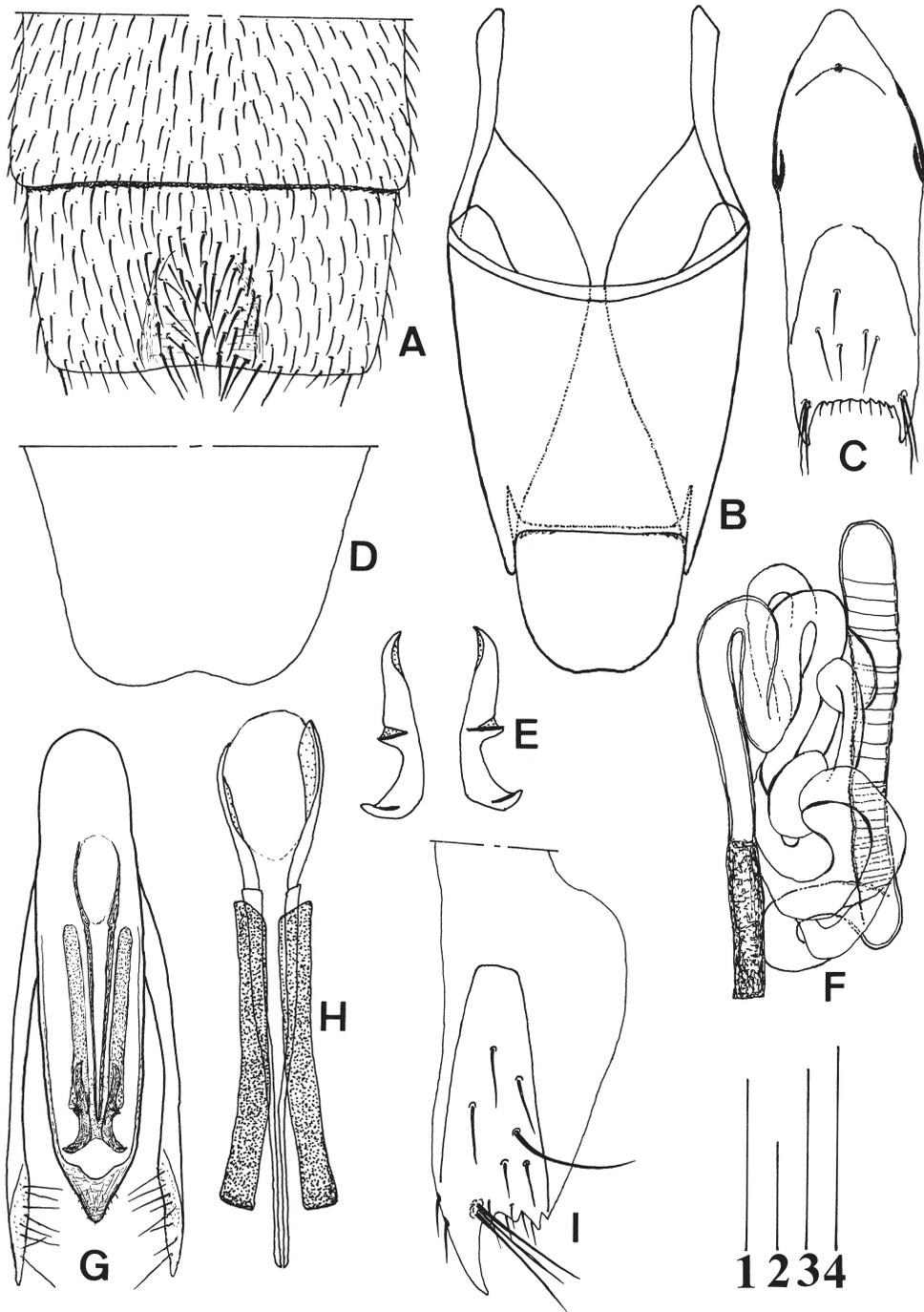


Fig. 75. *Stenus kagura* Naomi & Puthz (Okamaya: A, C-I, Mitsuishi; B, Bezen). A, 6th and 7th ventrites; B, 9th and 10th terga of male; C, 9th ventrite of male; D, posterior part of 8th ventrite of male; E, endophallic expulsion hooks; F, spermatheca; G, aedeagus; H, copulatory tube and ventromedian bands; I, gonocoxite. Scale 1: 0.25 mm for A; scale 2: 0.1 mm for B, G; scale 3: 0.2 mm for C, 0.1 mm for E, F, H, I; scale 4: 0.25 mm for D.

Male: Abdomen (Fig. 75A) modified with a flat area on the 7th, and a shallow, broad emargination on the 8th ventrite (Fig. 75D); 9th tergum (Fig. 75B) with ventral apophyses long; 9th ventrite (Fig. 75C) with macrosetae short, apicolateral teeth very short, acute, apicolateral setae short; 10th tergum (Fig. 75B) very shallowly emarginate posteromedially. Aedeagus (Fig. 75G) with median lobe slender, almost pointed at apex; apical sclerotized area almost triangular, basimedially with an arcuate emargination. Endophallus (Fig. 75G) with copulatory tube (Fig. 75H) long, with basal chamber large, ovoidal, main tube attenuate; expulsion hooks (Fig. 75E) each thin, with anterior plate pointed at anterior tip, posterior plate strongly curved laterally, pointed at apex; ventromedian bands (Fig. 75G, H) long, thin. Parameres (Fig. 75G) slender, each pointed at apex; apical area long, slightly swollen mesially at base, mesially also with 8 setae.

Female: Eighth ventrite obtuse or pointed posteromedially; gonocoxites (Fig. 75I) each with apicolateral teeth long, acute, apicolateral setae moderately long. Spermatheca (Fig. 75F) with capsule well-rounded apically; striped duct long, moderately thick to thick; duct long, moderately thick, tightly coiled; basal duct sclerotized, long.

Biology and ecology. The beetles of *S. kagura* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. kagura* is allied to *S. matobai*, but it is separable from the latter species by the elytra paler in coloration (reddish brown to dark reddish brown), the aedeagal median lobe narrower at the apical part, with its apical sclerotized area almost triangular (Fig. 75G), the endophallic expulsion hook with its posterior plate strongly curved laterally (Fig. 75E), and the spermatheca with its duct thicker (Fig. 75F).

Etymology. The specific epithet of this species is derived from the name of a sacred Shintoistic dance accompanied with the music originated in the ancient period of Japan, Kagura.

Stenus toshiharui Naomi

(Figs. 76A–G, 134B)

Stenus toshiharui Naomi, 1990: 46; Herman, 2001: 2419; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Tsubakiyama, Saga Pref., 2. x. 1977, H. Ohishi leg. Paratypes: 5 ♂3 ♀, same data as holotype; 2 ♂1 ♀, Ikenohara Marsh, Saga Pref., 9. ix. 1976, H. Ohishi leg.; 1 ♂, Mt. Mifune, Takeo City, Saga Pref., 27. v. 1984, S. Nomura leg.

Other material examined. [KYUSHU]: 3 ♂1 ♀, Oonohara, Higashisonogi, Nagasaki Pref., 1. xii. 2002, M. Nishida leg.; 2 ♂2 ♀, Mt. Kuradake, Kumamoto Pref., 7. v. 1987, S. Nomura leg.

Distribution. Japan: Kyushu (Saga, Nagasaki and Kumamoto Prefs.).

Redescription. Male and female: Body 2.6–3.7 mm (fore body 1.4–1.8 mm) in length. Body moderately shining; head almost black to black, with lateral parts of interocular area reddish brown to dark red; pronotum and elytra reddish brown; abdomen reddish brown to dark brown or almost black, sometimes with apical segments more or less infuscate; labrum reddish orange to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

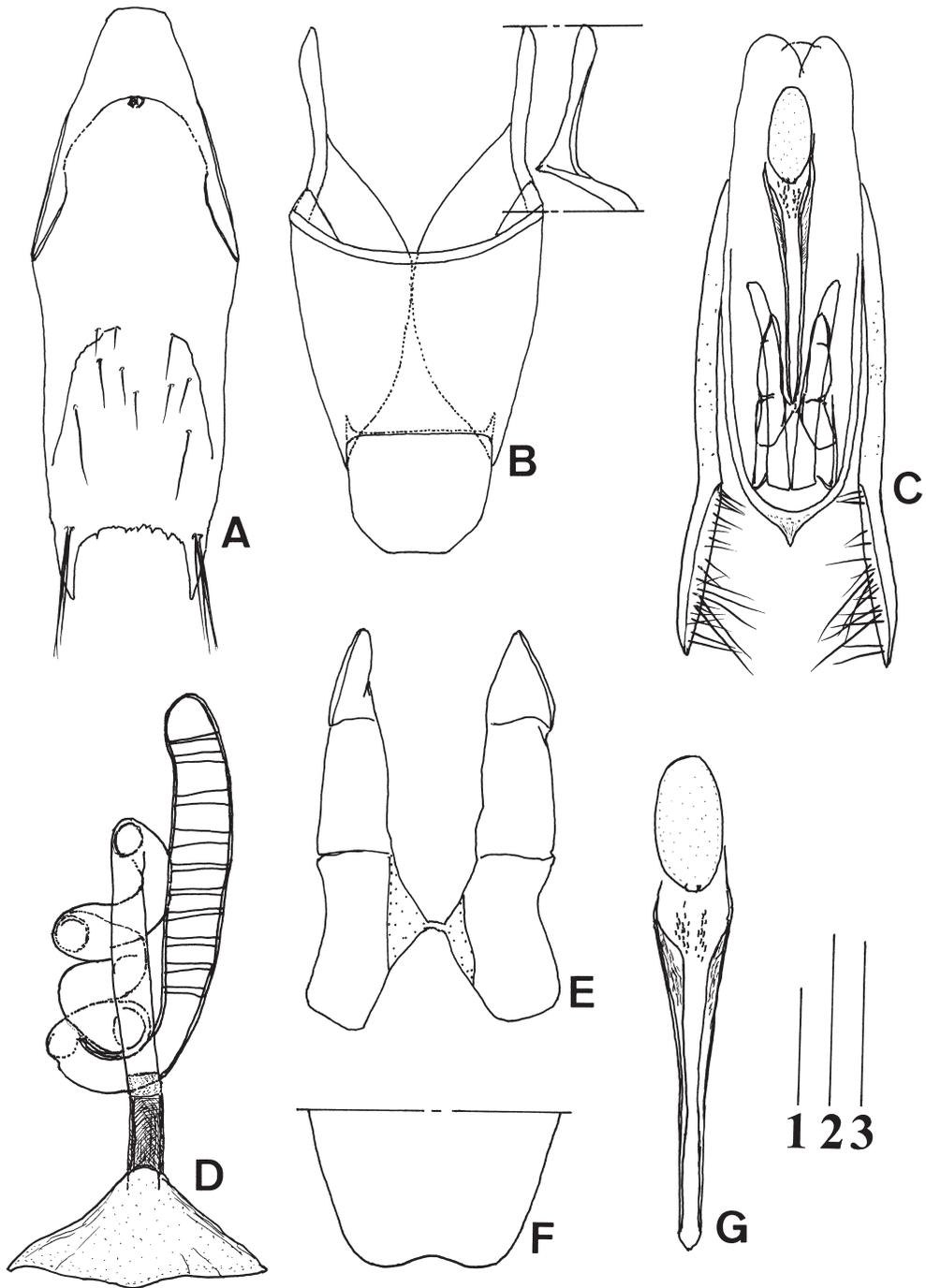


Fig. 76. *Stenus toshiharui* Naomi (Saga: A, B, Ikenohara Marsh, C–G, Mt. Tsubaki). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, spermatheca; E, endophallic expulsion hooks; F, posterior part of 8th ventrite of male; G, copulatory tube. Scale 1: 0.1 mm for A, C; scale 2: 0.2 mm for B, 0.1 mm for D, G, 0.05 mm for E; scale 3: 0.2 mm for F.

Male: Abdomen modified with a very shallow depression on the 7th, and an arcuate, broad, shallow emargination on the 8th ventrite (Fig. 76F); 9th tergum (Fig. 76B) with ventral apophyses moderately long; 9th ventrite (Fig. 76A) with macrosetae very long, apicolateral teeth long, very acute, apicolateral setae very long; 10th tergum (Fig. 76B) very shallowly emarginate posteriorly. Aedeagus (Fig. 76C) with median lobe elongate, well-rounded at apicolateral corners, acutely pointed at apex with a moderately long apicomedian cusp; apical sclerotized area hardly developed. Endophallus (Fig. 76C) with copulatory tube (Fig. 76G) with main tube baculiform, slightly attenuate; expulsion hooks (Fig. 76E) elongate, each with anterior plate almost pointed, antero-posteriorly divided into 2 subplates; ventromedian bands moderately long, narrow. Parameres (Fig. 76C) very long, each pointed at apex; apical area very long, mesially with 19 to 25 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 76D) with capsule small; striped duct moderately long, thick; duct short, moderately thick, loosely coiled; basal valve very short; basal duct short; basal pouch broad-conical in shape.

Biology and ecology. The beetles of *S. toshiharui* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. toshiharui* is probably allied to *S. akome*, but it is separable from the latter species by the abdominal modifications of male less developed (Fig. 76F), the aedeagal median lobe broader, with its apical sclerotized area shorter (Fig. 76C), the endophallic expulsion hook with its apical plate divided into 2 subplates (Fig. 76E), and the paramere with its apical area thinner (Fig. 76C).

Etymology. This species is named after the late Dr. Toshiharu Yoshida (Okayama University) who studied the population ecology of stored grain insect pests.

Stenus akome Naomi
(Figs. 77A–H, 134C)

Stenus akome Naomi, 1989: 166; Herman, 2001: 2049; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUM), Mt. Hiko, Fukuoka Pref., 4. ix. 1977, H. Ohishi leg. Paratypes: 2 ♂5 ♀, same data as holotype; 1 ♂1 ♀, Shin-yabakei, Ohita Pref., 30. iii. 1985, S. Nomura leg.; 1 ♀, Makinoto Pass, Ohita Pref., 10. viii. 1979, S. Naomi leg.; 1 ♀, Kikuchi Valley, Kumamoto Pref., 11. iv. 1981, S. Naomi leg.; 1 ♂, Mt. Hakucho, Gokanosho, Kumamoto Pref., 27. v. 1978, T. Ogata leg.

Other material examined. [HONSHU]: 1 ♂, Tengehata, Yamaguchi Pref., 1. iv. 1995, T. Watanabe leg.; 1 ♂1 ♀, Chomonkyo, Yamaguchi Pref., 25. iv. 1988, S. Nomura leg. [KYUSHU]: 1 ♀, Mt. Fukuchi, Kitakyushu City, Fukuoka Pref., 3. xi. 1997, H. Hoshina leg.; 3 ♂, Hirotani, Hiraodai, Fukuoka Pref., 25. iv. 1989, S. Nomura leg.; 4 ♂4 ♀, Mt. Sobo, Ohita Pref., 17. v. 1986, S. Nomura leg.; 2 ♂, Kamino, Takachiho, Miyazaki Pref., 17. iv. 2014, T. Watanabe leg.; 1 ♂, Mt. Ohkue, Kitagawa-cho, Miyazaki Pref., 5. vi. 1994, T. Kinoda leg.; 3 ♂3 ♀, Mt. Hoyoshi, Kôyama-machi, Kagoshima Pref., 19. iii. 1994, S. Nomura leg.

Distribution. Japan: Honshu (Yamaguchi Pref.) and Kyushu.

Redescription. Male and female: Body 3.0–4.0 mm (fore body 1.6–2.1 mm) in length. Body moderately shining; head dark red to almost black, with clypeofrontal or median area reddish brown; pronotum and elytra reddish brown; abdomen dark red to almost black; labrum reddish

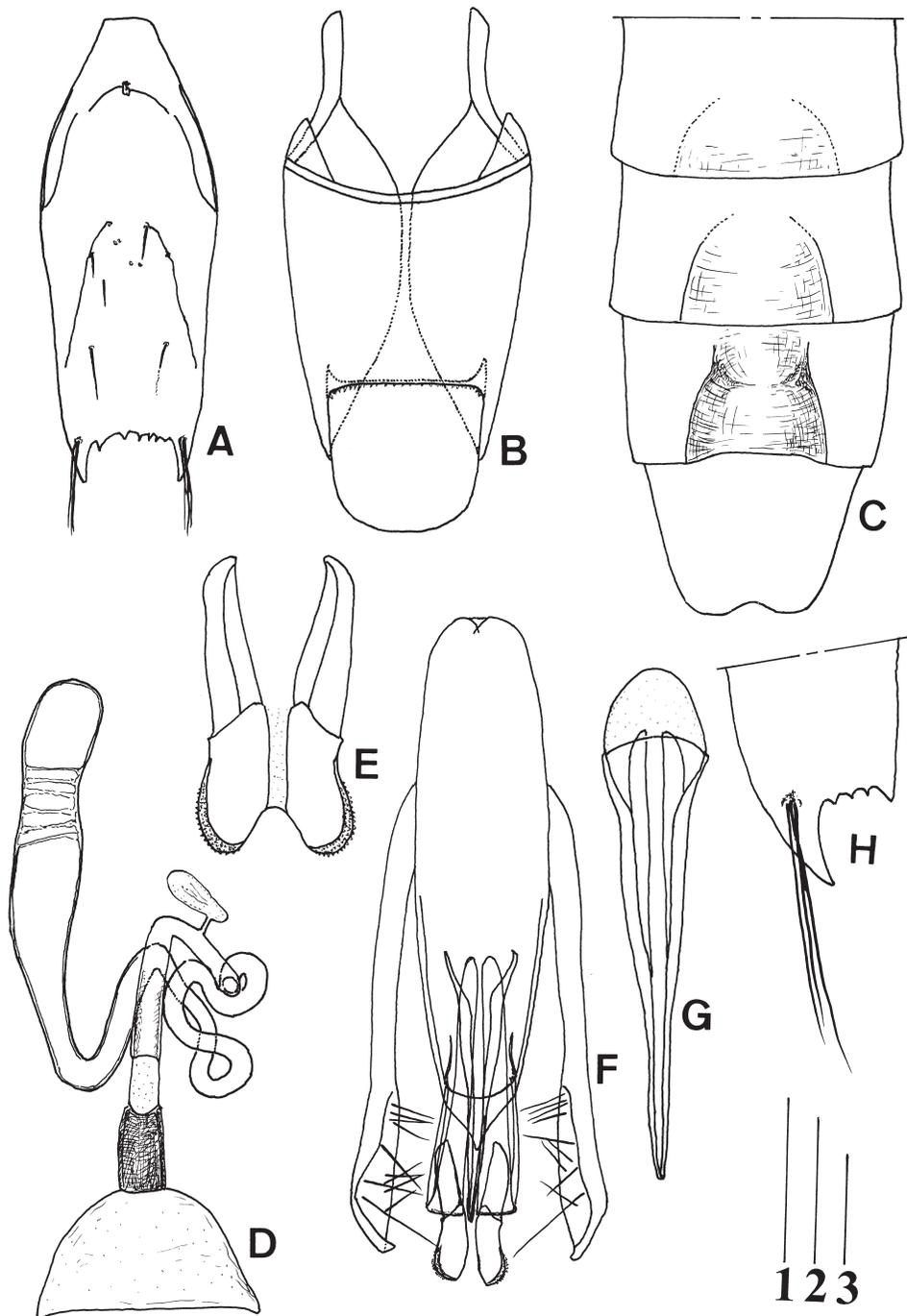


Fig. 77. *Stenus akome* Naomi (Yamaguchi and Kyushu). A, 9th ventrite of male; B, 9th and 10th terga of male; C, 5th to 8th ventrites of male; D, spermatheca; E, endophallic expulsion hooks; F, aedeagus; G, copulatory tube; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, 0.1 mm for D, G, H; scale 2: 0.3 mm for C; scale 3: 0.05 mm for E, 0.1 mm for F.

brown; antennae and legs clear yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 77C) modified with a broad, semicircular flat area on the 5th, a large, semicircular, slightly shallow (Fig. 77C) or moderately deep depression on the 6th, a very large, moderately deep or deep, posteromedian depression (which is continuous with a small anteromedian depression) on the 7th, and an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 77B) with ventral apophyses relatively short; 9th ventrite (Fig. 77A) with macrosetae relatively short, apicolateral teeth short, acute, apicolateral setae long; 10th tergum (Fig. 77B) rounded posteriorly. Aedeagus (Fig. 77F) with median lobe slender, pointed or acutely pointed at apex; apical sclerotized area subtriangular, with (Fig. 77F) or without an apicomedian cusp. Endophallus (Fig. 77F) with copulatory tube (Fig. 77G) relatively short (Fig. 77F) or moderately long, with basal chamber almost bulbous, main tube thick at base, attenuate, almost straight (Fig. 77G) or weakly curved at apical part; dorsolateral bands thin; expulsion hooks (Fig. 77E) moderately large, elongate, each with anterior plate minutely incurved at anteromesial corner, posterior plate posterolaterally well-rounded, covered with very minute tubercles; ventromedian bands moderately long, relatively thin. Parameres (Fig. 77F) each almost pointed at apex; apical area long to very long, more or less broad dorsoventrally, moderately swollen laterally at base, mesially with 7 to 11 setae of various length.

Female: Eighth ventrite obtuse or pointed posteromedially; gonocoxites (Fig. 77H) with apicolateral tooth moderately long, very acute, apicolateral setae very long. Spermatheca (Fig. 77D) with capsule moderately large; striped duct short, thick; duct relatively short with 5 to 8 (Fig. 77D) turns, thin to thick; basal valve short; basal duct well-sclerotized, thick.

Biology and ecology. The beetles of *S. akome* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. akome* is allied to *S. toshiharui*, but it is separable from the latter species by the abdominal modifications of male more developed (Fig. 77C), the aedeagal median lobe narrower, with its apical sclerotized area longer (Fig. 77F), the endophallic expulsion hook with its apical plate solid (Fig. 77E), and the paramere with its apical area thicker (Fig. 77C). It is characteristic in *S. akome* that the depressions on the 6th and 7th ventrites of male are very different in depth and size from one beetle to another, as described in Naomi (2012, p. 295, Fig. 10A, D, H).

Etymology. The specific epithet of this species is derived from the Japanese term which means a kind of folding fan of early modern times in Japan, *akome-ougi*.

Stenus incumbens Naomi & Y. Watanabe
(Fig. 78A–G)

Stenus incumbens Naomi & Watanabe, 2015: 106.

Type material examined. Holotype: ♂ (TUAA), Mt. Yokoo, Oki Is., Shimane Pref., 28. ix. 1969, Y. Watanabe leg. Paratype: 1 ♂, same data as holotype.

Other material examined. [HONSHU]: 1 ♀, Mt. Daimanji (450 m), Fuse Vil., Dogo Is., Oki

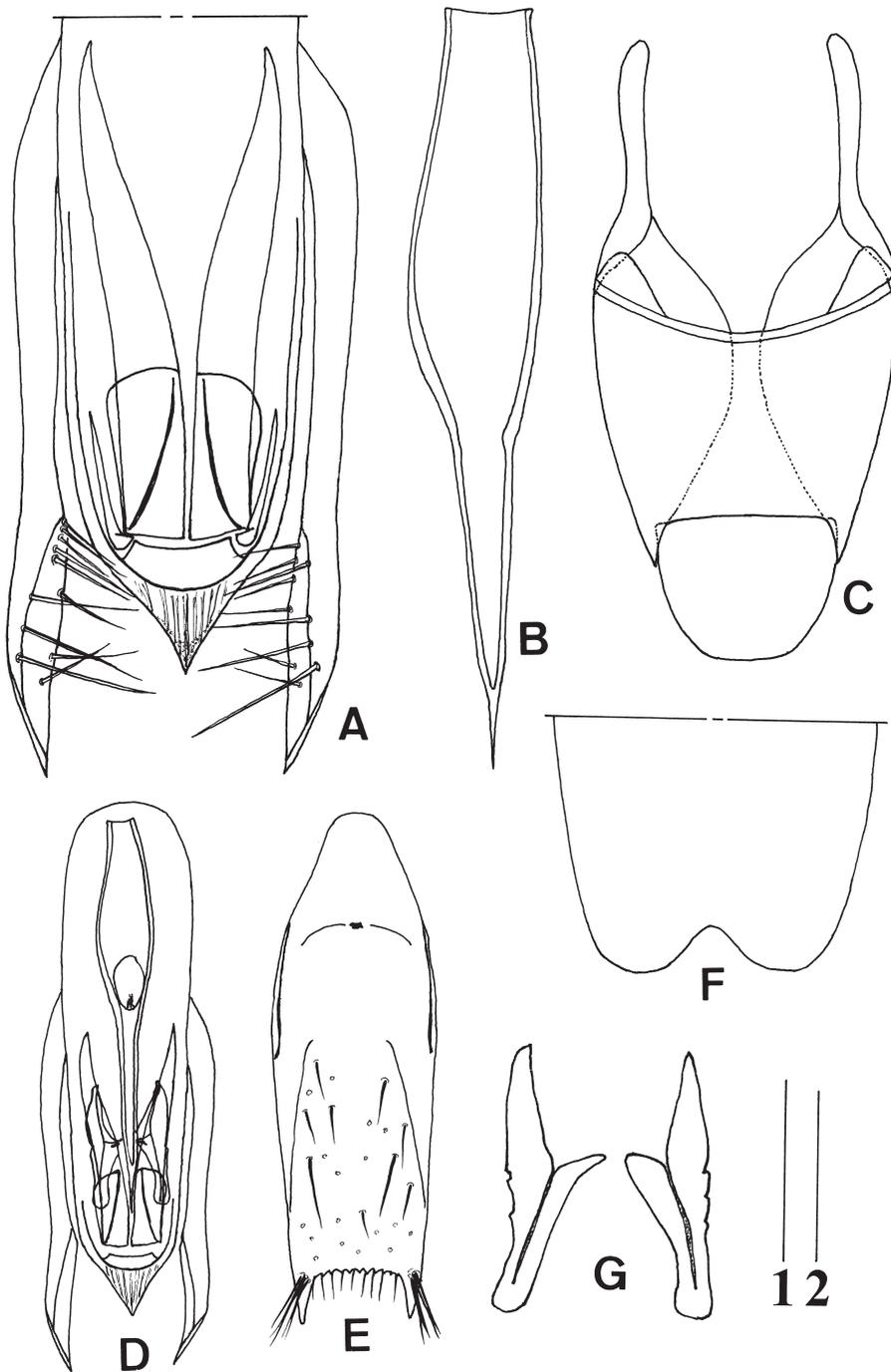


Fig. 78. *Stenus incumbens* Naomi & Watanabe (Shimane: Oki Isls.). A, apical 2/3 of aedeagus; B, copulatory tube; C, 9th and 10th terga of male; D, aedeagus; E, 9th ventrite of male; F, posterior part of 8th ventrite of male; G, endophallic expulsion hooks. Scale 1: 0.2 mm for C–E, 0.1 mm for A, B, G; scale 2: 0.2 mm for F.

Isls., Shimane Pref., 16. ix. 2003, T. Shimada leg.

Distribution. Japan: Honshu (Shimane Pref.: Dogo Is.).

Redescription. Male: Body 3.0–3.4 mm (fore body 1.4–1.6 mm) in length. Body weakly shining; head dark red to black; pronotum and elytra reddish brown; abdomen dark red to dark reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct or almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Abdomen modified with a slightly elongate, shallow or moderately deep depression on the 7th, and a moderately deep emargination on the 8th ventrite (Fig. 78F); 9th tergum (Fig. 78C) with ventral apophyses long; 9th ventrite (Fig. 78E) with apicolateral teeth short, acute, apicolateral setae short; 10th tergum (Fig. 78C) almost rounded posteriorly. Aedeagus (Fig. 78A, D) with median lobe slender, rounded at apicolateral corners, very acutely pointed at apex; apical sclerotized area narrow, almost triangular, covered with thin, parallel, longitudinal lines. Endophallus (Fig. 78D) with copulatory tube (Fig. 78B) very long, main tube with basal tube thick to very thick, apical tube attenuate, extremely aciculate at apex; dorsolateral bands thin; expulsion hooks H-shaped (Fig. 78D) or M-shaped (Fig. 78G), each weakly protruded anteromesially at the middle of mesial side, with a longitudinal line along the middle of posterior portion; ventromedian bands moderately long, moderately broad. Parameres (Fig. 78A, D) each very acutely pointed at apex; apical area long, slightly swollen mesially at base, mesially also with 10 to 11 setae.

Female: Eighth ventrite almost acute posteromedially; gonocoxites each with apicolateral teeth long, acute, apicolateral setae very long. Spermatheca with capsule moderately large, slightly narrowed apically, connected with spermathecal duct only by one short, transverse, membranous ring due to the absence of distinct striped duct; duct moderately long, distally with a long, thick tube; basal duct very large, very thick; basal pouch elongate-conical in shape, membranous.

Biology and ecology. *S. incumbens* is insular and may be endemic to Oki Islands off Shimane Pref. The beetles of this species inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. incumbens* is allied to *S. toshiharui* and *S. akome*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical sclerotized area covered with thin, parallel, longitudinal lines (Fig. 78A), the copulatory tube with its basal tube much thicker (Fig. 78B), the paramere with its apical area mesially with longer setae (Fig. 78D), and the spermatheca with its basal duct thicker.

Stenus amida Naomi

(Figs. 79A–I, 134D)

Stenus amida Naomi, 1989: 164; Herman, 2001: 2053; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (KUF), Mt. Tsurugi, Tokushima Pref., 15–17. x. 1980, S. Naomi leg. Paratypes: 1 ♂ 5 ♀, same data as holotype; 2 ♂, same locality, 19–20. vi. 1981, S. Naomi leg.

Other material examined. [HONSHU]: 5 ♂ 1 ♀, Mt. Tsurugi, Tokushima Pref., 27. ix. 1999,

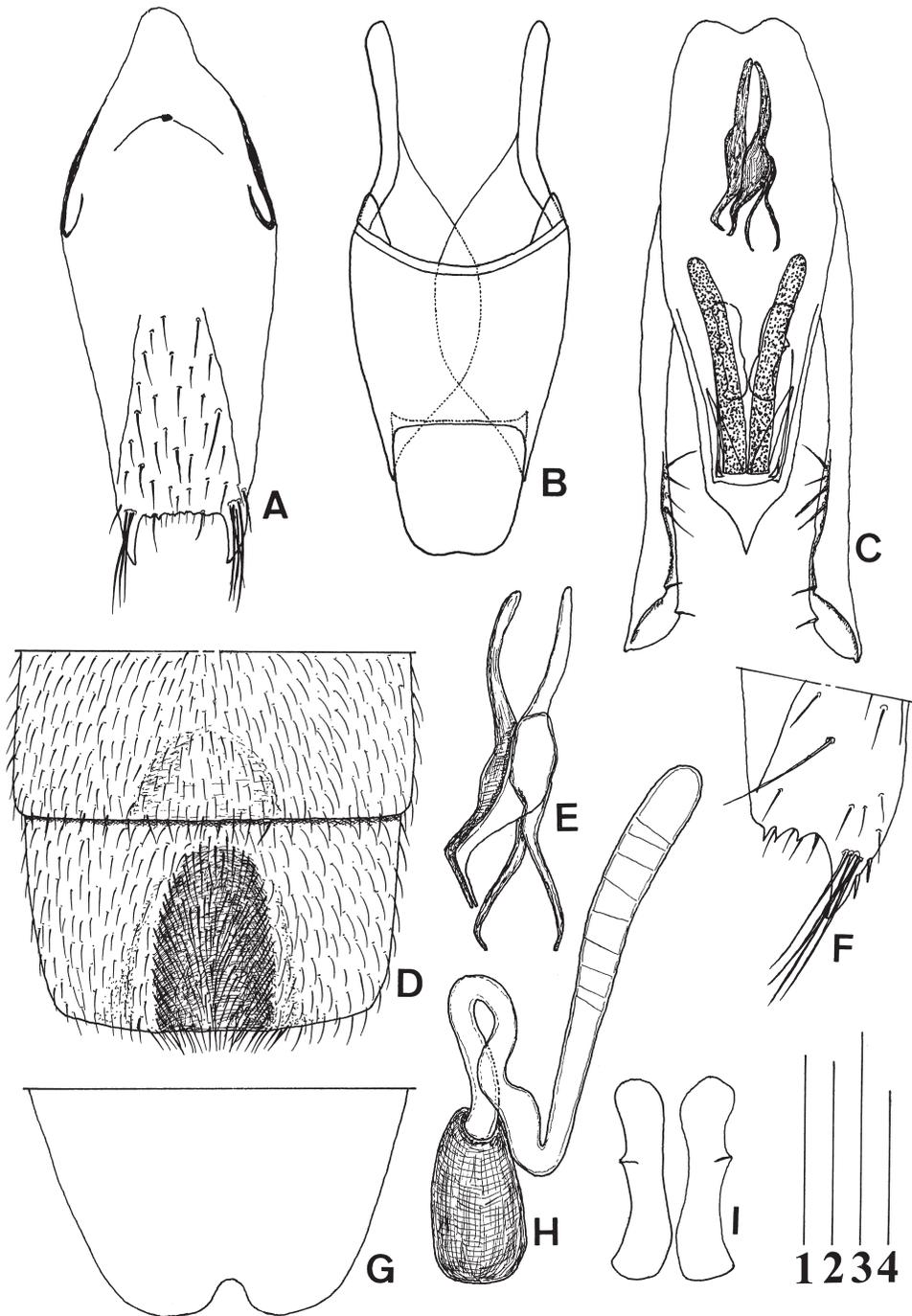


Fig. 79. *Stenus amida* Naomi (Tokushima: Mt. Tsurugi). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, 6th and 7th ventrites of male; E, copulatory tube; F, posterior part of gonocoxite; G, posterior part of 8th ventrite of male; H, spermatheca; I, endophallic expulsion hooks. Scale 1: 0.2 mm for A, C, 0.1 mm for E, F, H, I; scale 2: 0.25 mm for D; scale 3: 0.25 mm for G; scale 4: 0.2 mm for B.

S. Nomura leg.; 1 ♂ 1 ♀, same locality, 13. viii. 1995, *H. Hoshina* leg.; 1 ♂, Nishijima Shrine, Mt. Tsurugi (1800 m), 11. vii. 1993, *M. Sakai* leg.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 3.3–3.6 mm (fore body 1.6–1.8 mm) in length. Body moderately shining; head black, with clypeofrontal or median area reddish brown to dark red; pronotum and elytra reddish orange to reddish brown; abdomen dark red to dark reddish brown; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows (or depressions); antennae short to moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct or almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 79D) modified sometimes with a flat area on the 5th, and always with a flat area or a shallow depression on the 6th, an elongate, moderately deep depression on the 7th, and a relatively small emargination on the 8th ventrite (Fig. 79G); 9th tergum (Fig. 79B) with ventral apophyses very long; 9th ventrite (Fig. 79A) with macrosetae short to moderately long, apicolateral teeth moderately long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 79B) very shallowly emarginate posteromedially. Aedeagus (Fig. 79C) with median lobe narrowing posteriad behind the middle, obtusely angulate at apicolateral corners, very acutely pointed at apex with a long apicomedian cusp; apical sclerotized area subtriangular. Endophallus (Fig. 79C) with copulatory tube (Fig. 79E) having basal chamber comprising a pair of thin rods, main tube slightly small, beak-shaped at apex, dorsally with a very thin, almost Y-shaped process; dorsolateral bands very thin; expulsion hooks (Fig. 79I) elongate, each laterally with two arcuate, shallow emarginations, with anterior plate about as broad as posterior plate; ventromedian bands long, moderately broad. Parameres (Fig. 79C) moderately thick, each obliquely truncate apically; apical area very long, mesially with 4 short setae at base and 2 shorter setae near apex.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 79F) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 79H) with capsule elongate, rounded apically; striped duct moderately long, thick; duct short, moderately thick, with 2 distinct turns; basal duct very large, subovoidal, strongly sclerotized.

Biology and ecology. The beetles of *S. amida* inhabit leaf litter heaped in the natural forests of a mountainous region. At present this species is known only from Mt. Tsurugi, Tokushima Pref., although it seems to be common from there when judging from the collecting records of this species enumerated in the specimens examined.

Remarks. *S. amida* is allied to *S. pediculifer*, but it is separable from the latter species by the aedeagal median lobe narrower in the posterior 1/2, with its apical sclerotized area elongate-subtriangular in shape and very acutely pointed with a long apicomedian cusp; (Fig. 79C), and the endophallic expulsion hook laterally with two arcuate emarginations (Fig. 79I).

Three species *S. amida*, *S. pediculifer* and *S. yoshidaiellus*, all of which are at present known only from the mountainous regions of eastern Shikoku, seem to form a closely allied group on account of their common possession of the following peculiar conditions: Aedeagal median lobe with an apicomedian cusp, the endophallic expulsion hook with its main tube having a Y-shaped process, the paramere with its apical area becoming more or less thicker apicad, and the spermatheca with its basal tube extremely large and strongly sclerotized.

Etymology. The specific epithet of this species is derived from a traditionally recognized title of Buddha, Amida.

Stenus pediculifer Naomi & Nomura
(Fig. 80A–F)

Stenus pediculifer Naomi & Nomura, 2015: 194.

Type material examined. Holotype: ♂ (NMNST), Mt. Takashiro, Koyadaira Vil., Tokushima Pref., 27. ix. 1999. Paratypes: 1 ♂ 2 ♀ & 1 ♀ (NMNST), same data as holotype.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 3.1–3.8 mm (fore body 1.5–1.8 mm) in length. Body moderately shining; head black, with clypeofrontal or median area reddish brown to dark red; pronotum and elytra yellowish or reddish brown to dark red; abdomen dark reddish brown; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially- curved furrows; antennae short to moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct or almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen modified with a flat area on the 6th, an elongate, very shallow depression on the 7th, and a narrow, shallow emargination on the 8th ventrite (Fig. 80D); 9th tergum (Fig. 80C) with ventral apophyses long; 9th ventrite (Fig. 80B) with macrosetae very long, apicolateral teeth long, thin, very acute, apicolateral setae very long; 10th tergum (Fig. 80C) entire. Aedeagus (Fig. 80A) with median lobe obtusely angulate at apicolateral corners, pointed at apex with an extremely minute apicomedian cusp; apical sclerotized area transverse, very short. Endophallus (Fig. 80A) with copulatory tube having basal chamber small, main tube comprising 2 thin rods at base and a U-shaped structure at apex, dorsally with a very thin, Y-shaped process; dorsolateral bands very thin; expulsion hooks each boot-shaped, laterally with arcuate emargination; ventromedian bands very long, very broad, each covered with very small dots only on mesial side. Parameres (Fig. 80A) very long, each acicular at apex; apical area extremely long, thick, mesially with 6 setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 80F) each with apicolateral tooth long, acute, apicolateral setae moderately long. Spermatheca (Fig. 80E) with capsule small, rounded apically; striped duct slightly short, moderately broad; duct short, moderately thick, with 5 turns; basal valve extremely short; basal duct extremely large, strongly sclerotized.

Biology and ecology. The beetles of *S. pediculifer* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. pediculifer* is allied to *S. amida*, but it is separable from the latter species by the aedeagal median lobe broader in the posterior 1/2, with its apical sclerotized area transverse and pointed with a minute apicomedian cusp (Fig. 80A), and the endophallic expulsion hook laterally with an arcuate emargination (Fig. 80A).

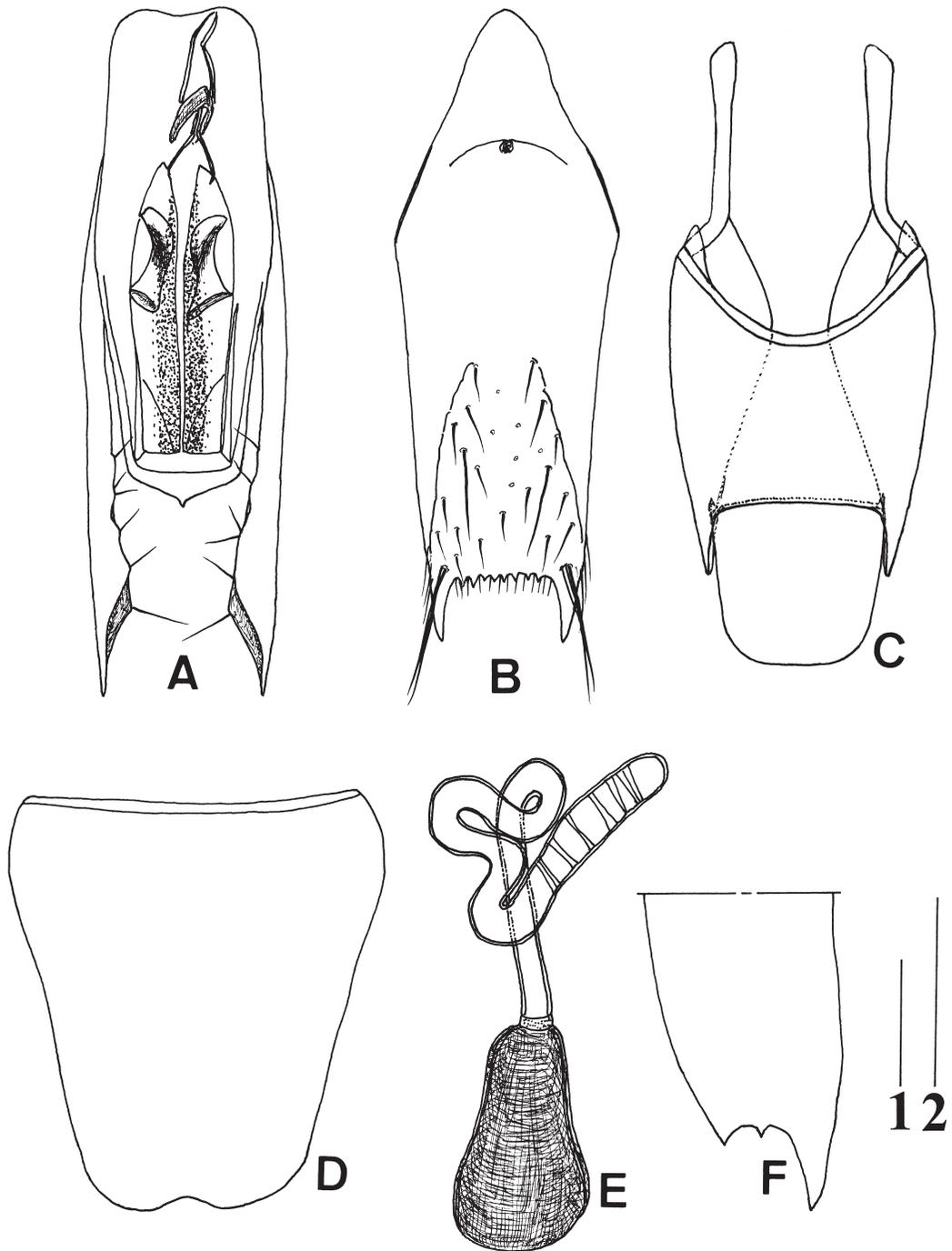


Fig. 80. *Stenus pediculifer* Naomi & Nomura (Tokushima: Mt. Takashiro). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, 8th ventrite of male; E, spermatheca; F, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B; scale 2: 0.2 mm for C, D, 0.1 mm for E, F.

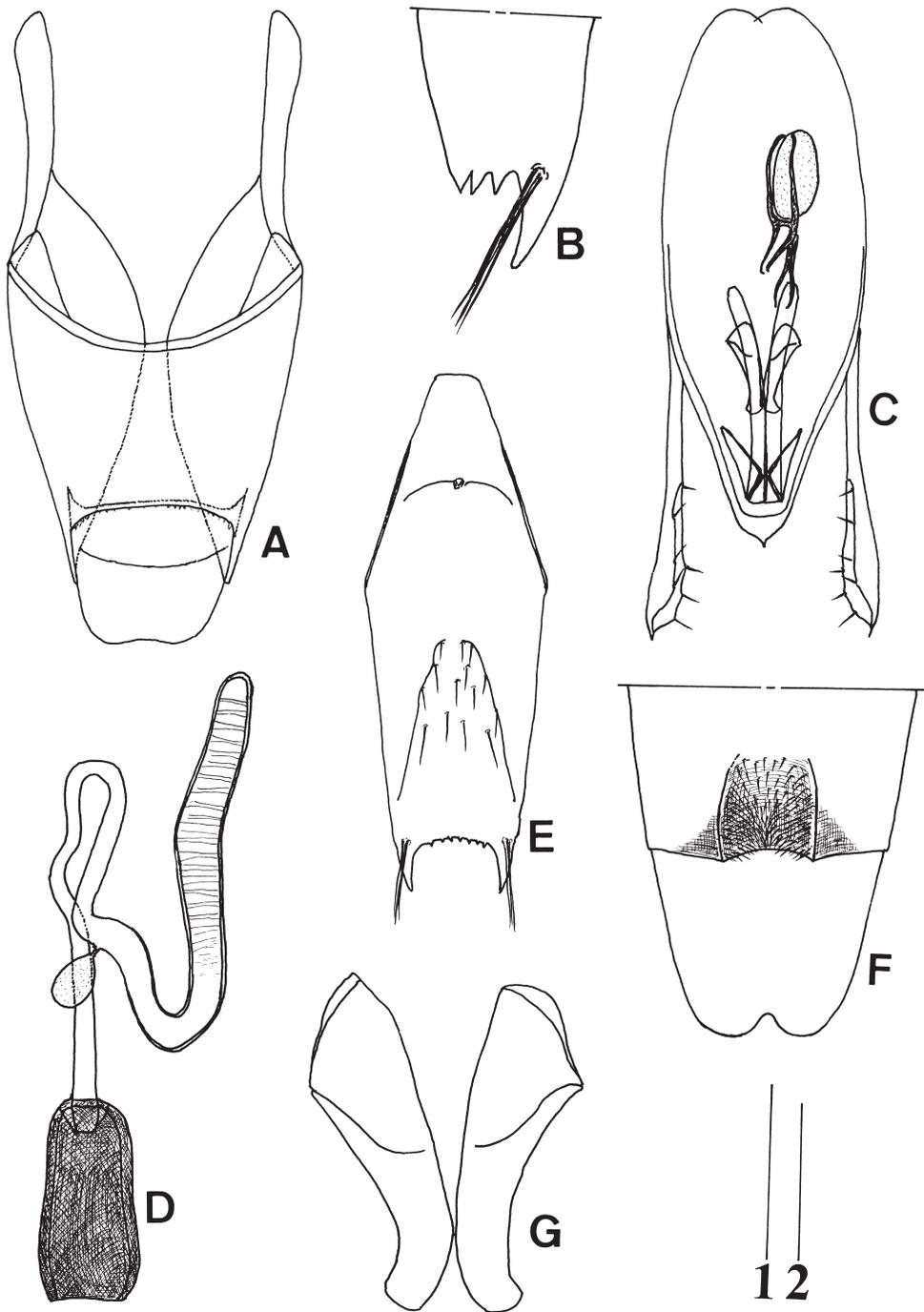


Fig. 81. *Stenus yoshidaiellus* Naomi, Nomura & Puthz sp. nov. (Tokushima: Mt. Takashiro). A, 9th and 10th terna of male; B, posterior part of gonocoxite; C, aedeagus; D, spermatheca; E, 9th ventrite of male; F, 7th and 8th ventrites of male; G, endophallic expulsion hooks. Scale 1: 0.2 mm for A, C, E, 0.1 mm for B, D, 0.05 mm for G; scale 2: 0.3 mm for F.

Stenus yoshidaiellus Naomi, Nomura & Puthz sp. nov.

(Fig. 81A–G)

Type material examined. Holotype: ♂ (KUMF), Mt. Takashiro, Koyadaira Vil., Tokushima Pref., 17–18. vii. 2010, T. Ito leg. Paratypes: 2♂2♀ (KUMF), same data as holotype.

Distribution. Japan: Shikoku (Tokushima Pref.).

Description. Male and female: Body 3.2–3.5 mm (fore body 1.5–1.7 mm) in length. Body weakly shining; head black, with clypeofrontal area reddish brown to dark red; pronotum and elytra reddish orange to reddish brown; abdomen dark reddish brown; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct or almost distinct; elytra with surface uneven to strongly uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergo-ventral sutures lost.

Male: Abdomen (Fig. 81F) modified with a flat area or a very shallow depression on the 6th, a deep depression on the 7th, and a narrow, slightly deep emargination on the 8th ventrite; 9th tergum (Fig. 81A) with ventral apophyses very long; 9th ventrite (Fig. 81E) with macrosetae very short, apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 81A) shallowly emarginate posteromedially. Aedeagus (Fig. 81C) with median lobe bulbous at base, strongly narrowing apicad in the posterior 2/5, pointed at apex with an extremely minute apicomedian cusp; apical sclerotized area extremely narrow, very short. Endophallus (Fig. 81A) with copulatory tube having basal chamber large ovoidal, main tube comprising 2 thin rods at base, dorsally with a very thin, narrow, Y-shaped process; expulsion hooks (Fig. 81G) each with anterior plate subtriangular, broader than posterior plate; ventromedian bands moderately long, very narrow. Parameres (Fig. 81C) each minutely pointed at apicolateral corner, with pedicel thin; apical area long, becoming thicker apicad, mesially with 7 short setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 81F) each with apicolateral tooth very long, acute, apicolateral setae very long. Spermatheca (Fig. 81E) with capsule very small; striped duct long, moderately broad; duct short, thin to moderately thick, with 3 or more distinct turns, and its proximal part of duct slightly sunk into the distal hollow of large basal duct; basal duct extremely large, strongly sclerotized.

Biology and ecology. The beetles of *S. yoshidaiellus* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. yoshidaiellus* is allied to *S. amida* and *S. pediculifer*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical part more strongly narrowing apicad and its apical sclerotized area smaller and narrower (Fig. 81C), the endophallic expulsion hook with its posterior plate narrower (Fig. 81G), and the paramere thinner (Fig. 81C).

Etymology. This new species is named after Mr. Masataka Yoshida (Tokushima) who collected the *Stenus*-beetles designated as the type specimens.

Stenus rufescens Sharp

(Figs. 82A–J, 134E)

Stenus rufescens Sharp, 1874: 88; Herman, 2001: 2372; Naomi & Puthz, 2013: 145.

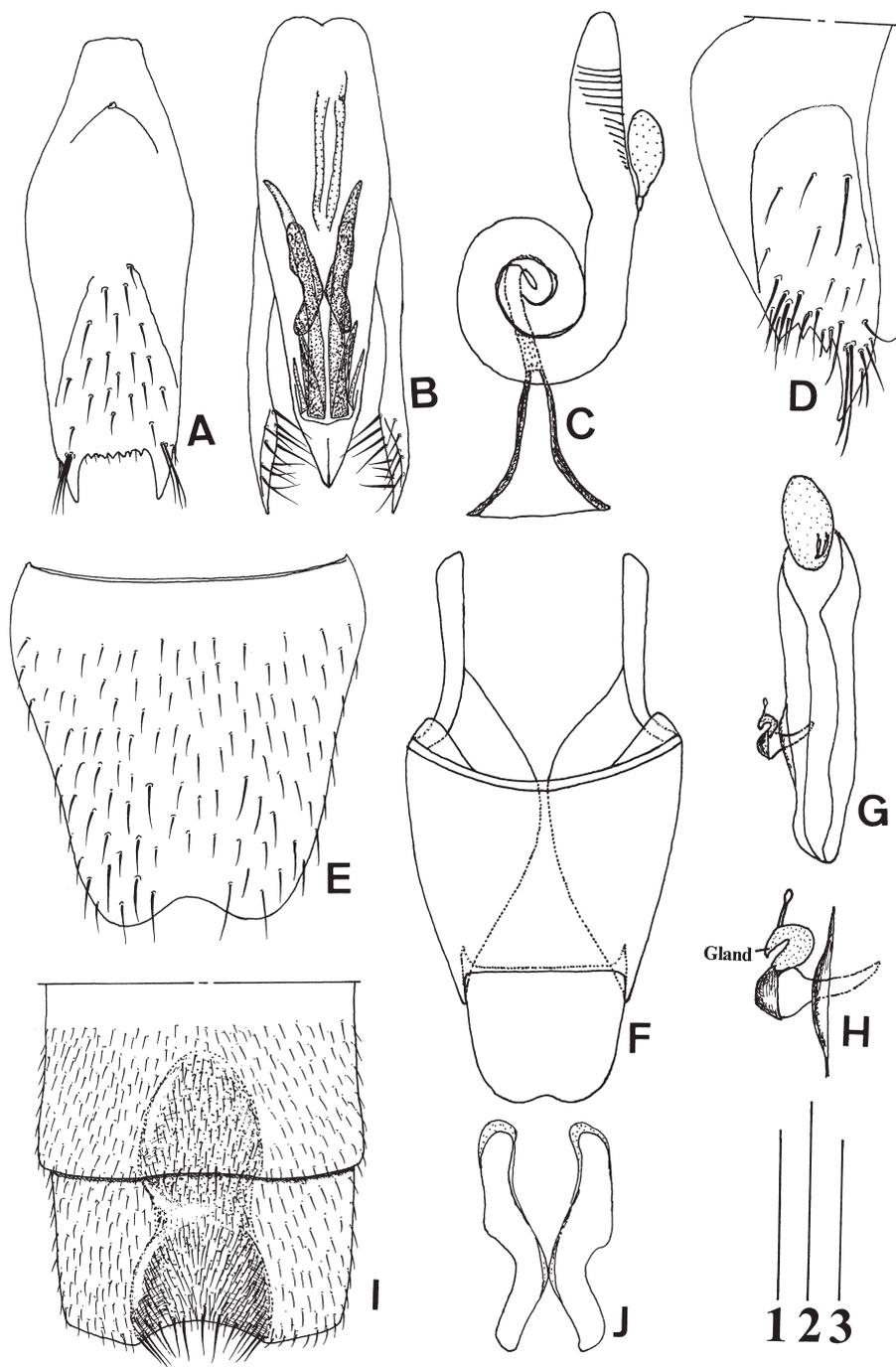


Fig. 82. *Stenus rufescens* Sharp (Hyogo: Mt. Maya). A, 9th ventrite of male; B, aedeagus; C, spermatheca; D, gonocoxite; E, 8th ventrite of male; F, 9th and 10th terga of male; G, copulatory tube; H, copulatory tube gland?; I, 6th and 7th ventrites of male; J, endophallic expulsion hooks. Scale 1: 0.2 mm for A, B, F, 0.1 mm for C, D, G, J, 0.05 mm for H; scale 2: 0.25 mm for E; scale 3: 0.25 mm for I.

Type material examined. Syntypes: 1 ♂1 ♀ (NHML), Maiyasama.

Other material examined. [HONSHU]: 5 ♂6 ♀, Mt. Maya, Kobe, Hyogo Pref., 12. v. 1997, H. Hoshina leg.; 6 ♂8 ♀, same locality, 19. vii. 2001, H. Hoshina leg.; 1 ♂1 ♀, same locality, 5. v. 1993, T. Kishimoto leg.; 1 ♀, same locality, 11. iii. 1941, K. Taniguchi leg.; 2 ♂1 ♀, same locality, 4. xi. 1983, T. Ito leg.

Distribution. Japan: Honshu (Hyogo Pref.).

Redescription. Male and female: Body 3.2–3.6 mm (fore body 1.6–1.8 mm) in length. Body moderately shining and entirely yellowish brown to reddish brown, but lateral parts of interocular area and apical segments of abdomen more or less infuscate; labrum reddish orange to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 82I) modified with a flat area on the 5th, a shallow depression on the 6th, a moderately deep depression on the 7th, and an arcuate, broad, moderately deep emargination on the 8th ventrite (Fig. 82E); 9th tergum (Fig. 82F) with ventral apophyses long; 9th ventrite (Fig. 82A) with apicolateral teeth short, acute, apicolateral setae short; 10th tergum (Fig. 82F) shallowly, distinctly emarginate posteromedially. Aedeagus (Fig. 82B) with median lobe elongate, narrowing apicad in about apical 3/5, almost pointed at apex; apical sclerotized area elongate-triangular in shape, with a median longitudinal line in the apical 3/4. Endophallus (Fig. B) with copulatory tube (Fig. 82G) baculiform, thick, laterally with a small glandular apparatus? (Fig. 82H); expulsion hooks (Fig. 82J) almost X-shaped, each rounded and also narrowly membranous at anterior tip, posterolaterally with an almost arcuate emargination; dorsolateral bands thin; ventromedian bands very long, narrow. Parameres (Fig. 82B) moderately thick, each acutely pointed at apex; apical area moderately long, moderately swollen mesially at base, mesially also with 11 to 13 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 82D) each with apicolateral tooth very long, very acute, apicolateral setae slightly short. Spermatheca (Fig. 82C) with capsule narrowing apicad, narrowly rounded apically; striped duct short, thick, with indistinct, transverse stripes; duct thin at base, mostly moderately thick to thick, regularly coiled 3 times; gland almost ovoidal, with opening located on the lateral side of the duct a little proximal from the base of striped duct; basal valve short; basal pouch subconical.

Biology and ecology. The beetles of *S. rufescens* inhabit leaf litter heaped in the natural forests of a low mountainous region. Recently, this species is known only from Mt. Maya, Hyogo Pref., although it seems to be common from there when judging from the collecting records of this species enumerated in the specimens examined.

Remarks. *S. rufescens* is allied to *S. acutatus*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area elongate-triangular in shape (Fig. 82B), the copulatory tube thicker at the apical part (Fig. 82G), the endophallic expulsion hook with its anterior plate rounded at the anterior tip (Fig. J), and the spermatheca with its duct regularly coiled (Fig. 82C).

In every species of the *cephalotes*-group, the females have each a more or less chitinized spermatheca, but in the female of *S. rufescens*, the spermathecal tube is more membranous (Fig.

82C) than in the other species, so that the tube easily melts away when it is boiled in the KOH solution. Furthermore, in the male of *S. rufescens*, the copulatory tube has a gland-like structure at its lateral side (Fig. 82G, H). This gland-like structure is recognized in 3 males in our study, but further studies are needed to confirm whether it is certainly a gland of copulatory tube.

***Stenus acutatus* Naomi**
(Fig. 83A–H)

Stenus acutatus Naomi, 2012: 310; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Kizuro, Kiwa, Mie Pref., 12. v. 1996, H. Yokozeki leg. Paratypes: 1 ♂ 2 ♀, same data as holotype.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 3.7–4.0 mm (fore body 1.8–2.0 mm) in length. Body weakly shining; head black; pronotum, elytra and abdomen dark red to dark brown or almost black; labrum dark red to dark brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 83E) with a flat area on the 6th, an elongate, deep depression on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite (Fig. 83F); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 83G) with apicolateral teeth moderately long, acute, apicolateral setae long; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 83A) with median lobe elongate, obtusely angulate at apicolateral corners, pointed at apex; apical sclerotized area subpentagonal, covered in about apical 1/2 with very thin, longitudinal lines which converge toward apex to some extent. Endophallus (Fig. 83A) with copulatory tube (Fig. 83C) having basal chamber comprising 2 short, thick rods, main tube thick, somewhat fusiform, slightly curved and obtusely pointed at apex; expulsion hooks (Fig. 83H) elongate, each with anterior plate curved mesially and acutely pointed at anterior tip; ventromedian bands long, moderately broad. Parameres (Fig. 83A) each very acutely pointed at apex, with pedicel mesially with 4 short setae just before apical area; apical area moderately long, strongly swollen mesially at base, mesially also with 7 to 8 setae of different length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 83B) each with apicolateral tooth very long, very acute, apicolateral setae long to very long. Spermatheca (Fig. 83D) with capsule obtusely pointed at apex; striped duct slightly short, thick; duct moderately long, moderately thick, with 6 turns; basal valve short; basal duct moderately long.

Biology and ecology. The beetles of *S. acutatus* inhabit leaf litter heaped in the natural forests of a low mountainous region.

Remarks. *S. acutatus* is allied to *S. rufescens*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area elongate-pentagonal in shape (Fig. 83A), the copulatory tube thinner at the apical part (Fig. 83C), the endophallic expulsion hook with its anterior plate acutely pointed at the anterior tip (Fig. 83J), and the spermatheca with its duct almost distinctly bent anteroposteriorly (Fig. 83C).

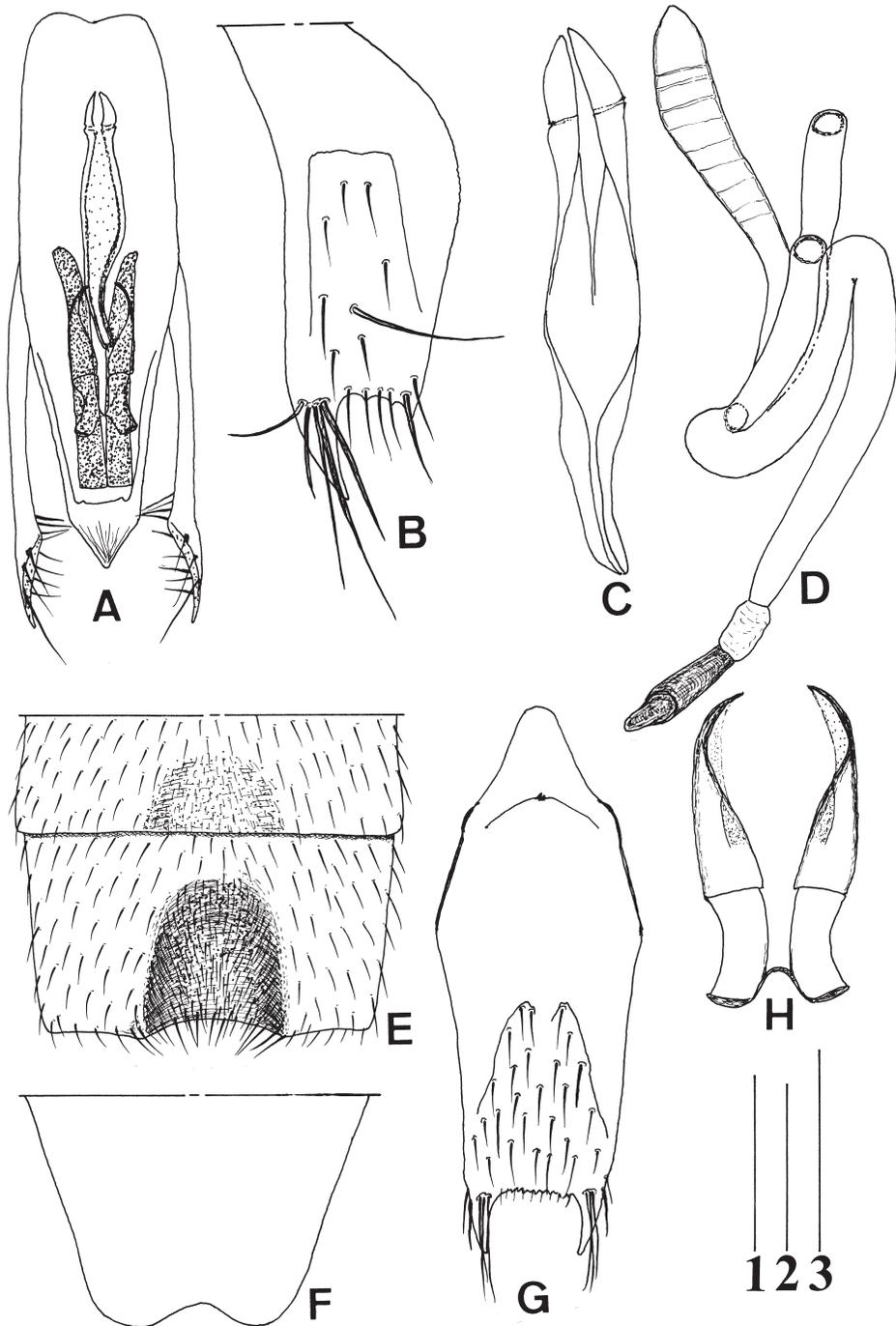


Fig. 83. *Stenus acutatus* Naomi (Mie: Kiwa). A, aedeagus; B, gonocoxite; C, copulatory tube; D, spermartheca; E, 6th and 7th ventrites of male; F, posterior part of 8th ventrite of male; G, 9th ventrite of male; H, endophallic expulsion hooks. Scale 1: 0.2 mm for A, G, 0.1 mm for B–D, H; scale 2: 0.25 mm for E; scale 3: 0.25 mm for F.

Stenus ichikawai Naomi
(Fig. 84A–H)

Stenus ichikawai Naomi, 2006: 49; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mikizaki, Mie Pref., 1. iv. 1995, N. Narukawa leg. Paratypes: 2 ♀, same data as holotype; 1 ♂ ♀, Kukizaki, Kuki-cho, Owase City, Mie Pref., 28. i. 1996, K. Akita leg.; 1 ♂, same locality, 1. vi. 1996, H. Yokozeki leg.; 4 ♂ ♀, same locality, 12. ii. 1996, H. Yokozeki leg.; 1 ♂, same locality, 11. iii. 1995, H. Yokozeki leg.; 3 ♂ ♀, Nasazaki, Owase City, Mie Pref., 3. xi. 1997, F. Ichikawa leg.; 1 ♂, same locality, 11. iv. 1998, H. Yokozeki leg.; 1 ♀ (CBM), same locality, 7. x. 1995, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 3.8–4.0 mm (fore body 1.9–2.0 mm) in length. Body weakly shining; head and abdomen almost black to black; pronotum and elytra dark red near black; labrum dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with coarse to subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique depressions; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 84F) modified with a flat area on the 5th, a very large, moderately deep depression on the 6th, a large, very deep depression on the 7th, and an arcuate, very shallow emargination on the 8th ventrite (Fig. 84H); 9th tergum (Fig. 84A) with ventral apophyses long; 9th ventrite (Fig. B) with apicolateral teeth very long, very acute, apicolateral setae very long; 10th tergum (Fig. 84A) very shallowly emarginate posteromedially. Aedeagus with median lobe (Fig. 84C) slender, becoming almost throughout narrower apicad, rounded at apicolateral corners, very acutely pointed at apex with a moderately long apicomedian cusp; apical sclerotized area narrow, elongate-subtriangular in shape, with a median longitudinal line in about apical 2/3. Endophallus (Fig. 84C) with copulatory tube having basal chamber comprising a pair of thin, long rods, main tube thick at base, strongly curved; expulsion hooks (Fig. 84G) elongate, each with anterior plate obtusely pointed at anterior tip; ventromedian bands moderately long, moderately broad. Parameres (Fig. 84C) moderately thick, each very acutely pointed at apex; apical area long, weakly swollen laterally, mesially with 11–14 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 84E) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 84D) with capsule hardly developed; striped duct long, thick; duct very long, moderately thick to thick, tightly coiled; basal valve very short; basal duct moderately long.

Biology and ecology. The beetles of *S. ichikawai* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. ichikawai* is allied to *S. jukata*, but it is separable from the latter species by the aedeagal median lobe with its apical part broader (Fig. 84C), the copulatory tube with its main tube strongly curved (Fig. 84C), the endophallic expulsion hook with its anterior plate obtusely pointed at the anterior tip (Fig. 84G), the paramere shorter, with its apical area shorter (Fig. 84C), and the spermatheca with its duct thinner (Fig. 84D).

Etymology. This species is named after Mr. Futoshi Ichikawa (Mie) who collected some of

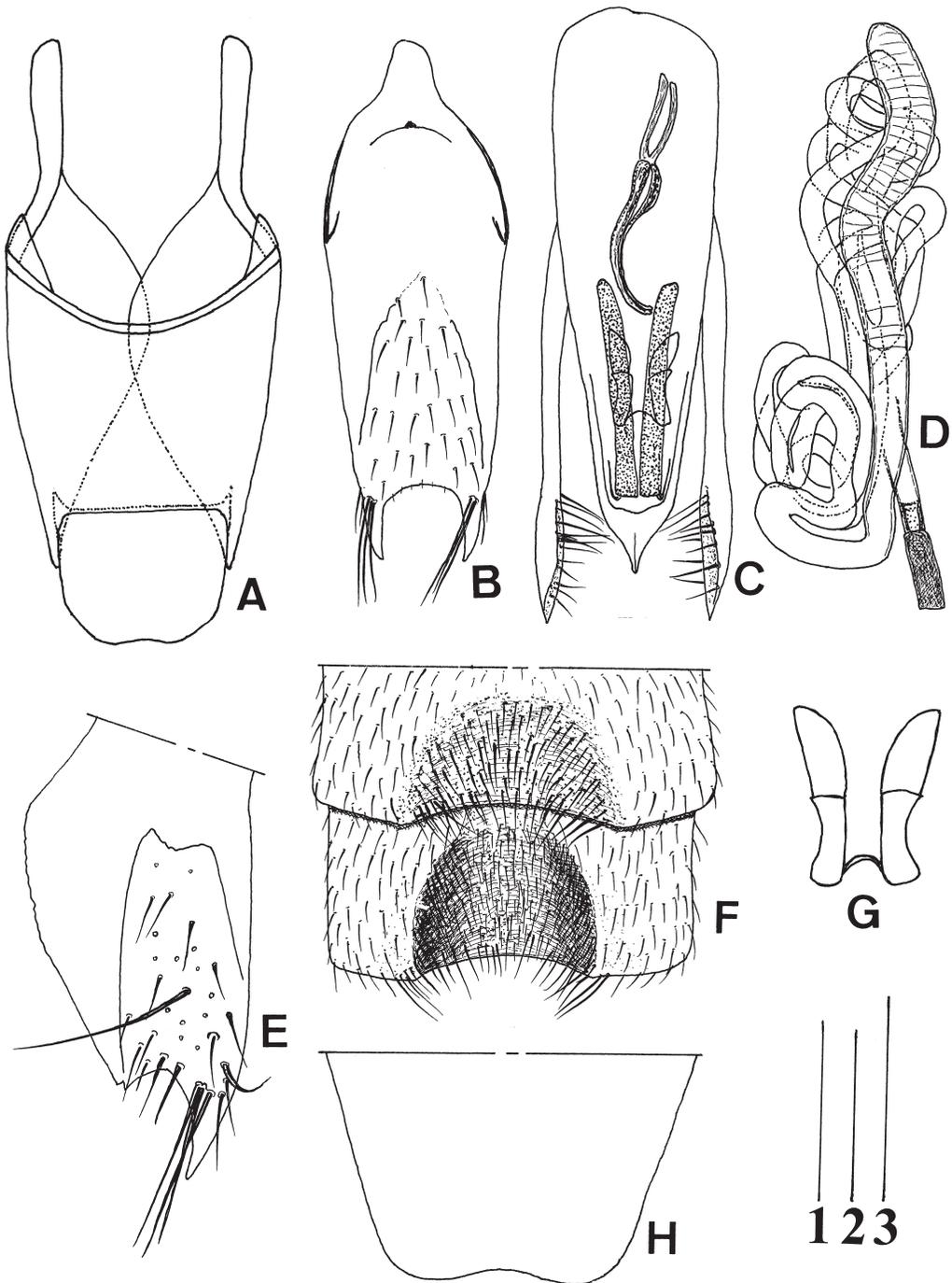


Fig. 84. *Stenus ichikawai* Naomi (Mie: A, Owase, B–E, G, H, Mikizaki, F, Nasazaki). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, gonocoxite; F, 6th and 7th ventrites of male; G, endophallic expulsion hooks; H, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A–C, 0.1 mm for D, E, G; scale 2: 0.25 mm for F; scale 3: 0.25 mm for H.

the *Stenus*-beetles designated as the paratype specimens.

Stenus jukata Hromádka

(Figs. 85A–H, 134F)

Stenus jukata Hromádka, 1982: 135; Herman, 2001: 2239; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (cP), Mt. Koya, Wakayama Pref., Japan, 24. iv. 1954, K. Sawada leg.

Other material examined. [HONSHU]: 3 ♂1 ♀, Mt. Inamura, Ohmine, Nara Pref., 12. vi. 1993, T. Ito leg.; 4 ♂7 ♀, Dorogawa, Yamato, 2. vi. 1985, T. Ito leg.; 3 ♂2 ♀, Mt. Oomine, Yamato, 1. vi. 1985, T. Ito leg.; 1 ♂, Zenki Val. (700 m alt.), Shimokitayama Vil., Nara Pref., 29. vi. 1998, S. Nomura leg.; 1 ♂, Mt. Kohjin, Tateri, Nara Pref., 7. viii, 1966, T. Ito leg.; 2 ♂3 ♀, Mt. Wasamata, Yamato, 14–15. vi. 1997, T. Ito leg.; 1 ♂1 ♀, Shinohara, Ohto Vil., Wakayama Pref., 26. vi. 1998, T. Kishimoto leg.; 1 ♂1 ♀, Mt. Koya, Wakayama Pref., 31. vii. 1995, I. Matoba leg.

Distribution. Japan: Honshu (Nara and Wakayama Prefs.).

Redescription. Male and female: Body 3.2–3.7 mm (fore body 1.6–1.9 mm) in length. Head weakly to moderately shining; head black, with clypeofrontal area and sometimes also median part of interocular area dark red; pronotum and elytra reddish orange to dark red; abdomen reddish brown to dark red, sometimes with apical segments infuscate; labrum reddish orange to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct or almost distinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 85C) modified with a flat area on each of the 4th and 5th, a very shallow, shallow or moderately deep depression on the 6th, a large, moderately deep or deep depression on the 7th, and an arcuate, broad, shallow emargination on the 8th ventrite (Fig. 85D); 9th tergum (Fig. 85G) with ventral apophyses moderately long; 9th ventrite (Fig. 85F) with apicolateral teeth very long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 85G) shallowly emarginate posteromedially. Aedeagus (Fig. 85E) with median lobe very slender, acutely pointed at apex with a slightly long apicomedian cusp; apical sclerotized area elongate-subpentagonal in shape, very narrow. Endophallus (Fig. 85E) with copulatory tube moderately long, with basal chamber large, ovoidal, main tube attenuate, slightly bisinuous behind the middle; expulsion hooks (Fig. 85A) very elongate, each very acutely pointed at anterior tip, well-rounded at posterior tip; ventromedian bands moderately long, moderately broad. Parameres (Fig. 85E) each very acutely pointed at apex; apical area very long, broadened dorsoventrally, mesially with 16–17 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 85H) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 85B) with capsule hardly developed; striped duct long, thick to very thick; duct very long, moderately thick to thick, tightly coiled; basal valve short; basal duct short.

Biology and ecology. The beetles of *S. jukata* inhabit leaf litter heaped in the natural forests of mountainous regions.

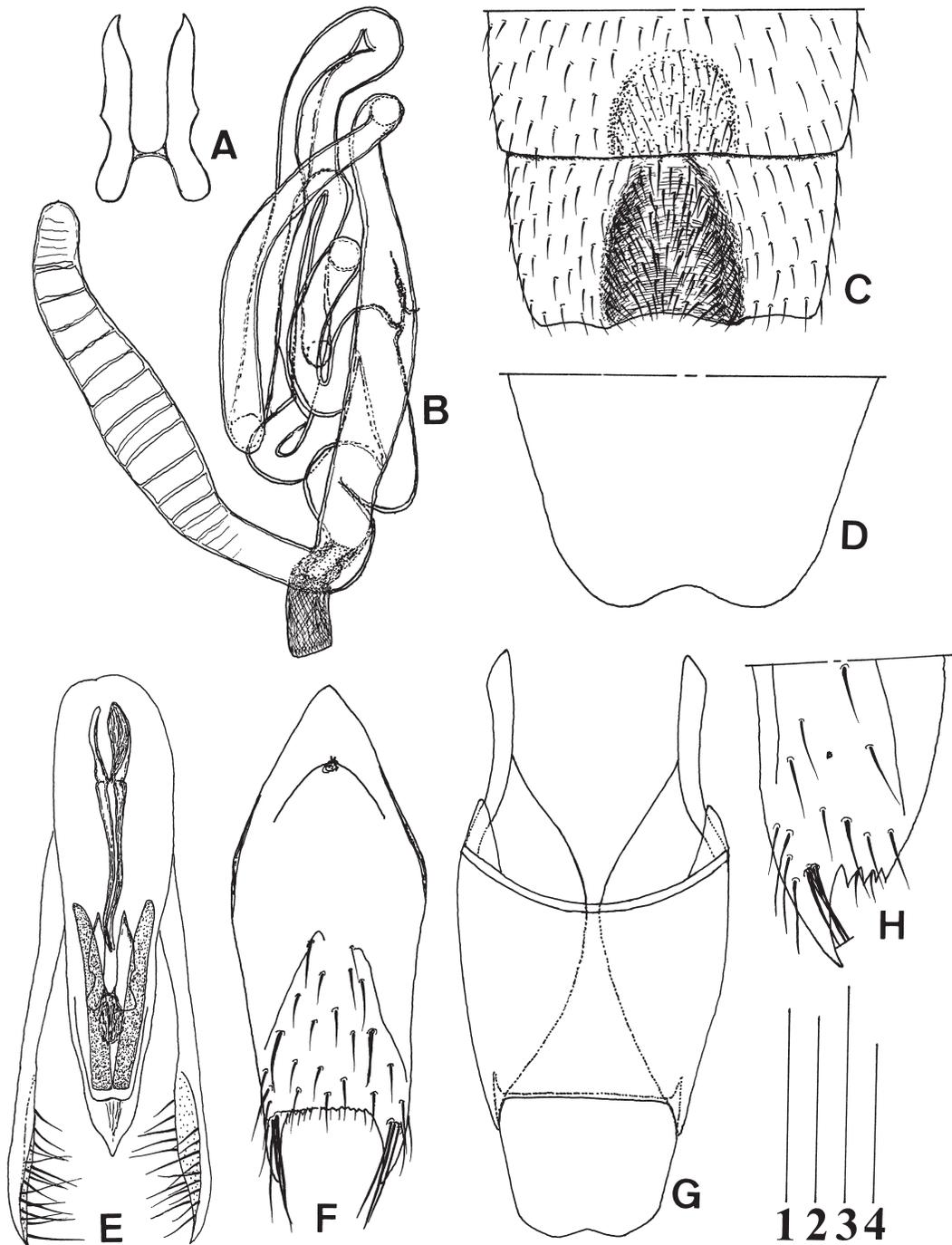


Fig. 85. *Stenus jukata* Hromádka (Nara: A, D–F, Zenki Valley, B, C, H, Mt. Inamura, G. Mt. Oomine). A, endophallic expulsion hooks; B, spermatheca, C, 6th and 7th ventrites of male; D, posterior part of 8th ventrite of male; E, aedeagus; F, 9th ventrite of male; G, 9th and 10th terga of male; H, posterior part of gonocoxite. Scale 1: 0.1 mm for A, B, H, 0.2 mm for E, F; scale 2: 0.25 mm for C; scale 3: 0.25 mm for D; scale 4: 0.2 mm for G.

Remarks. *S. jukata* is allied to *S. ferus*, but it is separable from the latter species by the aedeagal median lobe with its apical part narrower (Fig. 85E), the copulatory tube with its basal chamber shorter (Fig. 85E), the endophallic expulsion hook narrower (Fig. 85A), and the spermatheca with its duct longer (Fig. B85).

Etymology. The specific epithet of this species is derived from a summer casual kimono-wear in Japan, yukata.

***Stenus ferus* Naomi**
(Fig. 86A–G)

Stenus ferus Naomi, 2012: 305; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Sugari-cho, Owase City, Mie Pref., 19. i. 1997, A. Amagasu leg. Paratypes: 2 ♂2 ♀, same locality as holotype; 3 ♂5 ♀, Nako, Kisei-cho, Watarai-gun, Mie Pref., 19. i. 1997, A. Amagasu leg.; 1 ♂2 ♀, Sugari, Owase City, Mie Pref., 13. i. 1996, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 3.0–3.8 mm (fore body 1.6–1.9 mm) in length. Body moderately shining; head black, sometimes with clypeofrontal or median area reddish brown to dark red; pronotum and elytra reddish brown to brown or dark reddish brown; abdomen dark red at basal segments, becoming darker toward apical segments which are almost black; labrum reddish brown to brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse punctures. Head shallowly to moderately concave, with a pair of almost mesially- curved furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct or indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures very thin in the 4th, lost in 5th and 6th segments.

Male: Abdomen modified with a flat area on the 5th, a very shallow depression on the 6th, a moderately deep or deep depression on the 7th, and an arcuate, broad, shallow emargination on the 8th ventrite (Fig. 86D); 9th tergum (Fig. 86C) with ventral apophyses slightly short; 9th ventrite (Fig. 86B) with apicolateral teeth long, obtusely pointed, apicolateral setae moderately long; 10th tergum (Fig. 86C) shallowly emarginate posteromedially. Aedeagus with median lobe (Fig. 86A) very slender, well-rounded at apicolateral corners, very acutely pointed at apex with a moderately long apicomedian cusp; apical sclerotized area nearly triangular, bisinuate basally. Endophallus (Fig. 86A) with copulatory tube with basal chamber very long, main tube moderately long, attenuate, slightly curved (Fig. 86A); dorsolateral bands (Fig. 86A) thin; expulsion hooks (Fig. 86G) elongate, each with anterior plate acutely pointed at anterior tip, posterior plate obtusely angulate at posteromesial corner; ventromedian bands slightly short, moderately broad. Parameres (Fig. 96A) moderately thick to thick, each very acutely pointed at apex; apical area very long, moderately swollen laterally, mesially with 10 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 86E) each with apicolateral tooth long, very acute, apicolateral setae short. Spermatheca (Fig. 86F) with capsule very long, nearly fusiform, almost pointed at apex; striped duct short, moderately thick, somewhat indistinct; duct slightly short, moderately thick, with 4 turns; gland small, spherical, with open-

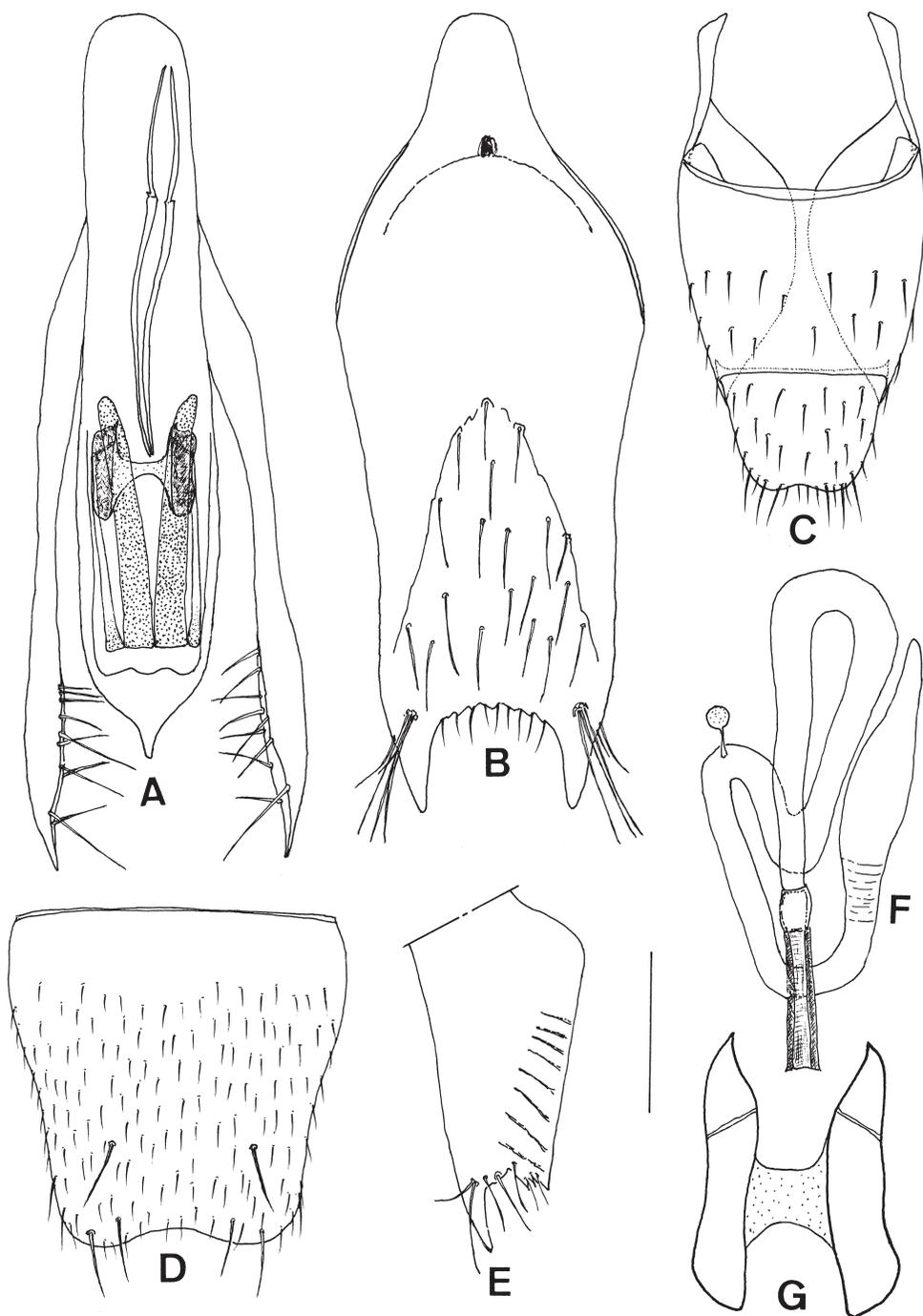


Fig. 86. *Stenus ferus* Naomii (Mic: A–D, F, Owase, E, G, Kisei). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, 8th ventrite of male; E, gonocoxite; F, spermatheca; G, endophallic expulsion hooks. Scale: 0.1 mm for A, B, F, 0.2 mm for C–E, 0.05 mm for G.

ing located on the 3rd turn of duct; basal valve short; basal duct long.

Biology and ecology. The beetles of *S. ferus* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. ferus* is allied to *S. jukata*, but it is separable from the latter species by the aedeagal median lobe with its apical part broader (Fig. 86A), the copulatory tube with its basal chamber longer (Fig. 86A), the endophallic expulsion hook broader (Fig. G), and the spermatheca with its duct shorter (Fig. 86F).

***Stenus deltooides* Naomi, Nomura & Kamezawa**
(Figs. 87A–G, 134G)

Stenus deltooides Naomi, Nomura & Kamezawa, 2015: 326.

Type material examined. Holotype: ♂ (NMNST), Karikomi Pond, Ohno City, Fukui Pref., 17. vi. 2001, H. Hoshina leg. Paratypes: 2♂1♀, same data as holotype; 1♂1♀, Roppon-hinoki, Mt. Hakusan, Ishikawa Pref., 3. x. 2002, S. Nomura leg.

Distribution. Japan: Honshu (Ishikawa and Fukui Prefs.).

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.6–1.8 mm) in length. Body moderately shining; head black; pronotum and elytra dark red; abdomen reddish brown through dark red to black; labrum reddish brown; antennae and legs yellowish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; tergoventral sutures completely lost but lateroventrites each thin, running in a superficial way.

Male: Abdomen (Fig. 87A) modified with a semicircular, flat area on the 6th, an elongate, shallow depression on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite (Fig. 87D); 9th tergum (Fig. 87B) with ventral apophyses long; 9th ventrite (Fig. 87C) with macrosetae moderately long, apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 87B) entire. Aedeagus (Fig. 87G) with median lobe moderately broad at base, almost parallel-sided before apicolateral corners, acutely pointed at apex; apical sclerotized area triangular, small. Endophallus (Fig. 87G) with copulatory tube short, with basal chamber small, main tube thick at base, strongly bent at the part a little distal from the thick basal part; dorsolateral bands very thin; expulsion hooks each with anterior plate completely fused with posterior plate, each hook elongate-subtriangular in shape, mesially protruding at the middle of mesial part; ventromedian bands long, thin. Parameres (Fig. 87G) each very acutely pointed at apex; apical area very long, slightly broad when seen laterally, mesially with 12 to 13 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 87E) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 87F) with capsule large, well-rounded apically; striped duct long, thick to very thick; duct moderately long, thin to moderately broad, loosely coiled with 6 to 7 turns; gland with opening located on the lateral side of duct a little proximal from the base of striped duct; basal valve short; basal duct sclerotized, moderately long, thin; basal pouch conical. Basal structure (Fig. 87F) very large, truncated-conical in shape.

Biology and ecology. The beetles of *S. deltooides* inhabit leaf litter heaped in the natural for-

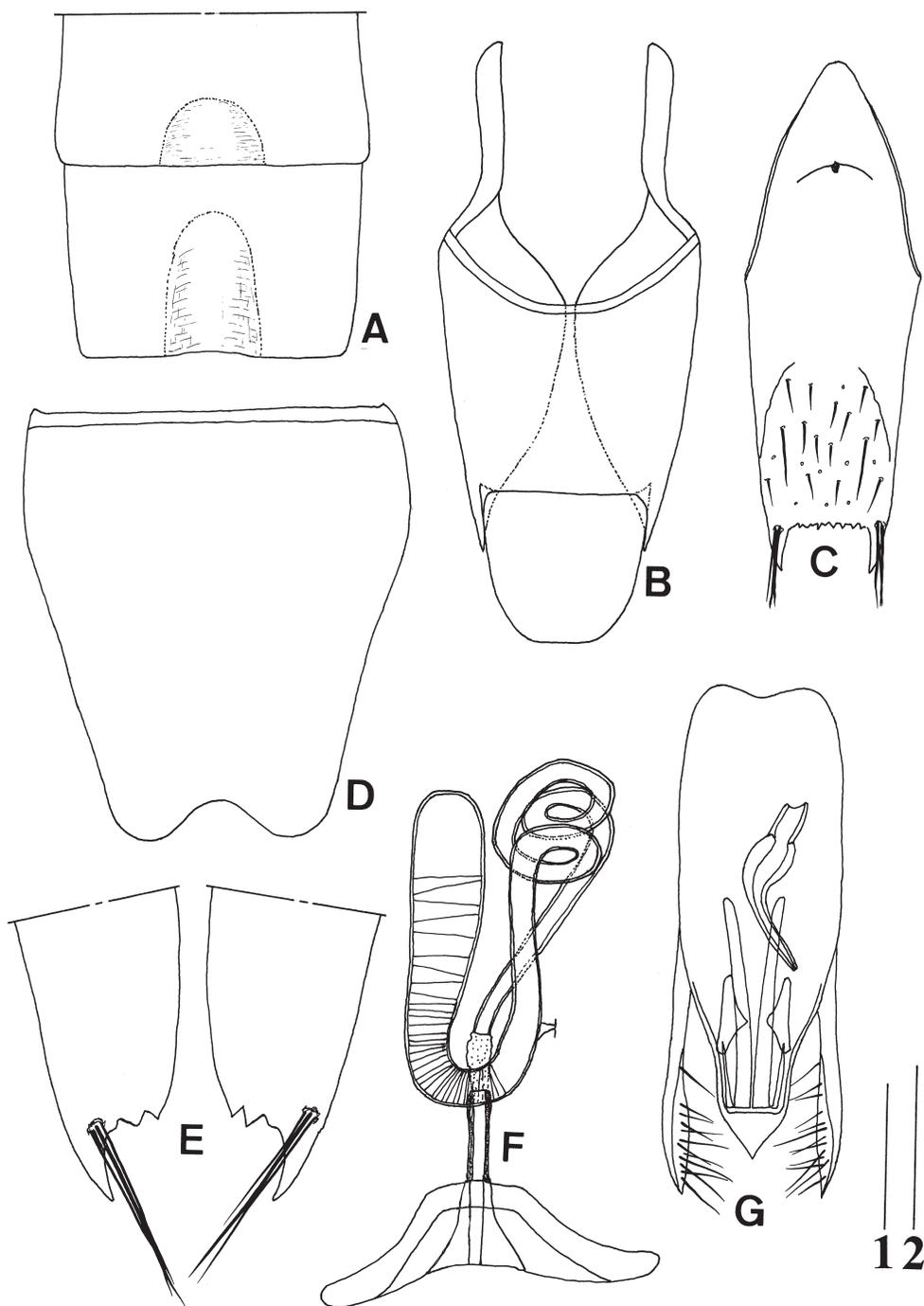


Fig. 87. *Stenus deltoides* Naomi, Nomura & Kamezawa (Fukui: A, Karikomi Pond; Ishikawa, B–G: Mt. Haku-san). A, 6th and 7th ventrites of male; B, 9th and 10th terga of male; C, 9th ventrite of male; D, 8th ventrite of male; E, posterior parts of gonocoxites; F, spermatheca; G, aedeagus. Scale 1: 0.3 mm for A; scale 2: 0.2 mm for B–D, G, 0.1 mm for E, F.

ests of low mountainous to high mountainous regions.

Remarks. *S. deltoides* is allied to *S. ohtoensis* and *S. cygnipenis*, but it is separable from the latter 2 species by the aedeagal median lobe almost parallel-sided before the apicolateral corners (Fig. 87G), the endophallic expulsion hook elongate-subtriangular in shape (Fig. 87G), the ventromedian band much thinner (Fig. 87G), and the paramere with its apical area longer (Fig. 87G).

***Stenus ohtoensis* Naomi**
(Fig. 88A–H)

Stenus ohtoensis Naomi, 2006: 38; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mt. Ohto, Wakayama Pref., 28–29. vi. 1981, S. Naomi leg. Paratypes: 1 ♀ (CBM), same data as holotype; 9 ♂♀, same data as holotype.

Distribution. Japan: Honshu (Wakayama Pref.).

Redescription. Male and female: Body 3.5–3.8 mm (fore body 1.7–1.9 mm) in length. Body moderately to strongly shining; head black, sometimes with median or clypeofrontal area dark red; pronotum and elytra reddish brown to dark reddish brown; abdomen dark reddish brown to dark red or dark red near black; labrum reddish brown; antennae yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of mesially-curved furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 88F) modified with a flat area on the 5th, and a shallow depression on the 6th, a very deep depression on the 7th, and a very shallow emargination on the 8th ventrite (Fig. 88H); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 88E) with apicolateral teeth moderately long, acute, apicolateral setae moderately long; 10th tergum entire. Aedeagus (Fig. 88B) with median lobe strongly narrowing apicad, weakly bi-sinuate laterally in the apical 1/2, narrowly rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area subtriangular, with a median longitudinal line. Endophallus (Fig. 88B) with copulatory tube (Fig. 88C) with basal chamber comprising a broad plate and a rod, main tube baculiform, attenuate, weakly curved on its way; expulsion hooks (Fig. 88G) located almost parallel to each other, each elongate, subparallel-sided, with posterior plate obtusely angulate at posterolateral corner; ventromedian bands long, moderately broad. Parameres (Fig. 88B) each very acutely pointed at apex; apical area long, mesially with 11 long to very long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 88I) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 88A) with capsule very small, almost rounded apically; striped duct long, moderately thick to thick; duct short, moderately thick to thick, coiled with 4 turns; gland with opening located on the lateral side of duct between the 3rd and 4th turns; basal valve very short; basal duct long; basal pouch broad-subconical in shape, membranous.

Biology and ecology. The beetles of *S. ohtoensis* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. ohtoensis* is allied to *S. cygnipenis*, but it is separable from the latter species by the 8th ventrite of male very shallowly emarginate posteriorly (Fig. 88F), the copulatory tube

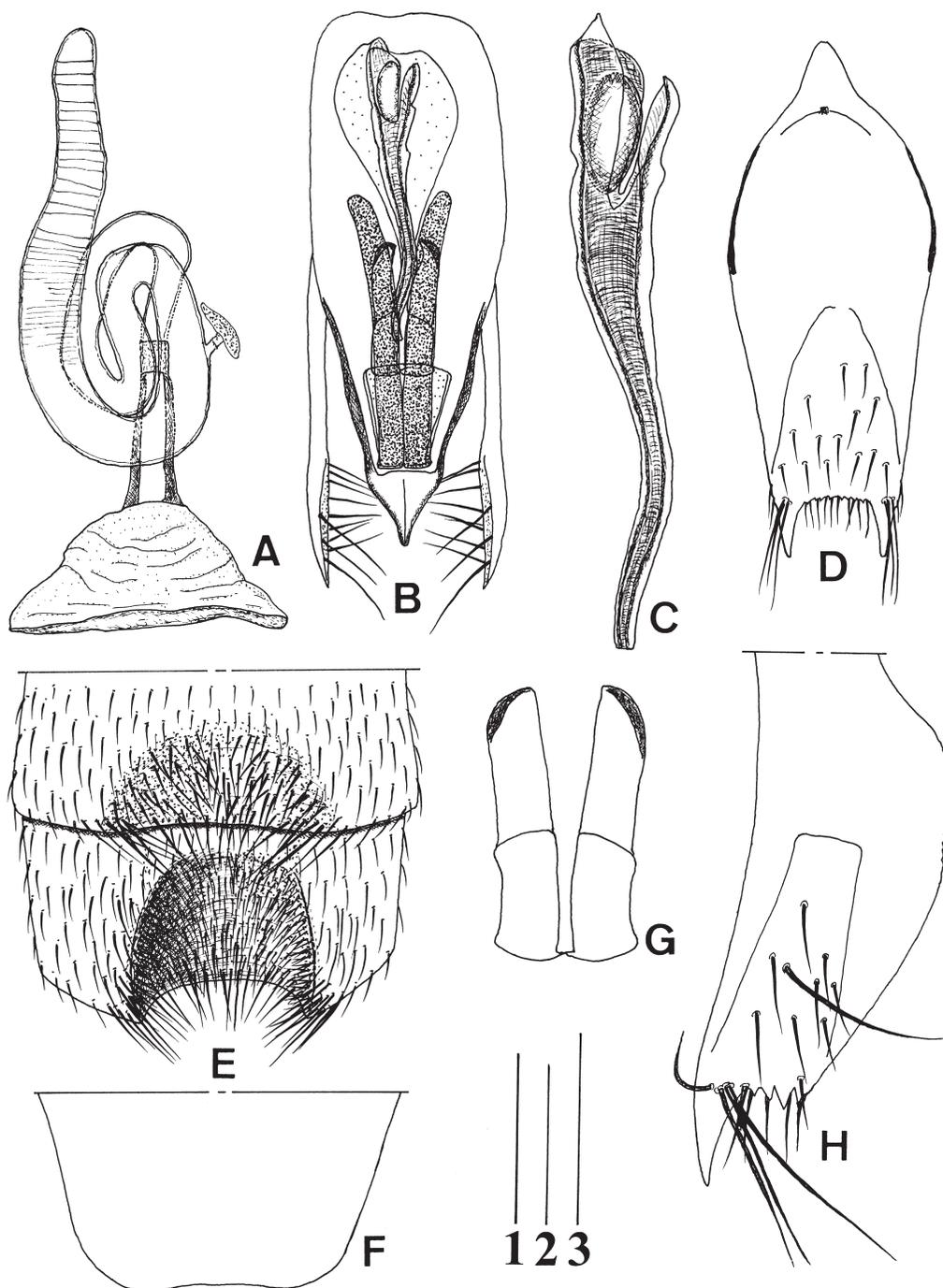


Fig. 88. *Stenus ohtoensis* Naomi (Wakayama: Mt. Ohto). A, spermatheca; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, 6th and 7th ventrites of male; F, posterior part of 8th ventrite of male; G, endophallic expulsion hooks; H, gonocoxite. Scale 1: 0.1 mm for A, C, G, H, 0.2 mm for B, D; scale 2: 0.25 mm for E; scale 3: 0.25 mm for F.

with its main tube once weakly curved on its way, without any modification at base (Fig. 88C), the endophallic expulsion hook with its anterior plate broader and almost rounded anterolaterally; (Fig. 88G), and the spermatheca with its duct thicker (Fig. 88A).

Stenus cygnipenis Puthz
(Fig. 89A–G)

Stenus cygnipenis Puthz, 2001: 52; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (SMNHS), near Hirai (ca 300 m), Wakayama Pref., 14. vii. 1999, V. Puthz leg. Paratypes: 1 ♂ 1 ♀, same data as holotype.

Distribution. Japan: Honshu (Wakayama Pref.).

Redescription. Male and female: Body 3.7–4.3 mm (fore body 1.9–2.1 mm) in length. Body moderately to strongly shining; head black or with anterior marginal area reddish brown to dark red; pronotum and elytra yellowish brown to reddish brown; abdomen dark reddish brown to dark brown; labrum reddish brown to dark brown; antennae and legs yellow brown to pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 89F) modified with a flat area on the 4th, a very large, almost flat area on the 5th, a moderately deep depression on the 6th, and a very deep depression on the 7th, and a posterior truncation on the 8th ventrite (Fig. 89G); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 89E) with apicolateral teeth slightly short, very acute, apicolateral setae slightly short; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 89B) with median lobe strongly narrowing apicad in the apical 1/2, narrowly rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 89B) with copulatory tube with basal chamber small, dorsally with a triangular emargination, main tube strongly expanding ventrally to form a pair of angulate flaps near the basal 1/3, twice strongly curved behind the angulate flaps; expulsion hooks elongate, each with anterior plate attenuate, moderately curved mesially at anterior tip; ventromedian bands slightly short, moderately broad. Parameres (Fig. 89A) each very acutely pointed at apex; apical area long, mesially with 12 to 13 moderately long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 89I) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 89E) with capsule very long, rounded apically; striped duct slightly short, thick; duct short, moderately thick, coiled with 4 turns; basal valve very short; basal duct moderately long; basal pouch broad-subconical in shape, membranous.

Biology and ecology. The beetles of *S. cygnipenis* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. cygnipenis* is allied to *S. ohtoensis*, but it is separable from the latter species by the 8th ventrite of male truncate posteriorly (Fig. 89G), the copulatory tube with its main tube twice weakly curved on its way, ventrally with a pair of angulate flaps near the basal 1/3 (Fig. 89B), the endophallic expulsion hook with its anterior plate narrower, attenuate anteriorly, and moderately curved mesially at the anterior tip (Fig. 89B), and the spermatheca with its duct thin-

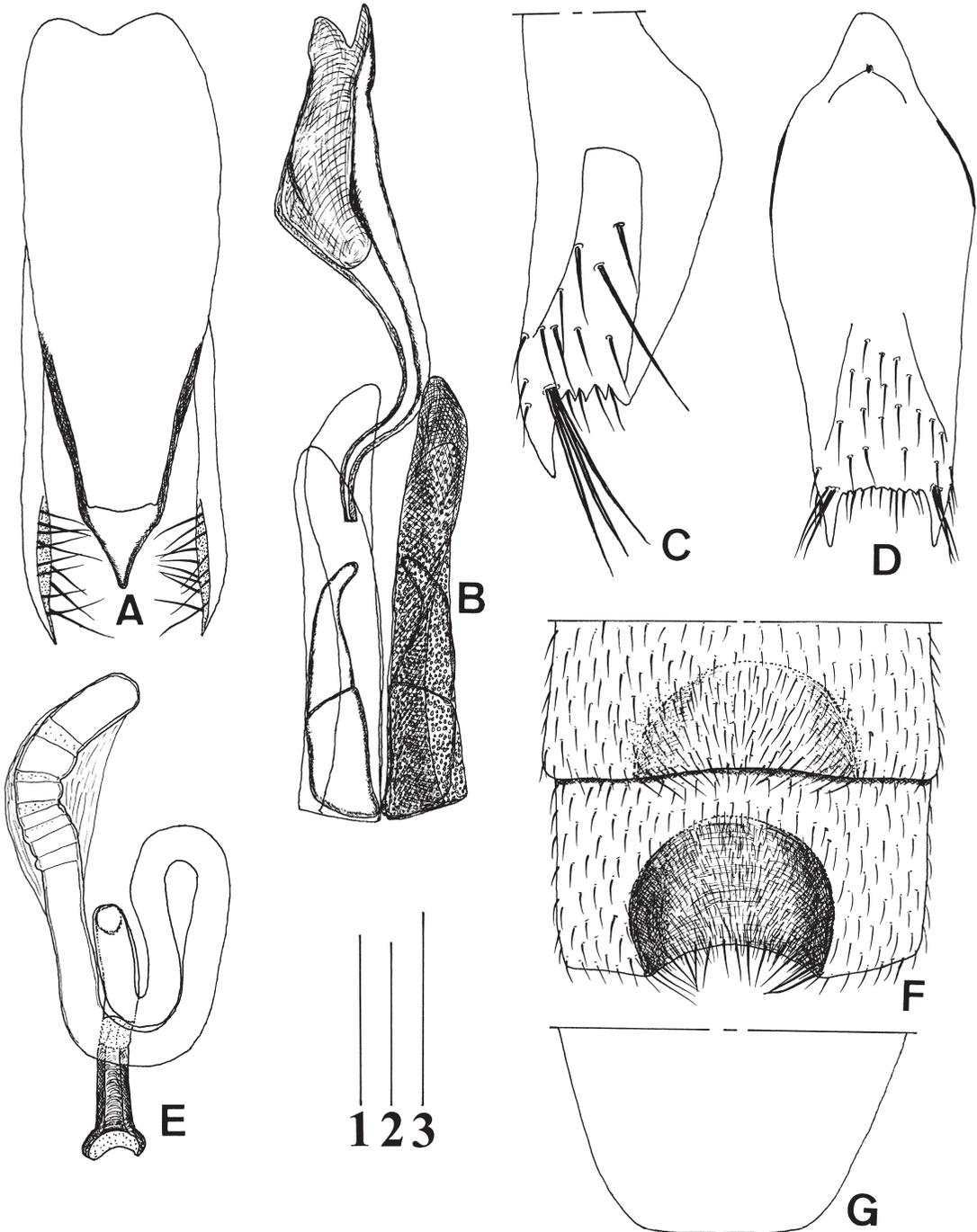


Fig. 89. *Stenus cygnipenis* Puthz (Wakayama: Hirai). A, aedeagus; B, endophallic copulatory tube, expulsion hooks and ventromedian bands; C, gonocoxite; D, 9th ventrite of male; E, spermatheca; F, 6th and 7th ventrites of male; G, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A, D, 0.1 mm for B, C, E; scale 2: 0.25 mm for F; scale 3: 0.25 mm for G.

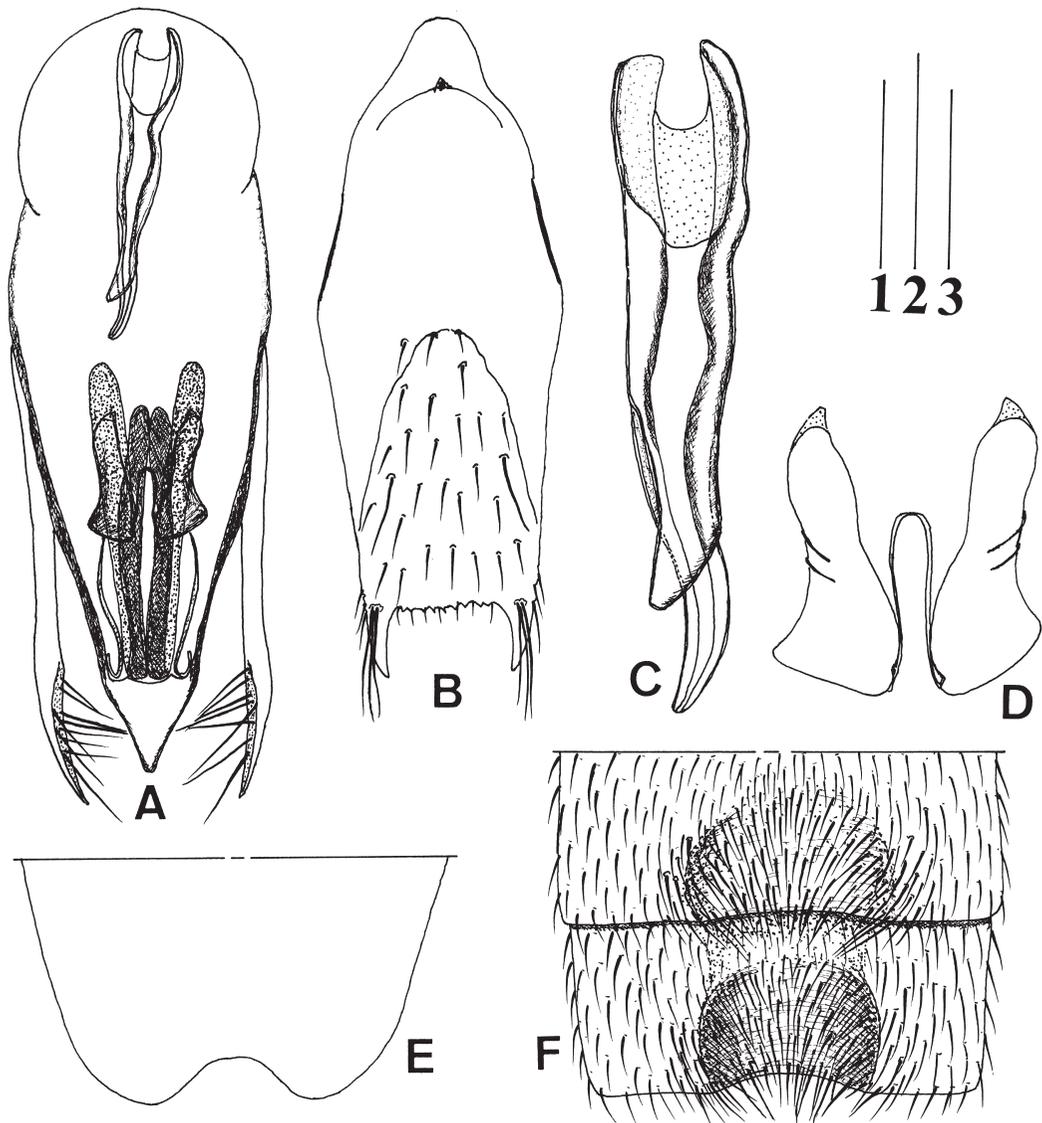


Fig. 90. *Stenus agrestis* Naomi (Mie: Nanto). A, aedeagus; B, 9th ventrite of male; C, copulatory tube; D, endophallic expulsion hooks; E, posterior part of 8th ventrite of male; F, 6th and 7th ventrites of male. Scale 1: 0.2 mm for A, B, 0.1 mm for C, D; scale 2: 0.25 mm for E; scale 3: 0.25 mm for F.

ner (Fig. 89E).

Stenus agrestis Naomi
(Fig. 90A–F)

Stenus agrestis Naomi, 2006: 42; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Nanto, Mie Pref., 26. ii. 1987, A. Amagasu leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male: Body 4.5 mm (fore body 2.1 mm) in length. Body moderately shining. Head black, with clypeofrontal area dark red; pronotum and elytra dark red; abdomen dark reddish brown, with apical segments almost black; labrum, antennae and legs reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum and elytra partially with subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 90F) modified with a flat area on each of the 4th and 5th, a deep depression on the 6th, a deep anteromedian and a deep posteromedian depression on the 7th, and an arcuate, large, moderately deep emargination on the 8th ventrite (Fig. 90E); 9th tergum with ventral apophyses long; 9th ventrite (Fig. 90B) with apicolateral teeth moderately long, very acute, apicolateral setae slightly short; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 90A) with median lobe strongly narrowing apicad in the apical 1/2, almost acutely pointed at apex; apical sclerotized area almost triangular. Endophallus (Fig. 90A) with copulatory tube (Fig. 90C) having basal chamber large, ovoidal, main tube baculiform, bifurcate at apex so that apical tube arising from the dorsal surface a little proximal from the apex of basal tube (or basal tube having a horn-like process at apicoventral part), apical tube attenuate, weakly curved; dorsolateral bands very thin; expulsion hooks (Fig. 90D) each with anterior plate membranous, pointed at anterior tip, posterior plate broad, angulate at posterolateral corner; ventromedian bands moderately long, moderately broad. Parameres (Fig. 90A) each very acutely pointed at apex; apical area long, mesially with 8 to 10 long to very long setae.

Female: Unknown.

Biology and ecology. The beetle of *S. agrestis* inhabits leaf litter heaped in the natural forest of a low mountainous region.

Remarks. *S. agrestis* is allied to *S. olliformis*, but it is separable from the latter species by the 6th ventrite of male with a larger depression (Fig. 90F), the aedeagal median lobe broader (Fig. 90A), the copulatory tube with its basal tube having a horn-like process at the apicoventral part (Fig. 90C), the endophallic expulsion hook with its posterior plate broader and angulate at the posterolateral corner (Fig. 90D).

Stenus olliformis Naomi

(Figs. 91A–I, 134H)

Stenus olliformis Naomi, 2006: 44.

Stenus olliformis owasenus Naomi, 2006: 46. **New synonym.**

Type material examined. Holotype of *S. olliformis*: ♂ (CBM), Mt. Inamura, Oomine, Nara Pref., 16. vi. 1995, T. Ito leg. Paratypes of *S. olliformis*: 1 ♀ (CBM), same data as holotype; 2 ♂ 1 ♀, same locality, 23. vii. 1994, T. Ito leg.; 1 ♂, same locality, 22. vii. 1994, T. Ito leg.; 1 ♂, same locality, 11. vi. 1993, T. Ito leg.; 2 ♀, same locality, 17. vi. 1995, T. Ito leg.

Holotype of *S. olliformis owasenus*: ♂ (CBM), Sugari, Owase City, Mie Pref., 13. i. 1996, H. Yokozeki leg.

Other material examined. [HONSHU]: 2 ♂, Kiinagashima-cho, Mie Pref., 9. ii. 1992, H. Yokozeki leg.

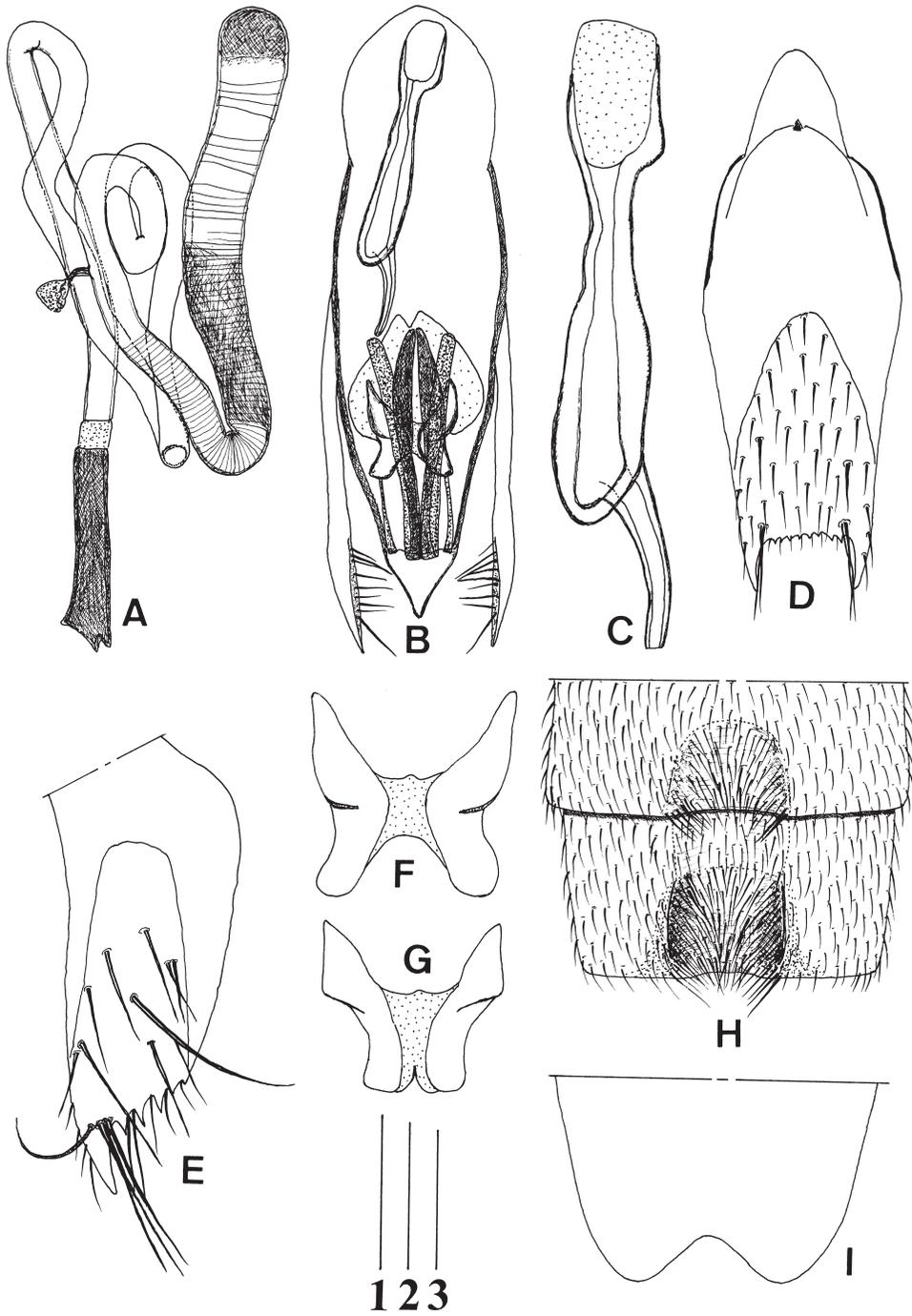


Fig. 91. *Stenus olliformis* Naomi. (Nara: A-F, H, I, Mt. Inamura, G, Owase). A, spermatheca; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, gonocoxite; F, G, endophallic expulsion hooks; H, 6th and 7th ventrites of male; I, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, C, E-G, 0.2 mm for B, D; scale 2: 0.25 mm for H; scale 3: 0.2 mm for I.

Distribution. Japan: Honshu (Nara and Mie Prefs.).

Redescription. Male and female: Body 4.3–5.2 mm (fore body 2.1–2.5 mm) in length. Body moderately shining; head black or with anterior marginal area dark red near black; pronotum, elytra and abdomen reddish brown to dark red; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with subrugose punctures. Head moderately concave, with a pair of mesially-curved furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 91H) modified with a small flat area on the 5th, a moderately deep depression on the 6th, a moderately deep anteromedian and a deep posteromedian depressions on the 7th, and a large, subtriangular, deep emargination on the 8th ventrite (Fig. 91I); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 91D) with macrosetae very short, apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum entire. Aedeagus (Fig. 91B) with median lobe narrowly rounded at apicolateral corners, almost acutely pointed at apex; apical sclerotized area small, subtriangular. Endophallus (Fig. 91B) with copulatory tube (Fig. 91C) having basal tube baculiform, thick, slightly thickening apicad, almost rounded apically, apical tube arising from the dorsal surface near the apex of basal tube, thin, slightly attenuate, weakly curved; dorsolateral bands thin; expulsion hooks (Fig. 91F, G) with apical plates diverging anteriorly, each obtusely pointed at anterior tip, posterior plate almost rounded (Fig. 91F) or almost truncate (Fig. 91G) at posterior tip; ventromedian bands slightly short, very thin. Parameres (Fig. 91B) each very acutely pointed at apex; apical area moderately long, mesially with 9 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 91F) each with apicolateral tooth slightly short, very acute, apicolateral setae long. Spermatheca (Fig. 91A) with capsule very thick, well-rounded apically; striped duct very long, moderately thick to thick; duct moderately long, slightly thin to moderately thick; gland with opening located on the lateral side of duct between the last and last 2nd turns.

Biology and ecology. The beetles of *S. olliformis* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. olliformis owasensis* was newly described as the subspecies of *S. olliformis*, based on one specimen (holotype) of male beetle collected from the same locality (Mie Pref.) as that of nominotypical subspecies in Naomi (2006). This is mainly based on the small, morphological differences between them regarding the shape of the anterior and posterior plates of endophallic expulsion hooks, etc. We compared again the expulsion hooks of *S. olliformis* (Fig. 91F) with those of *S. olliformis owasensis* (Fig. 91G) in the present study. However, since these differences can be regarded as infraspecific variations, *S. olliformis owasensis* Naomi, 2006 is newly placed in synonym with *S. olliformis* Naomi.

S. olliformis is allied to *S. agrestis*, but it is separable from the latter species by the 6th ventrite of male with a smaller depression (Fig. 91H), the aedeagal median lobe narrower (Fig. 91A), the copulatory tube with its basal tube slightly protruding posteriorly beyond the base of apical tube (Fig. 91C), the endophallic expulsion hook with its posterior plate narrower and usually more or less rounded posterolaterally (Fig. 91F, G).

***Stenus ebisu* Naomi**
(Figs. 92A–H, 134I)

Stenus ebisu Naomi, 2006: 47; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Ohdaigahara, Nara Pref., 29. v. 1985, S. Nomura leg. Paratypes: 1 ♀ (CBM) & 6 ♀, same data as holotype; 1 ♂ 2 ♀, same locality, 25–26. vi. 1981, S. Naomi leg.

Other material examined. [HONSHU]: 5 ♂ 1 ♀, Tategasaki, Kumano City, Mie Pref., 28. ii. 1998, H. Yokozeki leg.

Distribution. Japan: Honshu (Nara and Mie Prefs.).

Redescription. Male and female: Body 3.8–4.7 mm (fore body 1.9–2.3 mm) in length. Body moderately to strongly shining; head black, with anterior marginal or clypeofrontal area reddish brown; pronotum and elytra reddish brown to dark reddish brown; abdomen reddish brown with apical segments infuscate, or entirely dark brown near black; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 92G) modified with a flat area on the 4th, a very shallow depression on the 5th, a shallow depression on the 6th, a deep depression on the 7th, and a very large, nearly semicircular, deep emargination on the 8th ventrite (Fig. 92H); 9th tergum with ventral apophyses slightly short; 9th ventrite (Fig. 92D) with macrosetae long, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum entire. Aedeagus (Fig. 92B) with median lobe strongly narrowing apicad in about apical 1/3, narrowly rounded at apicolateral corners, obtusely pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 92B) with copulatory tube (Fig. 92C) having basal chamber and basal tube together gourd-shaped, basal tube fusiform, apical tube arising from the dorsal surface near the apex of basal tube, thin, baculiform, with a pair of minute denticles at the middle of ventral rims; dorsolateral bands thin; expulsion hooks (Fig. 92F) each tadpole-shaped, very acutely pointed at anterior tip, with posterior plate nearly ovoidal, much shorter than anterior plate; ventromedian bands moderately long, each narrow at base, becoming broader anteriorly. Parameres (Fig. 92B) each acutely pointed at apex; apical area long, mesially with 8 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 92F) each with apicolateral tooth slightly short, very acute, apicolateral setae long. Spermatheca (Fig. 92A) with capsule very thick, well-rounded apically; striped duct very long, moderately thick to very thick; duct moderately long, slightly thin to moderately thick; gland small, spherical, with opening located on the duct between the last and last 2nd turns.

Biology and ecology. The beetles of *S. ebisu* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. ebisu* is allied to *S. olliformis* and *S. agrestis*, but it is easily separable from the latter 2 species by the copulatory tube with its basal chamber and basal tube together gourd-shaped (Fig. 92C) and the endophallic expulsion hook tadpole-shaped (Fig. 92F).

Etymology. The specific epithet of this species is derived from the name of one of the Seven

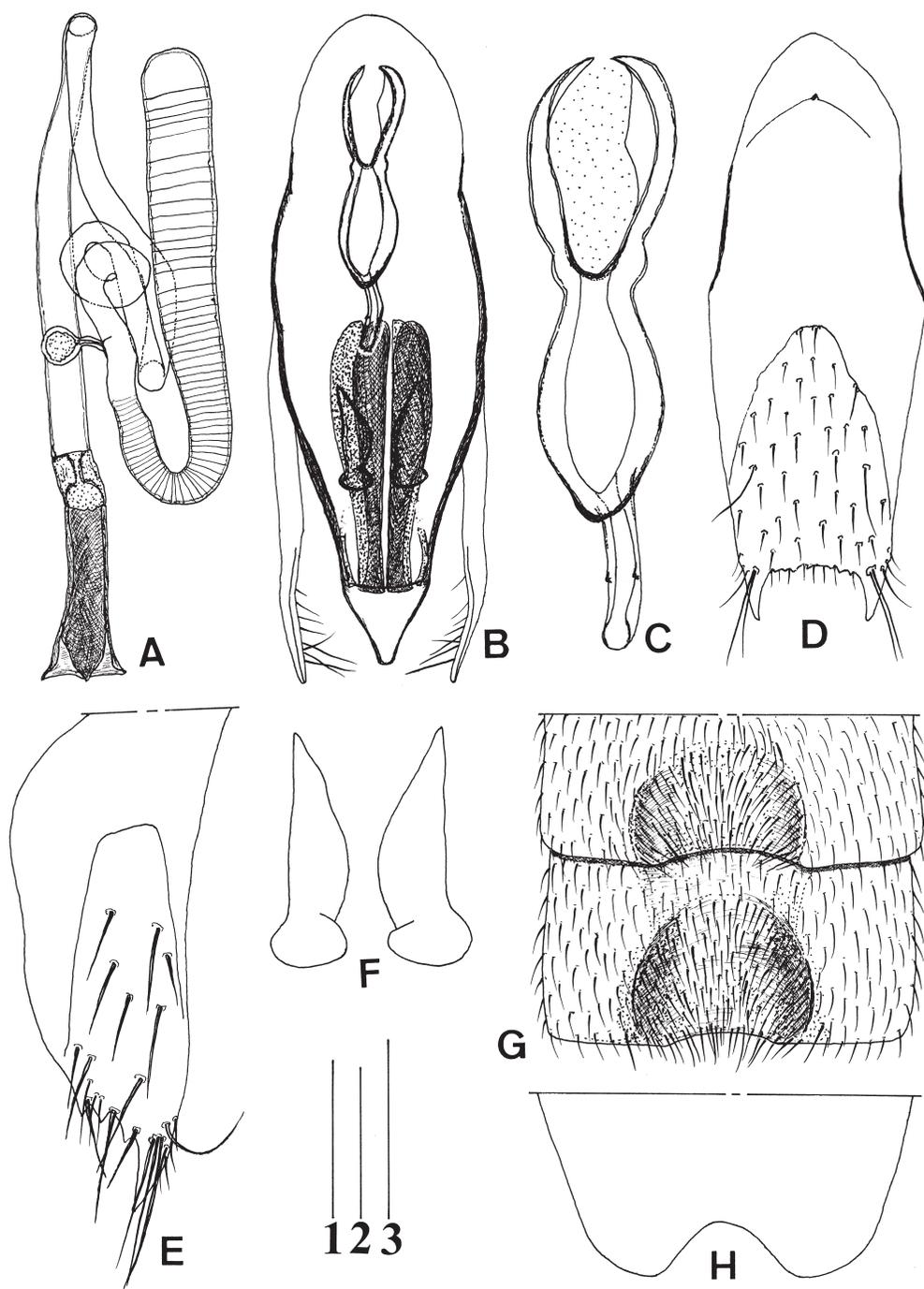


Fig. 92. *Stenus ebisu* Naomi (Nara: Ohdaigahara). A, spermatheca; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, gonocoxite; F, endophallic expulsion hooks; G, 6th and 7th ventrites of male; H, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, C, E, F, 0.2 mm for B, D; scale 2: 0.25 mm for G; scale 3: 0.25 mm for H.

Gods of Good Fortune, Ebisu.

Stenus wasabi Hromádka
(Fig. 93A–H)

Stenus wasabi Hromádka, 1982: 133; Herman, 2001: 2436; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (NHMG), Mt. Daimonji, Kyoto Pref., 20. ix. 1966, K. Sawada leg.

Other material examined. [HONSHU]: 7♂11♀, Kurama, Kyoto, 9. viii. 1985, T. Ito leg.; 1♂1♀, Daimonji, Kyoto, 18. vi. 1989, T. Ito leg.; 1♂, Kibune, Kyoto, 31. viii. 1992, T. Ito leg.; 3♂3♀, Kitayama, Kamiohkubu, Mizuho T., Kyoto, 1. v. 1999, Y. Hayashi leg.; 2♂, Iwakura, Kyoto, 11. iv. 1981, T. Ogata leg.; 1♂3♀, Tentaki, Ooya-cho, Hyogo Pref., 8. vi. 1996, H. Hoshina leg.; 1♂, Shinomi, Sasayama T., Hyogo, 24. v. 1986, Y. Hayashi leg.; 1♀, Kagobou, Sasayama T., Hyogo, 10. x. 1985, Y. Hayashi leg.; 1♂, Mt. Amaishi, Sasayama T., Hyogo, 1. vii. 1982, Y. Hayashi leg.; 8♂7♀, Takara Temple, Yamazaki, Hyogo Pref., 30. ix. 1989, T. Ito leg.

Distribution. Japan: Honshu (Kyoto and Hyogo Prefs.).

Redescription. Male and female: Body 3.6–3.9 mm in length (fore body 1.8–2.0 mm). Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area more or less infusate; pronotum and elytra reddish orange; abdomen reddish brown to dark reddish brown with apical segments more or less infusate; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost mesially-curved furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 93E) modified with a flat area on the 4th, a shallow depression on the 5th, a moderately deep depression on the 6th, a deep depression on the 7th, and an arcuate, slightly broad emargination on the 8th ventrite (Fig. 93H); 9th tergum (Fig. 93B) with ventral apophyses very long; 9th ventrite (Fig. 93F) with apicolateral teeth very short, very acute, apicolateral setae slightly short; 10th tergum shallowly emarginate posteriorly (Fig. 93B). Aedeagus (Fig. 93C) with median lobe strongly narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area small, elongate-subtriangular in shape. Endophallus (Fig. 93C) with copulatory tube having basal chamber large, subconical, main tube twice moderately curved or bent on its way, beak-shaped at apex; expulsion hooks (Fig. 93D) connected each other at the mesial angulate corners a little behind the middle of posterior plates, each with anterior plate anterolaterally curved, acute at anterior tip, posterior plate moderately broad at base, narrowly rounded at posterior tip; ventromedian bands short, very thin. Parameres (Fig. 93C) each very acutely pointed at apex; apical area long, mesially with 15 to 16 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 93G) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 93A) with capsule short; striped duct moderately long, very thick; duct extremely long, thin, with its anterior mass tightly coiled; basal valve short; basal duct moderately long.

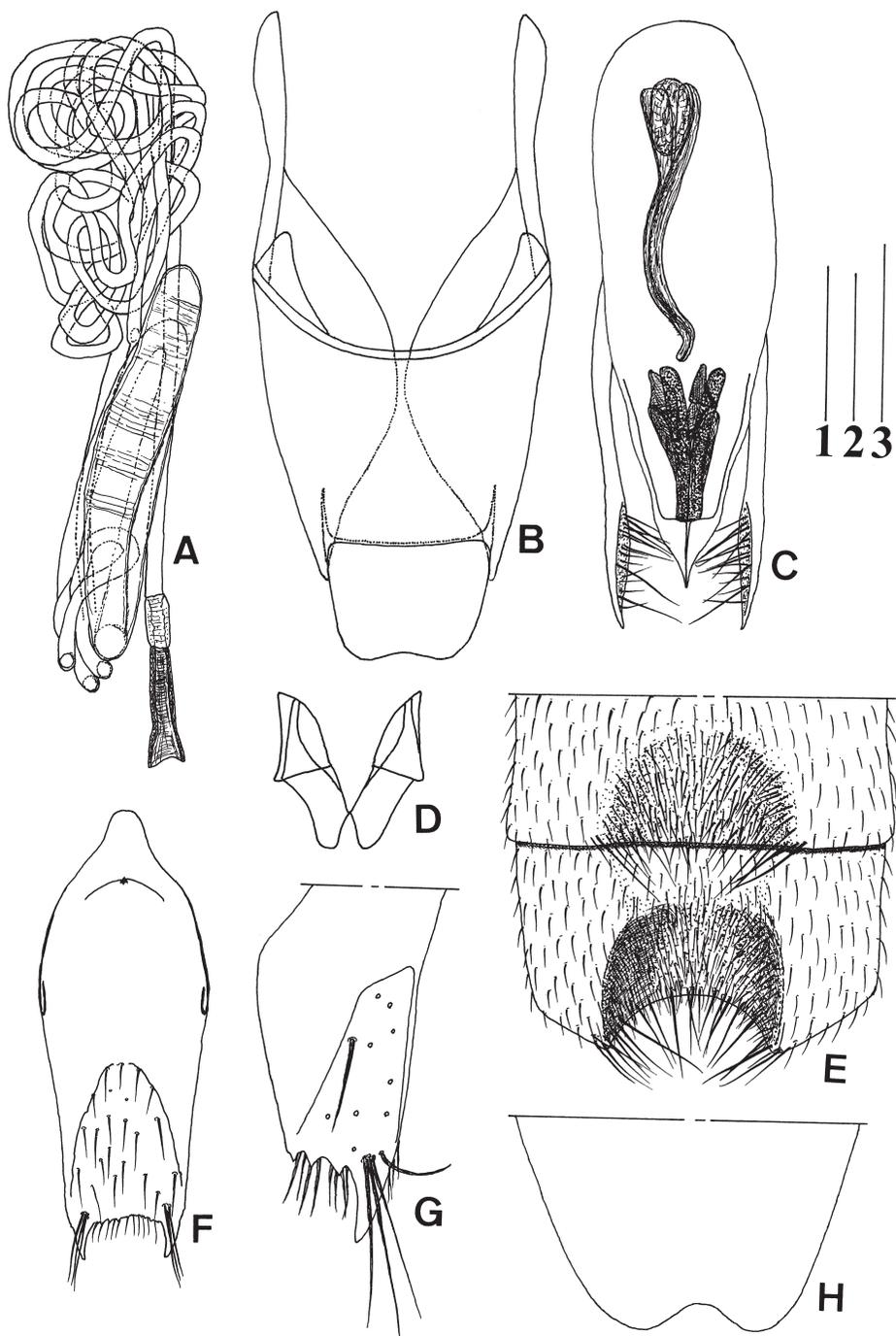


Fig. 93. *Stenus wasabi* Hromádka (Kyoto: A, E, G, H, Kurama, B, D, Mizuho. C, F, Mt. Daimonji). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, endophallic expulsion hooks; E, 6th and 7th ventrites of male; F, 9th ventrite of male; G, gonocoxite; H, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, D, G, 0.2 mm for B, C, F; scale 2: 0.25 mm for E; scale 3: 0.25 mm for H.

Biology and ecology. The beetles of *S. wasabi* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. wasabi* is allied to *S. daigonis* and *S. ingens*, but it is separable from the latter 2 species by the endophallic expulsion hooks connected each other behind the middle of posterior plates, and each hook with its posterior plate narrowly rounded at the apex (Fig. 93D).

Etymology. The specific epithet of this species is derived from the Japanese name of horseradish genus *Armoracia*, wasabi.

***Stenus daigonis* Naomi & Puthz**

(Figs. 94A–K, 134J)

Stenus daigonis Naomi & Puthz, 1993: 310; Herman, 2001: 2155; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (SMNHS), Daigo, Kyoto Pref., 21. v. 1973, K. Sawada leg. Paratype: 1 ♀ (cP), same data as holotype.

Other material examined. [HONSHU]: 1 ♂4 ♀, Uji, Kyoto, 30. xii. 1992, K. Mizuno leg.; 1 ♂3 ♀, Amagase, Uji, Kyoto, 26. iv. 1997, S. Takahashi leg.; 3 ♂1 ♀, Gounho, Uji, Kyoto, 16. xii. 1995, S. Takahashi leg.; 2 ♂1 ♀, Higashikasatori, Uji, Kyoto, 3. iv. 1994, K. Mizuno leg.; 1 ♂2 ♀, Sumiyama, Uji, Kyoto, 13. ii. 1993, K. Mizuno leg.; 2 ♂3 ♀, Mt. Jubusen, Kyoto, 15. ix. 1989, T. Ito leg.; 3 ♂1 ♀, Nonodo, Kyoto, 17. iv. 1994, T. Ito leg.; 1 ♂1 ♀, Daimonji, Kyoto, 7. x. 1989, T. Ito leg.; 5 ♂5 ♀, Mt. Daigo, Kyoto, 17. iv. 1994, T. Ito leg.; 1 ♂1 ♀, Suwa, Ueno City, Mie Pref., 24. x. 1996, H. Yokozeki leg.; 1 ♂4 ♀, Okumura, Shimagahara, Ayama-gun, Mie Pref., 19. xi. 1995, H. Yokozeki leg.; 1 ♂, Sakura Pass, Ayama-cho, Ayama-gun, Mie Pref., 7. xii. 1996, H. Yokozeki leg.

Distribution. Japan: Honshu (Kyoto and Mie Prefs.).

Redescription. Male and female: Body 3.3–4.0 mm (fore body 1.7–2.0 mm) in length. Body moderately shining; head yellowish brown to reddish brown or dark red, with lateral parts of interocular area more or less infuscate; pronotum and elytra yellowish brown to reddish brown; abdomen yellowish brown to reddish brown or dark red, with apical segments infuscate; labrum reddish brown; antennae and legs yellow brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost mesially-curved furrows (or depressions); antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergo-ventrite sutures lost.

Male: Abdomen (Fig. 94B) modified with a flat area on each of the 3rd and 4th, a very shallow depression on the 5th, a moderately deep depression on the 6th, a deep depression on the 7th, and a nearly semicircular emargination on the 8th ventrite (Fig. 94H); 9th tergum with ventral apophyses moderately long; 9th ventrite (Fig. 94F) with apicolateral teeth short, acute, apicolateral setae slightly short; 10th tergum very shallowly emarginate posteromedially or entire (Fig. 94K). Aedeagus (Fig. 94E) with median lobe strongly narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, narrowly rounded at apicolateral corners, very acutely pointed at apex; apical sclerotized area small, elongate-subtriangular in shape. Endophallus (Fig. 94E) with copulatory tube having basal chamber large, main tube twice moderately curved or

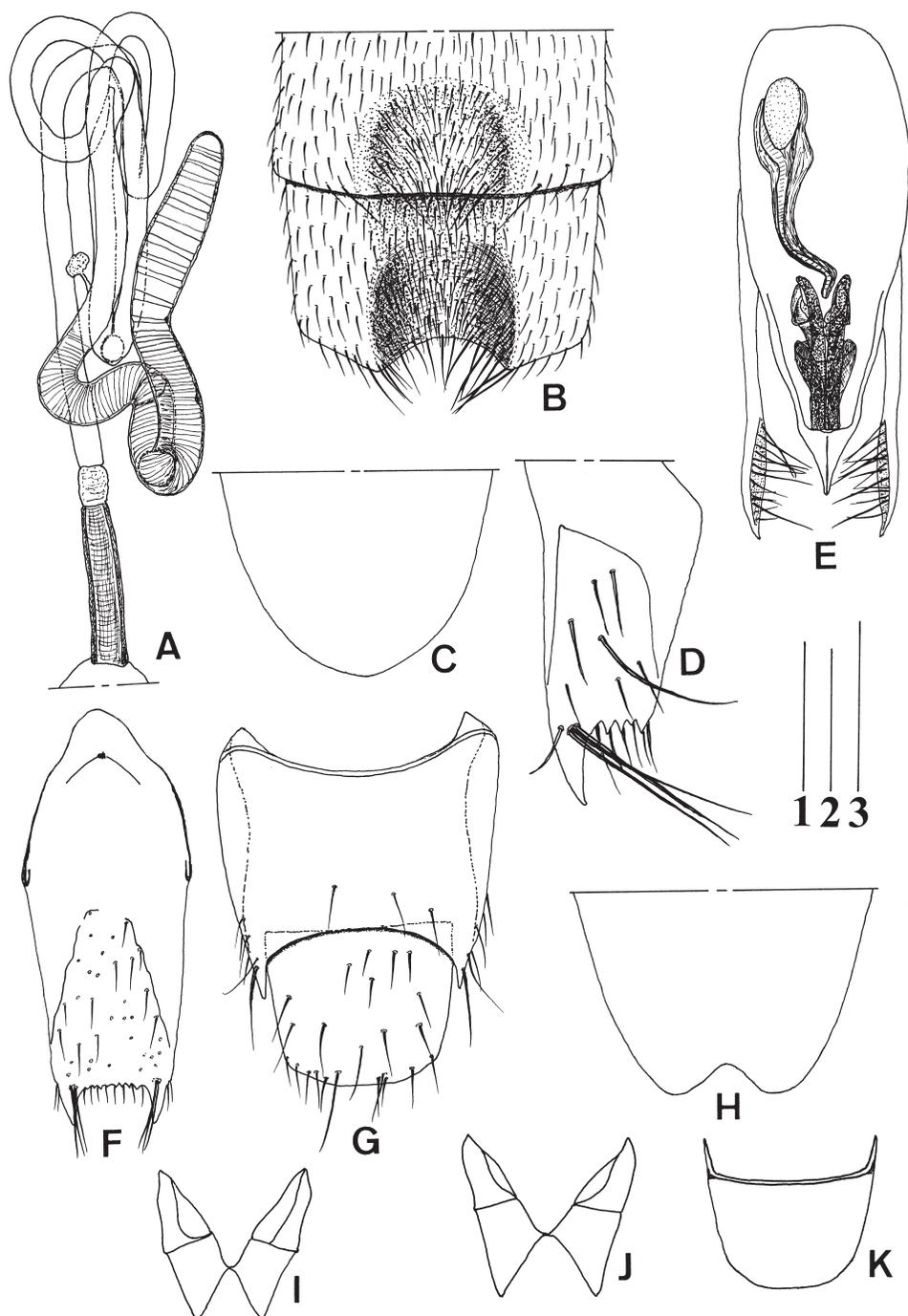


Fig. 94. *Stenus daigonis* Naomi & Puthz (Kyoto and Mie). A, spermatheca; B, 6th and 7th ventrites of male; C, posterior part of 8th ventrite of female; D, gonocoxite; E, aedeagus; F, 9th ventrite of male; G, 9th and 10th terga of female; H, posterior part of 8th ventrite of male; I, J, endophallic expulsion hooks; K, 10th tergum of male. Scale 1: 0.1 mm for A, D, I, J, 0.2 mm for E–G, K; scale 2: 0.25 mm for B; scale 3: 0.25 mm for C, H.

bent on its way, beak-shaped at apex; expulsion hooks (Fig. 94I, J) connected each other at the mesial angulate corners a little before the middle of posterior plates, each with anterior plate acutely pointed at anterior tip, posterior plate nearly tetragonal, broad at base, acute or very acutely pointed at posterior tip, larger than (Fig. 94J) or about as large as (Fig. 94I) anterior plate; ventromedian bands short, very thin. Parameres (Fig. 94E) each very acutely pointed at apex; apical area long, mesially with 14 to 15 setae of various length.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 94D) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 94A) with capsule extremely short; striped duct very long, moderately thick to thick; duct moderately long, moderately thick; gland small, with opening located on the duct between the last 3rd and 4th turns; basal valve very short; basal duct moderately long.

Biology and ecology. The beetles of *S. daigonis* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. daigonis* is closely allied to *S. ingens*, but it is separable from the latter species by the endophallic expulsion hooks connected each other at the mesial angulate corners a little before the middle of posterior plates, and each hook with its posterior plate almost tetragonal, usually broader at the base, and larger than (Fig. 94J) or about as large as (Fig. 94I) anterior plate. In *S. daigonis*, the body are darker in color in the specimens of Mie Pref. examined than in those of Kyoto Pref.

***Stenus ingens* Naomi**
(Fig. 95A–K)

Stenus ingens Naomi, 2006: 62; Naomi & Puthz, 2013: 145.

Stenus ingens ryugadakensis Naomi, 2006: 64; Naomi & Puthz, 2013: 145. **New synonym.**

Type material examined. Holotype of *S. ingens*: ♂ (CBM), Yunoyama, Komono-cho, Mie Pref., 26. x. 1996, H. Yokozeki leg. Paratypes of *S. ingens*: 2♂, same locality, 5. i. 1997, H. Yokozeki leg.

Holotype of *S. ingens ryugadakensis*: ♂ (CBM), Mt. Ryugadake, Daian-cho, Mie Pref., 23. x. 1993, H. Yokozeki leg. Paratype: 1♂, Kiri-hata, Komono-cho, Mie Pref., 1. v. 1998, F. Ichikawa leg

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male: Body 3.4–3.6 mm (fore body 1.7–1.8 mm) in length. Body moderately shining; head dark red to dark reddish brown, with lateral parts of interocular area dark red near black to black; pronotum and elytra reddish orange to reddish brown; abdomen dark red, with apical segments more or less infuscate; labrum reddish brown; antennae and legs yellow brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum and elytra partially with coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 95A, G) modified with a flat area on each of the 3rd and 4th or on the 4th, a flat area or a very shallow depression on the 5th, a shallow (Fig. 95J) or moderately deep (Fig. 95A) depression on the 6th, a moderately deep (Fig. 95J) or deep (Fig. 95A) depression on the

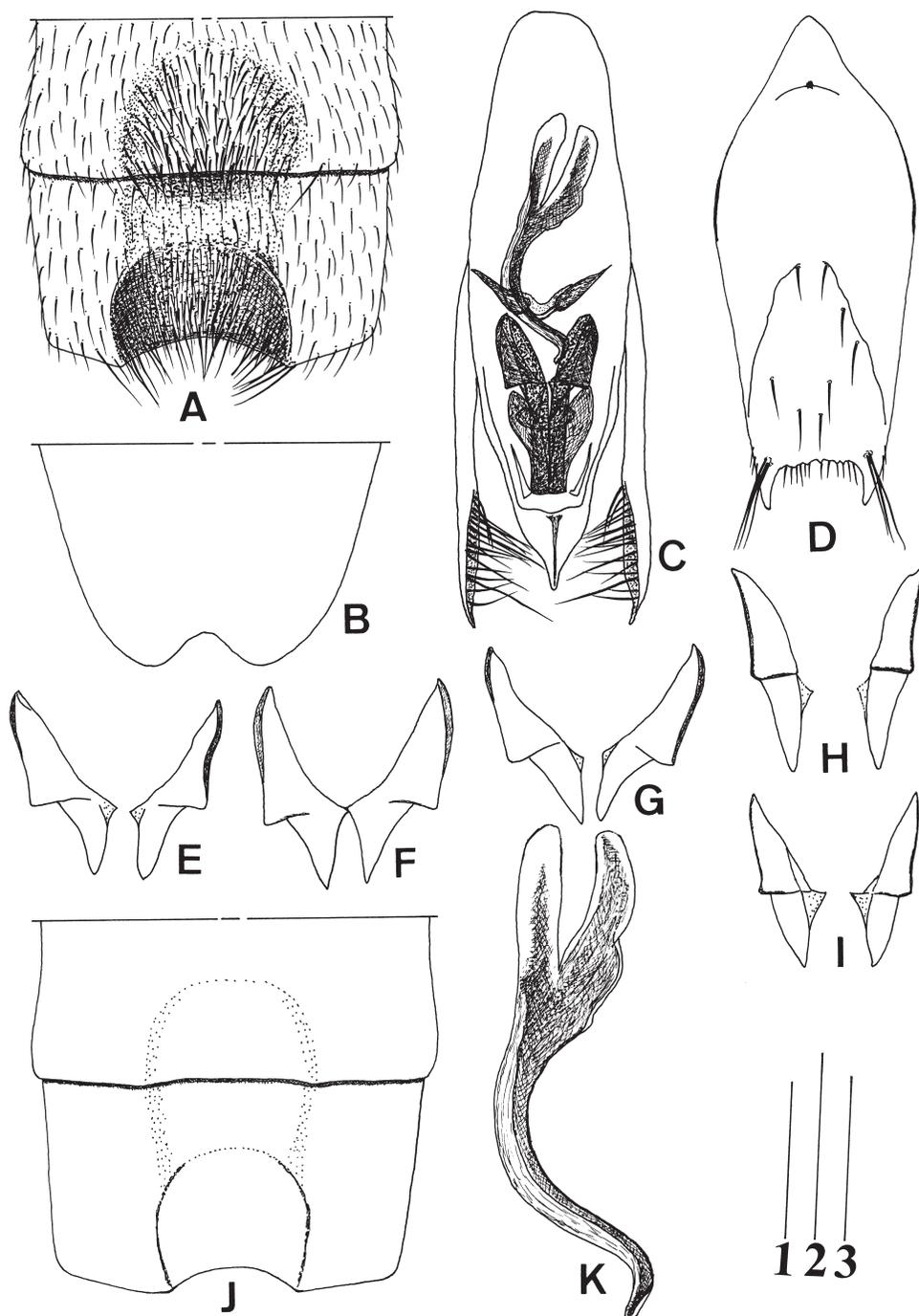


Fig. 95. *Stenus ingens* Naomi (Mie, A–G, K, Yunoyama, H–J, Mt. Ryugatake). A, J, 6th and 7th ventrites of male; B, posterior part of 8th ventrite of male; C, aedeagus; D, 9th ventrite of male; E–I, endophallic expulsion hooks; K, copulatory tube. Scale 1: 0.25 mm for A, J; scale 2: 0.25 mm for B; scale 3: 0.2 mm for C, D, 0.1 mm for E–I, K.

7th, and a moderately large, subtriangular emargination on the 8th ventrite; 9th tergum with ventral apophyses slightly short; 9th ventrite (Fig. 95D) with apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum entire. Aedeagus (Fig. 95C) with median lobe moderately narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area elongate-subpentagonal to elongate-subtriangular in shape. Endophallus (Fig. 95C) with copulatory tube (Fig. 95K) having basal chamber very large, main tube twice strongly curved or bend on its way, beak-shaped at apex; dorsolateral bands very thin; expulsion hooks (Fig. 95E–I) if connected each other, connected at or near the basimesial corners of posterior plates, each with anterior plate elongate-subtriangular in shape, usually slightly curved mesially and acute or very acute at anterior tip, posterior plate elongate-subtriangular in shape, acute or very acute at posterior tip, distinctly (Fig. 95E–G) or slightly smaller than anterior plate (Fig. 95H–I); ventromedian bands slightly short, thin. Parameres (Fig. 95C) each very acutely pointed at apex; apical area long, mesially with 18 setae of various length.

Female: Unknown.

Biology and ecology. The beetles of *S. ingens* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. ingens ryugatakensis* was newly described as the subspecies of *S. ingens*, based on two specimens of male beetles collected from the same locality (Mie Pref.) as that of nominotypical subspecies in Naomi (2006). This is mainly based on the small, morphological differences between them regarding the abdominal modifications of male (depth of depressions, etc.) and the endophallic expulsion hooks (shapes of anterior and posterior plates, etc.). We compared the expulsion hooks of *S. ingens* (Fig. 95A, E–G) with those of *S. ingens ryugatakensis* (Fig. 95J, H–I) in the present study. However, since these differences can be regarded as infraspecific variations, *S. ingens ryugatakensis* Naomi, 2006 is newly placed in synonym with *S. ingens* Naomi, 2006.

S. ingens is closely allied to *S. daigonis*, but it is separable from the latter species by the endophallic expulsion hooks if connected each other, connected at or near the basimesial corners of posterior plates, and each hook with its posterior plate almost elongate-subtriangular in shape, usually narrower at the base and distinctly (Fig. 95E–G) or slightly smaller than anterior plate (Fig. 95H–I).

Stenus lubomiri Naomi

(Fig. 96A–H)

Stenus nakanei Hromádka: Naomi, 1997b: 606 (misidentification).

Stenus lubomiri Naomi, 2006: 64; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mt. Kasagi, Kyoto Pref., 2. iv. 1988, T. Ito leg. Paratypes: 4♂11♀, same data as holotype, T. Ito leg.; 2♂3♀, same locality as holotype, 3. xi. 1984, T. Ito leg.; 3♂2♀, Kabusanji, Takatsuki, Osaka Pref., 13. ix. 1985, T. Ito leg.; 1♂1♀, Mt. Kasuga, Nara Pref., 20. viii. 1980, P. M. Hammond leg.; 1♂, same locality, 20. iv. 1985, T. Ito leg.; 1♂, same locality, 31. x. 1992, T. Ito leg.; 1♀, same locality, 16. viii. 1994, T. Ito leg.; 1♀, same locality, 3. v. 1996, T. Ito leg.; 4♂10♀, Mt. Ikoma, Nara Pref., 6. v. 1985, T. Ito leg.; 2♂5♀, Mt. Kamiji, Ise City, Mie Pref., 10. xii. 1967, Y. Hayashi leg.; 2♂2♀, Koraibiro, Ise City, Mie Pref., 10. i. 1998, H. Ichihashi leg.; 1♀, same locality, 10. i. 1998, H. Yokozeki leg.; 1♂, Kouchi, Anou-cho, Ayama-gun, Mie Pref., 23. xii. 1995, H. Yokozeki leg.

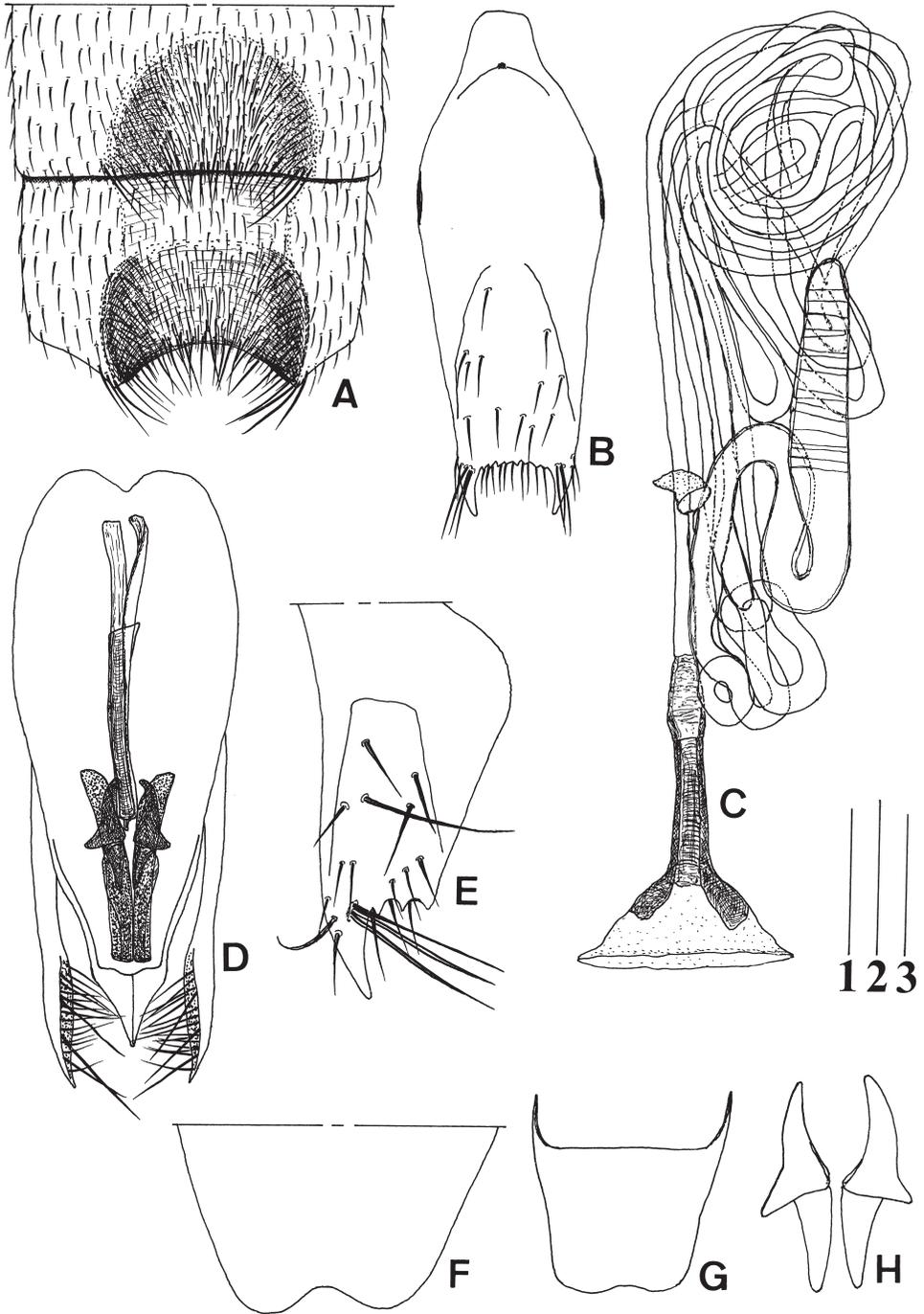


Fig. 96. *Stenus lubomiri* Naomi (Nara: A, D, F–H, Mt. Kasuga; B, C, E, Mt. Ikoma). A, 6th and 7th ventrites of male; B, 9th ventrite of male; C, spermatheca; D, aedeagus; E, gonocoxite; F, posterior part of 8th ventrite of male; G, 10th tergum of male; H, endophallic expulsion hooks. Scale 1: 0.25 mm for A; scale 2: 0.2 mm for B, D, G, 0.1 mm for C, E, H; scale 3: 0.2 mm for F.

Distribution. Japan: Honshu (Kinki District).

Redescription. Male and female: Body 3.6–3.9 mm (fore body 1.6–1.9 mm) in length. Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area more or less infusate; pronotum and elytra reddish orange; abdomen reddish brown to almost brown, with apical segments more or less infusate; labrum reddish orange; antennae and legs yellow brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Male: Abdomen modified with a flat area on each of the 3rd and 4th or on the 4th, a flat area or a shallow depression on the 5th, a shallow or a deep (Fig. 96A) depression on the 6th, a moderately deep or a very deep (Fig. 96A) depression on the 7th, and an arcuate, broad emargination on the 8th ventrite (Fig. 96F); 9th tergum with ventral apophyses moderately long to long; 9th ventrite (Fig. 96B) with apicolateral teeth short, acute, apicolateral setae short; 10th tergum entire or shallowly emarginate posteromedially (Fig. 96G). Aedeagus (Fig. 96C) with median lobe moderately or strongly narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area elongate-subtriangular in shape. Endophallus (Fig. 96D) with copulatory tube having basal chamber comprising 2 long rods, main tube baculiform, long, thin, very weakly curved, with a short, very thin apicomedian process; expulsion hooks (Fig. 96H) each with anterior plate elongate, strongly protruding laterally or posterolaterally at posterolateral corner, narrowing apicad, slightly curved mesially at anterior tip, posterior plate elongate, narrow at base, almost pointed at posterior tip; ventromedian bands slightly short, thin. Parameres (Fig. 96C) each very acutely pointed at apex; apical area long, slightly swollen mesially at base, mesially also with 18 to 19 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 96D) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 96C) with capsule extremely short; striped duct moderately long, thick to very thick; duct extremely long, very thin to moderately thick for the most part, with its anterior mass almost tightly coiled; gland moderate in size, with opening located on the duct between the last 2nd and 3rd turns; basal valve short; basal duct long, with a pair of basal processes; basal pouch broad-subconical in shape.

Biology and ecology. The beetles of *S. lubomiri* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. lubomiri* is allied to *S. ichihashii*, but it is separable from the latter species by the copulatory tube narrower (Fig. 96D), and the endophallic expulsion hook with its anterior plate narrower at the anterior part and strongly protruding laterally or posterolaterally at the posterolateral corner and its posterior plate narrower at base.

Etymology. This species is named after the late Mr. Lubomír Hromádka (Praha) who contributed to the clarification of *Stenus* fauna of Japan.

Stenus ichihashii Naomi
(Fig. 97A–I)

Stenus ichihashii Naomi, 2006: 67; Naomi & Puthz, 2013: 145.

Stenus ichihashii miunensis Naomi, 2006: 70. **New synonym.**

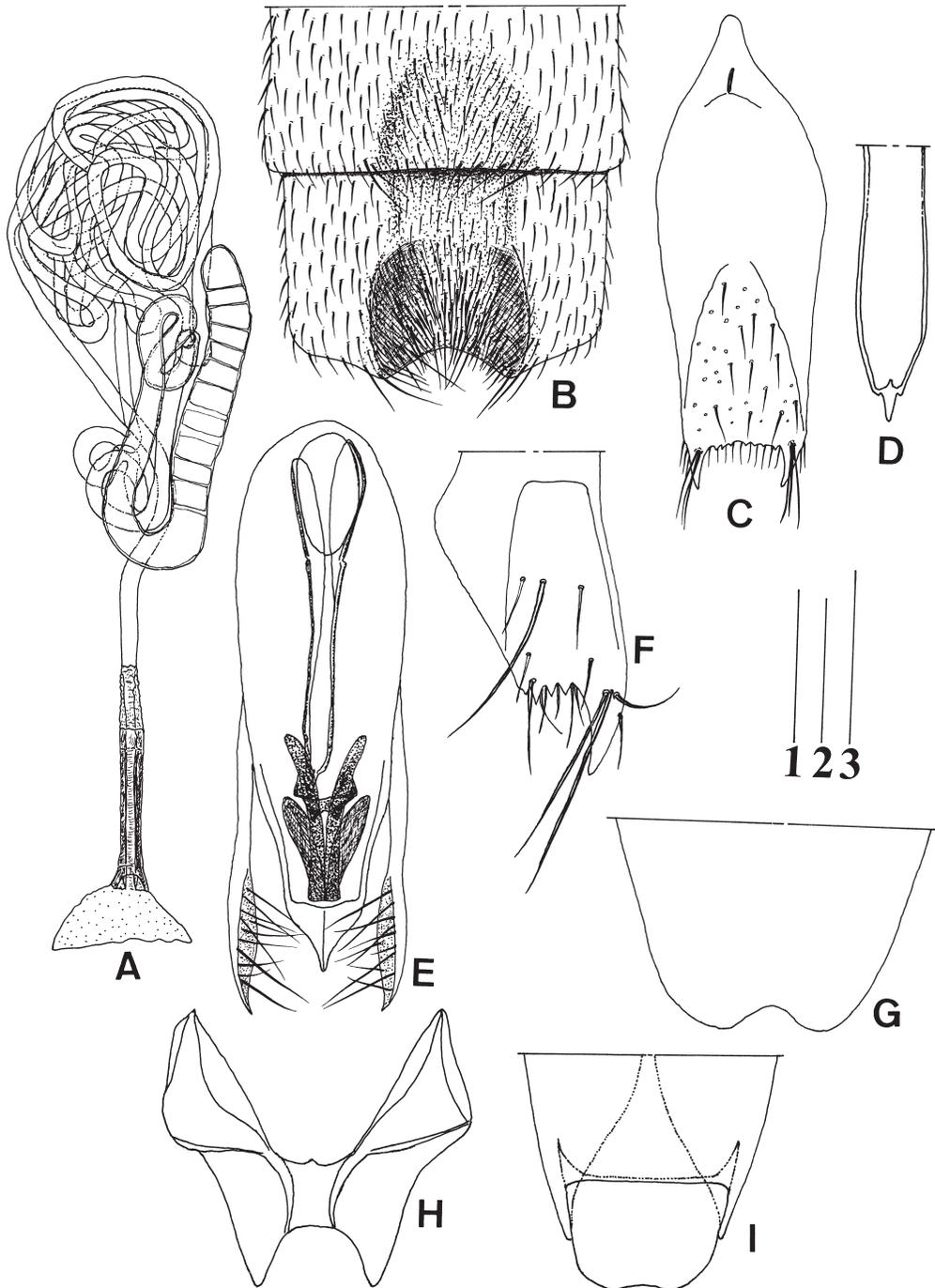


Fig. 97. *Stenus ichihashii* Naomi (Mie: A, B, D–I, Mt. Kuroso, C, Hirakura). A, spermatheca; B, 6th and 7th ventrites of male; C, 9th ventrite of male; D, apical part of copulatory tube; E, aedeagus; F, gonocoxite; G, posterior part of 8th ventrite of female; H, endophallic expulsion hooks; I, posterior part of 9th tergum and 10th tergum of male. Scale 1: 0.1 mm for A, D, F, 0.2 mm for C, E, I, 0.05 mm for H; scale 2: 0.25 mm for B; scale 3: 0.25 mm for G.

Type material examined. Holotype of *S. ichihashii*: ♂ (CBM), Hirakura, Mie Pref., 20. xi. 1994, T. Ito leg. Paratypes of *S. ichihashii*: 1 ♀ (CBM), 1 ♂1 ♀, same data as holotype; 1 ♂, Asake-keikoku, Komono-cho, Mie Pref., 21. iii. 1995, H. Yokozeki leg.; 1 ♂1 ♀, Sekisuikei, Kameyama City, Mie Pref., 23. ii. 1998, A. Amagasa leg.; 2 ♂2 ♀, Mt. Kuroso, Mie Pref., 2. x. 1993, T. Ito leg.

Holotype of *S. ichihashii miunensis*: ♂ (CBM), Mt. Miune, Nara Pref., 28. v. 1994, K. Mizuno leg.

Distribution. Japan: Honshu (Nara and Mie Prefs.).

Redescription. Male and female: Body 3.6–4.1 mm (fore body 1.8–2.0 mm) in length.

Body moderately shining; head reddish orange to reddish brown or dark red, with lateral parts of interocular area more or less infuscate; pronotum and elytra reddish orange to reddish brown; abdomen dark red to dark brown, with apical segments more or less infuscate; labrum, antennae and legs yellow brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost mesially-curved furrows; antennae moderately long, very thin; pronotum with surface almost smooth to uneven, with a median longitudinal furrow indistinct to almost indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Male: Abdomen modified sometimes with a flat area on each of the 3rd to 5th, always with a shallow or a moderately deep (Fig. 97B) depression on the 6th, a deep or a very deep (Fig. 97B) depression on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite (Fig. 97G); 9th tergum (Fig. 97I) with ventral apophyses slightly short; 9th ventrite (Fig. 97C) with apicolateral tooth very short, very acute; 10th tergum (Fig. 97I) shallowly emarginate posteromedially. Aedeagus (Fig. 97E) with median lobe moderately narrowing apicad and very shallowly bisinuate laterally in about apical 1/2, very acutely pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 97E) with copulatory tube having basal chamber almost ovoidal, main tube baculiform, long, moderately thick, with a short, thin apicomedian process (Fig. 97D); expulsion hooks (Fig. 97H) broadly connected each other by a submembrane before the middle of the mesial margins of posterior plates, each hook with anterior plate incompletely separated from posterior plate, subtriangular, broad at base, pointed at anterior tip, posterior plate broad at base, almost pointed at posterior tip; ventromedian bands slightly short, very thin. Parameres (Fig. 97E) each very acutely pointed at apex; apical area very long, mesially with 11 setae of various length.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 97F) each with apicolateral tooth very long, acute, apicolateral setae very long. Spermatheca (Fig. 97A) with capsule moderately long; striped duct moderately long, thick; duct extremely long, very thin to thin for the most part, with its anterior mass very tightly coiled; basal valve moderately long, thin; basal duct long; basal pouch broad-subconical in shape.

Biology and ecology. The beetles of *S. ichihashii* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. ichihashii miunensis* was newly described as the subspecies of *S. ichihashii*, based on one specimen of male beetle collected from the same locality (Mie Pref.) as that of nominotypical subspecies in Naomi (2006). This is mainly based on the small, morphological differences between them regarding the shapes of the anterior and posterior plates of endophallic expulsion hooks, etc. However, since it was clarified that these differences can be regarded as

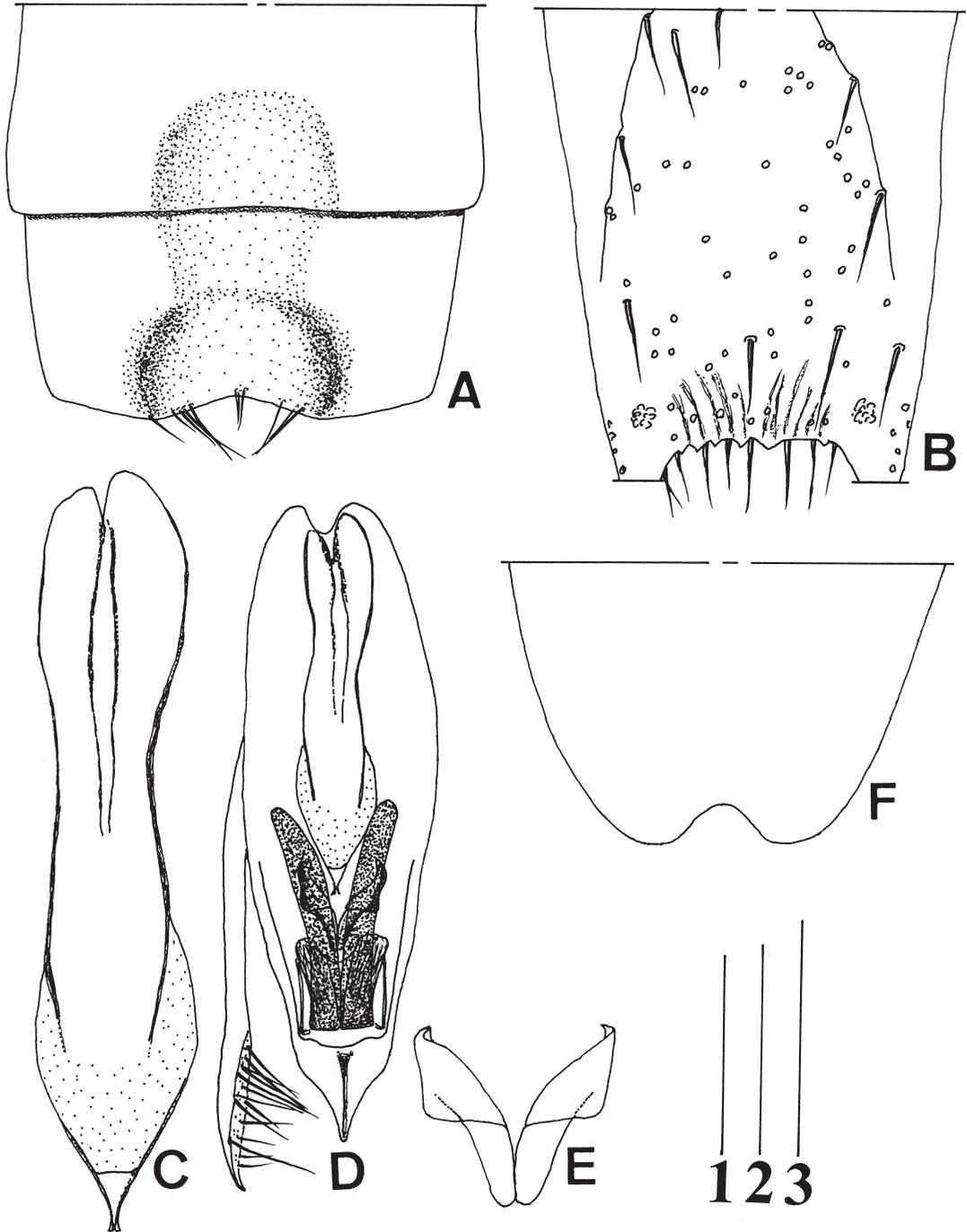


Fig. 98. *Stenus mikawanis* Naomi (Aichi: Mennoki). A, 6th and 7th ventrites of male; B, part of 9th ventrite of male; C, copulatory tube; D, aedeagus; E, endophallic expulsion hooks; F, posterior part of 8th ventrite of male. Scale 1: 0.25 mm for A; scale 2: 0.05 mm for B, 0.2 mm for D, 0.1 mm for C, E; scale 3: 0.25 mm for F.

intraspecific variations in the present study, *S. ichihashii miunensis* Naomi, 2006 is newly placed in synonym with *S. ichihashii* Naomi, 2006.

S. ichihashii is allied to *S. lubomiri*, but it is separable from the latter species by the copulatory tube thicker (Fig. 97D), and the endophallic expulsion hook with its anterior plate broader at the anterior part and hardly protruding laterally or posterolaterally at the posterolateral corner and its posterior plate broader at base (Fig. 97H).

Etymology. This species is named after the late Mr. Hajimu Ichihashi (Mie) who contributed to the clarification of *Stenus* fauna of Mie Pref., Honshu.

***Stenus mikawanis* Naomi**

(Figs. 98A–F, 134K)

Stenus nakanei mikawanis Naomi, 1997b: 606; Herman, 2001: 2295.

Stenus mikawanis Naomi, 2006: 70; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mennoki Pass, Aichi Pref., 13. viii. 1990, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂, Ena Shrine, Gifu Pref., 18. vi. 2014, T. Ito leg.

Distribution. Japan: Honshu (Aichi and Gifu Prefs.).

Redescription. Male: Body 3.8 mm (fore body 1.9 mm) in length. Body moderately shining; head dark reddish brown, with lateral parts of interocular area infuscate; pronotum and elytra reddish brown; abdomen dark reddish brown, with apical segments infuscate; labrum reddish orange; antennae and legs yellow brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface almost smooth, with a median longitudinal furrow hardly developed; elytra with surface slightly uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 98A) modified with a flat area on the 5th, a very shallow depression on the 6th, a moderately deep depression on the 7th, and a semicircular, moderately deep emargination on the 8th ventrite (Fig. 98F); 9th tergum with ventral apophyses slightly short; 9th ventrite (Fig. 98B) with apicolateral teeth short, very acute; 10th tergum almost entire. Aedeagus (Fig. 98E) with median lobe moderately narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area subpentagonal. Endophallus (Fig. 98D) with copulatory tube (Fig. 98C) long, very thick, submembranous and moderately swollen laterally at the subapical portion, with a very short, apicomedian process which becomes slightly broader apicad; expulsion hooks (Fig. 98E) broadly contiguous behind the middle of the mesial margins of posterior plates, each hook with anterior plate subtriangular, broad at base, minutely hooked at anterior tip, posterior plate elongate, narrowly rounded at posterior tip; ventromedian bands moderately long, moderately broad. Parameres (Fig. 98D) each very acutely pointed at apex; apical area long, mesially with 14 to 15 setae of various length.

Female: Unknown.

Biology and ecology. The beetles of *S. mikawanis* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. mikawanis* was first described as a subspecies of *S. nakanei* in Naomi (1997b). *S. mikawanis* is treated as a species in Naomi & Puthz (2013) and the present study because it is

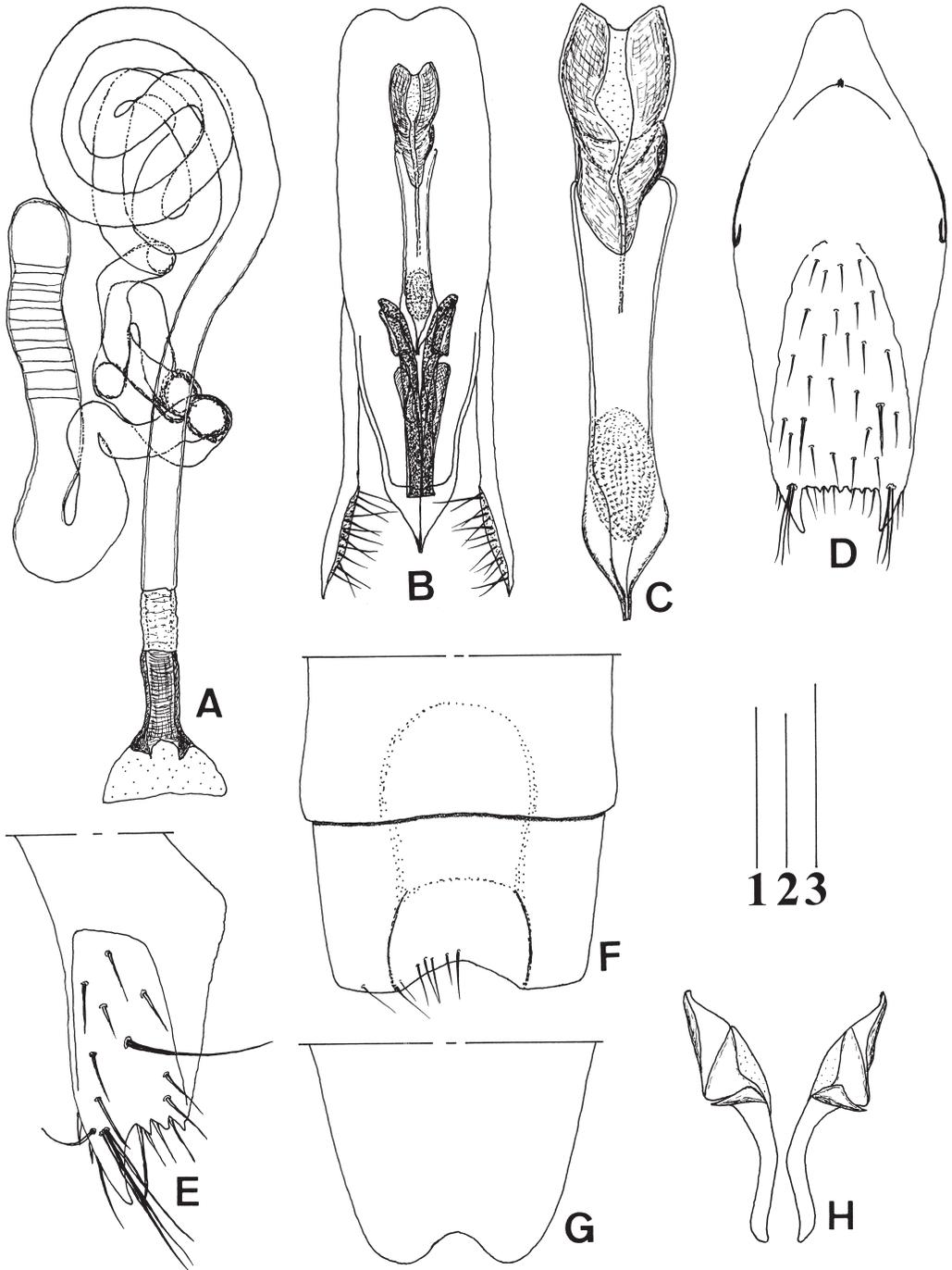


Fig. 99. *Stenus gyrosus* Naemi (Aichi: Kaijyo). A, spermatheca; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, gonocoxite; F, 6th and 7th ventrites of male; G, posterior part of 8th ventrite of male; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A, C, E, H, 0.2 mm for B, D; scale 2: 0.25 mm for F; scale 3: 0.25 mm for G.

distinctly different from *S. nakanei* in the very large endophallic copulatory tube with its swollen submembranous subapical portion (Fig. 98C), etc.

S. mikawanis is allied to *S. ichihashii*, but it is separable from the latter species by the copulatory tube much thicker, with its subapical portion moderately swollen laterally and submembranous (Fig. 98C), and the endophallic expulsion hook with its anterior plate minutely hooked at the anterior tip and its posterior plate elongate and narrowly rounded at the posterior tip (Fig. 98E).

***Stenus gyrosus* Naomi**

(Fig. 99A–H)

Stenus wasabi Hromádka: Naomi, 1997b: 603 (in part).

Stenus gyrosus Naomi, 2006: 72.

Type material examined. Holotype: ♂ (CBM), Kaijyo, Seto City, Aichi Pref., 8. xi. 1992, T. Hozumi leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Mt. Sanage, Aichi Pref., 14. ii. 1999, T. Kan leg.; 1 ♂ 1 ♀, Okazaki, Aichi Pref., 26. xii. 2007, K. Ito leg.

Distribution. Japan: Honshu (Aichi Pref.).

Redescription. Male and female: Body 3.8–4.1 mm (fore body 1.8–2.0 mm) in length. Body weakly to moderately shining and almost entirely reddish brown except for the infusate lateral parts of interocular area; labrum reddish orange; antennae and legs yellow brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, coarse punctures. Head moderately concave, with a pair of almost longitudinal depressions; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 99F) modified with a flat area on the 5th, a shallow depression on the 6th, a moderately deep depression on the 7th, and a semicircular, moderately deep emargination on the 8th ventrite (Fig. 99G); 9th tergum with ventral apophyses slightly short; 9th ventrite (Fig. 99B) with macrosetae very short, apicolateral teeth very short, acute; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 99B) with median lobe moderately narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 99B) with copulatory tube (Fig. 99C) moderately long, moderately thick, moderately swollen laterally at the subapical portion, with a moderately long, very thin apicomedian process; expulsion hooks (Figs. 99H) each with anterior plate elongate-subtriangular in shape, moderately broad at base, minutely hooked at anterior tip, posterior plate slender, very thin, moderately curved in the middle; ventromedian bands moderately long, moderately broad. Parameres (Fig. 99B) each very acutely pointed at apex; apical area long, mesially with 13 to 14 moderately long setae.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 99F) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 99A) with capsule moderately long, very thick, much rounded apically; striped duct slightly short, thick; duct long, moderately thick to thick, with its anterior mass moderately coiled; basal

valve short; basal duct short.

Biology and ecology. The beetles of *S. gyrosus* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. gyrosus* is allied to *S. nakanei* and *S. awajinis*, but it is separable from the latter 2 species by the 7th ventrite of male with its posteromedian depression smaller (Fig. 99F), the aedeagal median lobe thinner (Fig. 99B), the copulatory tube thinner (Fig. 99C), the endophallic expulsion hook with its posterior plate thinner at the base (Fig. 99H), and the spermatheca with its basal duct shorter (Fig. 99A).

***Stenus nakanei* Hromádka**

(Figs. 100A–H, 134L)

Stenus nakanei Hromádka, 1982: 132; Herman, 2001: 2295; Naomi & Puthz, 2013: 145.

Stenus ignorabilis Naomi, 1997b: 607; Naomi, 2006: 75 (synonym of *S. nakanei*).

Type material examined. Holotype of *S. nakanei*: ♂ (NMP), Asuka, Nara Pref., 1. ix. 1963, K. Sawada leg.

Holotype of *S. ignorabilis*: ♂ (CBM), Mt. Kôtsu, Tokushima Pref., 30. iv. 1972, M. Yoshida leg. Paratypes of *S. ignorabilis*: 1 ♀, Mt. Shibakoya, Kamiyama-cho, Tokushima Pref., 2. x. 1977, M. Yoshida leg.; 1 ♀, same locality, 6. iv. 1976, M. Yoshida leg.; 1 ♂1 ♀, same locality, 6. iv. 1975, M. Yoshida leg.; 1 ♂, Mt. Kumoso (1150 m), Tokushima Pref., 18. vii. 1988, M. Sakai leg.; 2 ♂, Okuohno, Ichiu-son, Mima, Tokushima Pref., 1. viii. 1967, M. Yoshida leg.; 1 ♂, Mt. Nakatsu, Nishiiyayama-son, Tokushima Pref., 23. viii. 1971, M. Yoshida leg.; 1 ♂, Mt. Kurotaki, Yamashiro-cho, Tokushima Pref., 3. viii. 1977, M. Yoshida leg.; 2 ♂, Harunokio, Nishiiyayama-son, Tokushima Pref., 24. viii. 1971, M. Yoshida leg.; 1 ♂2 ♀, Yusuhara-cho, Takaoka-gun, Kochi Pref., 30. iv. 1977, M. Yoshida leg.; 1 ♂1 ♀, Izumi, Niyodo-mura, Kochi Pref., 20. iii. 1976, M. Yoshida leg.; 1 ♂, Mt. Zôzu, Kagawa Pref., 24. i. 1971, T. Kinoshita leg.

Other material examined. [HONSHU]: 2 ♂1 ♀, Mt. Makio, Osaka Pref., 17. iv. 1960, Y. Kimura leg.; 1 ♂, Mt. Kongô, Osaka Pref., 10. viii. 1986, T. Ito leg.; 2 ♂2 ♀, Mt. Inunaki, Osaka Pref., 27. vii. 1985, T. Ito leg.; 1 ♂, Mt. Iwawaki, Osaka Pref., 5. vi. 1960, T. Ito leg.; 3 ♂, Mt. Iwawaki, Osaka Pref., 24. iv. 1966, Y. Hayashi leg.; 5 ♂5 ♀, Kimi Pass, Wakayama Pref., 17. iv. 1988, T. Ito leg.; 7 ♂6 ♀, Tamagawa-kyo, Wakayama Pref., 24. viii. 1985, T. Ito leg.; 1 ♂, Hase, Yamato, 14. iv. 1959, T. Shibata leg.; 2 ♂, Murooji, Nara Pref., 10. x. 1984, T. Ito leg.; 1 ♂, Imoyama, Yamato, 15. ix. 1984, T. Ito leg.; 2 ♂7 ♀, Mt. Toonomine, Yamato, 13. viii. 1984, T. Ito leg. [SHIKOKU]: 1 ♂1 ♀, Okuyashiki (600 m), Awa (Tokushima Pref.), 6. i. 1960, T. Shibata leg.; 2 ♂3 ♀, Tonyo, Tomisato, Iyomishima City, Ehime Pref., 16. xi. 1999, S. Nomura leg.

Distribution. Japan: Honshu (Nara, Osaka and Wakayama Prefs.) and Shikoku.

Redescription. Male and female: Body 3.8–4.0 mm (fore body 1.9–2.1 mm) in length, moderately shining; head dark red near black to black, with clypeofrontal area reddish brown to dark red; pronotum and elytra reddish brown to almost brown; abdomen dark reddish brown to dark brown, with apical segments more or less infuscate; labrum yellowish brown to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering

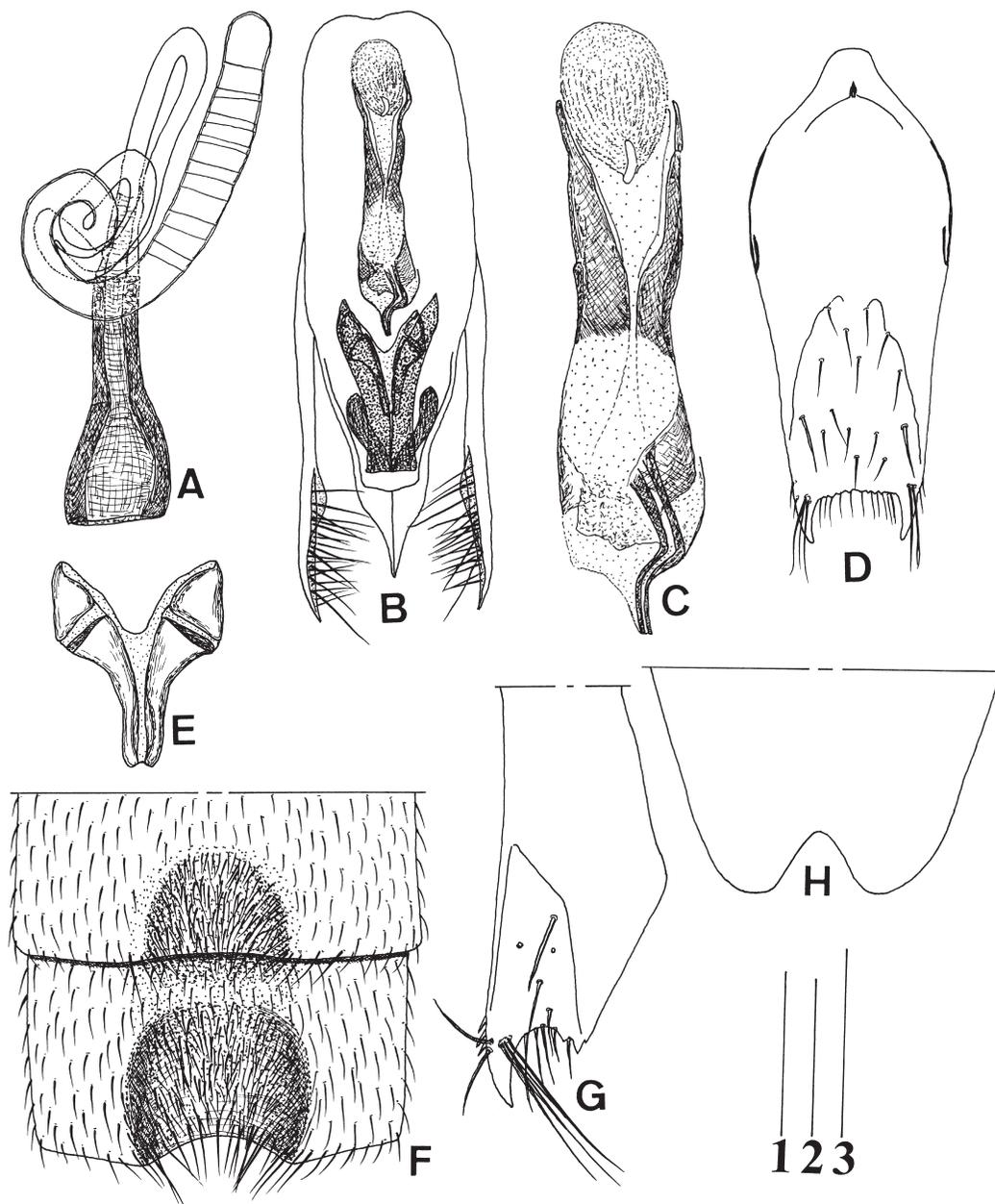


Fig. 100. *Stenus nakanei* Naomi (Tokushima, A, G, Shibakoya; Nara, B, C, E, H, Mt. Toonomine; Wakayama, D, Tamagawa-kyo; Kochi, F, Yusuhara, Kochi). A, spermatheca; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, endophallic expulsion hooks; F, 6th and 7th ventrites of male; G, gonocoxite; H, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, C, E, G, 0.2 mm for B, D; scale 2: 0.25 mm for F; scale 3: 0.25 mm for H.

posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 100F) modified with a flat area on the 4th, a very shallow or a shallow depression on the 5th, a shallow or a moderately deep depression on the 6th, a very broad, very shallow anteromedian depression and with a deep or a very deep posteromedian depression on

the 7th, a subtriangular, deep emargination on the 8th ventrite (Fig. 100H); 9th tergum with ventral apophyses long; 9th ventrite (Fig. 100D) with macrosetae short, apicolateral teeth very short, acute, apicolateral setae moderately long; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 100B) with median lobe strongly narrowing apicad and very shallowly bisinuate laterally in the apical 1/2, very acutely pointed at apex; apical sclerotized area elongate-subtriangular in shape. Endophallus (Fig. 100B) with copulatory tube (Fig. 100C) moderately long, very thick, moderately swollen laterally at the subapical portion, with an almost beak-shaped process at apex; expulsion hooks (Fig. 100E) each with anterior plate small, almost triangular, posterior plate moderately broad at base, thin behind the basal 1/3, moderately curved in the middle; ventromedian bands slightly short, moderately broad. Parameres (Fig. 100B) each very acutely pointed at apex; apical area very long, ventromesially with a medium-sized, broad-triangular flap at base, mesially with 21 to 22 moderately long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 100G) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 100A) with capsule moderately long, much rounded apically; striped duct moderately long, very thick; duct moderately long, becoming broader distad from thin through moderately thick to thick; basal valve moderately long; basal duct extremely large, well-sclerotized, swollen laterally at base.

Biology and ecology. *S. nakanei* is distributed in Honshu (Kinki District) and Shikoku. This shows that *S. nakanei* is one of the species whose distributional range is very wide among the species of *cephalotes*-group. The beetles of *S. nakanei* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. *S. nakanei* is closely allied to *S. awajinis*, but it is separable from the latter species by the 7th ventrite of male with its depression shallower (Fig. 100F), the aedeagal median lobe with its apical sclerotized area elongate-subtriangular in shape (Fig. 100B), the endophallic expulsion hook with its anterior plate larger (Fig. 100E), and the spermatheca with its basal tube much thicker (Fig. 100A).

Etymology. The specific epithet of this species is named after the late Dr. Takehiko Nakane (National Science Museum, Tokyo) who contributed to the development of the taxonomy of Japanese Coleoptera.

Stenus awajinis Naomi stat. nov.

(Fig. 101A–I)

Stenus ignorabilis awajinis Naomi, 1997b: 609.

Stenus nakanei awajinis (Naomi), 2006: 77.

Type material examined. Holotype: ♂ (CBM), Mt. Senzan, Sumoto, Awaji Is., Hyogo Pref., 15. iv. 1971, M. Tomokuni leg.

Other material examined. [HONSHU]: 2 ♂1 ♀, Mt. Sakiyama, Awaji Is., Hyogo Pref., 21. ii. 2010, K. Mizuno leg.; 1 ♂1 ♀, Mt. Jyoryuji, Awaji Is., Hyogo Pref., 21. vii. 2017, T. Ito leg.

Distribution. Japan: Honshu (Hyogo Pref.: Awaji Is.).

Redescription. Male and female: Body 3.7–3.9 mm (fore body 1.8–2.0 mm) in length. Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area infuscate; pronotum and elytra reddish orange to reddish brown; abdomen reddish brown to almost brown, with apical segments more or less infuscate; labrum yellowish brown to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoi-

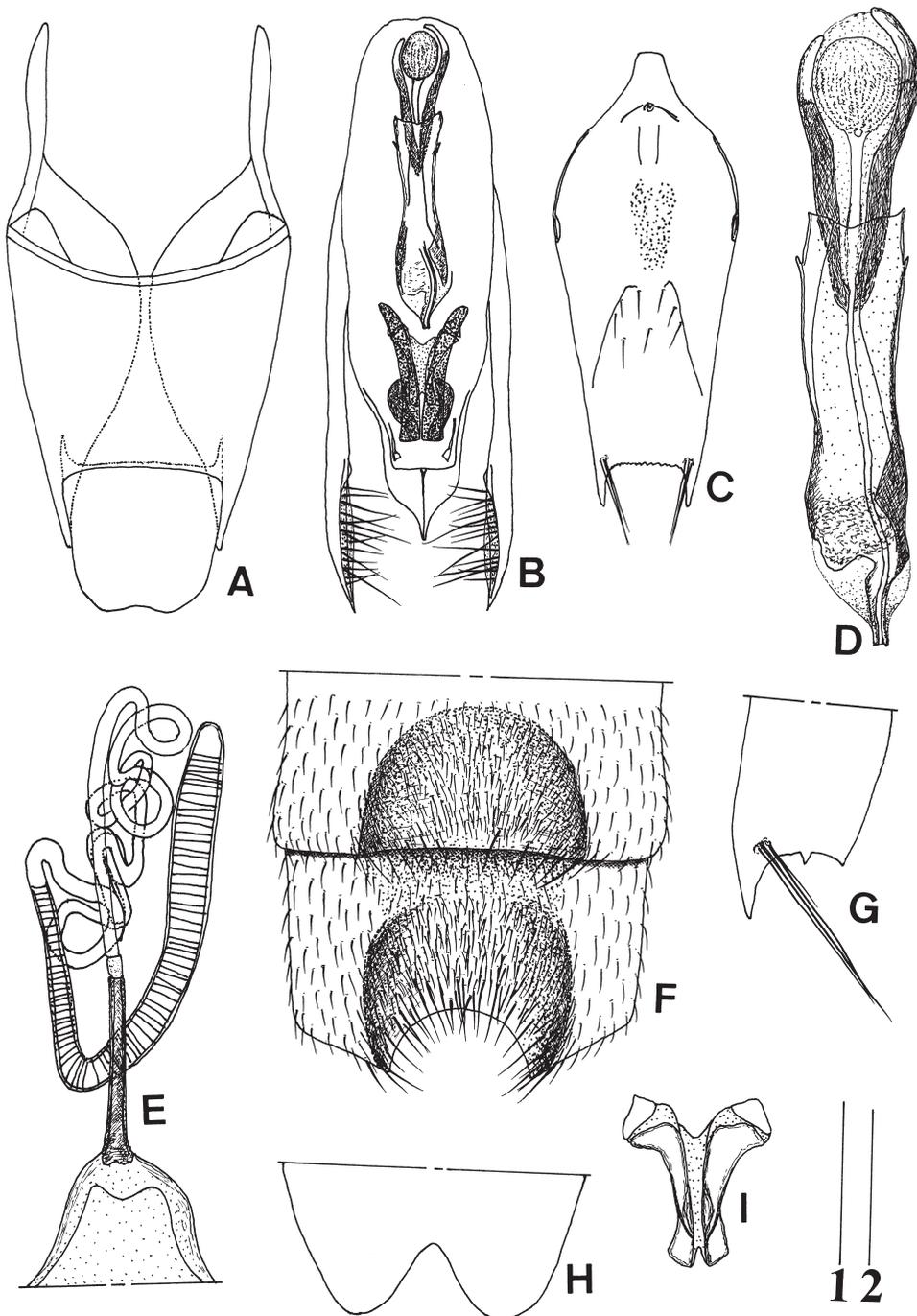


Fig. 101. *Stenus awajinis* Naomi (Hyogo, Awaji Is.: A–D, F, H, I, Sumoto; E, Mt. Sakiyama; G, Mt. Jyoryuji). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, copulatory tube; E, spermatheca; F, 6th and 7th ventrites of male; G, posterior part of gonocoxite; H, posterior part of 8th ventrite of male; I, endophallic expulsion hooks. Scale 1: 0.2 mm for A–C, H, 0.1 mm for D, E, G, I; scale 2: 0.25 mm for F.

dal, small to moderately large, and also pronotum and elytra partially with coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows (or depressions); antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergo-ventrite sutures lost.

Male: Abdomen (Fig. 101F) modified with an almost flat area on the 4th, a shallow depression on the 5th, a deep depression on the 6th, and a very deep depression on the 7th, and a subtriangular, very deep emargination on the 8th ventrite (Fig. 101H); 9th tergum (Fig. 101A) with ventral apophyses long; 9th ventrite (Fig. 101C) with apicolateral teeth very short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 101A) shallowly emarginate posteromedially. Aedeagus (Fig. 101B) with median lobe moderately narrowing apicad and moderately bisinuate laterally in the apical 3/5, very acutely pointed at apex; apical sclerotized area subpentagonal. Endophallus (Fig. 101B) with copulatory tube (Fig. 101D) moderately long, having basal chamber very long, moderately narrowing apically, with its apical portion located inside the base of main tube, main tube very thick, moderately swollen laterally at the subapical portion, with a nearly beak-shaped process at apex; expulsion hooks (Figs. 101I) each with anterior plate small, almost triangular, posterior plate moderately broad at base, thin behind the base; ventromedian bands short, narrow. Parameres (Fig. 101B) each very acutely pointed at apex; apical area long, ventromesially with a small, broad-triangular flap at base, mesially with 16 moderately long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 101G) each with apicolateral tooth moderately long, very acute, apicolateral setae very long. Spermatheca (Fig. 101E) with capsule short, narrowly rounded apically; striped duct very long, thin to moderately thick; duct moderately long, thin, very loosely coiled; basal valve very short; basal duct extremely long, very thin.

Biology and ecology. The beetles of *S. awajinis* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. Based on one specimen of male beetle collected from Mt. Senza, Awaji Is., Naomi (1997b) first newly described *S. ignorabilis awajinis* as a subspecies of *S. ignorabilis* Naomi, 1997. After that, *S. ignorabilis* was treated as a junior synonym of *S. nakanei* Hromádka, 1982 in Naomi (2006), and thus he changed its name to *S. nakanei awajinis* (Naomi). When reconsidering here again the differences between this subspecies (*S. nakanei awajinis*) and the nominotypical subspecies (*S. nakanei nakanei*) mentioned below, *S. nakanei awajinis* is upgraded to a species, and *S. awajinis* Naomi stat. nov. is here proposed.

S. awajinis is closely allied to *S. nakanei*, but it is separable from the latter species by the 7th ventrite of male with its depression deeper (Fig. 101F), the aedeagal median lobe with its apical sclerotized area subpentagonal (Fig. 101B), the endophallic expulsion hook with its anterior plate smaller (Fig. 101I), and the spermatheca with its basal tube much thinner (Fig. 101E).

Species unit 3 of the *rufescens*-subgroup

Key to the Japanese species of the *rufescens*-subgroup (3)

This is a key for a unit of *Stenus*-species (19 species) beginning with *S. testaceopiceus* and probably diagnosed with the combination of following character conditions: Aedeagal median

lobe often more or less narrowed near or behind the middle so that the basal part and apical part are distinguished from each other by their different thickness (Fig. 115C); endophallic expulsion hooks very often strongly atrophied into such various conditions as a small fused hook (Fig. 117B), a pair of very small, very thin sclerites (Fig. 119B), etc., or completely lost (Fig. 120C); ventromedian bands often atrophied to some degree (Fig. 108F); paramere with apical area very often more or less turning posterolaterally, moderately thick to thick, and more or less swollen mesially at base (Fig. 112B).

Distribution. Japan: Honshu (Kanto, Chubu, Kinki and Chugoku Districts) and Shikoku.

- 1(12) Male: Endophallic expulsion hooks and ventromedian bands both well-developed.
- 2(7) Male: Aedeagal paramere with ventral margin of apical area not bisinuous.
- 3(6) Male: Aedeagal median lobe broader; paramere not mesially curved apically.
- 4(5) Male: Seventh ventrite with posteromedian depression more deeply emarginate posteriorly (Fig. 102F); aedeagal median lobe with apical sclerotized area almost triangular, without apicomedian cusp (Fig. 102A)..... *S. testaceopiceus* Bernhauer
- 5(4) Male: Seventh ventrite with posteromedian depression more shallowly emarginate posteriorly (Fig. 103A); aedeagal median lobe with apical sclerotized area subpentagonal or broad-subtriangular in shape, with an apicomedian cusp (Fig. 103G)
..... *S. pubicornis* Naomi
- 6(3) Male: Aedeagal median lobe narrower (Fig. 104C); paramere mesially curved at the most apical part (Fig. 104C) *S. volkeri* Naomi
- 7(2) Male: Aedeagal paramere with ventral margin of apical area more or less bisinuous.
- 8(11) Male: Seventh ventrite with posteromedian depression more or less emarginate posteriorly; aedeagal median lobe becoming narrower from near the middle toward apicolateral corners.
- 9(10) Male: Seventh ventrite with posteromedian depression shallower (Fig. 105C); endophallic expulsion hook with anterior plate turning anteriorly (Fig. 105G).....
..... *S. okiensis* Naomi & Shimada
- 10(9) Male: Seventh ventrite with posteromedian depression deeper (Fig. 106E); endophallic expulsion hook with anterior plate turning anterolaterally (Fig. 106H)
..... *S. tsurusakii* Naomi
- 11(8) Male: Seventh ventrite with posteromedian depression weakly arcuately rounded posteriorly (Fig. 107C); aedeagal median lobe awl-shaped in the apical 1/3 (Fig. 107C)
..... *S. akojagai* Hromádka
- 12(1) Male: Endophallic expulsion hooks and/or ventromedian bands more or less atrophied or completely lost.
- 13(14) Male: Aedeagal expulsion hook well-developed, broad-bean-shaped (Fig. 108F); copulatory tube with main tube needle-shaped (Fig. 108F) *S. miroku* Naomi
- 14(13) Male: Aedeagal expulsion hook more or less atrophied; copulatory tube with main tube not needle-shaped.
- 15(32) Male: Copulatory tube with main tube not having a pair of lateral processes at the base of apical tube.
- 16(27) Male: Aedeagal median lobe narrower in posterior part; copulatory tube shorter than 7/10 times as long as median lobe.
- 17(26) Male: Copulatory tube with main tube well-developed. Female: Spermatheca with duct thicker.

- 18(25) Male: Aedeagal paramere with apical area shorter than pedicel.
- 19(24) Male: Fourth to 6th ventrites less strongly modified with flat area and/or shallower depression, or not modified with them.
- 20(23) Male: Copulatory with main tube slightly thick at or near base, and more or less attenuate apicad.
- 21(22) Male: Aedeagal median lobe with apical sclerotized area broader, and pointed at apex (Fig. 109A); paramere very acutely pointed at apex (Fig. 109A).....*S. masataakai* Naomi & Nomura
- 22(21) Male: Aedeagal median lobe with apical sclerotized area narrower, and narrowly rounded apically (Fig. 110A); paramere narrowly rounded apically (Fig. 110A).....*S. gagyumontis* Naomi
- 23(20) Male: Copulatory tube with main tube subfusiform or nearly willow-leaf-shaped (Fig. 115G)..... *S. uenoi* Naomi & Nomura
- 24(19) Male: Fourth to 6th ventrites more strongly modified with deeper depressions (Fig. 114A).....*S. enma* Naomi
- 25(18) Male: Aedeagal paramere with apical area longer than pedicel (Fig. 117D).....*S. masaakii* Naomi & Nomura
- 26(17) Male: Copulatory tube with main tube strongly atrophied into a small, spine-like sclerite (Fig. 116E). Female: Spermatheca with duct thinner (Fig. 116C).....*S. expansus* Naomi & Ito
- 27(16) Male: Aedeagal median lobe broader in posterior part; copulatory tube longer than 4/5 times as long as the median lobe.
- 28(31) Male: Aedeagal median lobe moderately broad, and not incised at apicomedian part; copulatory tube with main tube not swollen laterally near the middle.
- 29(30) Male: Aedeagal median lobe obtusely angulate at apicolateral corners, with apical triangular part behind apicolateral corners not forming an obtuse triangular and hardly emarginate apicolaterally (Fig. 111D); endophallic ventromedian band narrower (Fig. 111C)..... *S. incurvatus* Naomi & Nomura
- 30(29) Male: Aedeagal median lobe almost rectangularly angulate at apicolateral corners, with apical triangular part behind apicolateral corners forming an obtuse broad-subtriangular and arcuately emarginate apicolaterally (Fig. 112B); endophallic ventromedian band broader (Fig. 112B)..... *S. okamotoi* Naomi
- 31(28) Male: Aedeagal median lobe moderately broad, and very minutely incised at apicomedian part (Fig. 113B); copulatory tube with main tube moderately swollen laterally near the middle (Fig. 113B)..... *S. amma* Naomi & Nomura
- 32(15) Male: Copulatory tube with main tube having a pair of lateral processes at the base of apical tube.
- 33(36) Male: Aedeagal median lobe with apical sclerotized area extremely small or lost.
- 34(35) Male: Aedeagal median lobe narrower, and becoming almost constantly broader from base to about apical 1/3 (Fig. 118B); copulatory tube with apical tube having a pair of very thin, slightly curved lateral processes (Fig. 118E)..... *S. bosatsu* Naomi
- 35(34) Male: Aedeagal median lobe broader, and bulbous in about basal 2/3 (Fig. 120C); copulatory tube with apical tube having a pair of thin, strongly curved lateral processes (Fig. 120C)..... *S. tateoitoi* Naomi, Nomura & Puthz sp. nov.
- 36(33) Male: Aedeagal median lobe with apical sclerotized area well-developed (elongate-triangular in shape) (Fig. 119B).....*S. usitatus* Naomi & Nomura

***Stenus testaceopiceus* Bernhauer**
(Figs. 102A–G, 135A)

Stenus testaceopiceus Bernhauer, 1938: 31; Herman, 2001: 2417; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (FMC), Chinkiang, Northwestern China, Col. Reitter; *S. testaceopiceus* Bernh. Typus unicus; Chicago NHMus. M. Bernhauer Collection.

Other material examined. [HONSHU]: 8♂4♀, Mizuho, Kyoto, 23. xi. 1989, T. Ito leg.; 3♂3♀, same locality, 2. vii. 1989, T. Ito leg.; 1♂, same locality, 26. viii. 1989, Y. Hayashi leg.; 1♂, same locality, 23. xi. 1989, Y. Hayashi leg.; 1♂, same locality, 23. iv. 1994, Y. Hayashi leg.; 2♀, same locality, 18. iv. 1987, Y. Hayashi leg.; 2♂1♀, same locality, 14. v. 1994, Y. Hayashi leg.; 1♂, same locality, 12. v. 1984, Y. Hayashi leg.; 1♂1♀, Todoromi; 1♂4♀, Mt. Myōken, Nose, Ohsaka Pref., 25. ix. 1994, T. Ito leg.; 6♂8♀, same locality, 30. viii. 1986, T. Ito leg.; 1♀, same locality, 13. viii. 1985, T. Ito leg.; 2♂2♀, same locality, 16. v. 1987, T. Ito leg.; 2♂4♀, Mt. Mikusa, Osaka Pref., 19. iii. 1993, Y. Sawada leg.; 1♂4♀, Mt. Shosha, Hyogo Pref., 19. iii. 1988, T. Ito leg.; 1♂3♀, Mt. Amaishi, Sasayama, Hyogo Pref., 19. iv. 1997, Y. Hayashi leg.; 2♂1♀, Higashi-Rokko, Hyogo Pref., 4. iv. 1987, T. Ito leg.

Distribution. Japan: Honshu (Kyoto, Osaka and Hyogo Prefs.) and China?

Redescription. Male and female: Body 3.2–3.8 mm (fore body 1.6–1.9 mm) in length. Body weakly shining; head dark brown to black, with median area reddish brown to dark red; pronotum and elytra reddish brown; abdomen reddish brown to dark reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or longitudinal furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, moderately thick to thick, subparallel-sided; lateroventrites and tergo-ventral sutures lost.

Male: Abdomen (Fig. 102F) modified with a bell-shaped flat area on the 5th, an almost semi-circular, moderately deep posteromedian depression on the 6th, a shallow or moderately deep anteromedian depression and a short, very deep posteromedian depression on the 7th, and a subtriangular, deep emargination on the 8th ventrite (Fig. 102G); 9th tergum with ventral apophyses long to very long; 9th ventrite (Fig. 102C) with macrosetae short, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 102A) with median lobe almost elongate-ovoidal in shape, minutely angulate at apicolateral corners, acutely pointed at apex; apical sclerotized area almost triangular. Endophallus (Fig. 102A) with copulatory tube with basal chamber elongate-ovoidal in shape, main tube baculiform, attenuate, once moderately curved near the middle; dorsolateral bands very thin; expulsion hooks (Fig. 102E) connected broadly by a membrane, each hook minutely curved mesially at anterior tip and very acutely pointed there, distinctly emarginate at posterolateral part; ventromedian bands each moderately long, very broad. Parameres (Fig. 102A) each acutely pointed at apex; apical area long, mesially with 11 to 12 moderately long setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 102D) each with apicolateral tooth moderately long, acute, apicolateral setae very long. Spermatheca (Fig. 102B) with capsule very small, rounded apically; striped duct moderately long, thick; duct very short, moderately thick to thick, with 2 turns; gland ovoidal, with opening located on the middle of duct

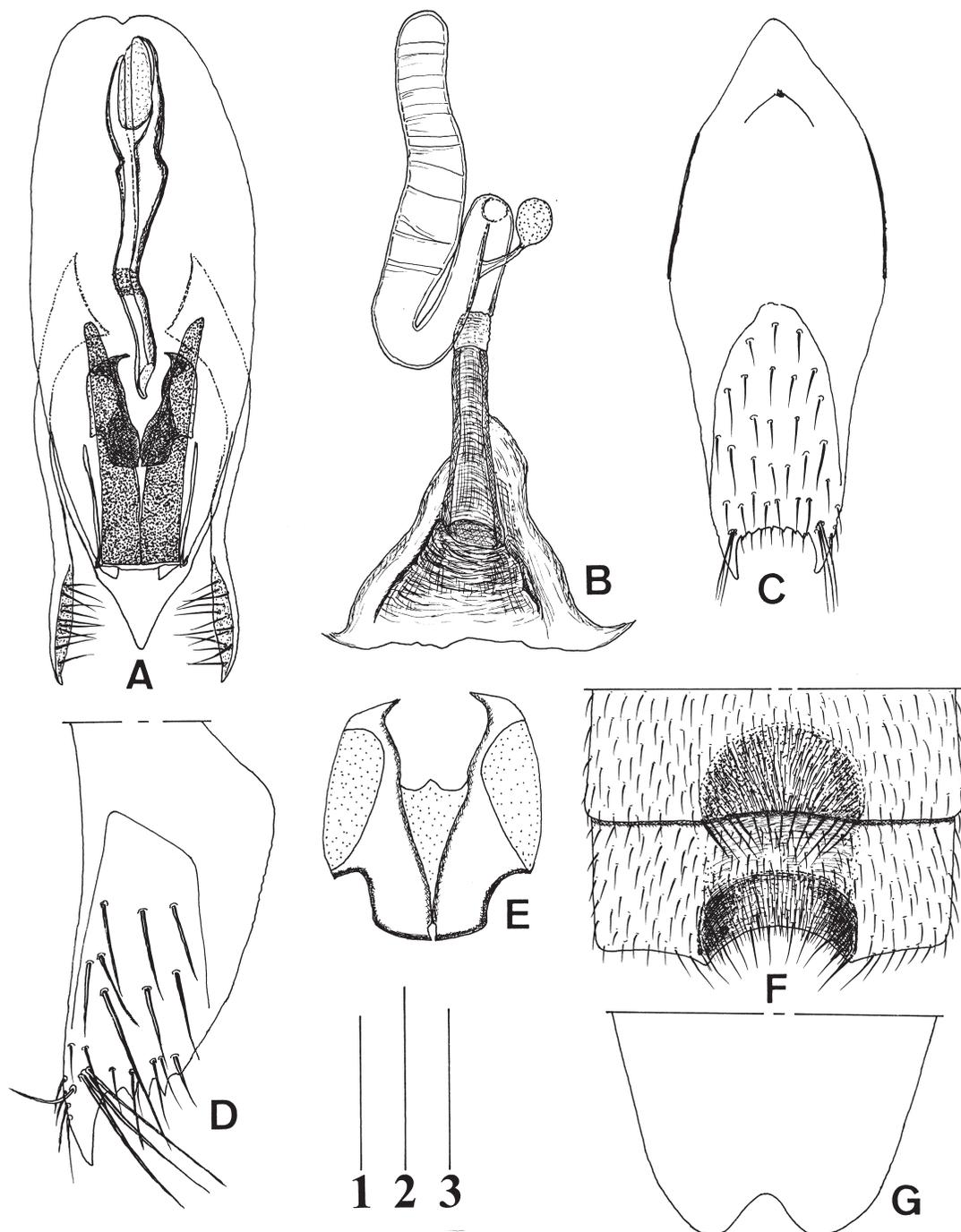


Fig. 102. *Stenus testaceopiceus* Bernhauer (Osaka: Mt. Myôken). A, aedeagus; B, spermatheca; C, 9th ventrite of male; D, gonocoxite; E, endophallic expulsion hooks; F, 6th and 7th ventrites of male; G, posterior part of 8th ventrite of male. Scale 1: 0.25 mm for F; scale 2: 0.25 mm for G; scale 3: 0.2 mm for A, C, 0.1 mm for B, D, E.

between the 1st and 2nd turns; basal valve short; basal duct long. Bursa copulatrix (Fig. 102B) large, subconical.

Biology and ecology. The beetles of *S. testaceopiceus* inhabit leaf litter heaped in the natural forests of plains to low mountainous regions.

Remarks. *S. testaceopiceus* is allied to *S. pubicornis*, but it is separable from the latter species by the aedeagal median lobe minutely angulate at the apicolateral corners, almost acutely pointed at the apex (Fig. 102A), the endophallic expulsion hook broader, with its anterior tip mesially curved and very acutely pointed (Fig. 102E), and the spermatheca with its duct much shorter with 2 turns (Fig. 102B).

S. testaceopiceus was first described by Bernhauer (1938), based only on the 1 specimen of male beetle collected from the Northwestern part of China. Although Puthz (1968) synonymized this species with *S. rufescens*, Hromádka (1982) revalidated it as a good species. Naomi examined the holotype of *S. testaceopiceus* deposited in the Field Museum, Chicago, and he concluded that the holotype of *S. testaceopiceus* is exactly the same both in external and aedeagal structures as the specimens from Japan (Naomi, 2006). Thus, if taken it literally, the distributional range of *S. rufescens* extends from the Japanese Archipelago to the China Mainland. Since such a distributional range is too wide for a flightless species in *Stenus*, we here discuss the distribution of this species.

During the present study we examined 71 specimens of *S. testaceopiceus* from Japan. All of these *Stenus*-beetles were collected strictly from the western part of Kansai District, Honshu. Thus, as far as the distributional range of this species within Japan is taken into account, it must be a common size of distributional range as in most of the other brachypterous and thus flightless species of the *cephalotes*-group. The northwestern China, the type locality of *S. testaceopiceus*, is at least 2,000 km distant from the Kinki District, Honshu. When considering the flightless condition of this species, such a disjunct distribution of a species does not seem to be natural. Although we do not deny a possibility that the Northwestern part of China is a part of original distributional range of *S. testaceopiceus*, the inclusion of the Northwestern part of China in the distributional range of *S. testaceopiceus* should be suspended in this paper until further beetles of *S. testaceopiceus* are collected from there.

***Stenus pubicornis* Naomi**
(Fig. 103A–H)

Stenus pubicornis Naomi, 1998a: 387; Herman, 2001: 2357; Naomi & Puthz, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Reiganji, Hirogawa-cho, Wakayama Pref., 11. xii. 1985, I. Matoba leg. Paratypes: 1 ♂ 2 ♀, same data as holotype.

Distribution. Japan: Honshu (Wakayama Pref.).

Redescription. Male and female: Body 3.4–3.9 mm (fore body 1.7–2.0 mm) in length. Body moderately shining; head dark red near black to almost black, with median area reddish brown to dark red; pronotum and elytra reddish orange to reddish brown; abdomen reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of almost longitudinal-oblique or mesially-curved furrows (or depressions); antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow

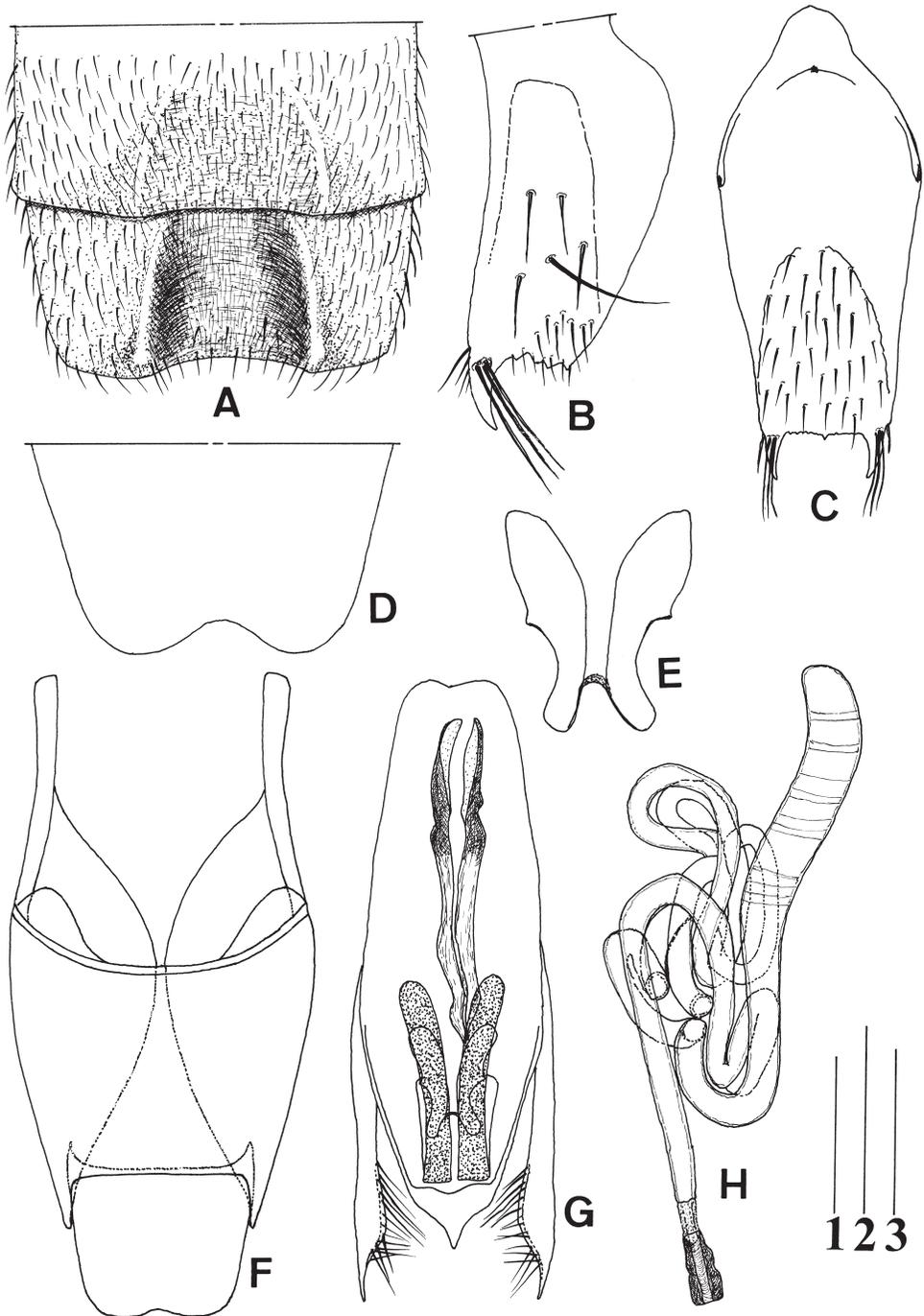


Fig. 103. *Stenus pubicornis* Naomi (Wakayama: Reiganji). A, 6th and 7th ventrites of male; B, gonocoxite; C, 9th ventrite of male; D, posterior part of 8th ventrite of male; E, endophallic expulsion hooks; F, 9th and 10th terga of male; G, aedeagus; H, spermatheca. Scale 1: 0.25 mm for A; scale 2: 0.25 mm for D; scale 3: 0.1 mm for B, E, H, 0.2 mm for C, F, G.

distinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, moderately thick, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 103A) modified with a flat area on each of the 3rd, 4th and 5th, a large, deep depression on the 6th, a very large, very deep depression on the 7th ventrite (Fig. 103D); 9th tergum (Fig. 103F) with ventral apophyses very long; 9th ventrite (Fig. 103C) with apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum (Fig. 103F) shallowly emarginate posteromedially. Aedeagus (Fig. 103G) with median lobe obtusely angulate at apicolateral corners, very acutely pointed at apex, with a long apicomedian cusp; apical sclerotized area subpentagonal or broad-subtriangular in shape. Endophallus (Fig. 103G) with copulatory tube long, baculiform, stout, with basal chamber narrow, comprising 2 thick rods of equal length, main tube thick, weakly, partially sinuous, pointed at apex; expulsion hooks (Fig. 103E) each arcuately emarginate at posterolateral part, obtusely pointed at anterior tip; ventromedian bands slightly short, moderately broad. Parameres (Fig. 103G) each very acutely pointed at apex; apical area long, moderately swollen mesially in the basal 2/3, then strongly narrowing toward aciculate apex, mesially also with 15 to 16 setae.

Female: Eighth ventrite obtusely angulate or pointed posteromedially; gonocoxites (Fig. 103B) each with apicolateral tooth long, acute, apicolateral setae long. Spermatheca (Fig. 103H) with capsule thick; striped duct moderately long, thick; duct long, irregularly coiled; basal valve very short thin; basal duct short, well-sclerotized.

Biology and ecology. The beetles of *S. pubicornis* inhabit leaf litter heaped in the natural forests of a lowland.

Remarks. *S. pubicornis* is allied to *S. testaceopiceus*, but it is separable from the latter species by the aedeagal median lobe obtusely angulate at the apicolateral corners, acutely pointed at the apex with the long apicomedian cusp (Fig. 103G), the endophallic median hook narrower, with its anterior tip almost obtusely pointed (Fig. 103E), and the spermatheca with its duct much longer and irregularly coiled many times (Fig. 103H).

S. pubicornis is different at a glance in coloration from *S. gonggashanus* Tang & Puthz, 2010 from Sichuan Province, China, but when considering their common possession of the similar structures of the aedeagal median lobe as well as the endophallic copulatory tube and expulsion hooks, they are also considered to be closely allied species. *S. pubicornis* is separable from the latter species by the pronotum and elytra paler in color, the aedeagal median lobe with a longer apicomedian cusp (Fig. 103G), and the spermatheca with its duct much longer (Fig. 103H).

Stenus volkeri Naomi

(Fig. 104A–G)

Stenus volkeri Naomi, 1998a: 385; Herman, 2001: 2435; Puthz & Naomi, 2013: 145.

Type material examined. Holotype: ♂ (CBM), Mt. Mikusa, Osaka Pref., 2. viii. 1989. Paratype: 1 ♀, same data as holotype.

Distribution. Japan: Honshu (Osaka Pref.).

Redescription. Male and female: Body 3.8–4.0 mm (fore body 1.8–1.9 mm) in length. Body weakly shining; head almost black, with median area reddish brown to dark red near black; pronotum, elytra and abdomen reddish brown; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subru-

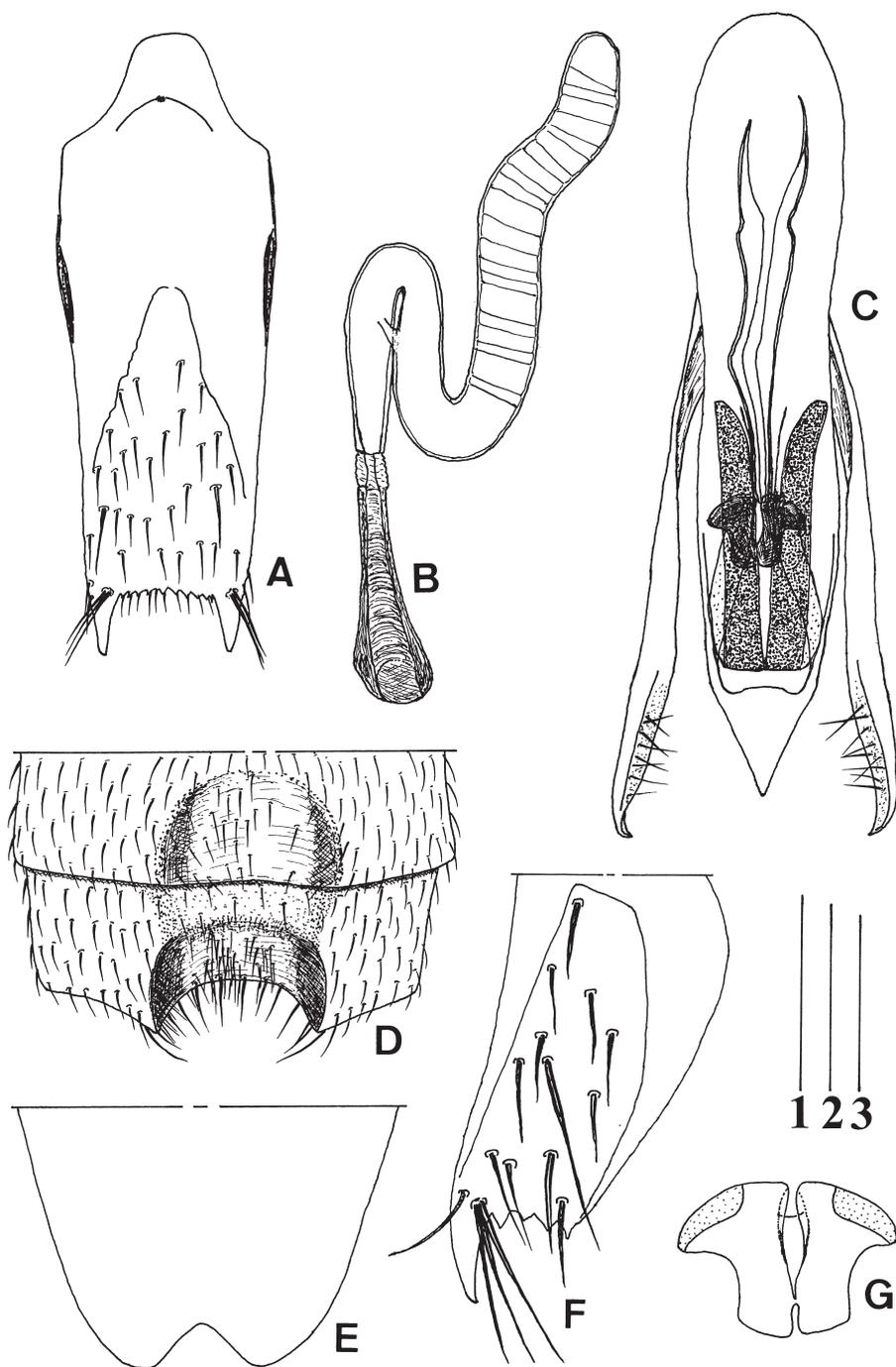


Fig. 104. *Stenus volkeri* Naomi (Osaka: Mt. Mikusa). A, 9th ventrite of male; B, spermatheca; C, aedeagus; D, 6th and 7th ventrites of male; E, posterior part of 8th ventrite of male; F, gonocoxite; G, endophallic expulsion hooks. Scale 1: 0.25 mm for D; scale 2: 0.25 mm for E; scale 3: 0.2 mm for A, C, 0.1 mm for B, F, G.

gose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal depression very indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 104D) modified with a flat area on each of the 3rd and 4th, a very shallow depression on the 5th, a deep depression on the 6th, a very deep depression on the 7th, and an almost triangular emargination on the 8th ventrite (Fig. 104E); 9th tergum with ventral apophyses very long; 9th ventrite (Fig. 104A) with macrosetae short, apicolateral teeth short, acute, apicolateral setae short; 10th tergum very shallowly emarginate posteromedially. Aedeagus (Fig. 104C) with median lobe very elongate, slightly narrowed a little before the middle, hardly angulate at apicolateral corners, acutely pointed at apex; apical sclerotized area elongate-triangular in shape. Endophallus (Fig. 104C) with copulatory tube long, robust, basal chamber ovoidal, main tube attenuate, distinctly bent near the middle; dorsolateral bands very thick; expulsion hooks (Fig. 104G) slightly small, each shoe-shaped; ventromedian bands moderately long, very broad. Parameres each incurved and pointed at the most apical part; apical area long, moderately swollen mesially at base, mesially also with 8 to 9 short setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 104F) each with apicolateral teeth long, very acute, apicolateral setae long to very long. Spermatheca (Fig. 104B) with capsule small; striped duct moderately long, very thick; duct very short, thick with 2 turns; gland with opening located on the middle of duct between the 1st and 2nd turns; basal valve very short; basal duct robust, long, becoming broader proximad.

Biology and ecology. The beetles of *S. volkeri* inhabit leaf litter heaped in the natural forests of a low mountainous region.

Remarks. *S. volkeri* is allied to *S. testaceopiceus* and *S. pubicornis*, but it is separable from the latter 2 species by the aedeagal median lobe much more elongate and slightly narrowed a little before the middle (Fig. 104C) and the endophallic expulsion hook shorter and strongly protruding laterally at the anterolateral part (Fig. 104G).

Etymology. This species is named after the third author of this paper, Volker Puthz

***Stenus okiensis* Naomi & Shimada**
(Figs. 105A–I, 135B)

Stenus okiensis Naomi & Shimada, 2008: 55; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Washigamine (550 m), Fuse Vil., Dôgo Is., Shimane Pref., 25. iii. 2004, T. Shimada leg. Paratypes: 5 ♂5 ♀, same data as holotype; 2 ♂1 ♀, Saigo-cho, Ooku, Dôgo Is., Shimane Pref., 31. x. 2003, T. Shimada leg.; 1 ♀, Fuse-mura, Mt. Daimanji (450 m), 1 Shimane Pref., 8. ix. 2003, T. Shimada leg.; 1 ♂1 ♀, Mt. Koshikibara (500 m), Saigô-cho, 10. v. 2003, T. Shimada leg.

Other material examined. [HONSHU]: 1 ♂1 ♀, Nakadani forest-road, Dôgo Is., Oki Isls., Shimane Pref., 9. xi. 2004, T. Watanabe leg.

Distribution. Japan: Honshu (Shimane Pref.: Dôgo Is.).

Redescription. Male and female: Body 3.9–4.1 mm (fore body 1.9–2.0 mm) in length. Head weakly shining; head black; pronotum and elytra dark red to dark brown; abdomen dark red to dark brown or almost black; labrum dark red to almost black; antennae and legs reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially

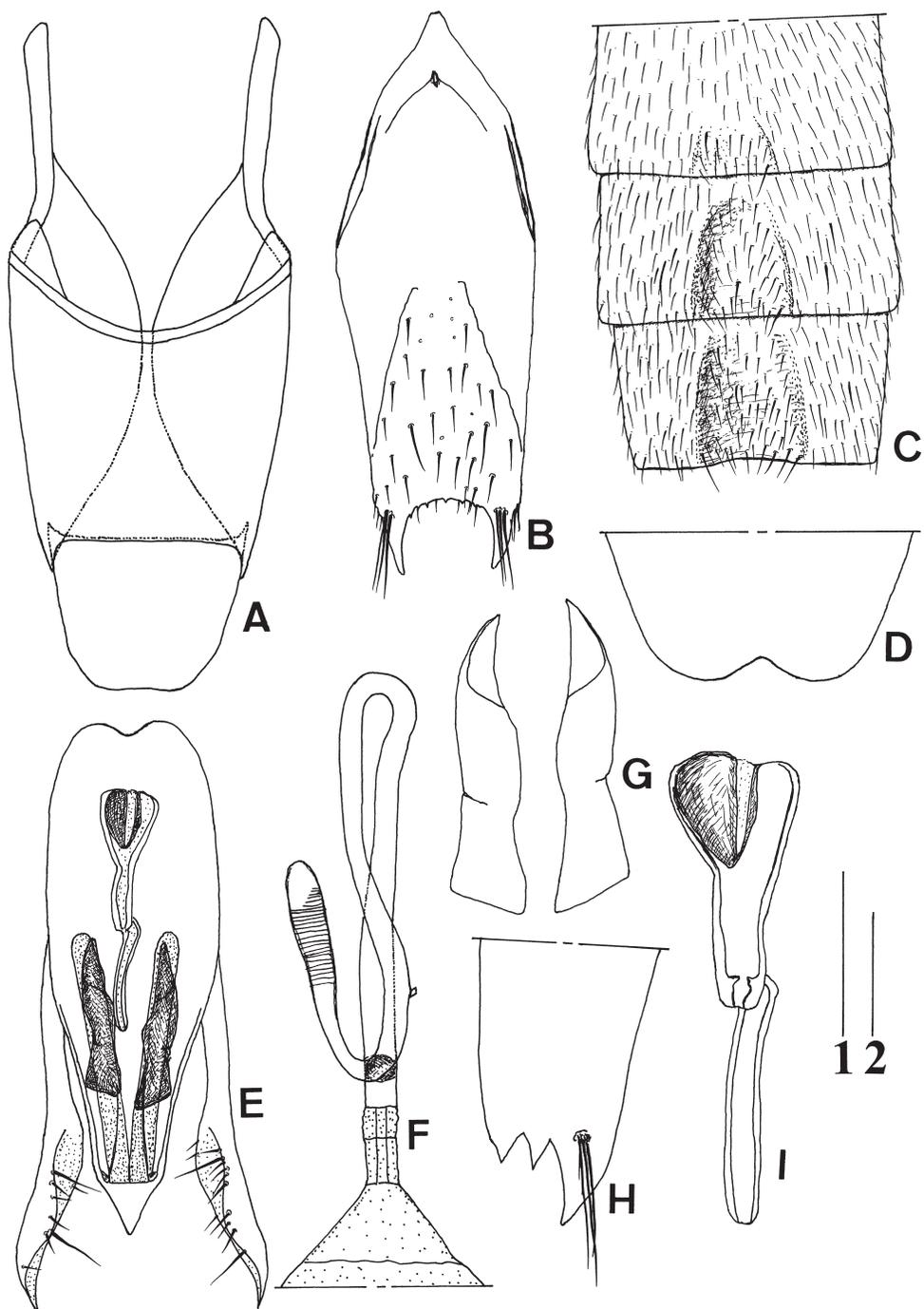


Fig. 105. *Stenus okiensis* Naomi & Shimada (Shimane, Oki Isls., Dôgo Is.: A–E, G, I, Nakadani Forest road; F, H, Mt. Koshikibara). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 5th to 7th ventrites of male; D, posterior part of 8th ventrite of male; E, aedeagus; F, spermatheca; G, endophallic expulsion hooks; H, posterior part of gonocoxite; I, copulatory tube. Scale 1: 0.2 mm for A, B, D, E; 0.1 mm for F–I; scale 2: 0.25 mm for C.

with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost mesially-curved furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 105C) modified with a flat area on the 5th, a shallow depression on the 6th, an elongate, shallow depression on the 7th, and a broad-subtriangular or almost semicircular emargination on the 8th ventrite (Fig. 105D); 9th tergum (Fig. 105A) with ventral apophyses very long; 9th ventrite (Fig. 105B) with macrosetae very short, apicolateral teeth long, acute, apicolateral setae slightly short; 10th tergum (Fig. 105A) very shallowly emarginate posteriorly. Aedeagus (Fig. 105E) with median lobe becoming distinctly narrower apicad, obtusely angulate at apicolateral corners, acutely pointed at apex; apical sclerotized area small, triangular. Endophallus (Fig. 105E) with copulatory tube (Fig. 105I) moderately long, with basal chamber bulbous, main tube with apical tube occurring from the dorsal side near the apex of basal tube; expulsion hooks (Fig. 105G) large, each with anterior plate acutely pointed at anterior tip; ventromedian bands moderately long, moderately broad. Parameres (Fig. 105E) stout, each very acutely pointed at apex; apical area very large, very long, moderately swollen mesially at base, with an arcuate ventral flap and with ventral margin bisinuate, mesially also with 2 long and 6 to 11 short setae.

Female: Eighth ventrite obtusely pointed posteromedially; gonocoxites (Fig. 105H) each with apicolateral tooth long, broad at base, acute, apicolateral setae moderately long. Spermatheca (Fig. 105F) with capsule moderately long, rounded apically; striped duct short, slightly thick; duct short, thin to moderately thick, with 2 turns, and also with a short sclerotized part a little distal from basal valve; gland with opening located on the duct between the 1st and 2nd turns; basal valve very short; basal duct short, membranous.

Biology and ecology. *S. okiensis* is insular and may be endemic to Oki Islands off Shimane Pref. The beetles of this species inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. Although *S. okiensis* is utterly different in habitus and coloration from *S. tsurusakii*, their very similar conditions of the structures of the endophallic copulatory tube as well as the aedeagal median lobe and parameres seem to ascertain their close relationship. *S. okiensis* is allied to *S. tsurusakii*, but it is separable from the latter species by the 6th and 7th ventrites of male each with a longer and shallower depression (Fig. 105C), the aedeagal paramere shorter, with its apex very acutely pointed (Fig. 105E), the copulatory tube shorter, with its apical tube baculiform (Fig. 105I), and the endophallic expulsion hook with its anterior plate turning anteriorly (Fig. 105G).

Stenus tsurusakii Naomi

(Fig. 106A–I)

Stenus tsurusakii Naomi, 1998: 100; Herman, 2001: 2423; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Kano-cho, Kedaka-gun, Tottori Pref., 6. i. 1994, N. Tsurusaki leg. Paratypes: 1 ♂ 1 ♀, same data as holotype.

Distribution. Japan: Honshu (Tottori Pref.).

Redescription. Male and female: Body 3.6–3.8 mm (fore body 1.8–1.9 mm) in length. Body

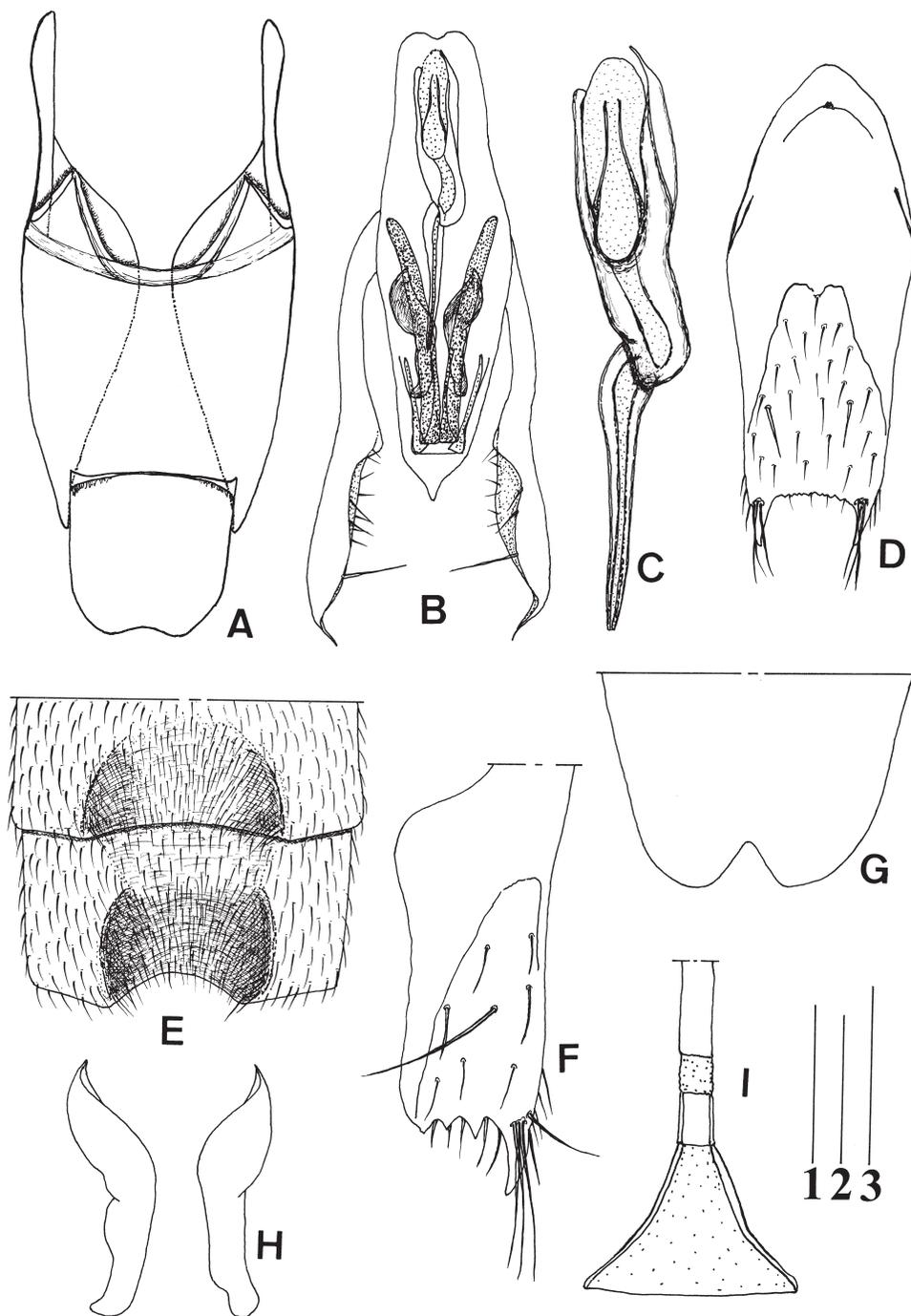


Fig. 106. *Stenus tsurusakii* Naomi (Tottori: Kano). A, 9th and 10th terga of male; B, aedeagus; C, copulatory tube; D, 9th ventrite of male; E, 6th and 7th ventrites of male; F, gonocoxite; G, posterior part of 8th ventrite of male; H, endophallic expulsion hooks; I, proximal part of spermatheca. Scale 1: 0.2mm for A, B, D, 0.1 mm for C, F, H, I; scale 2: 0.25 mm for E; scale 3: 0.25 mm for G.

moderately shining; head black, with clypeofrontal area dark red; pronotum and elytra reddish brown; abdomen dark red; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large (and rarely very large), subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites lost, tergoventral sutures very obsolete.

Male: Legs with femora thick; abdomen (Fig. 106E) modified with a flat area on the 4th, a shallow, transverse depression on the 5th, a very large, very deep depression on the 6th, a large, very deep depression on the 7th, and an almost triangular, moderately deep emargination on the 8th ventrite (Fig. 106G); 9th tergum with ventral apophyses long; 9th ventrite (Fig. 106D) with macrosetae very short, apicolateral teeth short, acute, apicolateral setae moderately long; 10th tergum moderately emarginate posteromedially. Aedeagus (Fig. 106B) with median lobe elongate, obtusely angulate at apicolateral corner, acutely pointed at apex with a moderately long apicomedian cusp; apical sclerotized area small, subtriangular. Endophallus (Fig. 106B) with copulatory tube (Fig. 106C) having basal club (into which the basal chamber and basal tube are fused?) very thick, apical tube thin, attenuate, occurring from the dorsal side near the apex of basal club; dorsolateral bands thin; expulsion hooks (Fig. 106H) slightly large, each with anterior plate turning anterolaterally, nearly crescent in shape, very acutely pointed at anterior tip, posterior plate narrow; ventromedian bands long, slightly thin. Parameres (Fig. 106B) much extending posteriorly beyond the apex of median lobe, each subulate and extremely thin at apex; apical area very large, thick, very long, with a subtriangular ventral flap at base and with ventral margin bisinuate, mesially also with 9 short setae before the middle and 1 long seta at about apical 2/3.

Female: Eighth ventrite almost acute posteromedially; gonocoxites (Fig. 106F) each with apicolateral tooth long, acute, apicolateral setae moderately long. Spermatheca (Fig. 106I) with basal valve very short; basal tube very short; basal pouch subconical.

Biology and ecology. The beetles of *S. tsurusakii* inhabit leaf litter heaped in the natural forests of a lowland.

Remarks. *S. tsurusakii* is allied to *S. okiensis*, but it is separable from the latter species by the 6th and 7th ventrites of male each with a broader and deeper depression (Fig. 106E), the aedeagal paramere longer, with its apex aciculate (Fig. 106B), the copulatory tube longer, with its apical tube attenuate (Fig. 106C), and the endophallic expulsion hook with its anterior plate turning anterolaterally (Fig. 106H).

Etymology. This species is named after Dr. Nobuo Tsurusaki (Tottori University) who studies the chromosomal evolution and speciation of Opiliones harvestman in Japan.

Stenus akojagai Hromádka

(Figs. 107A–H, 135C)

Stenus akojagai Hromádka, 1982: 132; Herman, 2001: 2048; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (NHMG), Mt. Daisen, Tottori Pref., 5. vi. 1965.

Other material examined. [HONSHU]: 3 ♂4 ♀, Misasa Spa, Tottori Pref., 28. ix. 1986, T. Ito leg.; 1 ♂1 ♀, Mt. Daisen, Tottori Pref., 26. iv. 1998, T. Kishimoto leg.; 1 ♂2 ♀, Sawada, Okayama C., Okayama Pref., 18. i. 2004, Nakano & Fujitani leg.; 1 ♂, Midou Valley, Oosa-cho, Okayama

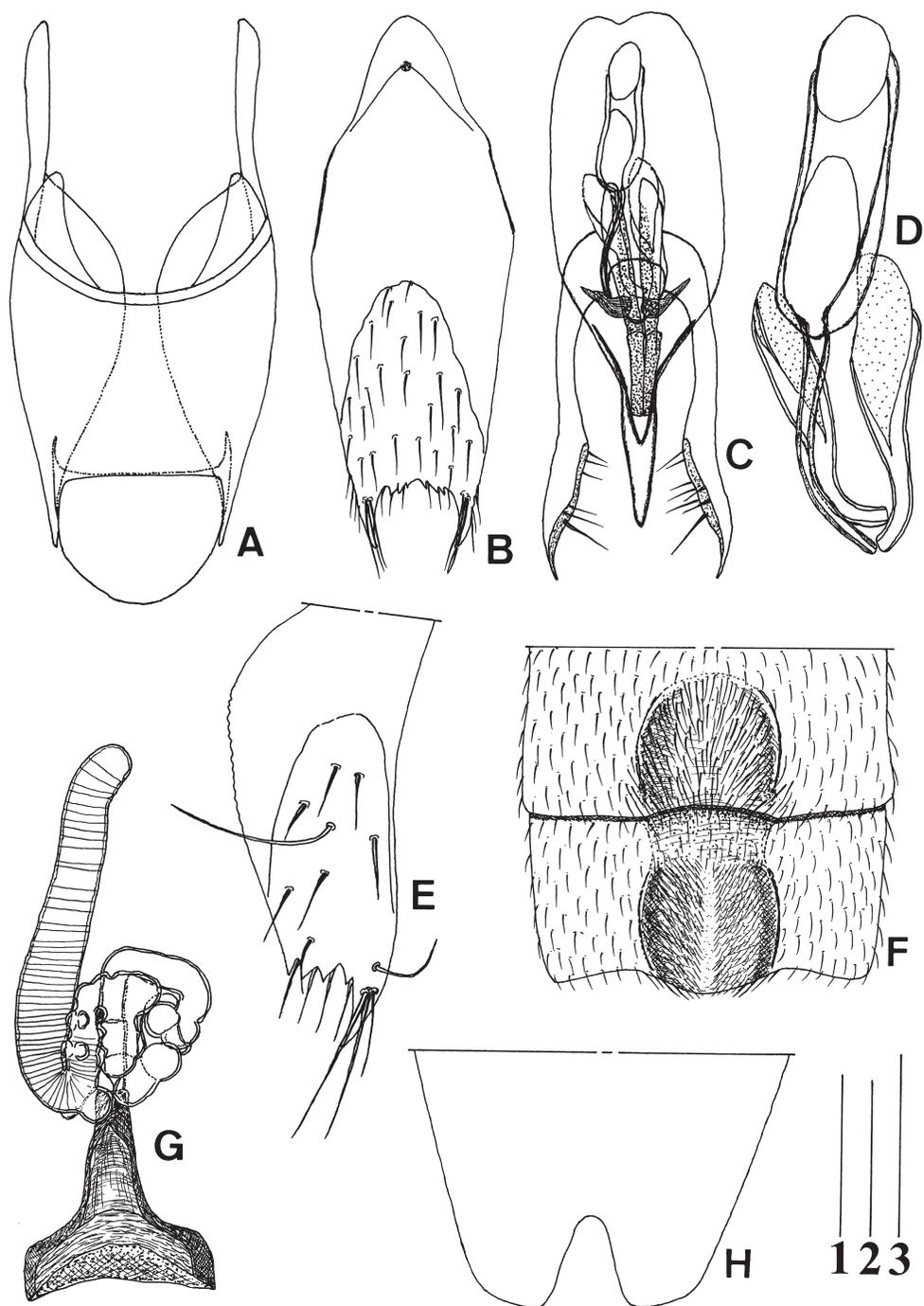


Fig. 107. *Stenus akojagai* Naomi (Okayama: A, C, D, Sawada, B, Midou Valley; Tottori: E–H, Misasa). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, endophallic copulatory tube and expulsion hooks; E, gonocoxite; F, 6th and 7th ventrites of male; G, spermatheca; H, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A–C, 0.1 mm for D, E, G; scale 2: 0.25 mm for F; scale 3: 0.25 mm for H.

Pref., 2. xi. 2003, O. Yamaji leg.

Distribution. Japan: Honshu (Tottori and Okayama Prefs.).

Redescription. Male and female: Body 3.3–3.7 mm (fore body 1.6–1.9 mm) in length. Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area infuscate; pronotum and elytra yellowish brown to reddish orange or reddish brown; abdomen reddish brown with apical segments more or less infuscate; labrum reddish orange to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows or depressions; pronotum with surface slightly uneven to uneven, with a median longitudinal depression hardly developed to very indistinct or indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites lost, tergoventral sutures very obsolete or lost.

Male: Abdomen (Fig. 107F) modified with a very shallow depression on the 4th, a shallow depression on the 5th, a moderately deep or deep depression on the 6th, a moderately deep or deep depression (whose posterior part is weakly arcuately rounded posteriorly) on the 7th, and a very deep, V- or U-shaped emargination on the 8th ventrite (Fig. 107H); 9th tergum (Fig. 107A) with ventral apophyses long; 9th ventrite (Fig. 107B) with apicolateral teeth moderately long, acute; 10th tergum (Fig. 107A) almost rounded posteriorly. Aedeagus (Fig. 107C) with median lobe strongly bulbous in the basal 2/3, awl-shaped in the apical 1/3; basal foramen with its anterior sclerotization comprising a pair of small, almost tadpole-shaped plates. Endophallus (Fig. 107C) with copulatory tube (Fig. 107D) pot-shaped, with basal chamber and basal tube together forming a cylindrical club, apical tube very thin, moderately curved; expulsion hooks (Fig. 107D) each almost Y-shaped, with membranous area developed between 2 anterior rods; ventro-median bands long, thin. Parameres (Fig. 107C) moderately thick, each very acutely pointed at apex; apical part long, moderately swollen mesially at base, and with ventral margin hardly or weakly bisinuate, mesially with 6 to 8 setae of various length.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 107E) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 107G) with capsule small, well-rounded apically; striped duct very long, thick to very thick; duct moderately thick, short, tuberculate, tightly coiled; basal duct and basal porch fused to form a funnel-like, sclerotized structure.

Biology and ecology. The beetles of *S. akojagai* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

Remarks. When considering their common possessions of the similar forms of the aedeagal parameres and copulatory tubes in *S. okiensis*, *S. tsurusakii* and *S. akojagai*, they are closely allied one another, but *S. akojagai* is easily separable from the other 2 species by the awl-like apical part of aedeagal median lobe (Fig. 107C).

Etymology. The specific epithet of this species is derived from the Japanese name of a Pteriid seashell species, akojagai.

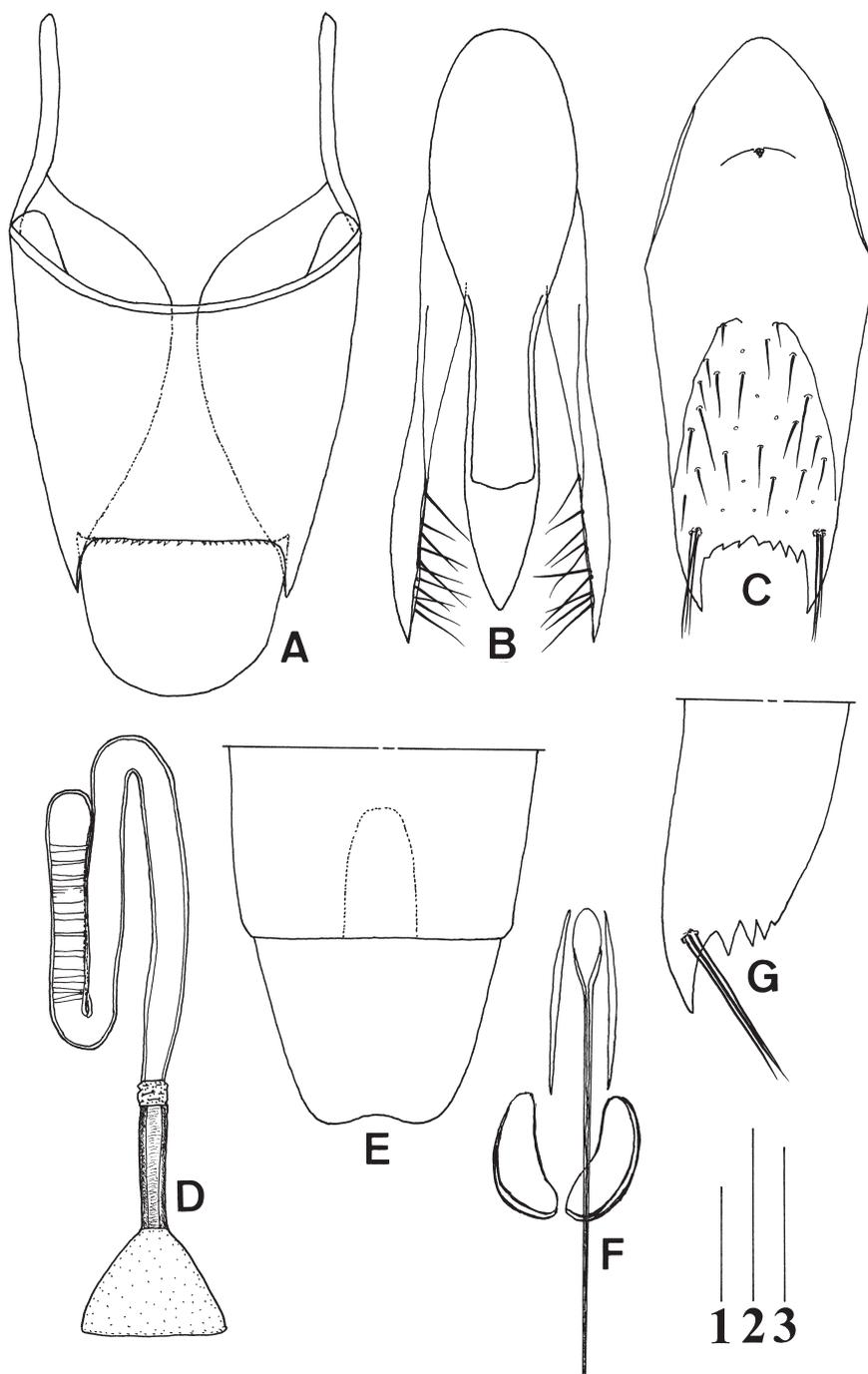


Fig. 108. *Stenus miroku* Naomi (Shimane: Mt. Sanbe). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, spermatheca; E, 7th and 8th ventrites of male; F, endophallic copulatory tube, expulsion hooks and ventromedian bands; G, posterior part of gonocoxite. Scale 1: 0.1 mm for A–C; scale 2: 0.1 mm for D, F, G; scale 3: 0.3 mm for E.

Stenus miroku Naomi
(Fig. 108A–G)

Stenus miroku Naomi, 2006: 30; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Takano City, Hiroshima Pref., 22. viii. 1982, S. Tanaka leg.

Other material examined. [HONSHU]: 1 ♂ 1 ♀, Mt. Sanbe (NW-slope), Shimane Pref., 4. iii. 1998, K. Ishii leg.

Distribution. Japan: Honshu (Hiroshima and Shimane Prefs.).

Redescription. Male and female: Body 3.2–3.6 mm (fore body 1.5–1.7 mm) in length. Head moderately shining; head almost black, with clypeofrontal or median area reddish brown to dark red or dark red near black; pronotum and elytra yellowish orange to reddish brown; abdomen reddish brown to dark reddish brown; labrum reddish brown; antennae and legs yellowish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly concave, with a pair of mesially-curved depressions; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface strongly uneven, with a pair of large basimesial foveae and a pair of longitudinal anterolateral furrows; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 108E) modified with an elongate, flat area on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 108A) with ventral apophyses long; 9th ventrite (Fig. 108C) with macrosetae moderately long, apicolateral teeth very acute, apicolateral setae long; 10th tergum (Fig. 108A) almost rounded posteriorly. Aedeagus (Fig. 108B) with median lobe bulbous at base, very narrow in about apical 1/2, pointed at apex; apical sclerotized area elongate-subtriangular in shape, very weakly rounded laterally. Endophallus with copulatory tube (Fig. 108F) with basal chamber elongate-ovoidal in shape, main tube very long, needle-shaped; expulsion hooks (Fig. 108F) broad-bean-shaped, weakly sclerotized; ventromedian bands atrophied into a pair of very thin, short bands. Parameres (Fig. 108B) robust, each very broad at base, very acutely pointed at apex; apical area very long, mesially with 5 to 11 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 108G) each with apicolateral tooth long, very acute, apicolateral setae very long; 10th tergum slightly protruding posteriorly to be the triangular apical part, pointed posteromedially. Spermatheca (Fig. 108D) with capsule moderately large, well-rounded apically; striped duct moderately long, slightly thin; duct very short, moderately thick, with 2 turns; basal valve very short; basal duct moderately long; basal pouch conical, membranous.

Biology and ecology. The beetles of *S. miroku* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. miroku* is allied to *S. gagyumontis*, but it is separable from the latter species by the aedeagal median lobe thinner in the apical part, with its apical sclerotized area longer (Fig. 108B), the copulatory tube with its main tube needle-shaped and much thinner (Fig. 108F), the endophallic expulsion hooks developed and broad-bean-shaped (Fig. 108F).

Etymology. The specific epithet of this species is derived from the name of an enlightened deity, Miroku.

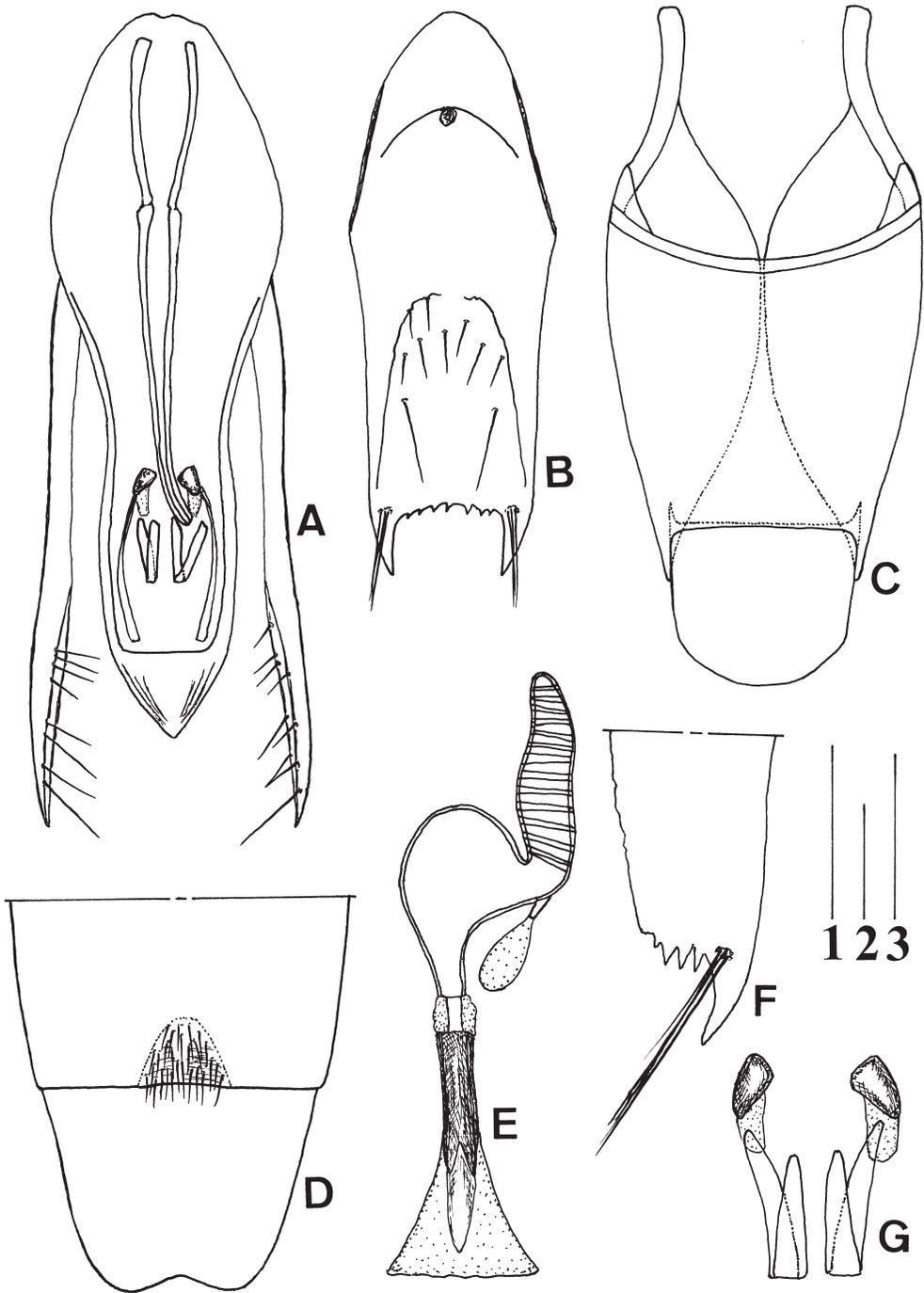


Fig. 109. *Stenus masatakai* Naomi & Nomura (Shimane: B, E, F, Urahikimi; Hiroshima: A, C, D, G, Yoshiwa). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, 7th and 8th ventrites of male.; E, spermatheca; F, posterior part of gonocoxite; G, endophallic expulsion hooks and ventromedian bands. Scale 1: 0.1 mm for A, E, F, 0.05 mm for G; scale 2: 0.1 mm for B, C; scale 3: 0.2 mm for D.

Stenus masatakai Naomi & Nomura
(Fig. 109A–G)

Stenus masatakai Naomi & Nomura, 1990: 47; Herman, 2001: 2274; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUMF), Urahikimi, Shimane Pref., 24. viii. 1988, K. Ogata leg. Paratypes: 1 ♂ 2 ♀, same data as holotype; 1 ♂ 2 ♀, Nakatsuya Val., Yoshiwa Vil., Hiroshima Pref., 8. vi. 1987, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂ 2 ♀, Kano, Shūnan, Yamaguchi Pref., 10–13. x. 2012, S. Tanaka leg.

Distribution. Japan: Honshu (Shimane, Hiroshima and Yamaguchi Prefs.)

Redescription. Male and female: Body 2.7–3.7 mm (fore body 1.3–1.7 mm) in length. Body moderately shining; head black, with clypeofrontal or median area dark red to dark red near black; pronotum and elytra reddish brown; abdomen reddish brown to dark reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface almost smooth to slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 109D) modified with a flat area on the 7th, and an arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 109C) with ventral apophyses slightly short; 9th ventrite (Fig. 109B) with macrosetae very long, apicolateral teeth long, very acute, apicolateral setae moderately long; 10th tergum (Fig. 109C) entire. Aedeagus (Fig. 109A) with median lobe subrhombic in about basal 1/2, narrow in about apical 1/2, pointed at apex; apical sclerotized area subtriangular. Endophallus (Fig. 109A) with copulatory tube with basal chamber comprising a pair of long, thin rods, main tube stick-like, attenuate, slightly curved in apical part; dorsolateral bands moderately long, thin; expulsion hooks (Fig. 109G) atrophied into a pair of small sclerites, each with posterior plate membranous or weakly sclerotized; ventromedian bands (Fig. 109G) atrophied, very short, very thin. Parameres (Fig. 109A) slender, each very acutely pointed at apex; apical area very long, hardly swollen at base, mesially with 8 to 9 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 109F) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 109E) with capsule hardly developed; striped duct moderately long, thick; duct very short, strongly swollen anteriorly; gland elongate-ovoidal in shape, with opening located on the duct a little proximal from the base of striped duct; basal valve very short; basal duct long, extending into the basal pouch which is elongate-conical in shape and membranous.

Biology and ecology. The beetles of *S. masatakai* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. masatakai* is allied to *S. gagyumontis*, but it is separable from the latter species by the 8th ventrite of male with a shallower emargination at the apex (Fig. 109D), the aedeagal median lobe broader and pointed at the apex (Fig. 109A) and the spermatheca with its duct having a swollen chamber just proximal from the striped duct (Fig. 109E)

Etymology. This species is named after the late Dr. Masataka Sato who studied the aquatic and some other groups of Coleoptera in Japan.

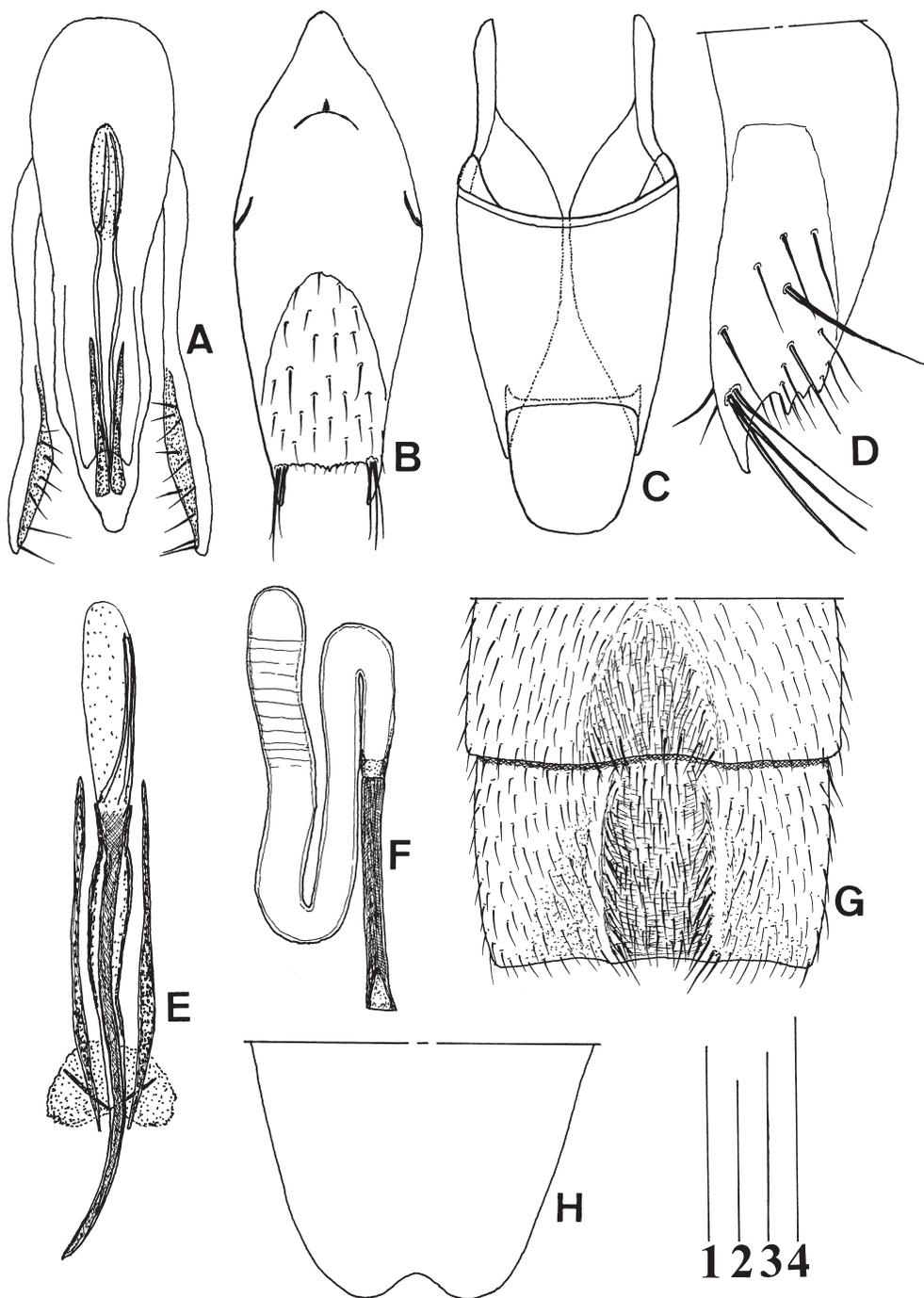


Fig. 110. *Stenus gagyumontis* Naomi (Okayama: Mt. Gagyû). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, gonocoxite; E, endophallic copulatory tube, expulsion hooks and ventromedian bands; F, spermatheca; G, 6th and 7th ventrites of male; H, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A, B, 0.1 mm for D–F; scale 2: 0.2 mm for C; scale 3: 0.25 mm for G; scale 4: 0.25 mm for H.

Stenus gagyumontis Naomi
(Figs. 110A–H, 135D)

Stenus gagyumontis Naomi, 1990a: 4; Herman, 2001: 2194; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Mt. Gagyu, Takahashi City, Okayama Pref., 28. viii. 1977, H. Ohishi leg. Paratypes: 4 ♂9 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂2 ♀, Gohkei, Okayama Pref., 16. v. 1993, T. Ito leg.

Distribution. Japan: Honshu (Okayama Pref.).

Redescription. Male and female: Body 3.2–3.6 mm (fore body 1.5–1.7 mm) in length. Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area sometimes infuscate; pronotum and elytra reddish orange to reddish brown; abdomen reddish brown to dark red, with posterior segments more or less infuscate; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae moderately long, very thin; pronotum with surface almost even to slightly uneven, with a median longitudinal furrow hardly developed to very indistinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 110G) modified with a flat area on the 4th; a large flat area on the 5th, a very shallow depression on the 6th, an elongate, shallow depression on the 7th, and an arcuate, moderated deep emargination on the 8th ventrite (Fig. 110H); 9th tergum (Fig. 110C) with ventral apophyses moderately long; 9th ventrite (Fig. 110B) with macrosetae very short, apicolateral teeth very short, acute, apicolateral setae moderately long; 10th tergum (Fig. 110C) almost rounded posteriorly. Aedeagus (Fig. 110A) with median lobe elongate, very slightly bisinuate laterally in about apical 2/3, narrowly rounded apically; apical sclerotized area narrow, rounded basally. Endophallus (Fig. 110E) with copulatory tube having basal chamber elongate, main tube long, attenuate, slightly curved behind the middle; expulsion hooks each atrophied into a very thin, string-like plate; ventromedian bands short, very thin. Parameres (Fig. 110A) slightly diverging posterolaterally in about apical 1/2, each narrowly rounded apically; apical area very long, thick, mesially with 8 to 10 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 110D) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 110F) with capsule moderately large, well-rounded apically; striped duct short, moderately thick; duct very short, moderately thick, with 2 turns; basal valve very short; basal duct very long, thin.

Biology and ecology. The beetles of *S. gagyumontis* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. gagyumontis* is allied to *S. masatakai*, but it is separable from the latter species by the 8th ventrite of male with a deeper emargination at the apicomedian part (Fig. 110H), the aedeagal median lobe narrower and narrowly rounded apically (Fig. 110A) and the spermatheca with its duct not having any swollen chamber (Fig. 110F).

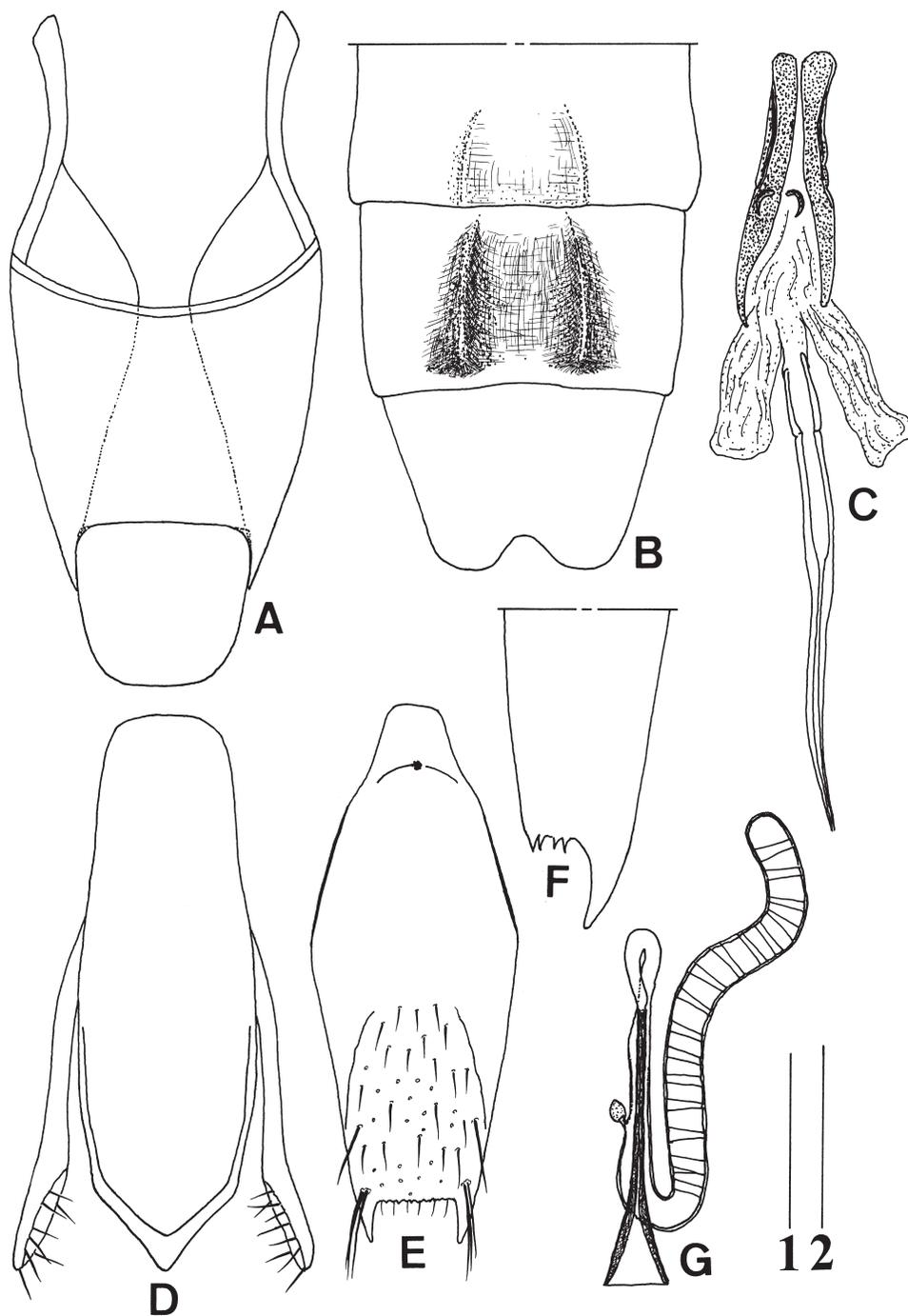


Fig. 111. *Stenus incurvatus* Naomi & Nomura (Kagawa: Ayauta). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, endophallus; D, aedeagus; E, 9th ventrite of male; F, posterior part of gonocoxite; G, spermatheca. Scale 1: 0.2 mm for A, C–E, and 0.1 mm for F, G; scale 2: 0.3 mm for B.

Stenus incurvatus Naomi & Nomura
(Fig. 111A–G)

Stenus incurvatus Naomi & Nomura, 2015: 198.

Type material examined. Holotype: ♂ (NMNST), Sogisho-higashi (440 m), Ayakawa-cho, Ayauta-gun, Kagawa Pref., 25. vi. 2011, M. Yoshida leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 3 ♂2 ♀, Mt. Yuka, Kurashiki City, Okayama Pref., 6. ii. 2005, O. Yamaji leg. [SHIKOKU]: 1 ♂1 ♀, Enoura, Marugame City, Kagawa Pref., 30. iv. 2011, H. Fujimoto leg.; 1 ♂1 ♀, Hachiman Shrine, Mannou-cho, Kagawa Pref., 7. iii. 2009, H. Fujimoto leg.

Distribution. Japan: Honshu (Okayama Pref.) and Shikoku (Kagawa Pref.).

Redescription. Male and female: Body 3.3–3.4 mm (fore body 1.4–1.6 mm) in length. Body moderately shining; head reddish orange to reddish brown, with lateral parts of interocular area infusate; pronotum and elytra reddish orange to reddish brown; abdomen entirely reddish orange to reddish brown or dark reddish brown, or reddish orange with apical segments infusate; labrum, antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short to moderately long, very thin to thin; pronotum with surface almost even to slightly uneven, with a median longitudinal furrow hardly developed to very indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 111B) modified with a flat area on the each of 4th and 5th, a shallow depression on the 6th, a very large, deep depression on the 7th, and a moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 111A) with ventral apophyses long; 9th ventrite (Fig. 111E) with macrosetae long, apicolateral teeth very short, acute, apicolateral setae moderately long; 10th tergum (Fig. 111A) entire. Aedeagus (Fig. 111D) with median lobe moderately broad, obtusely angulate at apicolateral corners, almost pointed at apex; apical sclerotized area hardly developed. Endophallus (Fig. 111C) with copulatory tube having basal chamber narrow, main tube very long, thin, attenuate; expulsion hooks each atrophied into a very small, C-shaped sclerite; ventromedian bands short, moderately broad; lateral diverticula slightly thin, membranous Parameres (Fig. 111D) moderately diverging posterolaterally in apical part, rounded apically; apical area slightly thick, slightly swollen mesially at base, mesially also with 8 to 9 short setae.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 111F) each with apicolateral tooth long, almost acute, apicolateral setae moderately long. Spermatheca (Fig. 111G) with capsule small, rounded apically; striped duct very long, moderately thick; duct short, very thin to moderately thick, with 2 turns; gland very small, located on the duct between the 1st and 2nd turns; basal valve invisible; basal duct very long, very thin in the distal 2/3, becoming thicker proximad in the proximal 1/3.

Biology and ecology. The beetles of *S. incurvatus* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. incurvatus* is allied to *S. okamotoi*, but it is separable from the latter species by the aedeagal median lobe widely angulate at the apicolateral corner, with its apical triangular part longer and hardly emarginate apicolaterally (Fig. 111D), and the endophallic ventromedian bands usually narrower (Fig. 111C).

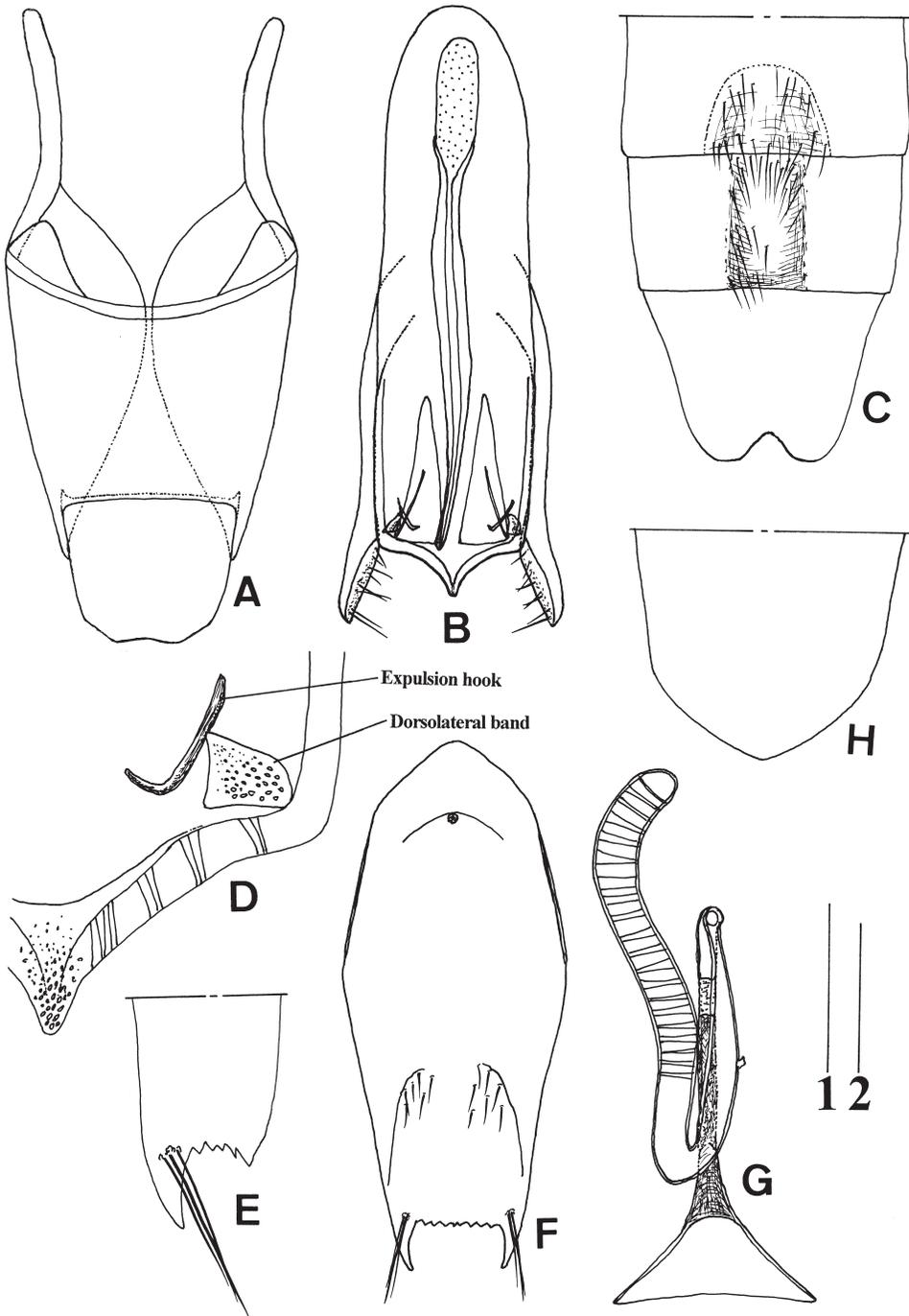


Fig. 112. *Stenus okamotoi* Naomi (Hiroshima: A, B, D, Higashi-hiroshima, E, G, H, Kawauchi; Ehime: C, Mt. Shiogamori, F, Tateiwa). A, 9th and 10th terga of male; B, aedeagus; C, 6th to 8th ventrites of male; D, apical part of aedeagal median lobe with endophallic dorsolateral bands and expulsion hooks; E, posterior part of gonocoxite; F, 9th ventrite of male; G, spermathecal; H, posterior part of 8th ventrite of female. Scale 1: 0.2 mm for A, B, F, H, 0.1 mm for E, G, 0.05 mm for D; scale 2: 0.3 mm for C.

Stenus okamotoi Naomi
(Figs. 112A–H, 135E)

Stenus okamotoi Naomi, 1989a: 2; Herman, 2001: 2313; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (KUF), Shichitsukahara, Shôbaru City, Hiroshima Pref., 1. v. 1987, I. Okamoto leg. Paratypes: 1 ♀, Yoshiwa Vil., Hiroshima Pref., 18. v. 1986, I. Okamoto leg.; 1 ♀, Hôei-cho, Hiroshima Pref., 4. vii. 1986, I. Okamoto leg.; 1 ♀, same locality, 8. vi. 1986, I. Okamoto leg.; 1 ♀, Kawachi-cho, Kamo-gun, Hiroshima Pref., 9. v. 1987, I. Okamoto leg.; 1 ♂, Higashi-hiroshima, Hiroshima Pref., 3. viii. 1985, I. Okamoto leg.

Other material examined. [SHIKOKU]: 1 ♂1 ♀, Mt. Shiogamori, Kawauchi-cho, Ehime Pref., 19. ix. 1993, M. Sakai leg.; 1 ♂, Tateiwa, Hôjyô City, Ehime Pref., 27. vii. 1991, I. Okamoto leg.

Distribution. Japan: Honshu (Hiroshima Pref.) and Shikoku (Ehime Pref.).

Redescription. Male and female: Body 3.2–3.8 mm (fore body 1.5–1.8 mm) in length. Body moderately shining; head reddish orange to dark red or dark brown, with lateral parts of interocular area more or less infusate; pronotum and elytra reddish orange to reddish brown; abdomen reddish orange to reddish brown, sometimes with apical segments infusate; labrum, antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse or subrugose punctures and elytra partially with large, coarse to subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows (or depressions); antennae short to moderately long, very thin; pronotum with surface almost even to slightly uneven or uneven, with a median longitudinal furrow hardly developed to very indistinct or indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Abdomen (Fig. 112C) modified with a flat area on the 6th, an elongate, very shallow depression on the 7th, and a moderately deep, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 112A) with ventral apophyses very long; 9th ventrite (Fig. 112F) with apicolateral teeth short, very acute, apicolateral setae moderately long; 10th tergum (Fig. 112A) very slightly emarginate posteromedially. Aedeagus (Fig. 112B) with median lobe moderately broad, almost rectangularly angulate at apicolateral corners, pointed at apex, arcuately emarginate apicolaterally; apical sclerotized area hardly developed. Endophallus (Fig. 112B) with copulatory tube very long, with basal chamber elongate-ovoidal in shape, main tube almost baculiform, attenuate behind the middle; dorsolateral bands (Fig. 112D) each atrophied into a very small, almost rectangular band; expulsion hooks (Fig. 112D) each atrophied into a very small, L-shaped sclerite; ventromedian bands (Fig. 112B) each short, broad at posterior rim (Fig. 112B). Parameres (Fig. 112B) slightly diverging posterolaterally in apical part, each rounded apically; apical area moderate thick, moderately swollen mesially at base, mesially also with 7 to 8 setae of different length.

Female: Eighth ventrite almost obtuse posteromedially (Fig. 112H); gonocoxites (Fig. 112E) each with apicolateral tooth long, acute, apicolateral setae very long. Spermatheca (Fig. 112G) with capsule very small; striped duct long, moderately thick; duct short, thin to moderately thick, with 2 turns; basal valve short, very thin; basal duct very long, thin, becoming slightly thicker proximad at proximal part; basal pouch conical, broader than long.

Biology and ecology. The beetles of *S. okamotoi* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions. The beetles of this species were once collected

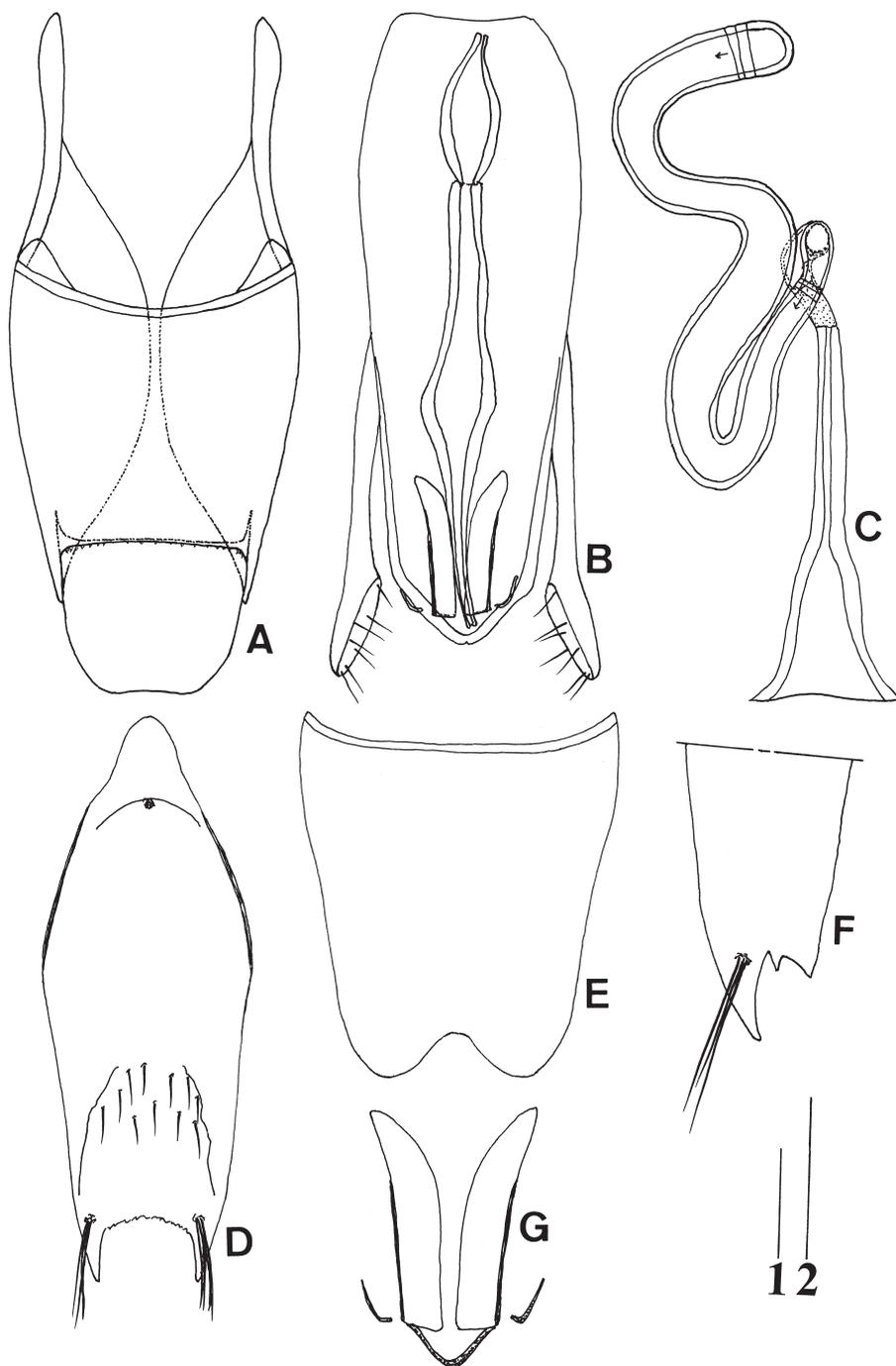


Fig. 113. *S. amma* Naomi (Hyogo: A–C, F, G, Taga; Nara: D, E, Dorogawa). A, 9th and 10th terga of male; B, aedeagus; C, spermatheca; D, 9th ventrite of male; E, 8th ventrite of male; F, posterior part of gonocoxite; G, endophallic expulsion hooks and ventromedian bands. Scale 1: 0.1 mm for A, B, 0.05 mm for C, 0.2 mm for D; scale 2: 0.2 mm for E, 0.1 mm for F, G.

from the haystack at Mt. Shiogamori, Ehime Pref.

Remarks. *S. okamotoi* is allied to *S. incurvatus*, but it is separable from the latter species by the aedeagal median lobe almost rectangularly angulate at the apicolateral corners, with its apical triangular part shorter and arcuately emarginate apicolaterally (Fig. 112B) and the endophallic ventromedian bands usually broader (Fig. 112B).

Etymology. This species is named after Mr. Iwao Okamoto (Hiroshima) who collected all the *Stenus*-beetles designated as the type specimens.

***Stenus amma* Naomi & Nomura**
(Figs. 113A–G, 135F)

Stenus amma Naomi & Nomura, 1990: 45; Herman, 2001: 2054; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Ikeda City, Osaka Pref., 25. v. 1985, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂1 ♀, Dorogawa, Nara Pref., 2. v. 1985, T. Ito leg.; 1 ♂2 ♀, Taga, Sayō-cho, Hyogo Pref., 4. ix. 2017, T. Ito leg. [SHIKOKU]: 2 ♂2 ♀, Uchimi-cho, Shōdo Is., Kagawa Pref., 3. xi. 2004, F. Sasaki leg.

Distribution. Japan: Honshu (Nara, Osaka and Hyogo Prefs.) and Shikoku (Kagawa Pref.: Shodo Is.).

Redescription. Male and female: Body 3.0–3.6 mm (fore body 1.5–1.7 mm) in length. Body moderately shining and entirely reddish orange to reddish brown except for the infuscate lateral parts of interocular area and apical segments of abdomen; labrum, antennae and legs yellowish brown to reddish brown or brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, coarse or subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique depressions; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct or indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventral sutures lost.

Male: Body modified with a small, semicircular, very shallow depression on the 6th, an elongate, very shallow depression on the 7th, and a moderately large, subtriangular emargination on the 8th ventrite (Fig. 113E); 9th tergum (Fig. 113A) with ventral apophyses very long; 9th ventrite (Fig. 113D) with apicolateral teeth long, acute, apicolateral setae moderately long; 10th tergum (Fig. 113A) weakly emarginate posteriorly. Aedeagus (Fig. 113B) with median lobe broad, obtusely angulate at apicolateral corners, very minutely incised at apicomedian part; apical sclerotized area hardly developed. Endophallus (Fig. 113B) with copulatory tube with basal chamber subfusiform, main tube very long, moderately swollen laterally near the middle; expulsion hooks (Fig. 113G) each atrophied into a very thin, almost L-shaped sclerite; ventromedian bands (Fig. 113G) short, slightly narrow. Parameres (Fig. 113B) moderately diversing posterolaterally in apical part; apical area thick, strongly swollen mesially at base, mesially also with 7 small setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 113F) each with apicolateral tooth long, very acute, apicolateral setae long. Spermatheca (Fig. 113C) with capsule small, rounded apically; duct short, moderately thick to thick, densely striped in full length; basal valve short, thin; basal duct extremely long, with an elongate-subconical base.

Biology and ecology. The beetles of *S. amma* inhabit leaf litter heaped in the natural forests of lowlands to mountainous regions.

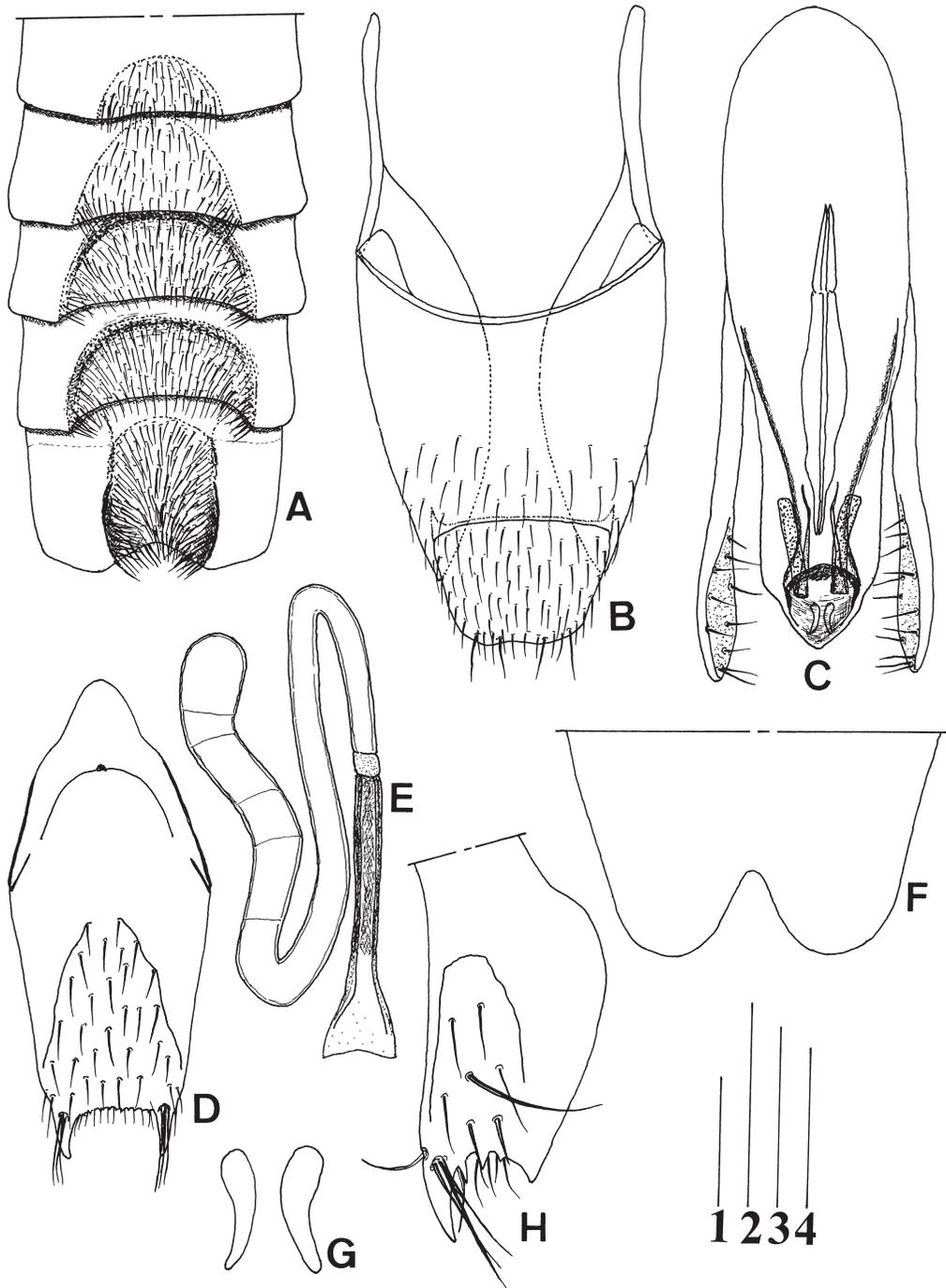


Fig. 114. *Stenus enma* Naomi (Hiroshima: A–D, F, G, Shôbara, E, H, Mukaibara). A, 4rd to 7th ventrites of male; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male; E, spermatheca; F, 8th ventrite of male; G, endophallic expulsion hooks; H, gonocoxite. Scale 1: 0.25 mm for A; scale 2: 0.25 mm for F; scale 3: 0.2 mm for B–D, 0.1 mm for E, H; scale 4: 0.05 mm for G.

Remarks. *S. amma* is allied to *S. enma*, but it is separable from the latter species by the abdominal modifications of male much less developed, the aedeagal median lobe with its apico-median part very minutely incised (Fig. 113B), the copulatory tube with its main tube much longer, and moderately swollen laterally only near the middle (Fig. 113B), and the paramere with its apical area much shorter (Fig. 113B).

Etymology. The specific epithet of this species is derived from an anagram of a Japanese word 'mama' that suggests 'keep' or 'remain', namely, 'amma', hoping that the biological diversity of beetle fauna in Japan remains high in the future.

***Stenus enma* Naomi**

(Fig. 114A–H)

Stenus enma Naomi, 1990a: 6; Herman, 2001: 2168; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Mukaibara-cho, Hiroshima Pref., 29. ix. 1985, I. Okamoto leg. Paratype: 1 ♀, same data as holotype.

Other specimens examined. [HONSHU]: 2 ♂, Nanatsukahara, Shōbara, Hiroshima Pref., 28. iv. 1990, I. Okamoto leg.

Distribution. Japan: Honshu (Hiroshima Pref.).

Redescription. Male and female: Body 2.9–3.5 mm (fore body 1.7–1.8 mm) in length. Body moderately shining; head reddish orange, with lateral parts of interocular area more or less infuscate; pronotum and elytra reddish orange; abdomen reddish brown with apical segments infuscate; labrum, antennae and legs yellowish brown to reddish orange. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with coarse to subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface slightly uneven to uneven, with a pair of small, indistinct depressions at anteromesial parts; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites and tergoventral sutures lost.

Male: Legs with femora thick; hind tibiae each moderately curved mesially before the middle; abdomen (Fig. 114A) modified with a slightly small, shallow depression on the 3rd, a very large, deep depression on each of the 4th to 6th, a large, very deep depression on the 7th, and a deep, almost triangular emargination on the 8th ventrite (Fig. 114F); 9th tergum (Fig. 114B) with ventral apophyses very long; 9th ventrite (Fig. 114D) with apicolateral teeth short, almost acute, apicolateral setae moderately long; 10th tergum (Fig. 114B) very weakly emarginate posteromedially. Aedeagus (Fig. 114C) with median lobe moderately fringed ventrolaterally with ventral walls, angulate at apicolateral corners, triangular at apical part; apical sclerotized area lost. Endophallus (Fig. 114C) with copulatory tube moderately long, with basal chamber having a pair of thin rods, main tube almost elongate-fusiform in shape; expulsion hooks (Fig. 114G) each atrophied into a very small sclerite; ventromedian bands short, narrow. Parameres (Fig. 114C) thick; apical area very long, almost flat, broad dorsoventrally, mesially with 10 to 12 short setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 114H) each with apicolateral tooth long, very acute, apicolateral setae moderately long. Spermatheca (Fig. 114E) with capsule large, much rounded apically, a little broader than striped duct; striped duct moderately long, moderately thick, only with a few transverse stripes; duct short, thin to moderately thick,

with 2 turns; basal valve very short; basal duct long, becoming slightly thicker proximad at base.

Biology and ecology. The beetles of *S. enma* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. enma* is allied to *S. amma*, but it is separable from the latter species by the abdominal modifications of male much more developed with various forms of depressions and emarginations (Fig. 114A), the aedeagal median lobe pointed at the apicomedian part (Fig. 114C), the copulatory tube with its main tube much shorter and almost elongate-fusiform in shape (Fig. 114C), and the paramere with its apical area much longer (Fig. 114C).

Etymology. The specific epithet of this species is derived from the title name of a chant or Noh song for the traditional performing arts in Japan, Enma.

Stenus uenoi Naomi & Nomura

(Fig. 115A–G)

Stenus bosatsu Naomi, 1989: 159 (in part).

Stenus uenoi Naomi & Nomura, 1990: 46; Herman, 2001: 2424; Naomi & Puthz, 2013: 144.

Stenus expansus Naomi & Ito, 2018: 92 (in part).

Type material examined. Holotype: ♂ (KUF), Odon, Neba Vil., Nagano Pref., 28. x. 1985, S. Nomura leg. Paratypes: 3 ♂5 ♀, same data as holotype; 1 ♂1 ♀, Mt. Togakushi, Nagano Pref., 26. viii. 1983, S. Nomura leg.; 3 ♂4 ♀, Goushima, Haruno-cho, Shizuoka Pref., 23. x. 1985, S. Nomura leg.; 1 ♂, Mt. Sanage, Aichi Pref., 24. x. 1970, K. Yamagishi leg.; 2 ♂5 ♀ (paratypes of *S. bosatus*), Sasagamine, Mt. Myôkô, Niigata Pref., 14–15. vi. 1980, S. Naomi leg.; 1 ♂ (paratype of *S. expansus*), Mennoki Pass, Aichi Pref., 13. viii. 1990, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂, Nozumi, Teradomari-cho, Niigata Pref., 22. v. 1996, M. Maruyama leg.; 1 ♂1 ♀, Togakushi Highland, Nagano Pref., 5–6. vii. 2008, T. Ito leg.; 2 ♂4 ♀, Hinatami Riv., Shima Spa., Gunma Pref., 15–16. ix. 1996, S. Naomi & M. Maruyama leg.; 1 ♂1 ♀, Yuya Spa, Gero, Gifu Pref., 26. vi. 2008, T. Ito; 1 ♂, Mennoki Pass, Aichi Pref., 13. viii. 1990, S. Nomura leg.; 6 ♂1 ♀, Jyôkô-ji, Aichi Pref., 11. viii. 1993, T. Ito leg.; 3 ♂1 ♀, Dando-Uradani, Shitara-cho, Aichi Pref., 5. x. 1998, S. Nomura leg.; 2 ♂1 ♀, Suwa, Ueno City, Mie Pref., 24. x. 1996, H. Yokozeki leg. [SHIKOKU]: 1 ♂, Miyanotani Pond, Shikokuchû City, Ehime Pref., 30. x. 2005, Y. Katayama leg.

Distribution. Japan: Honshu (Kanto, Chubu and Kinki Districts) and Shikoku (Ehime Pref.)

Redescription. Male and female: Body 3.2–4.0 mm (fore body 1.5–2.0 mm) in length. Body weakly to moderately shining; head black; pronotum, elytra and abdomen reddish brown to dark reddish brown or almost black; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly concave, with a pair of longitudinal-oblique or mesially-curved furrows (or depressions); antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventrite sutures almost lost.

Male: Abdomen (Fig. 115F) modified with a broad-subtriangular or semicircular emargination on the 8th ventrite; 9th tergum (Fig. 115E) with ventral apophyses very long; 9th ventrite (Fig. 115A) with apicolateral teeth very acute, apicolateral setae long; 10th tergum (Fig. 115E)

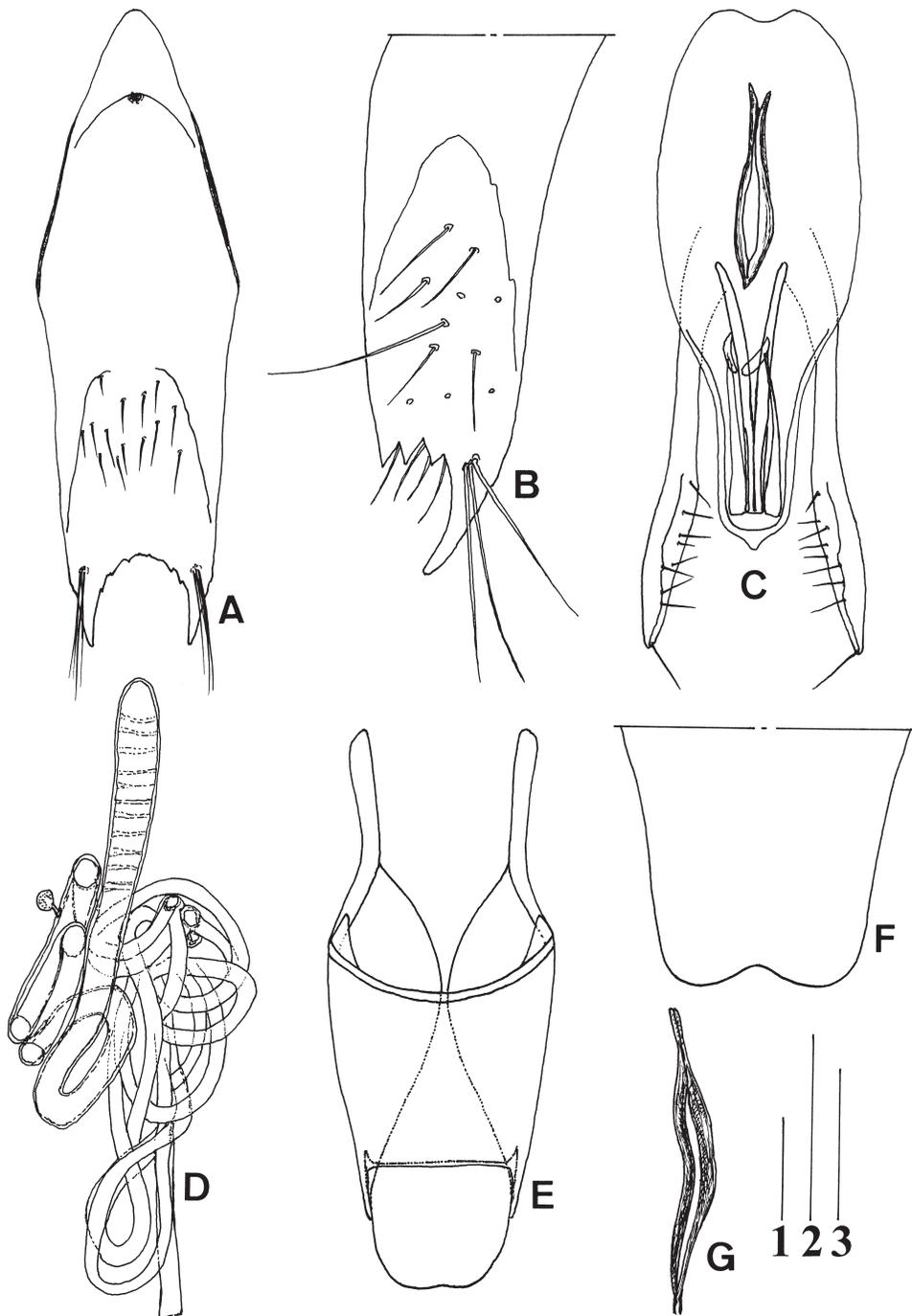


Fig. 115. *Stenus uenoi* Naomi & Nomura (Nagano: A, C, E, F, Mt. Togakushi, B, D, G, Neba). A, 9th ventrite of male; B, posterior part of gonocoxite; C, aedeagus; D, spermatheca; E, 9th and 10th terga of male; F, posterior part of 8th ventrite; G, copulatory tube. Scale 1: 0.1 mm for A, C; scale 2: 0.1 mm for B, D; scale 3: 0.2 mm for E, F; 0.1 mm for G.

very shallowly emarginate posteromedially. Aedeagus (Fig. 115C) with median lobe bulbous at base, very narrow in about apical 1/3, almost truncate at apex or with a very small, pointed apicomedian cusp (Fig. 115C); apical sclerotized area hardly or slightly developed. Endophallus (Fig. 115C) with copulatory tube usually subfusiform (Fig. 115C) or nearly willow-leaf-shaped (Fig. 115G) but often varied in shape; dorsolateral bands (Fig. 115C) long, moderately broad; expulsion hooks atrophied into a pair of small sclerites; ventromedian bands very long, very narrow. Parameres (Fig. 115C) long, thick, each almost rounded apically; apical area long to very long, distinctly thicker than pedicel, mesially with 8 to 9 short setae and apically with a moderately long seta.

Female: Eighth ventrite almost rounded posteromedially; gonocoxites (Fig. 115B) each with apicolateral tooth very long, thin, acute, apicolateral setae very long. Spermatheca (Fig. 115D) with capsule small; striped duct moderately long, moderately thick; duct very long, thin to moderately thick, coiled.

Biology and ecology. *S. uenoi* is widely distributed from Honshu (Chubu and Kinki Districts) to Shikoku in Japan, and thus *S. uenoi* is the species whose distributional range is widest among the species of *cephalotes*-group. The beetles of *S. uenoi* inhabit leaf litter heaped in the natural forests of lowlands through low mountainous to high mountainous regions.

Remarks. *S. uenoi* was first identified and included as a part of paratypes of *S. bosatsu* when Naomi (1989) described *S. bosatsu* as new species. Naomi & Nomura (1990) newly described *S. uenoi*, based on the holotype specimen (Odon, Nagano) and other paratype specimens (Nagano, Shizuoka and Aichi). After that, when Naomi (2012) redescribed *S. uenoi*, he erroneously included some specimens of *S. expansus* as well as those of *S. uenoi* in the specimens of *S. uenoi* examined. He also drew varied forms of the aedeagal median lobes and parameres of *S. uenoi* and *S. expansus* as those of *S. uenoi* because these variations were considered to be infraspecific at that time. Furthermore, when Naomi & Ito (2018) newly described *S. expansus*, they included 1 male specimen of *S. uenoi* as the paratype of *S. expansus*.

S. uenoi is allied to *S. expansus*, but it is separable from the latter species by the aedeagal median lobe with its posterior part broader and its apical sclerotized area less developed (Fig. 115C), the endophallic copulatory tube developed (Fig. 115C, G), the paramere with its apical area less strongly expanded almost dorsoventrally (Fig. 115C), and the spermatheca with its duct thicker (Fig. 115D).

Probably closely related to the very wide distributional range of this species, *S. uenoi* shows considerable variations regarding the structures of aedeagus and copulatory tube. First, the apical sclerotized area of median lobe is slightly developed and almost rounded apically, hardly developed and almost truncate apically, or hardly or slightly developed and almost rounded apically, and furthermore, it is apicomediaally with or without a very small, pointed cusp (Fig. 115C) (see also Naomi, 2012, p. 304). Second, the copulatory tube is usually willow-leaf-shaped as in Fig. 115C or G, but it is varied by the posterior extension of its thin posterior portion, the more strong curvature of main tube, the addition of paired subtransparent flaps to the main tube, etc.

Etymology. This species is named after the late Dr. Shun-Ichi Ueno (National Museum of Nature and Science, Tokyo) who studies the Carabidae and other cave-dwelling beetles in Japan and also in the various areas of Asia.

Stenus expansus Naomi & Ito
(Figs. 116A–G, 135G)

Stenus uenoi Naomi & Nomura: Naomi, 2012: 301 (in part).

Stenus expansus Naomi & Ito, 2018: 92 (in part).

Type material examined. Holotype: ♂ (KUMF), Araidashi Forest, Kamiyahagi, Ena, Gifu Pref., 18. x. 2015, T. Watanabe leg. Paratypes: 1 ♂2 ♀, same data as holotype; 1 ♂, Mt. Kurai, Gifu Pref., 28. x. 2017, T. Ito leg.; 1 ♂1 ♀, Mennoki Pass, Aichi Pref., 13. viii. 1990, S. Nomura leg.

Distribution. Japan: Honshu (Gifu and Aichi Prefs.).

Description. Male and female: Body 3.2–3.8 mm (fore body 1.6–1.8 mm) in length. Body weakly shining; head black; pronotum brown to dark red near black; elytra reddish brown to dark red; abdomen reddish brown to dark reddish brown or almost black; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventrite sutures almost lost.

Male: Abdomen (Fig. 116D) modified with an elongate, very shallow depression on the 7th and a subtriangular or broad-subtriangular (Fig. 116D) emargination on the 8th ventrite; 9th tergum (Fig. 116A) with ventral apophyses long; 9th ventrite (Fig. 116B) with apicolateral teeth long, very acute, apicolateral setae slightly short; 10th tergum (Fig. 116A) entire. Aedeagus (Fig. 116E) with median lobe moderately broad at base, very narrow in about apical 1/3, narrowly rounded apically; apical sclerotized area small, subtriangular. Endophallus (Fig. 116E) with copulatory tube with basal chamber spherical, main tube strongly atrophied into a small, spine-like sclerite; dorsolateral bands long, very thin; expulsion hooks atrophied into a very small, wide V-shaped sclerite (Fig. 116G) or a pair of very thin sclerites; ventromedian bands long, very narrow. Parameres (Fig. 116E) moderately diverging posteriorly, each rounded apically; apical area very long, expanded almost dorsoventrally, mesially with 1 to 8 setae and apically with a moderately long seta.

Female: Eighth ventrite almost rounded posteriorly or obtuse posteromedially; gonocoxites (Fig. 116F) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 116C) with capsule short, very thin; striped duct moderately long, thin; duct extremely long, extremely thin but very thin to thin in the distal part, with its anterior mass strongly coiled; gland densely covered with very thin ciliae, with its opening located on the lateral side of duct a little proximal from the last 9th turn; basal duct long, very thin.

Biology and ecology. The beetles of *S. expansus* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. expansus* is allied to *S. uenoi*, but it is separable from the latter species by the aedeagal median lobe with its posterior part narrower and its apical sclerotized area more developed to be subtriangular (Fig. 116E), the copulatory tube strongly atrophied (Fig. 116E), the paramere with its apical area more strongly expanded almost dorsoventrally (Fig. 116E), and the spermatheca with its duct thinner (Fig. 116C).

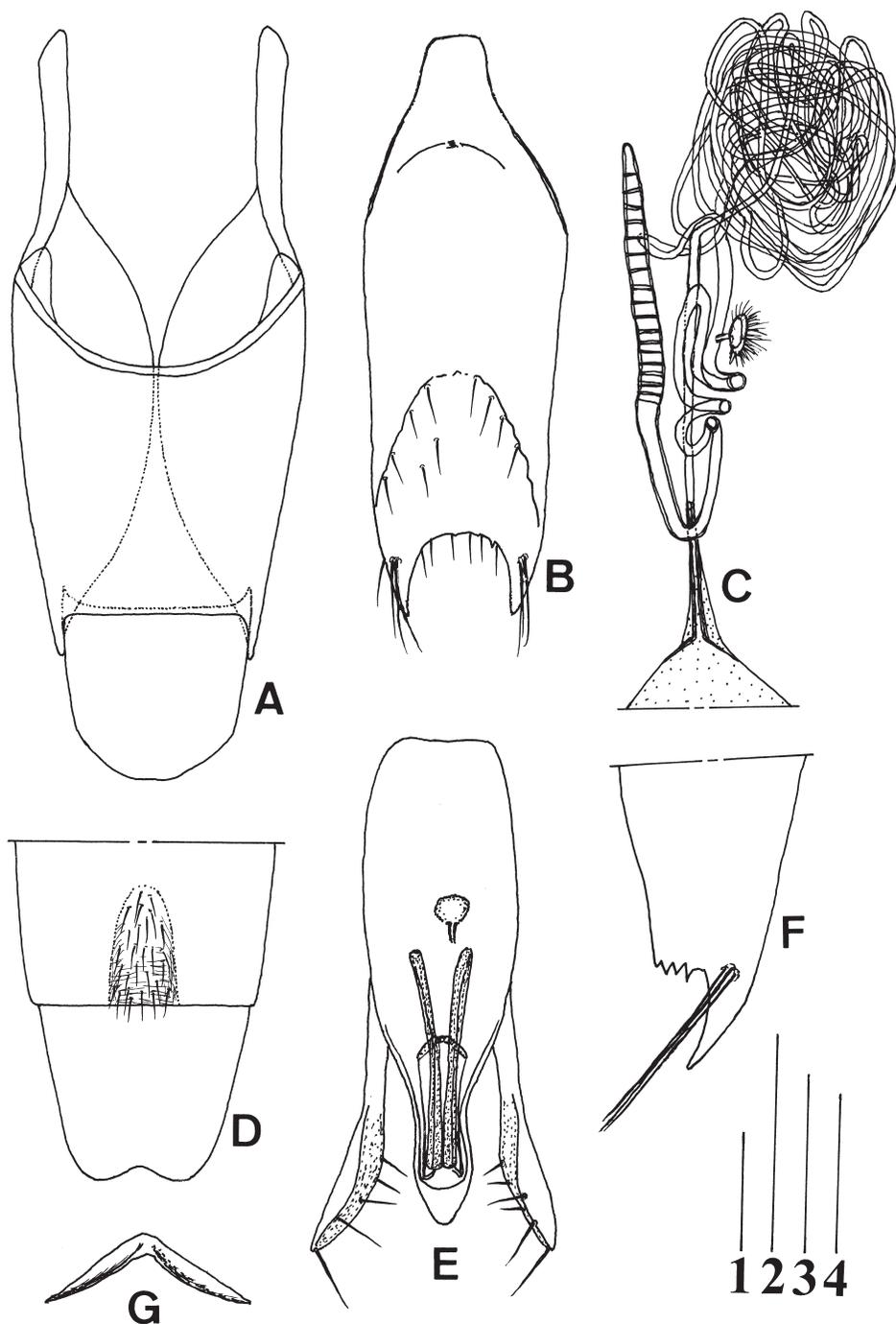


Fig. 116. *Stenus expansus* Naomi & Ito (Gifu: A, Araidashi, D, Mt. Kurai; Aichi: B, C, E–G, Mennoki Pass). A, 9th and 10th tergites of male; B, 9th ventrite of male; C, spermatheca; D, 7th and 8th ventrites of male; E, aedeagus; F, posterior part of gonocoxite; G, endophallic expulsion hook. Scale 1: 0.1 mm for A; scale 2: 0.2 mm for B, E, 0.05 mm for G; scale 3: 0.1 mm for C, F; scale 4: 0.3 mm for D.

Stenus masaakii Naomi & Nomura
(Fig. 117A–E)

Stenus masaakii Naomi & Nomura, 2015: 190.

Type material examined. Holotype: ♂ (NMNST), Seinaiji Pass, Nagiso-cho, Nagano Pref., 15. xi. 1999, S. Nomura leg.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male: Body 4.0 mm (fore body 1.9 mm) in length. Body moderately shining; head black; pronotum and elytra dark red; abdomen dark reddish brown; labrum reddish orange; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen modified with a very shallow depression on the 7th, and an arcuate, moderately deep emargination on the 8th ventrite (Fig. 117E); 9th tergum (Fig. 117C) with ventral apophyses moderately long; 9th ventrite (Fig. 117A) with macrosetae very long, apicolateral teeth very long, acute, apicolateral setae moderately long; 10th tergum (Fig. 117C) entire. Aedeagus (Fig. 117D) with median lobe elongate-ovoidal in shape at base, moderately narrowed in about apical 1/3, apicoventrally with a pair of low flaps, obtusely angulate at apex; apical sclerotized area broad-subtriangular in shape, anteromedially with an arcuate emargination. Endophallus (Fig. 117B) with copulatory tube with main tube moderately thick, attenuate; expulsion hooks atrophied and fused into a relatively small, sclerite which has a U-shaped emargination; ventromedian bands very broad; lateral diverticula in pair very broad, membranous. Parameres (Fig. 117D) moderately diverging posteriorly, each thick, acute at apex; apical area extremely long, with 8 to 9 short setae along dorsomesial margin and 7 to 9 long setae along ventromesial margin.

Female. Unknown.

Biology and ecology. The beetle of *S. masaakii* inhabits leaf litter heaped in the natural forest of a mountainous region.

Remarks. *S. masaakii* is allied to *S. uenoi* and *S. expansus*, but it is separable from the latter 2 species by the aedeagal median lobe broader in the apical part (Fig. 117D), the copulatory tube baculiform and attenuate (Fig. 117B), the endophallic expulsion hooks fused into a relatively small, sclerite which has a U-shaped emargination (Fig. 117B), and the paramere more acutely pointed at apex, with its apical area much longer (Fig. 117D).

Etymology. This species is named after Mr. Masaaki Nishikawa (Kanagawa) who studies the Silphidae in Japan.

Stenus bosatsu Naomi
(Figs. 118A–G, 135H)

Stenus bosatsu Naomi, 1989: 159; Herman, 2001: 2097; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Kaminikkawa Pass, Daibosatsu, Yamanashi

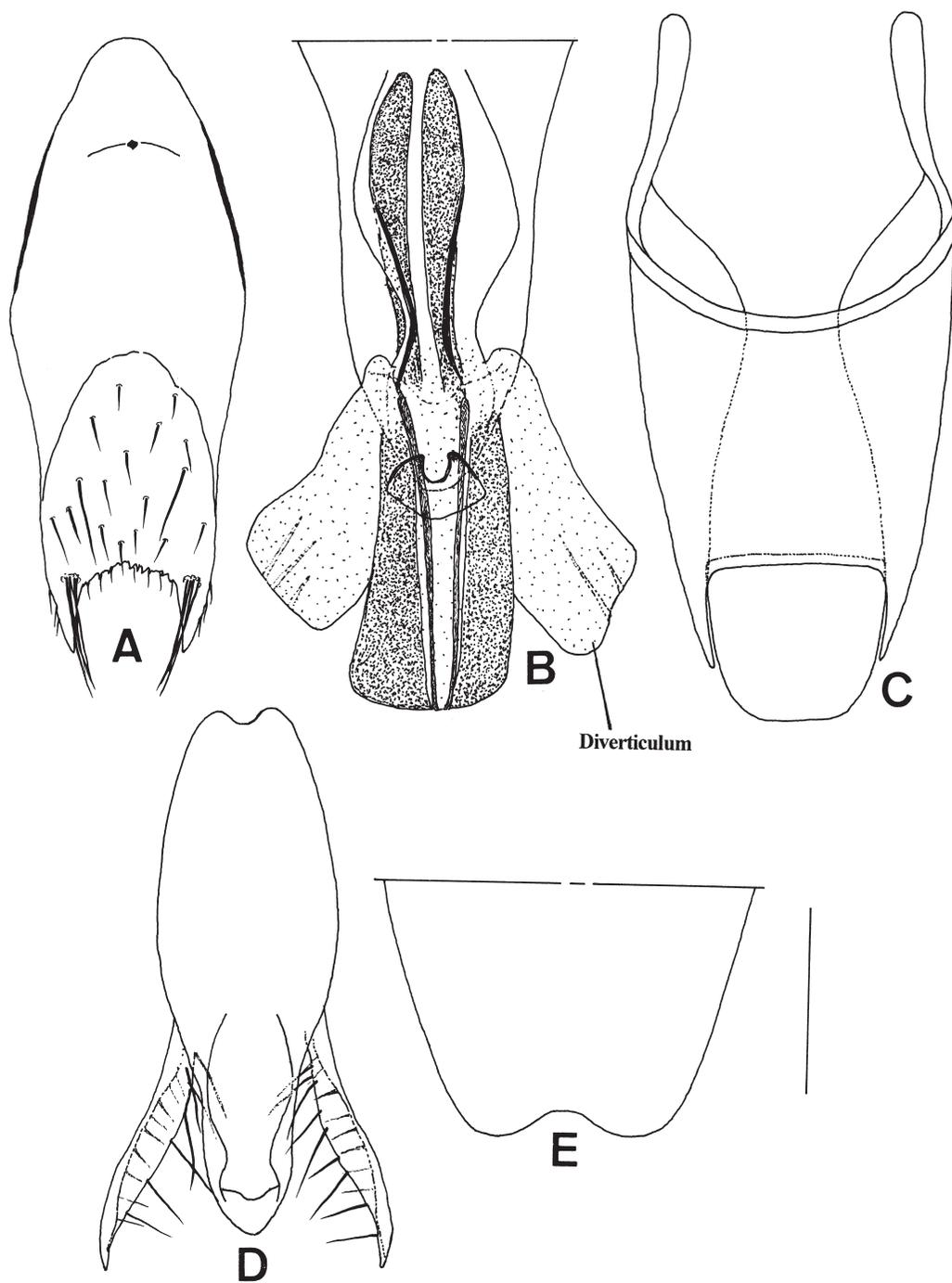


Fig. 117. *Stenus masaaki* Naomi & Nomura (Nagano: Nagiso-cho). A, 9th ventrite of male; B, apical part of aedeagus and outthrusted endophallus; C, 9th and 10th terga of male; D, aedeagus; E, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A, C–E, 0.1 mm for B.

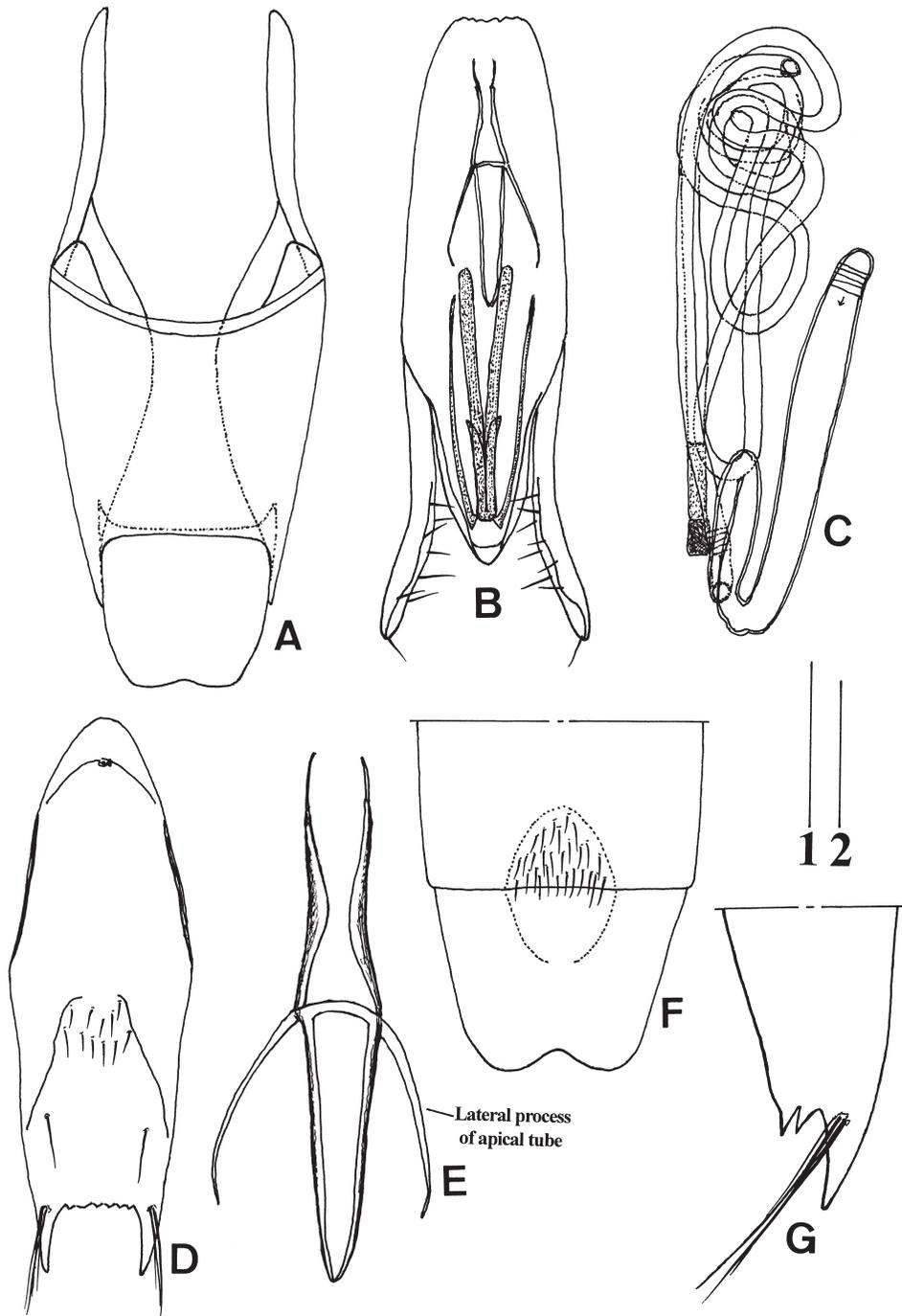


Fig. 118. *Stenus bosatsu* Naomi (Tokyo: A, B, D, E, Mt. Mitake; Yamanashi: C, F, G, Daibosatsu). A, 9th and 10th terga of male; B, aedeagus; C, spermatheca; D, 9th ventrite of male; E, copulatory tube; F, 7th and 8th ventrites of male; G, posterior part of gonocoxite. Scale 1: 0.2mm for A, B, D, 0.1 mm for C, E, G; scale 2: 0.3 mm for F.

Prof., 15–18. vii. 1982, S. Naomi leg. Paratypes: 1 ♂ 3 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Daibosatsu, Yamanashi Pref., 26. vi. 1988, T. Ito leg.; 2 ♂ 5 ♀, Sanjyo-sawa, Tabayama Vil., Yamanashi Pref., 15. ix. 2000, S. Arai leg.; 2 ♂ 4 ♀, Nishizawa Valley, Mitomi Vil., Yamanashi Pref., 17. xi. 1999, S. Nomura leg.; 1 ♂, Mt. Mitake, Oume City, Tokyo Metro., 12. viii. 1990, T. Ito leg.; 1 ♂, Mizunozawa, Okutama, Tokyo Metro., 6. v. 1990, T. Kishimoto leg.

Distribution. Japan: Honshu (Yamanashi Pref. and Tokyo Metro.).

Redescription. Male and female: Body 3.2–4.0 mm (fore body 1.4–1.9 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown to dark red; abdomen dark red to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of almost longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventrite sutures very thin.

Male: Abdomen (Fig. 118F) modified with a flat area on the 6th, a very shallow or shallow depression on the 7th, and a basal depression and also a broad-subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 118A) with ventral apophyses very long; 9th ventrite (Fig. 118D) with macrosetae short, apicolateral teeth very long, thin, very acute, apicolateral setae long; 10th tergum (Fig. 118A) shallowly emarginate posteromedially. Aedeagus (Fig. 118B) with median lobe distinctly narrowed behind the middle, obtusely pointed at apex; apical sclerotized area extremely small, broad-subtriangular in shape. Endophallus (Fig. 118B) with copulatory tube (Fig. 118E) having basal chamber small, consisting of 2 thin, short rods, main tube baculiform with a pair of very thin, slightly curved lateral processes at the base of apical tube; dorsolateral bands (Fig. 118B) very long, very thin; expulsion hooks lost; ventromedian bands (Fig. 118B) long, very thin. Parameres (Fig. 118B) moderately diverging posterolaterally at apical part, thick, each rounded apically; apical area very long, mesially with 7 to 8 short setae and apically with a short seta.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 118G) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig. 118C) with capsule very small, rounded apically; striped duct very long, extending proximad over the last 3rd turns, moderately thick to thick; duct very long, thin, with its anterior mass moderately coiled; basal valve long, thin; basal duct short.

Biology and ecology. The beetles of *S. bosatsu* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. Three species *S. bosatsu*, *S. usitatus* and *S. tateitoi* seem to be allied on account of their common possession of the peculiar endophallic copulatory tube with a pair of long, curved lateral processes developed at the base of apical tube. Out of these three species, *S. bosatsu* is the sister species of *S. usitatus*, and it is separable from the latter species by the aedeagal median lobe obtusely pointed at the apex, with its apical sclerotized area almost lost (Fig. 118B) and the spermatheca with its striped duct longer (Fig. 118C).

Etymology. The specific epithet of this species is named after the name of enlightened deity who has vowed to remain in the world, Bosatsu.

Stenus usitatus Naomi & Nomura
(Figs. 119A–F, 135I)

Stenus usitatus Naomi & Nomura, 2015: 192.

Type material examined. Holotype: ♂(NMNST): Mizugatsuka, Susono City, Shizuoka Pref., 5. xi. 2000, S. Nomura leg. Paratypes: 1 ♂2 ♀ (NMNST), same data as holotype; 1 ♂, Mizugatsuka, Susono City., Shizuoka Pref., 26. iv. 2010, T. Watanabe leg.; 2 ♂2 ♀, same locality, 7. ix. 2010, T. Watanabe leg.; 2 ♂1 ♀, same locality, 24. xi. 2010, T. Watanabe leg.; 3 ♂7 ♀, same locality, 25. iv. 2011, T. Watanabe leg.; 1 ♂, same locality, 15. v. 2011, T. Watanabe leg.; 2 ♂1 ♀, same locality, 27. x. 2011, T. Watanabe leg.; 1 ♂, same locality, 5. ix. 2012, T. Watanabe leg.; 1 ♀, same locality, 24. x. 2012, T. Watanabe leg.; 1 ♂, Susono City., Shizuoka Pref., 12. xi. 2003, I. Ohshio leg.; 1 ♂, Gotenba, Shizuoka Pref., 1. xi. 2003, I. Ohshio leg.; 1 ♂1 ♀, Nishi-usuzuka, Fujinomiya City., Shizuoka Pref., 7. x. 2007, T. Watanabe leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 3.5–3.9 mm (fore body 1.6–1.9 mm) in length. Body moderately shining; head black; pronotum dark red to dark red near black; elytra reddish brown to dark brown or dark red near black; abdomen reddish brown to dark reddish brown or almost black; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct or distinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventrite sutures thin or very thin.

Male: Abdomen (Fig. 119E) modified with a flat area or a very shallow depression on the 6th, a very shallow or shallow depression on the 7th, and a basal depression and also a moderately deep, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 119A) with ventral apophyses very long; 9th ventrite (Fig. 119C) elongate, macrosetae usually very long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 119A) very shallowly emarginate posteriorly. Aedeagus (Fig. 119B) with median lobe distinctly narrowed behind the middle, acutely pointed at apex; apical sclerotized area elongate-triangular in shape. Endophallus (Fig. 119B) with copulatory tube having basal chamber consisting of 2 very thin rods, main tube with a pair of lateral processes at the base of apical tube, each lateral process distinctly bent posteriorly near the base; dorsolateral bands very long, very thin; expulsion hooks atrophied into a pair of very small, very thin sclerites; ventromedian bands very long, very thin. Parameres (Fig. 119B) thick, each rounded apically, slightly curved posterolaterally at apical part; apical area very long, with a ventral flap at base, mesially with 8 setae and apically with a seta.

Female: Eighth ventrite obtuse or acutely pointed posteromedially; gonocoxites (Fig. 119F) each with apicomerial tooth developed, triangular, apicolateral tooth very long, acute, apicolateral setae moderately long. Spermatheca (Fig. 119D) with capsule very small, rounded apically; striped duct moderately long, thick; duct very long, thin to thick, with its anterior mass strongly coiled; basal valve moderately long, thin; basal sclerotized duct moderately long.

Biology and ecology. The beetles of *S. usitatus* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions.

Remarks. *S. usitatus* is the sister species of *S. bosatsu*, and it is separable from the latter spe-

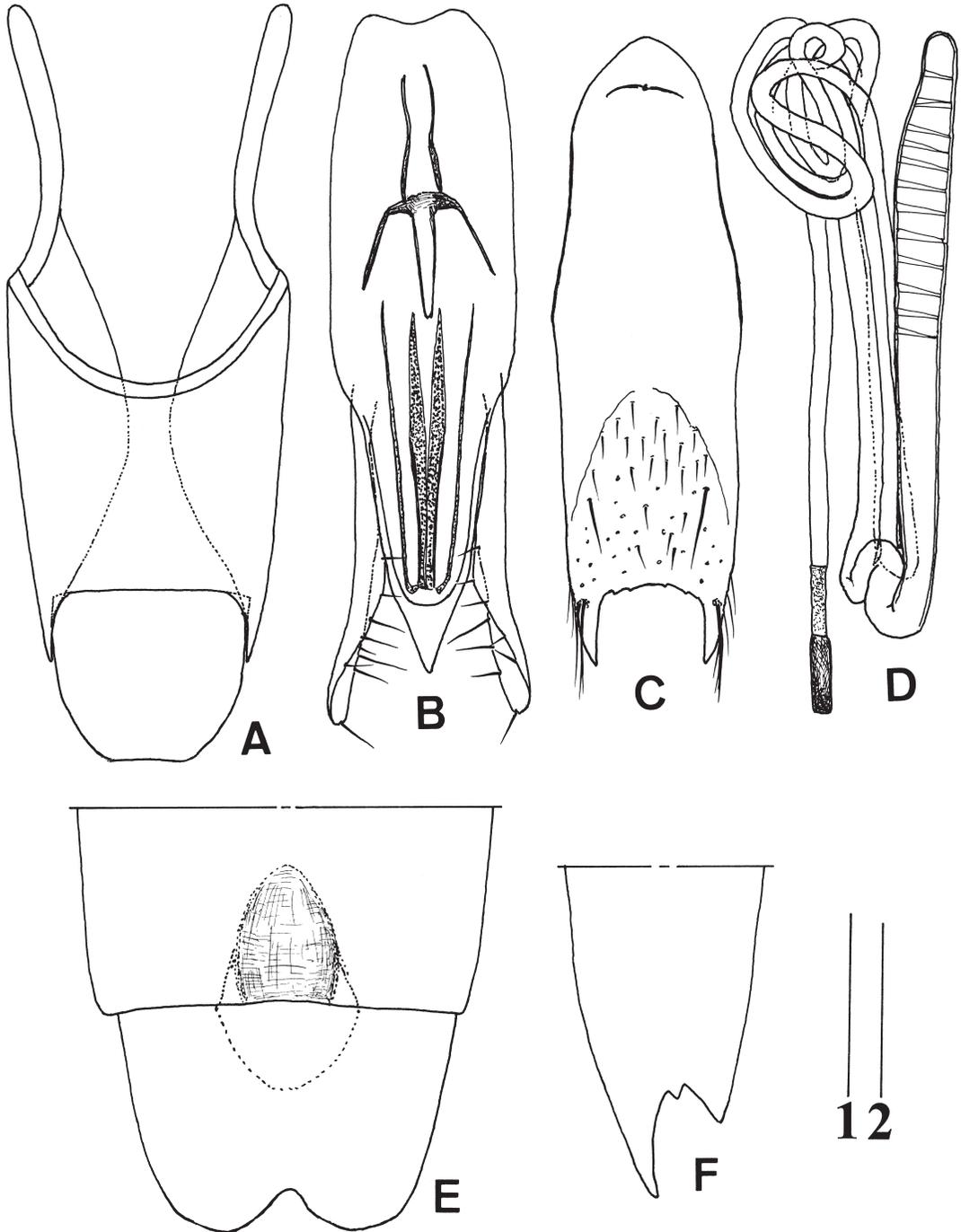


Fig. 119. *Stenus usitatus* Naomi & Nomura (Shizuoka). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, spermatheca; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite. Scale 1: 0.2 mm for A–C; 0.1 mm for D, F; scale 2: 0.2 mm for E.

cies by the aedeagal median lobe acutely pointed at the apex, with its apical sclerotized area elongate-triangular in shape (Fig. 119B) and the spermatheca with its striped duct shorter (Fig. 119D).

Stenus tateoitoi Naomi, Nomura & Puthz sp. nov.
(Fig. 120A–F)

Type material examined. Holotype: ♂ (KUMF), Gozaishi Spa, Yamanashi Pref., 16. viii. 1989, T. Ito leg. Paratypes: 1 ♂, same locality, 13. viii. 1989, T. Ito leg.; 2 ♀, same locality, 17. viii. 1996, T. Ito leg.

Distribution. Japan: Honshu (Yamanashi Pref.).

Description. Male and female: Body 3.4–3.7 mm (fore body 1.7–1.8 mm) in length. Body weakly shining; head black; pronotum and elytra dark red; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique or longitudinal furrows (or depressions); antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventrite sutures very thin or obsolete.

Male: Abdomen (Fig. 120E) modified sometimes with a flat area on the 6th, and usually with a flat area or a very shallow depression on the 7th, and an arcuate broad emargination on the 8th ventrite; 9th tergum (Fig. 120B) with ventral apophyses very long; 9th ventrite (Fig. 120D) with macrosetae long, apicolateral teeth long, thin, very acute, apicolateral setae moderately long; 10th tergum (Fig. 120A) shallowly emarginate posteriorly. Aedeagus (Fig. 120C) with median lobe bulbous in about basal 2/3, becoming strongly narrower apicad in about apical 1/3, narrowly rounded apically; apical sclerotized area lost. Endophallus (Fig. 120C) with copulatory tube large, main tube with apical tube attenuate, moderately curved, with a pair of thin, strongly curved lateral processes at base; expulsion hooks lost; ventromedian bands moderately long, moderately broad, with their basal bands almost fused. Parameres (Fig. 120C) moderately diverging posteriorly in apical part, each obtusely pointed at apex; apical area long, mesially with 7 to 8 setae and apically with a moderately long seta.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 120F) each with apicolateral tooth very long, acute. Spermatheca (Fig. 120A) with capsule short, obtuse at apex; striped duct very long, thin to moderately broad; duct very long, thin, with its anterior mass strongly, regularly coiled; gland small, fusiform, with opening located on the duct a little proximal from the last 4th turn; basal valve short; basal duct very short; basal pouch conical.

Biology and ecology. The beetles of *S. tateoitoi* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. tateoitoi* is allied to *S. bosatsu* and *S. usitatus*, but it is separable from the latter 2 species by the aedeagal median lobe broader, with its apical sclerotized area lost (Fig. 120C), the copulatory tube with a pair of longer, strongly curved, lateral processes (Fig. 120C), and the paramere with its apical area shorter (Fig. 120C).

Etymology. This new species is named after Mr. Tateo Ito (Kyoto) who studies the Staphylinidae in Japan.

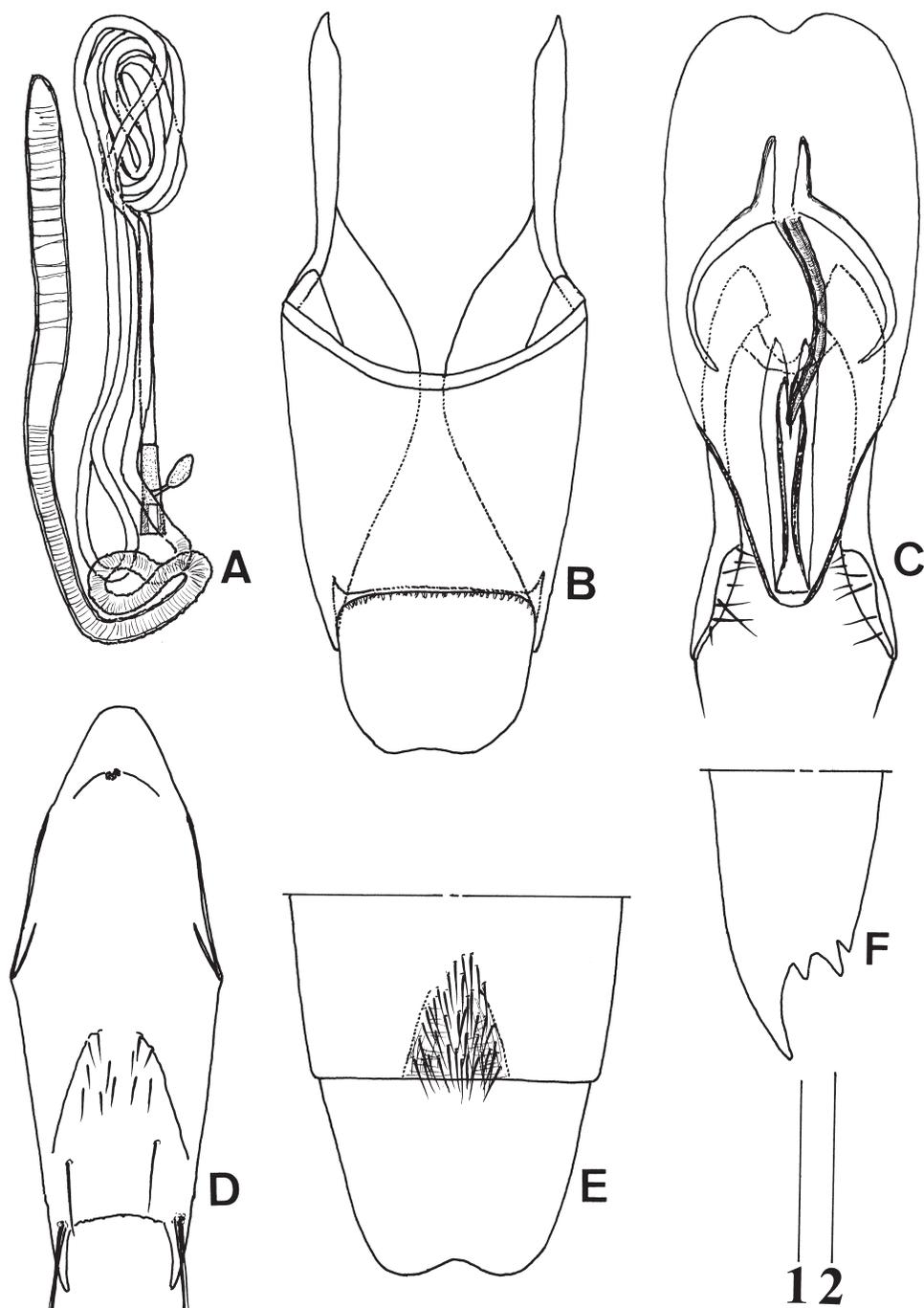


Fig. 120. *Stenus tateoitoi* Naomi, Nomura & Puthz sp. nov. (Yamanashi: Gozaishi Spa). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite. Scale 1: 0.1 mm for A, F, 0.2 mm for B–D; scale 2: 0.3 mm for E.

*Incertae sedis**Stenus bifurcatus* Naomi
(Figs. 121A–G, 135J)

Stenus bifurcatus Naomi, 2011: 47; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (CBM), Shinodachi, Fujiwara, Inabe-gun, Mie Pref., 12. xi. 1998, H. Ichihashi leg. Paratypes, 1 ♂, Miyazuma-kyo, Yokkaichi City, Mie Pref., 23. ix. 1987, A. Amagasu leg.; 3 ♂6 ♀, Gonyu-dani, Hokusei-cho, Mie Pref., 29. xii. 1977, A. Amagasu leg.; 1 ♂1 ♀, Sakamoto-dani, Fujiwara-cho, Mie Pref., 3. ix. 1994, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 2.6–3.7 mm (fore body 1.3–1.8 mm) in length. Body moderately shining; head dark red to black, with clypeal or clypeofrontal area reddish brown; pronotum and elytra reddish orange to reddish brown or dark red; abdomen reddish brown to dark red or dark red near black; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows or depressions; antennae short, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow hardly developed to very indistinct or indistinct; elytra with surface slightly uneven to uneven; abdomen subcylindrical, slightly tapering posteriorly to subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen modified with a bell- (Fig. 121G) or an elongate-bell-shaped, almost flat area on the 7th, and a broad, arcuate, shallow emargination on the 8th ventrite; 9th tergum (Fig. 121A) with ventral apophyses moderately long; 9th ventrite (Fig. 121A) with apicolateral teeth moderately long, acute, apicolateral setae long; 10th tergum (Fig. 121A) very shallowly emarginate posteromedially. Aedeagus (Fig. 121C) with median lobe moderately broad, bifurcate apically with a pair of large, bluntly pointed protrusions which weakly diverge posteriorly. Endophallus (Fig. 121C) with copulatory tube having basal chamber ovoidal, main tube moderately thick, slightly (Fig. 121D) or strongly (Fig. 121C) curved, pointed at apex; dorsolateral bands thin; expulsion hooks slightly asymmetrical, each with anterior plate acutely pointed at anterior tip, posterior plate turning posterolaterally behind the middle; ventromedian bands moderately long, extremely broad. Parameres (Fig. 121C) slender, very thin, each very acutely pointed at apex; apical area moderately long, mesially with 6 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 121F) each with apicolateral tooth long, pointed, apicolateral setae very long. Spermatheca (Fig. 121E) with capsule well-rounded apically; striped duct moderately long, moderately thick; duct moderately long, moderately broad, almost loosely coiled; basal valve short; basal duct moderately long; basal pouch conical, membranous.

Biology and ecology. The beetles of *S. bifurcatus* inhabit leaf litter heaped in the natural forests of lowlands to low mountainous regions.

Remarks. *S. bifurcatus* is a very peculiar species due to the possession of the unique aedeagal median lobe with a strongly bifurcate apex (Fig. 121C). Thus, at present there seems to be no species which is closely allied to *S. bifurcatus* in the *rufescens*-subgr. *S. bifurcatus* is thus easily separable from the other species of the *rufescens*-subgr. by the aedeagal median lobe with a

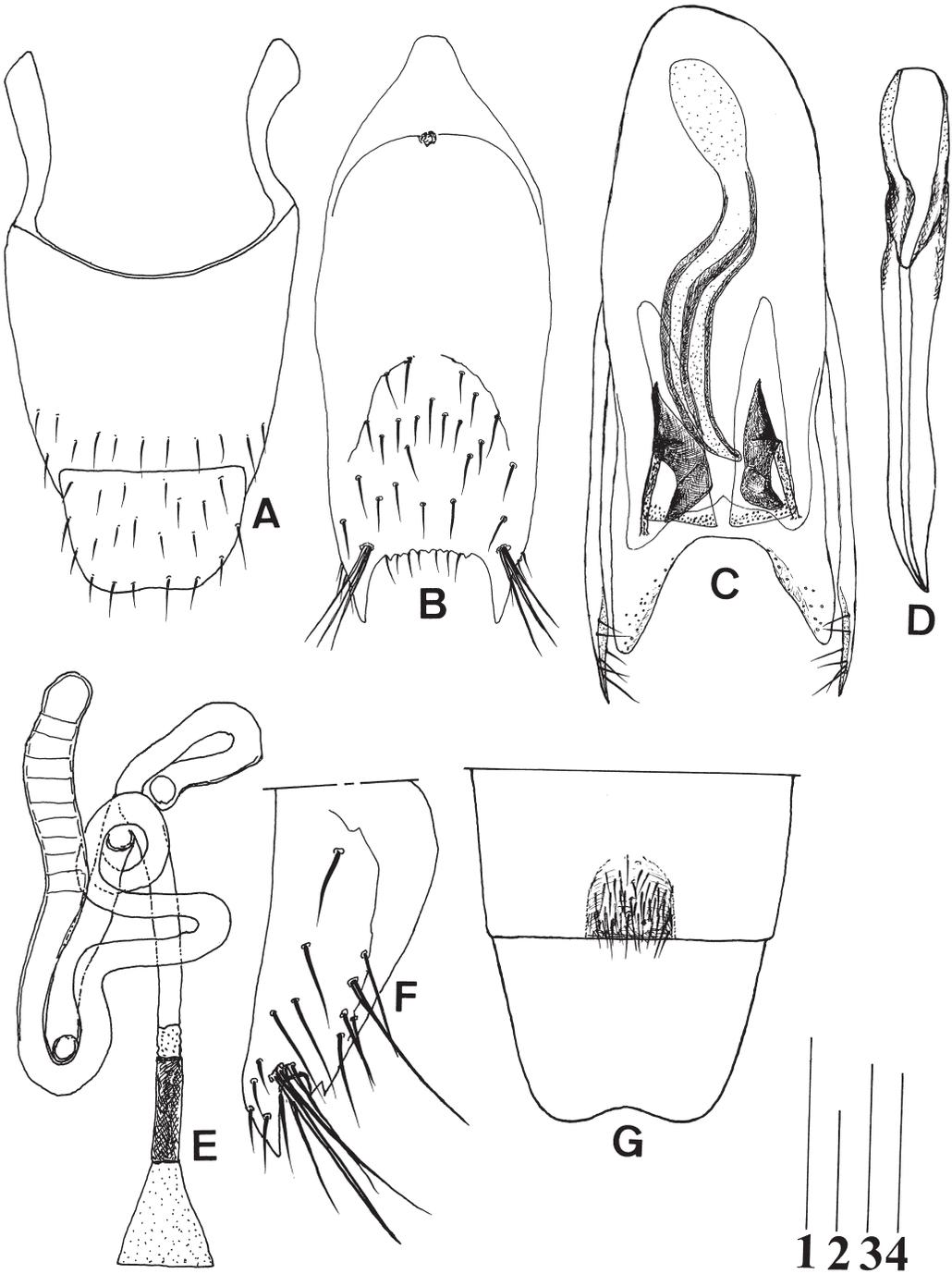


Fig. 121. *Stenus bifurcatus* Naomi (Mie: A–C, Miyazuma, D–F, Gonyudani, G, Fujiwara). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, copulatory tube; E, spermatheca; F, gonocoxite; G, 7th to 8th ventrites of male. Scale 1: 0.2 mm for A, 0.1 mm for E, F; scale 2: 0.1 mm for B, C; scale 3: 0.1 mm for D; scale 4: 0.2 mm for G.

strongly bifurcate apex.

Addition of 8 species to the *asyura*-group

The following 8 species are added to the *kasumi*-subgroup of *asyura*-group, which is treated in the Part 2 (Naomi *et al.*, 2019).

syaca Naomi, 1989b Distribution: Japan (Honshu).

shuheii Naomi, 1990a Distribution: Japan (Honshu).

=*ambiguellus* Naomi, 1998.

asiuensis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).

fukuimontium Puthz, 1993a Distribution: Japan (Honshu).

sasajiiellus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu).

tumifactus Naomi, 2015 Distribution: Japan (Honshu).

lehermani Naomi, 2015a Distribution: Japan (Honshu).

utan Naomi, 1998a Distribution: Japan (Honshu).

Stenus syaca Naomi

(Figs. 122A–H, 135K)

Stenus syaca Naomi, 1989b: 46; Herman: 2001: 2410; Naomi & Puthz, 2013: 144.

Type material examined. Holotype: ♂ (KUF), Rokuroshi, Ohno City, Fukui Pref., 20–23. vii. 1980, H. Sasaji leg.

Other material examined. [HONSHU]: 1 ♂ 1 ♀, Senami, Ishikawa Pref., 17. v. 1964, Y. Hayashi leg.

Distribution. Japan: Honshu (Ishikawa and Fukui Prefs.).

Redescription. Male and female: Body 3.8–4.0 mm (fore body 1.7–1.8 mm) in length. Body weakly or moderately shining; head black; pronotum and elytra dark red; abdomen dark red to dark brown; labrum reddish brown to dark red; antennae and legs reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventral sutures very thin, indistinct.

Male: Abdomen (Fig. 122G) modified with an arcuate emargination on the 8th ventrite; 9th tergum (Fig. 122B) with ventral apophyses moderately long; 9th ventrite (Fig. 122D) with apicolateral teeth long, thin, very acute, apicolateral setae slightly long; 10th tergum (Fig. 122B) entire. Aedeagus (Fig. 122A) with median lobe elongate, broad and pentagonal at apex. Endophallus (Fig. 122A) with copulatory tube (Fig. 122E) with basal chamber comprising paired rods of different length, main tube moderately long, attenuate; dorsolateral bands very long, thin; expulsion hooks (Fig. 122H) each tadpole-shaped, with an oblique, thin muscle attachment at the anterolateral part of posterior plate; ventromedian bands moderately long, moderately broad. Parameres (Fig. 122A) each acutely pointed at apex; apical area long, thick at base, narrowing apicad, mesially with a setal tuft at base and 6 setae of various length in about apical 3/4.

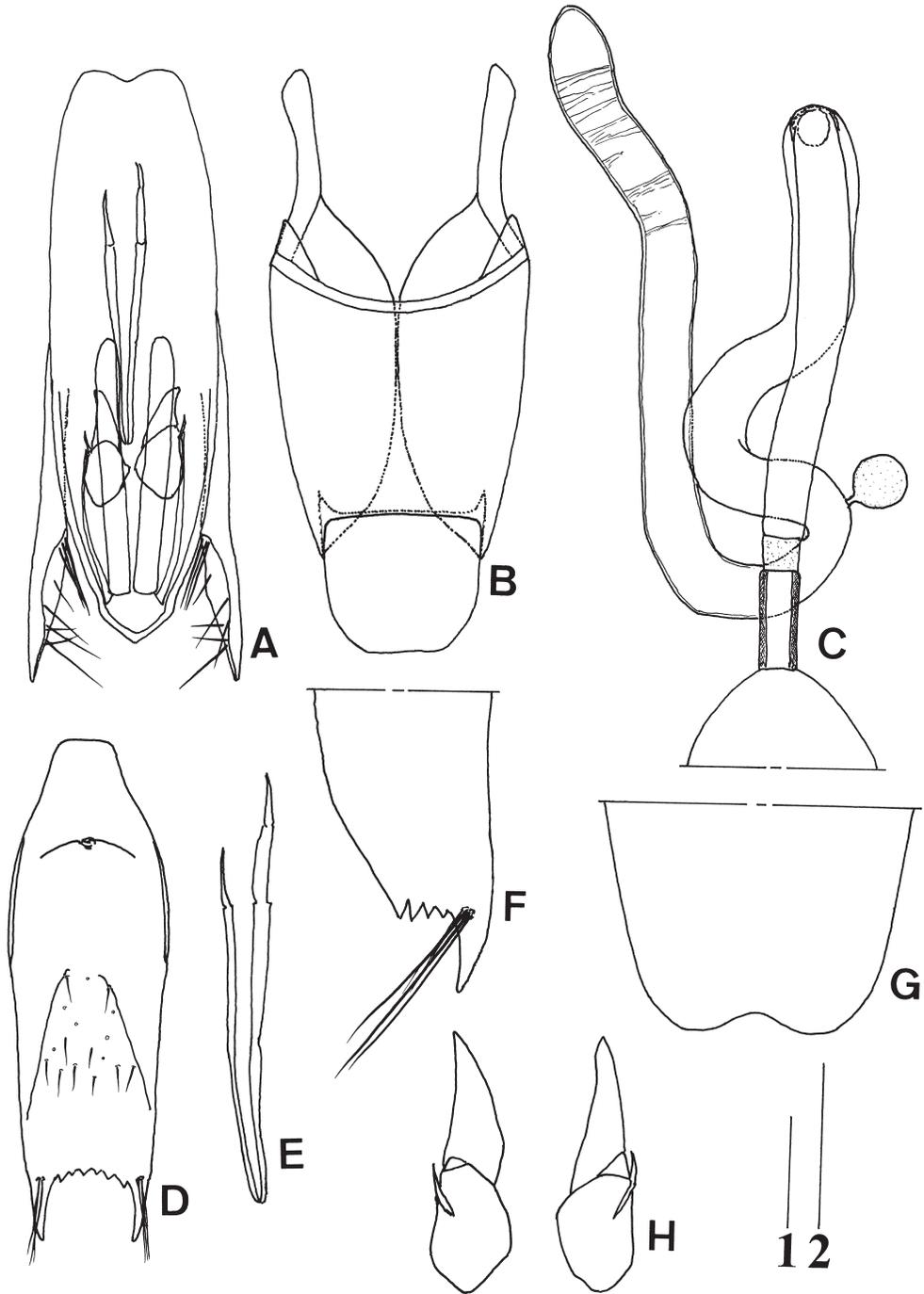


Fig. 122. *Stenus syaca* Naemi (Fukui: Ohno). A, aedeagus; B, 9th and 10th terga of male; C, spermatheca; D, 9th ventrite of male; E, copulatory tube; F, posterior part of gonocoxite; G, posterior part of 8th ventrite of male; H, endophallic expulsion hooks. Scale 1: 0.1 mm for A, 0.05 mm for H; scale 2: 0.2 mm for B, D, G, 0.1 mm for C, E, F.

Female: Eighth ventrite obtuse posteomedially; gonocoxites (Fig. 122F) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 122C) with capsule half-ovoidal; striped duct short, thick; duct slightly short, thick, coiled with 4 turns; gland moderately large, spherical, with opening located on the lateral side of the 3rd turn; basal valve short; basal duct sclerotized, moderately long and thick; basal pouch almost bowl-shaped.

Biology and ecology. The beetles of *S. syaca* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. syaca* is allied to *S. hayashii* Puthz, 2003, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area lost (Fig. 122A), the copulatory tube with its main tube thinner and attenuate (Fig. 122E), the endophallic expulsion hook almost tadpole-shaped (Fig. 122H), and the paramere with its apical area longer and thicker at base.

Etymology. The specific epithet of this species is derived from the Japanese name of Buddha, Syaca.

Stenus shuheii Naomi

(Fig. 123A–H)

Stenus shuheii Naomi, 1990a: 2; Herman, 2001: 2388; Naomi & Puthz, 2013: 143.

Stenus ambiguellus Naomi, 1998: 101; Herman, 2001: 2053; Naomi & Puthz, 2013: 142; Naomi, 2015: 8 (synonym of *S. shuheii*).

Type material examined. Holotype of *S. shuheii*: ♂ (KUF), Onzui Valley, Hyogo Pref., 6. vi. 1984. S. Nomura leg.

Holotype of *S. ambiguellus*: ♂ (CBM), Onzui Valley, Hyogo Pref., 6. vi. 1984. S. Nomura leg.

Other material examined. [HONSHU]: 1 ♀, Onzui, Hyogo Pref., 15. ix. 1992, T. Ito leg.; 1 ♂, Hanase, Kyoto Pref., 4. ix. 1987, T. Ito leg.

Distribution. Japan: Honshu (Kyoto and Hyogo Prefs.).

Redescription. Male and female: Body 4.3–4.8 mm (fore body 2.1–2.3 mm) in length. Body moderately to strongly shining; head black; pronotum and elytra dark red; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or mesially-curved furrows; antennae short, very thin; pronotum with surface almost even to uneven, with a median longitudinal furrow very indistinct to almost distinct; elytra with surface uneven; abdomen subcylindrical, slightly tapering posteriorly; lateroventrites lost, tergoventral sutures very thin or almost lost.

Male: Abdomen (Fig. 123B) modified with a flat area on the 5th, a shallow depression on the 6th, a moderately deep depression on the 7th, and a subtriangular, moderately deep emargination on the 8th ventrite; 9th tergum (Fig. 123A) with ventral apophyses moderately long; 9th ventrite (Fig. 123C) with apicolateral teeth long, almost acute, apicolateral setae moderately long; 10th tergum (Fig. 123A) very shallowly emarginate posteriorly. Aedeagus (Fig. 123D) with median lobe well-rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area small, narrow, subtriangular. Endophallus (Fig. 123D) with copulatory tube having main tube baculiform, once distinctly bent left behind the middle, with 2 subtransparent flaps (Fig. 123G); dorso-lateral bands very thin; expulsion hooks elongate, each with posterior plate angulate at postero-

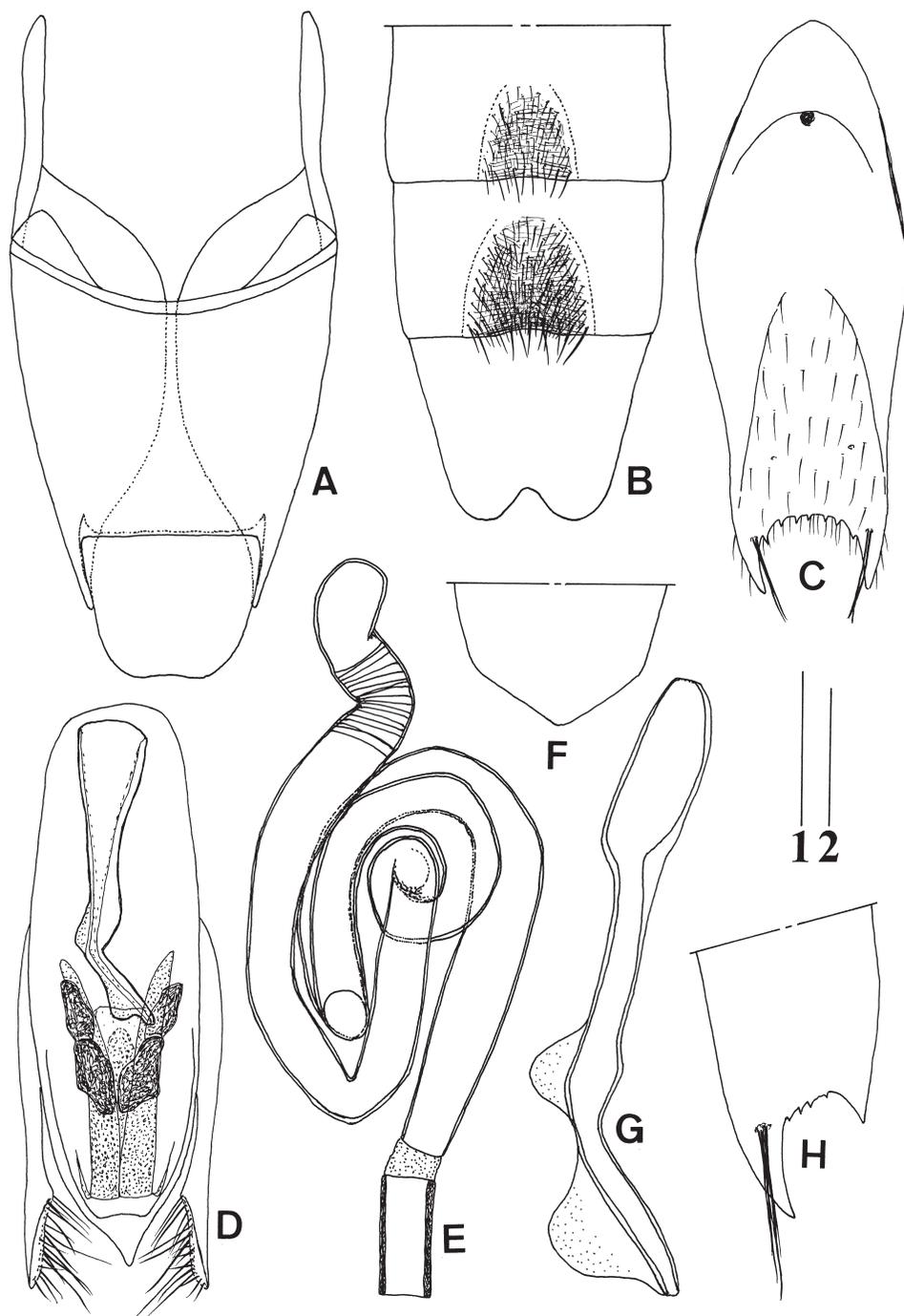


Fig. 123. *Stenus shuheii* Naomi (Kyoto, A, B, Hanase; Hyogo, C–H, Onzui). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, aedeagus; E, spermatheca; F, posterior part of 10th tergum of female; G, copulatory tube; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, C, D, F, 0.1 mm for E, G, H; scale 2: 0.3 mm for B.

lateral corner; ventromedian bands long, broad. Parameres (Fig. 123D) each pointed at apex; apical area moderately long, distinctly swollen and angulate mesially at base, mesially also with 17 to 19 setae of different length.

Female: Eighth ventrite obtusely pointed posteromedially; 10th tergum (Fig. 123F) almost acute posteromedially; gonocoxites (Fig. H) each with apicolateral tooth very long, very acute, apicolateral setae long. Spermatheca (Fig. 123E) with capsule almost rounded apically; striped duct short, thick; duct moderately long, moderately thick to thick, almost regularly coiled; basal valve very short; basal duct moderately long.

Biology and ecology. The beetles of *S. shuheii* inhabit leaf litter heaped in the natural forests of mountainous regions.

Remarks. *S. shuheii* is allied to *S. asiensis* and *S. fukuimontium*, but it is separable from the latter 2 species by the aedeagal median lobe much more rounded apicolaterally (Fig. 123D), the copulatory tube with its main tube once distinctly bent behind the middle (Fig. 123G), and the endophallic expulsion hook with its posterior plate angulate at the posterolateral corner (Fig. 123D). *S. shuheii* is also allied to *S. hayashii*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area narrower (Fig. 123D), the copulatory tube with its main tube once distinctly bent left behind the middle (Fig. 123G), and the endophallic expulsion hook with its anterior plate narrower (Fig. 123D).

Etymology. This species is named after the second author of this paper, Shûhei Nomura.

Stenus asiensis Naomi, Nomura & Puthz sp. nov.
(Figs. 124A–G, 135L)

Type material. Holotype: ♂ (NSMT-I-C-200325 in NMNST), Ashiu, Kyoto Pref., 12. vi. 1999, T. Ito leg. Paratypes: 8 ♂ 2 ♀ (KUMF, cP), same data as holotype.

Distribution. Japan: Honshu (Kyoto Pref.).

Description. Male and female: Body 4.5–4.8 mm (fore body 2.0–2.3 mm) in length. Body moderately shining; head black; pronotum and elytra pale reddish brown to reddish brown; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with coarse to subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost longitudinal furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; hind tarsi each with 4th tarsomere strongly bilobed, about 0.7 to a little more times as long as the 5th; abdomen subcylindrical, subparallel-sided; lateroventrites lost, tergoventral sutures very thin, superficial or almost lost.

Male: Abdomen (Fig. 124G) modified with a very shallow depression on the 6th, a moderately deep depression on the 7th, and a slightly small emargination on the 8th ventrite; 9th tergum (Fig. 124A) with ventral apophyses long; 9th ventrite (Fig. 124B) with macrosetae long, apicolateral teeth long, thin, acute, apicolateral setae moderately long; 10th tergum (Fig. 124A) shallowly emarginate posteriorly. Aedeagus (Fig. 124D) with median lobe moderately broad, narrowly rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area slightly narrow, almost triangular. Endophallus (Fig. 124D) with copulatory tube long, with basal chamber almost ovoidal, main tube elongate-S-shaped, laterally with a moderately long projection (or flap) which is rounded apically; expulsion hooks (Fig. 124F) robust, moderately broad to broad,

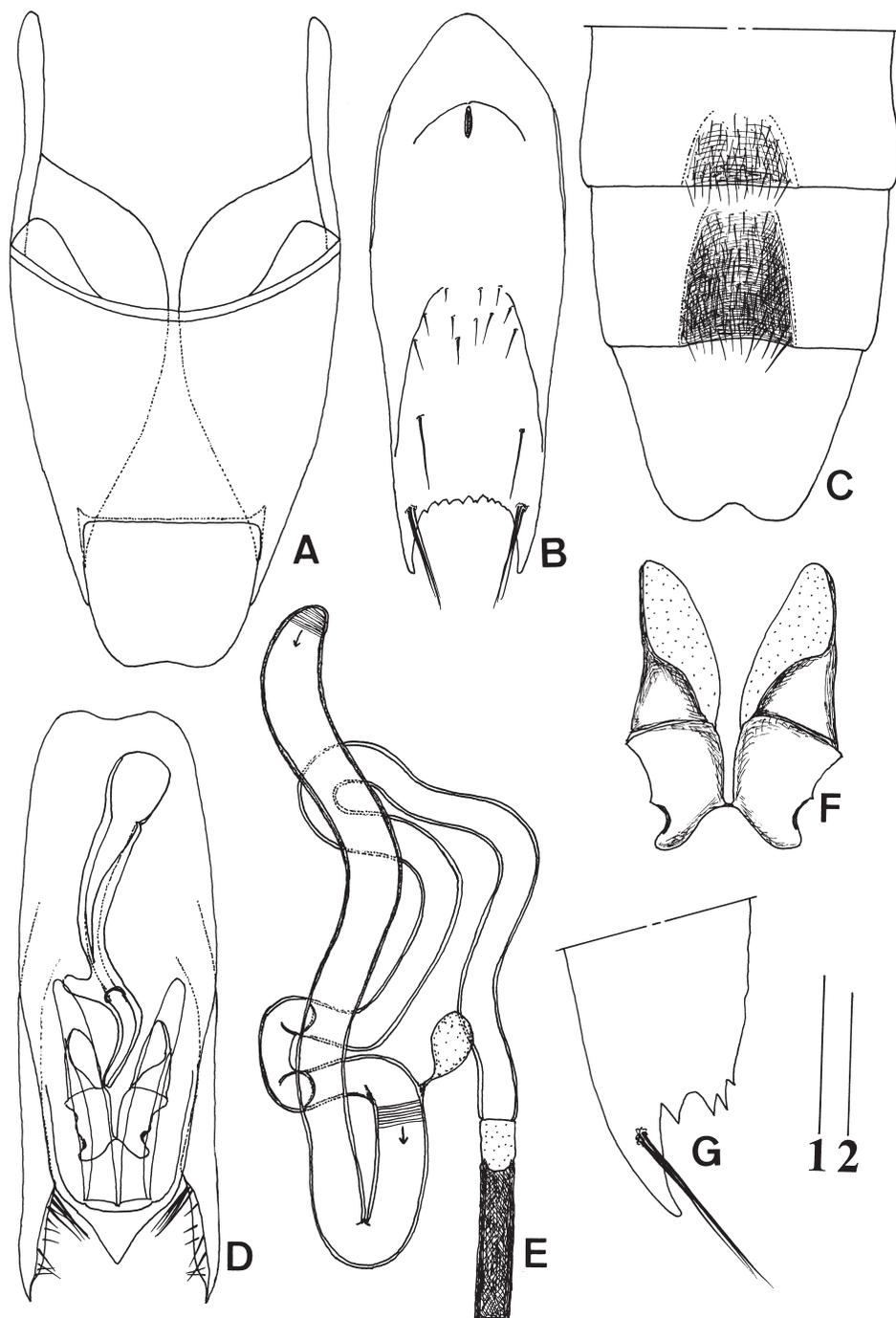


Fig. 124. *Stenus asiensis* Naomi, Nomura & Puthz sp. nov. (Kyoto: Ashiu). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 6th to 8th ventrites of male; D, aedeagus; E, spermatheca; F, endophallic expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, D, 0.1 mm for E–G; scale 2: 0.3 mm for C.

each with posterior plate arcuately twice emarginate laterally; ventromedian bands moderately long, moderately broad. Parameres (Fig. 124D) robust, each very acutely pointed at apex; apical area long, mesially swollen and angulate at base, mesially also with a tuft of 4 to 5 long setae at base and 7 shorter setae behind the basal tuft of setae.

Female: Eighth ventrite almost obtusely pointed posteromedially; gonocoxites (Fig. 124G) each with apicolateral tooth very long, acute, apicolateral setae very long. Spermatheca (Fig. 124E) with capsule not developed; striped duct very long, thick, wholly covered regularly with very thin, dense transverse stripes; duct moderately long, moderately thick; gland subovoidal, with opening located on the duct near the last 2nd turn; basal valve short; basal duct long.

Biology and ecology. The beetles of *S. asiuensis* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. asiuensis* is allied to *S. fukuimontium*, but it is separable from the latter species by the aedeagal median lobe broader in the posterior part (Fig. 124D), the copulatory tube with its main tube elongate-S-shaped (Fig. 124D), the endophallic expulsion hook broader, with its posterior plate arcuately twice emarginate laterally (Fig. 124F), and the paramere with its apical area shorter (Fig. 124D).

Etymology. The specific epithet of this new species is derived from the name of type locality, Ashiu in Kyoto.

Stenus fukuimontium Puthz

(Fig. 125A–G)

Stenus fukuimontium Puthz, 1993a: 183; Herman, 2001: 2189; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♀ (CBM), Arashi, Fukui Pref., 16. v. 1965, H. Sasaji leg.

Other material examined. [HONSHU]: 5 ♂5 ♀, Kengaiwa, Mt. Hakusan, Ishikawa Pref., 3. x. 2002, S. Nomura leg.

Distribution. Japan: Honshu (Ishikawa and Fukui Prefs.).

Redescription. Male and female: Body 4.6–5.5 mm (fore body 2.0–2.5 mm) in length. Body moderately shining; head black, with clypeofrontal area dark red to dark reddish brown; pronotum and elytra yellowish brown to reddish brown or dark reddish brown; abdomen dark brown to almost black; labrum reddish brown; antennae and legs yellowish brown to pale reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of almost longitudinal furrows; antennae short to moderately long, very thin; pronotum with surface almost even to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 125E) modified with a flat area on the 5th, a moderately deep depression on the 6th, a moderately deep, anteromedian and a deep posteromedian depressions on the 7th, and a small, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 125A) with ventral apophyses long; 9th ventrite (Fig. 125D) with macrosetae long, apicolateral teeth long, thin, very acute, apicolateral setae slightly short; 10th tergum (Fig. 125A) almost rounded posteriorly. Aedeagus (Fig. 125C) with median lobe strongly narrowing apicad in the apical 1/2, acutely pointed at apex; apical sclerotized area small, narrow, almost triangular. Endophallus (Fig. 125C) with copulatory tube with basal chamber subovoidal, main tube nearly Z-shaped,

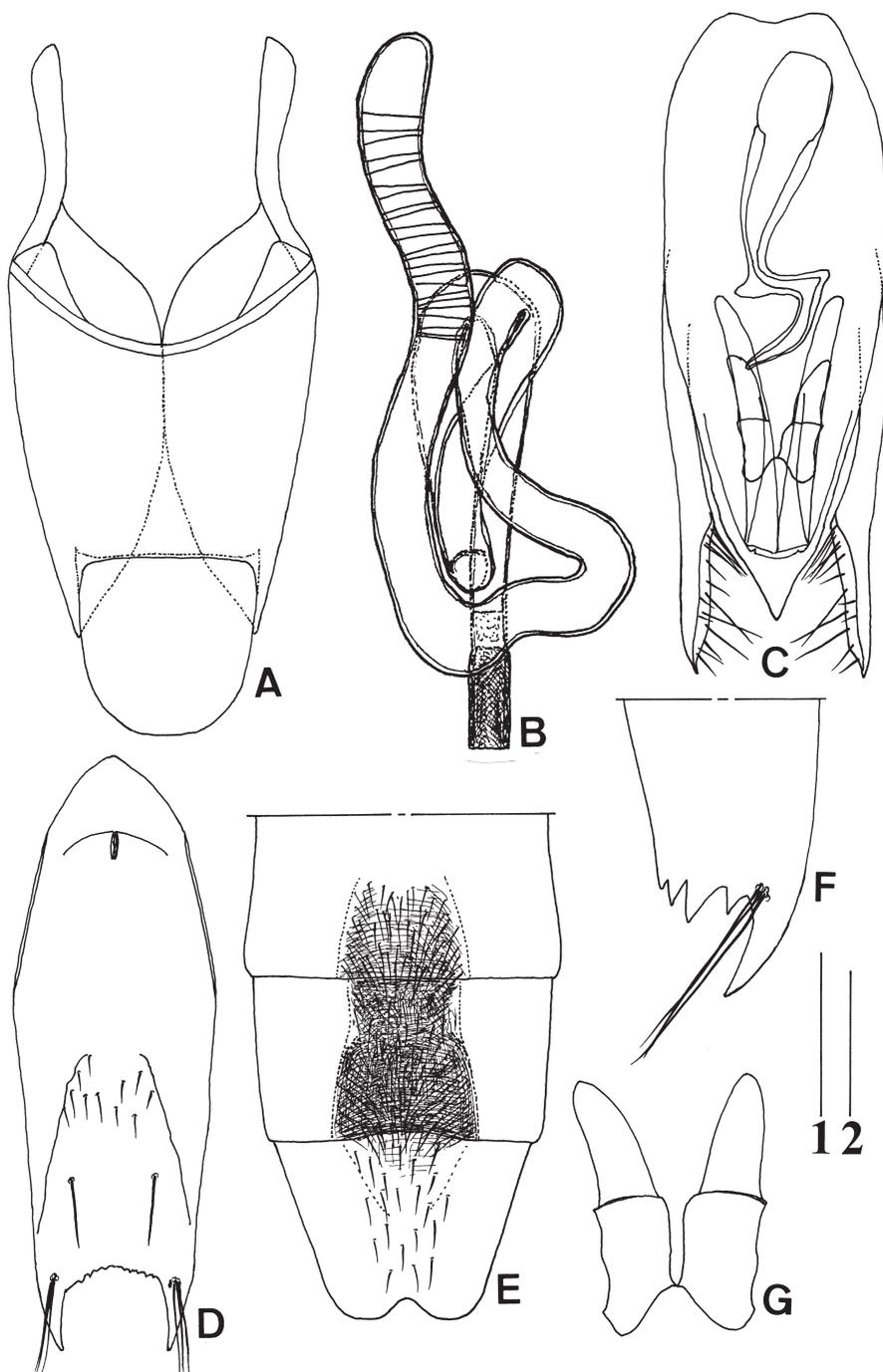


Fig. 125. *Stenus fukuimontium* Puthz (Ishikawa). A, 9th and 10th terga of male; B, spermatheca; C, aedeagus; D, 9th ventrite of male; E, 6th to 8th ventrites of male; F, posterior part of gonocoxite; G, endophallic expulsion hooks. Scale 1: 0.2 mm for A, C, D, 0.1 mm for B, F, G; scale 2: 0.3 mm for E.

having a pointed projection (or flap) near the 1st turn, distinctly angulate at the 2nd turn; expulsion hooks (Fig. 125G) each with anterior plate almost rounded at anterior tip, posterior plate weakly bisinuate laterally; ventromedian bands (Fig. 125C) moderately long, moderately broad. Parameres (Fig. 125C) robust, each very acutely pointed at apex; apical area very long, mesially swollen and angulate at base, mesially with a tuft of 5 to 6 setae at base and 8 to 10 setae of various length behind the basal tuft of setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 125F) each with apicolateral tooth very long, thin, very acute, apicolateral setae very long. Spermatheca (Fig. 125B) with capsule almost rounded apically; striped duct moderately long, thick; duct moderately long, thick; basal valve short; basal duct moderately long.

Biology and ecology. The beetles of *S. fukuimontium* inhabit leaf litter heaped in the natural forests of mountainous to high mountainous regions.

Remarks. *S. fukuimontium* is allied to *S. asiensis*, but it is separable from the latter species by the aedeagal median lobe narrower in the apical part (Fig. 125C), the copulatory tube with its main tube nearly Z-shaped (Fig. 125C), the endophallic expulsion hook narrower, with its posterior plate weakly bisinuate laterally (Fig. 125G), and the paramere with its apical area longer (Fig. 125C),

Stenus sasajiiellus Naomi, Nomura & Puthz sp. nov.

(Fig. 126A–F)

Type material examined. Holotype: ♂ (NSMT-I-C-200326 in NMNST), Ibigawa-cho, Gifu Pref., 16. v. 2010, K. Toyoshima leg.

Distribution. Japan: Honshu (Gifu Pref.).

Description. Male: Body 4.5 mm (fore body 2.1 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown to dark red; abdomen dark reddish brown; labrum reddish brown; antennae and legs reddish brown. Body with punctures round to almost round, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface uneven, with a median longitudinal furrow indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Abdomen (Fig. 126F) modified with a shallow depression on the 6th, a moderately deep depression on the 7th, and a slightly small, subtriangular emargination on the 8th ventrite; 9th tergum (Fig. 126A) with ventral apophyses very long; 9th ventrite (Fig. 126E) with apicolateral teeth moderately long, thin, very acute, apicolateral setae long; 10th tergum (Fig. 126A) entire. Aedeagus (Fig. 126B) with median lobe obtusely angulate at apicolateral corners, obtuse at apex; apical sclerotized area subtriangular. Endophallus with copulatory tube (Fig. 126C) long, with basal chamber large, main tube once distinctly curved a little anteriorly from the basal 1/3, with apical tube moderately curved, and also laterally with a moderately long projection which is rounded apically; expulsion hooks (Fig. 126D) robust, broad, each with anterior plate divided antero-posteriorly into 2 subplates, almost truncate at anterior tip, posterior plate moderately expanding and minutely serrate laterally behind the middle. Parameres (Fig. 126B) each weakly turning laterally behind the base of apical area, obtusely pointed at apex; apical area long, mesially swollen and angulate at base, mesially also with a tuft of 3 to 4 long setae at base and 9 to 11 setae of different length behind the basal tuft of setae.

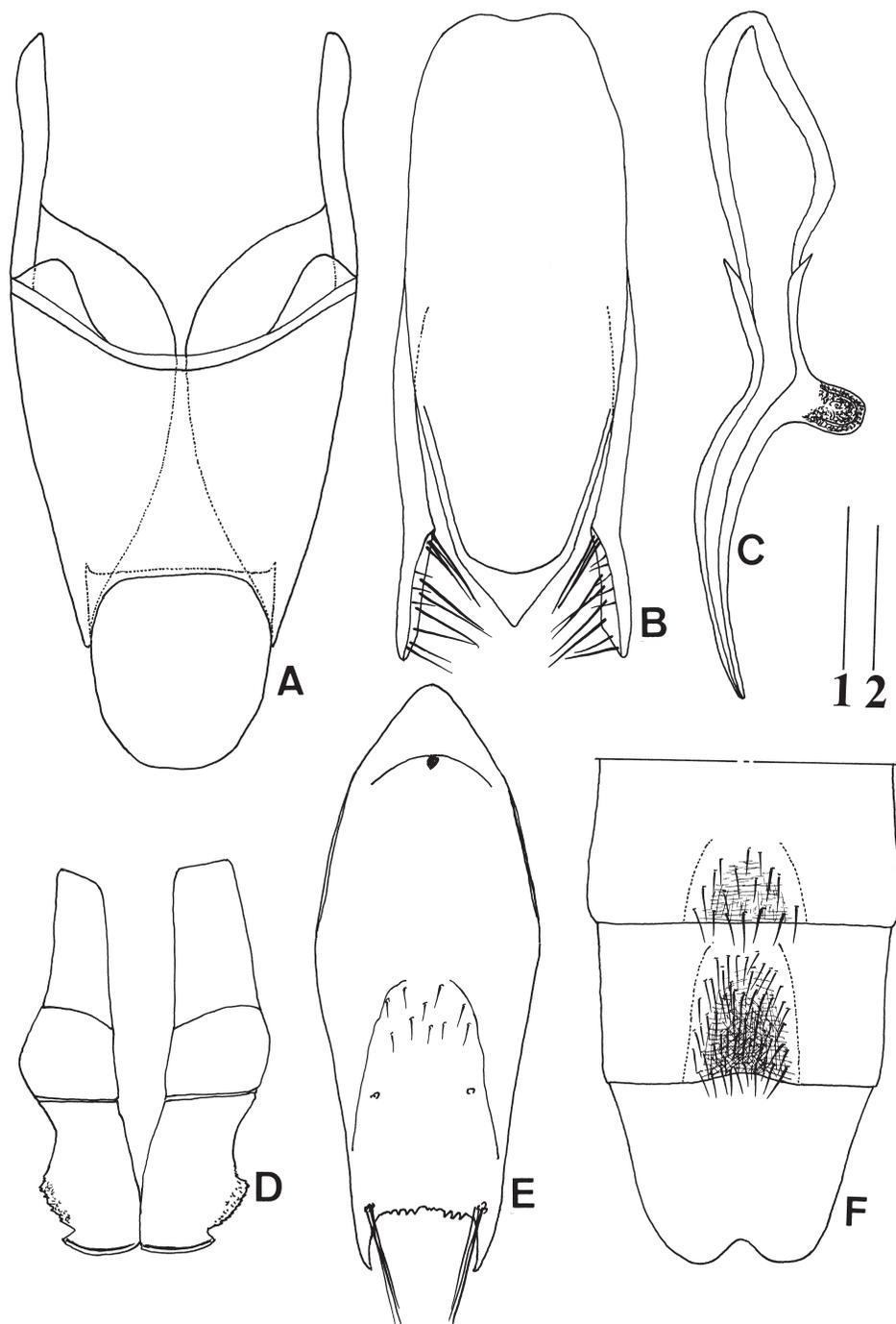


Fig. 126. *Stenus sasajiellus* Naomi, Nomura & Puthz sp. nov. (Gifu: Ibigawa). A, 9th and 10th terga of male; B, aedeagus; C, copulatory tube; D, endophallic expulsion hooks; E, 9th ventrite of male; F, 6th to 8th ventrites of male. Scale 1: 0.2 mm for A, B, E, 0.1 mm for C, D; scale 2: 0.3 mm for F.

Female: Unknown.

Biology and ecology. The beetle of *S. fukuimontium* inhabits leaf litter heaped in the natural forest of a low mountainous region.

Remarks. *S. sasajiellus* is allied to *S. tumifactus*, but it is separable from the latter species by the copulatory tube longer and thinner, with its basal portion thinner (Fig. 126C) and the endophallic expulsion hook with its posterior plate moderately expanding and minutely serrate laterally behind the middle (Fig. 126D).

Etymology. This new species is named after the late Dr. Hiroyuki Sasaji (Fukui University) who studied the Coccinellidae and some other Coleopteran families in Japan.

***Stenus tumifactus* Naomi**

(Fig. 127A–I)

Stenus tumifactus Naomi, 2015: 8.

Type material examined. Holotype: ♂ (CBM), Samegai Valley, Samegai-cho, Shiga Pref., 5. vi. 1997, S. Nomura leg. Paratypes: 2 ♀, same data as holotype.

Other material examined. [HONSHU]: 6 ♀5 ♀, Shinodate, Fujiwara-cho, Inabe City, Mie Pref., 20. xii. 1998, H. Yokozeki leg.

Distribution. Japan: Honshu (Shiga and Mie Prefs.).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 1.9–2.1 mm) in length. Body moderately shining; head black; pronotum and elytra reddish brown to dark red; abdomen dark reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to ovoidal, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique or almost longitudinal furrows; antennae short to moderately long, very thin; pronotum with surface slightly uneven, with a median longitudinal furrow very indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 127C) modified with a flat area on the 6th, a shallow depression on the 7th, and a small, nearly triangular emargination on the 8th ventrite; 9th tergum (Fig. 127A) with ventral apophyses long; 9th ventrite (Fig. 127B) with macrosetae long, apicolateral teeth long, thin, very acute, apicolateral setae moderately long; 10th tergum (Fig. 127A) very weakly emarginate posteromedially. Aedeagus (Fig. 127F) with median lobe elongate (Fig. 127F) or almost elongate-ovoidal in shape, well-rounded at apicolateral corners, almost acutely pointed at apex; apical sclerotized area (Fig. 127F) subtriangular. Endophallus with copulatory tube (Fig. 127D) having the basal chamber and the basal tube of main tube fused to be elongate-subovoidal in shape, without basal constriction, main tube very thick at base, beak-shaped at apex, laterally with a moderately large projection which is almost rounded; expulsion hooks (Fig. 127I) large, with anterior plate divided antero-posteriorly into 2 subplates, posterior plates almost contiguous mesially, subparallel-sided behind the base; ventromedian bands (Fig. 127E) each broad at posterior rim, becoming narrower anteriorly; parameres (Fig. 127F) each pointed at apex; apical area long to very long, hardly or weakly swollen at base, mesially with a tuft of 3 to 4 setae at base and 4 to 8 setae behind the basal tuft of setae.

Female: Eighth ventrite obtusely pointed posteromedially; gonocoxites (Fig. 127H) each with apicolateral tooth very long, very acute, apicolateral setae very long. Spermatheca (Fig.

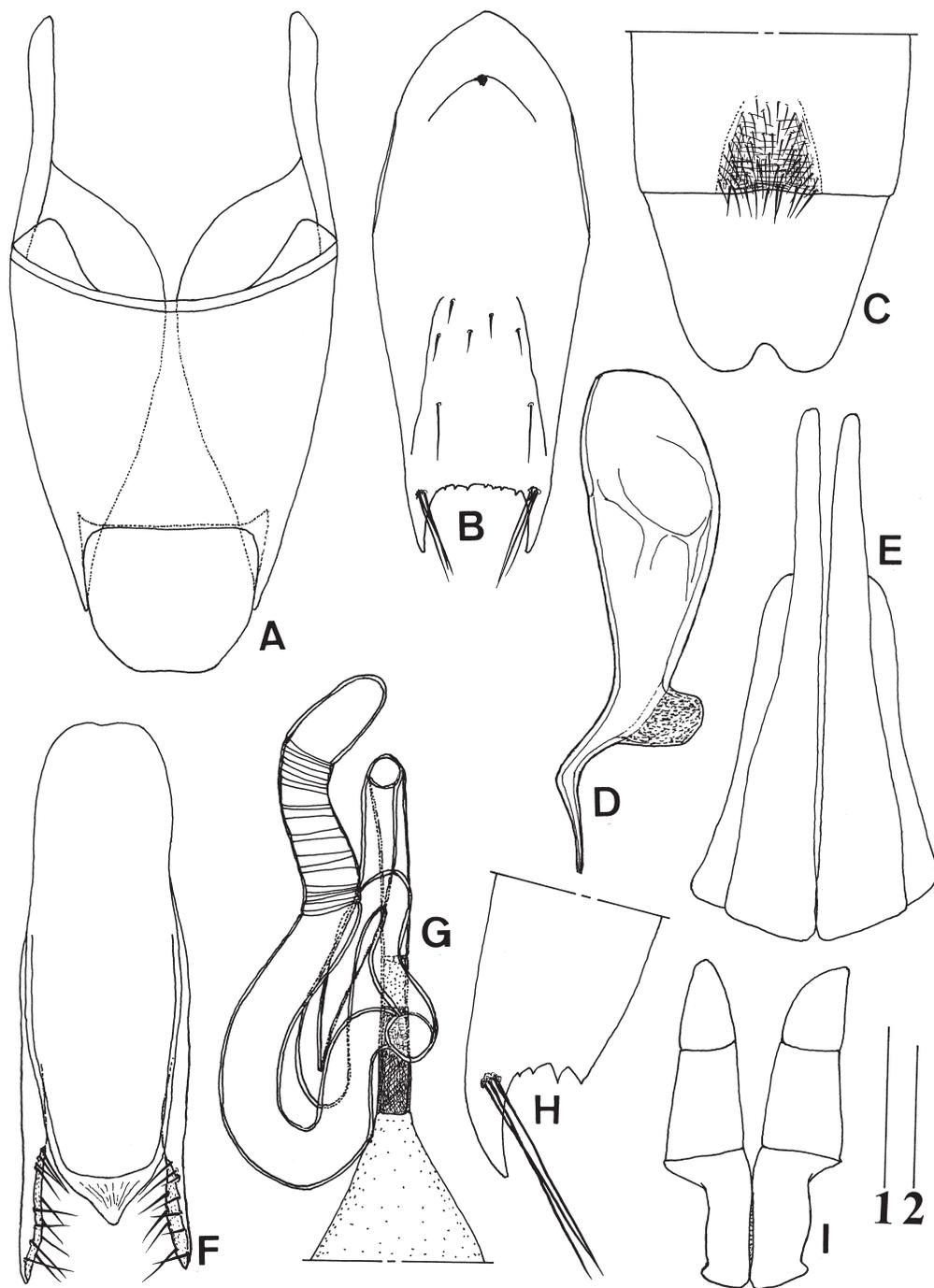


Fig. 127. *Stenus tumifactus* Naomi (Shiga: Samegai). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th and 8th ventrites of male; D, copulatory tube; E, endophallic ventromedian bands; F, aedeagus; G, spermatheca; H, posterior part of gonocoxite; I, endophallic expulsion hooks. Scale 1: 0.2 mm for A, B, F, 0.1 mm for D, E, G–I; scale 2: 0.3 mm for C.

127G) with capsule very long, rounded apically; striped duct slightly short, thick; duct moderately long, moderately thick to thick, coiled with 6 or 7 turns; basal valve short; basal duct moderately long; basal pouch conical, membranous.

Biology and ecology. The beetles of *S. tumifactus* inhabit leaf litter heaped in the natural forests of low mountainous regions.

Remarks. *S. tumifactus* is allied to *S. sasajiiellus*, but it is separable from the latter species by the copulatory tube shorter, with its basal portion thicker (Fig. 127D) and the endophallic expulsion hooks with their posterior plates almost contiguous mesially and subparallel-sided behind the base (Fig. 127I).

***Stenus leehermani* Naomi**
(Fig. 128A–I)

Stenus leehermani Naomi, 2015a: 220.

Type material examined. Holotype: ♂ (EUMM), Kanmuri Pass, Gifu Pref., 27. vii. 1995, M. Sato leg. Paratypes: 4 ♀ (EUMM), same data as holotype; 1 ♂ 2 ♀, same data as holotype.

Distribution. Japan: Honshu (Gifu Pref.).

Redescription. Male and female: Body 4.5–4.8 mm (fore body 2.2–2.3 mm) in length. Head weakly shining; head black, with clypeofrontal area dark red near black; pronotum and elytra reddish brown to dark red; abdomen dark red to dark reddish brown; labrum reddish orange to reddish brown; antennae and legs yellowish brown to reddish brown. Body with punctures round to elliptical, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head moderately concave, with a pair of longitudinal-oblique furrows; antennae moderately long, very thin; pronotum with surface slightly uneven to uneven, with a median longitudinal furrow very indistinct to indistinct; elytra with surface uneven; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 128F) modified with a very shallow depression on the 6th, a shallow depression on the 7th, an arcuate, moderately broad, moderately deep emargination on the 8th ventrite (Fig. 128H); 9th tergum (Fig. 128D) with ventral apophyses long; 9th ventrite (Fig. 128E) with macrosetae moderately long, apicolateral teeth long, very acute, apicolateral setae short; 10th tergum (Fig. 128D) almost rounded posteriorly. Aedeagus (Fig. 128B) with median lobe broadly rounded at apicolateral corners, almost acutely pointed at apex; apical sclerotized area small, narrow, subtriangular. Endophallus with copulatory tube (Fig. 128A) robust, with basal chamber very large, indistinctly constricted at base, main tube very thick, strongly narrowing apicad behind the middle but twice weakly constricted on its way, beak-shaped at apex; expulsion hooks (Fig. 128G) broad, each with anterior plate almost acutely pointed at anterior tip, posterior plate slightly projecting laterally at posterolateral corner, subtruncate posteriorly; ventromedian bands moderately long, broad. Parameres (Fig. 128B) each almost obtusely pointed apically; apical area long, distinctly swollen and angulate mesially at base, mesially also with a tuft of 5 to 6 setae at base and 5 to 6 setae behind the middle.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 128I) each with apicolateral tooth long, very acute, apicolateral setae very long. Spermatheca (Fig. 128C) with capsule very small, rounded at apex; striped duct slightly short, moderately thick; duct moderately long, moderately thick to thick, coiled with 5 turns; basal valve very short; basal duct moderately long.

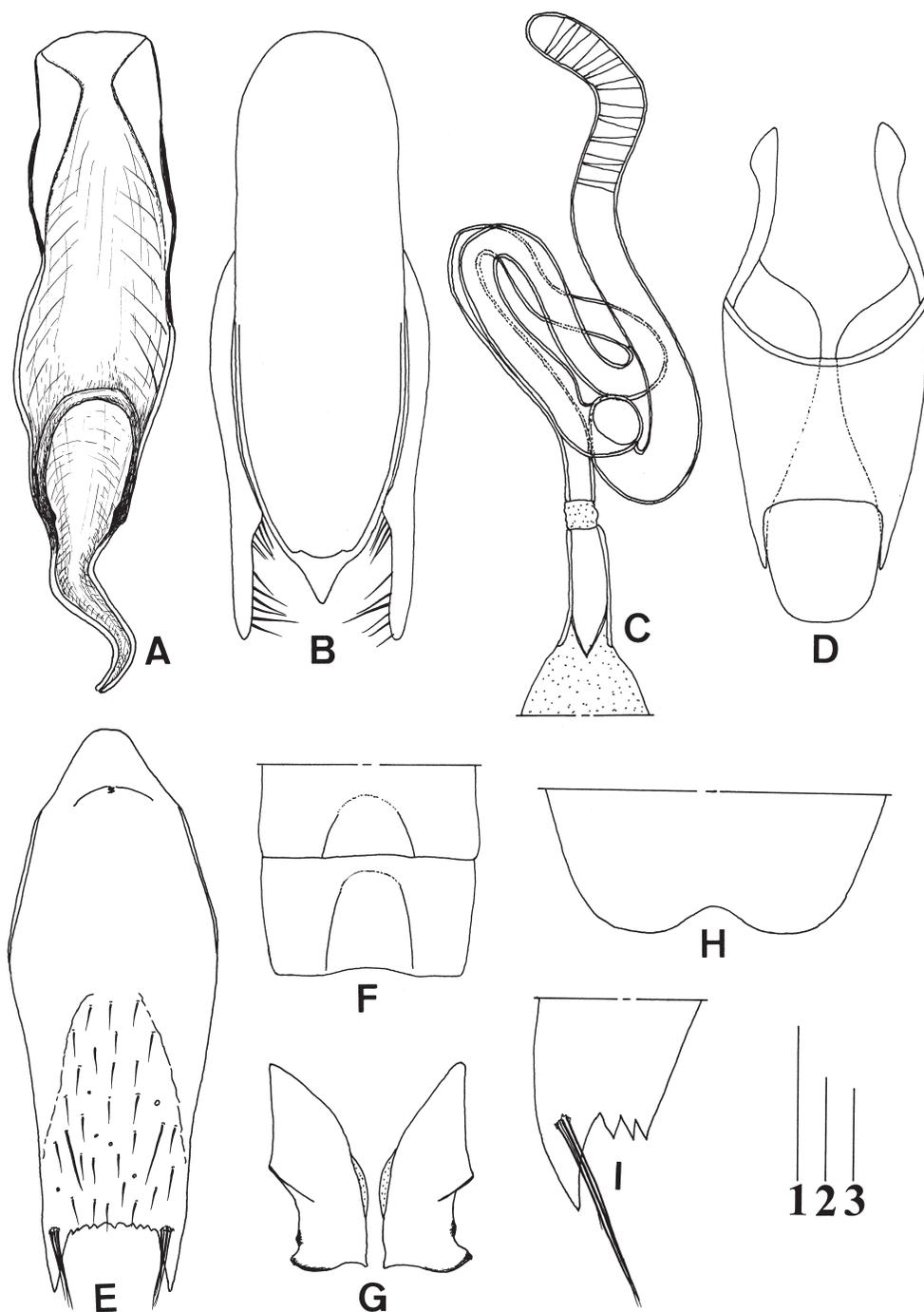


Fig. 128. *Stenus leehermani* Naomi (Gifu: Kanmuri Pass). A, copulatory tube; B, aedeagus; C, spermatheca; D, 9th and 10th terga of male; E, 9th ventrite of male; F, 6th and 7th ventrites of male; G, endophallic expulsion hooks; H, posterior part of 8th ventrite of male; I, posterior part of gonocoxite. Scale 1: 0.1 mm for A, C, G, I, 0.2 mm for B, E, H; scale 2: 0.2 mm for D; scale 3: 0.3 mm for F.

Biology and ecology. The beetles of *S. leehermani* inhabit leaf litter heaped in the natural forests of a mountainous region.

Remarks. *S. leehermani* is allied to *S. sasajiellus* and *S. tumifactus*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical sclerotized area narrower and smaller (Fig. 128B), the copulatory tube thicker, without any lateral projection (Fig. 128A), and the endophallic expulsion hook shorter, with its anterior plate almost acutely pointed at anterior tip (Fig. 128G).

Etymology. This species is named after Dr. Lee Herman (American Museum of Natural History) who studies some subfamilies of the Staphylinidae world-wide and also compiled the Catalog of Staphylinidae in 2001.

Stenus utan Naomi

(Fig. 129A–G)

Stenus utan Naomi, 1998a: 388; Herman, 2001: 2427; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Kamiyama, Hakone, Kanagawa Pref., 25. v. 1974, Y. Shibata leg. Paratypes: 1 ♂ 1 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Mt. Byobu, Hakone, Kanagawa Pref., 14. iv. 2003, T. Watanabe leg.; 1 ♂, Mt. Amagi-Manjiro, Naha-Izu-cho, Shizuoka Pref., 2. xi. 2003, I. Ohshio leg.; 4 ♂ 6 ♀, Mt. Amagi-Manzaburo, Izu-Peninsula, Shizuoka Pref., 12. xi. 2000, S. Nomura leg.; 5 ♂ 5 ♀, Ikadaba, Izu City, Shizuoka Pref., 3. ix. 2006, Y. Kaneko leg.

Distribution. Japan: Honshu (Kanagawa and Shizuoka Prefs.).

Redescription. Male and female: Body 3.4–4.1 mm (fore body 1.5–2.0 mm) in length. Body moderately shining; head and abdomen black; pronotum and elytra dark red; labrum dark red; antennae and legs reddish brown to brown. Body with punctures round to almost round, small to moderately large, and also pronotum partially with subrugose punctures and elytra partially with large, subrugose punctures. Head shallowly to moderately concave, with a pair of longitudinal-oblique furrows; antennae short to moderately long, very thin to thin; pronotum with surface slightly uneven, with a median longitudinal furrow indistinct; elytra with surface uneven to strongly uneven, each with a basal keel and also with an indistinct, large fovea on each side of basal keel; abdomen subcylindrical, subparallel-sided; lateroventrites and tergoventrite sutures lost.

Male: Abdomen (Fig. 129E) modified with a nearly semicircular flat area on the 7th, and a broad, shallow emargination on the 8th ventrite; 9th tergum (Fig. 129C) with ventral apophyses moderately long; 9th ventrite (Fig. 129B) with macrosetae long, apicolateral teeth long, acute, apicolateral setae long; 10th tergum (Fig. 129C) very shallowly emarginate posteriorly. Aedeagus (Fig. 129A) with median lobe becoming broader apicad, and then gently rounded and broadest at apicolateral corners, pointed at apicomedian part, ventrally covered sparsely with small pores; apical sclerotized area subtriangular, basally with a pentagonal notch. Endophallus (Fig. 129A) with copulatory tube moderately long, moderately curved; expulsion hooks (Fig. 129F) moderately broad; dorsolateral bands long, thin; ventromedian bands moderately long, moderately broad. Parameres (Fig. 129A) long, each pointed at apex, with pedicel covered sparsely with small pores at the middle; apical area long, weakly swollen mesially at base, mesially also with 9 to 11 setae.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 129B) each with apicolat-

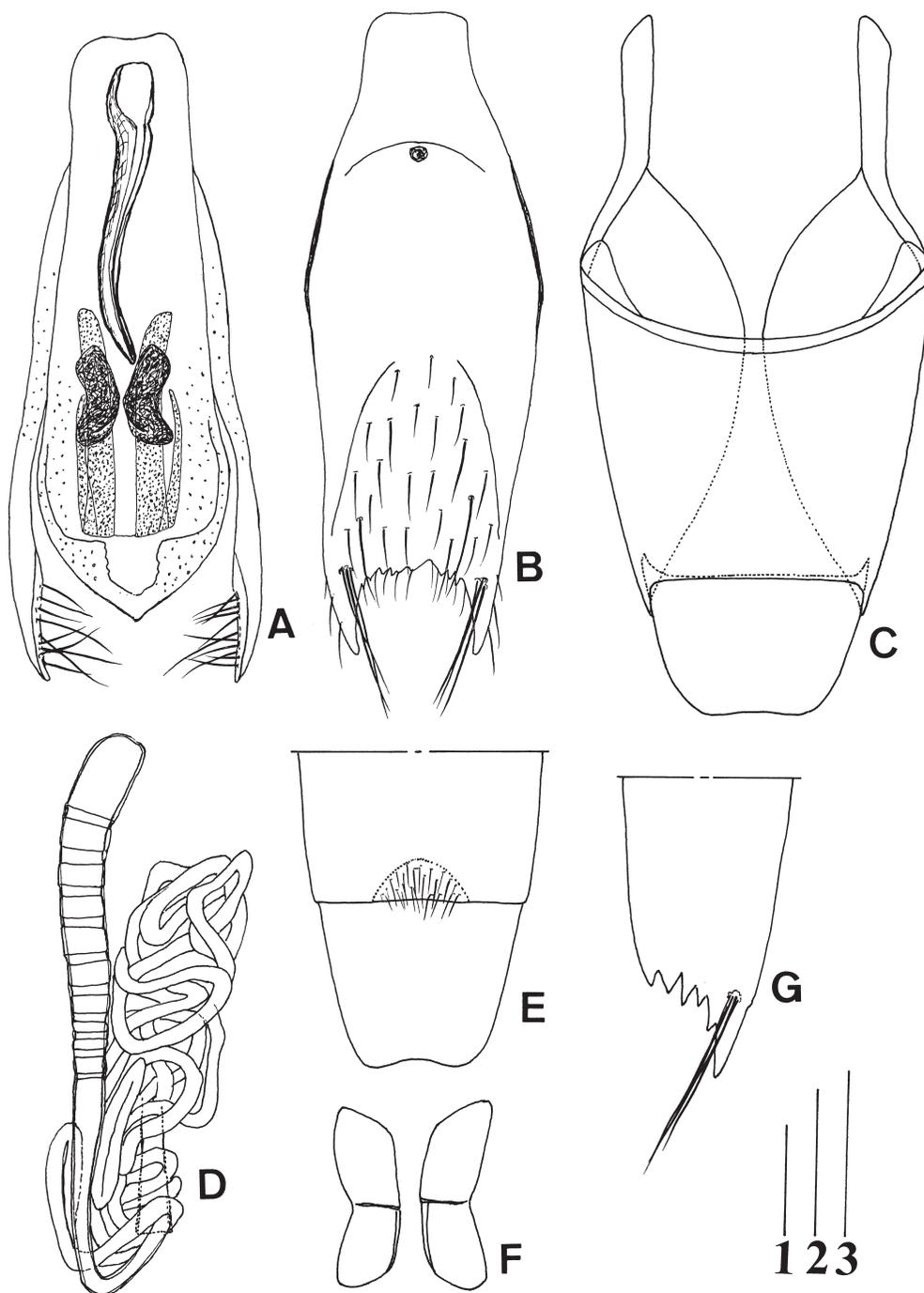


Fig. 129. *Stenus utan* Naomi (Shizuoka: A, G, Mt. Manzaburo; Kanagawa: B–F, Hakone). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, spermatheca; E, 7th and 8th ventrites of male; F, endophallic expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.1 mm for A–D; scale 2: 0.3 mm for E; scale 3: 0.1 mm for F, G.

eral tooth long, almost acute, apicolateral setae very long. Spermatheca (Fig. 129D) with capsule moderately long, thick; striped duct long, moderately thick to thick; duct very long, thin, tightly coiled.

Biology and ecology. The beetles of *S. utan* inhabit leaf litter heaped in the natural forests of low mountainous to mountainous regions. One male beetle was collected also under the moss at Mt. Amagi, Shizuoka Pref.

Remarks. *S. utan* is allied to *S. nyorai* Naomi, but it is separable from the latter species by the aedeagal median lobe broadest a little before the apicolateral corners (Fig. 129A), the copulatory tube moderately curved (Fig. 129A), the endophallic expulsion hook much shorter, with its posterior plate broader (Fig. 129F).

Etymology. The specific epithet of this species is derived from the special clothes of the ancient Chinese play, utan.

Concluding Remarks

This is our taxonomic study of Japanese Steninae, in which only the adult morphological characters and their various conditions are adopted for the sake of the identification and taxonomy of species. During the course of our study it was clarified that the Japanese Steninae consists of 2 genera (*Dianous* and *Stenus*), 39 species groups (3 species groups in *Dianous* and 36 species groups in *Stenus*) and 346 species (6 species in *Dianous* and 340 species in *Stenus*) (Naomi *et al.*, 2017 [Part 1], 2019 [Part 2] and present study [Part 3]). At present, the Japanese species of Steninae (346 species) thus become approximately 7 times the number of species (about 50 species) counted at the beginning of our study in the 1980s.

Only 6 species are known from Japan in the *Dianous*. As described above, however, a very much larger number of species have been discovered, and newly recorded or described, and then at present known from Japan in the *Stenus*. Out of the Japanese 340 species of *Stenus*, 117 species belong to the species groups whose distributional ranges are more or less wide or very wide, and some of the species of such species groups are very widely distributed in the Palaearctic Region from Europe to Japan (*S. ruralis*, *S. bifoveolatus*, *S. cicindeloides*) or in the Holarctic (*S. comma*; *S. juno*, *S. melanarius*). On the other hand, a very large number of Japanese species (229 species) belong to the species groups whose distributional ranges are mainly East Asia: 61 species (*asyura*-group), 29 species (*indubius*-group), 3 species (*flammeus*-group), 15 species (*cirrus*-group), 21 species (*satsuki*-group) and 100 species (*cephalotes*-group). All the Japanese species of these species groups are brachypterous and indigenous to the Japanese Archipelago. In each species group, the species show allopatric distributions there in many cases, and each species is for example distributed in a specific mountainous area, but 2 or more species are sometimes distributed in the same mountainous area (e.g., *S. hirashimai* and *S. akome* in Mt. Hiko, Kyushu).

Since the *Stenus* is a very large, megadiverse genus which comprises at present more than 3,000 species world-wide, it is very difficult to do the identification of species in the *Stenus*. This was especially so at the beginning stage on the studies of the Japanese Steninae. Thus, in the early papers of Japanese Steninae (Naomi, 1987, 1989a, etc.; see also Naomi, 2012, p. 271), the remarks on the allied species have been very often inadequate or beside the point. During the course of present study, continuously using the taxonomic results brought by a series of studies on the Palaearctic, Oriental and Ethiopian species of *Stenus* mainly by the 3rd author, we studied

in detail all the Japanese species of *Stenus*. Therefore, the taxonomic arrangement of species as well as the remarks on their allied species are much better in the present study than in the previous papers.

Species of *Stenus* and their classification by lumping

As is clear in the summary of our study described above, we treated taxonomically the species of a very large genus *Stenus* in Japan, and in several major species groups, many brachypterous species are, broadly speaking, allopatrically distributed there. We here pose an essential question: How can we classify the species in such a very large genus as *Stenus*?

In our study, the following structures are regarded as taxonomically important characters: Habitus, ventrites of pregenital abdominal segments (male), genital segments (male and female), aedeagus and endophallic components (male), spermatheca (female), etc. The species are classified based on the morphologically different conditions of these characters. What we consider to be well-acceptable or good species in the *Stenus* is *distinct species* at base in the arena of taxonomy, that is, species that is well-recognized on account of a lot of unique conditions of some of these characters, in other words, species that is well-distinguished from its allied species by a lot of the unique conditions of some of taxonomic characters. And then, we hypothesize that such taxonomically acceptable species form independently evolving population-level lineages (species) in nature. The reverse is also true. We also think that the species should not in principle be distinguished from their allied species only by the slight differences of aedeagal and/or endophallic character conditions, and that the species should not be accepted as taxonomically adequate in such cases. It does not seem to us that such species do not form independently evolving population-level lineages in nature. It naturally leads to a conclusion that our way of classifying the species of *Stenus* is not a splitting but a lumping.

In the *Stenus*-taxonomy, the classification of species by lumping is actually practiced mainly by 2 taxonomic treatments: (1) recognizing (or describing) only the distinct species and (2) synonymizing both the species and subspecies (as small local populations lineages) which are recognized only by a small amount of morphological differences of aedeagus and its related structures. To make taxonomists understand more easily that our approach to species classification in the *Stenus* is a lumping, we here point out 2 taxonomic treatments (synonymizing species and subspecies) with several concrete examples.

First, taxonomists often encounter the cases where a species in *Stenus* is morphologically poly-formed in that the aedeagus and its endophallic components of the *Stenus*-beetles collected from one locality are only slightly different in structure from those from another locality. In such cases, we should not consider every small local population (lineage) to be species, and we should not describe many new species based on many small local populations (recognized by a small amount of morphological differences). When the known species have been described as new, based on a slight amount of different conditions of aedeagus and/or its endophallic components observed only in the *Stenus*-beetles of particular, very narrow local areas, then they should be synonymized each other (e.g., *S. santira*, Part 2, p. 83). A lumping way of species classification is also concerned with another poly-formed Oriental species, *S. pilicornis*, which taxonomically resulted in making many synonyms (Puthz, 2013). (Note also that the same lumping method is also practiced in the classification of the *Dianous*; e.g., *D. japonicus*, Part 1, p. 37.)

The second is on the matter with how we synonymize subspecies (as small local populations in Kinki District) with their nominotypical subspecies. The examples are as follows: *S. olliformis owasenus* = *S. olliformis*, Part 3, p. 208 and *S. ingens ryugatakensis* = *S. ingens*, Part 3, p. 217.

Since these subspecies can be separated in one way or another from the nominotypical subspecies only by the slightly different conditions of endophallic expulsion hooks, they should be synonymized with their nominotypical subspecies. It seems that each local population (constituting a taxonomically described subspecies) does not form independent subspecies lineages nor species lineages in nature. Such subspecies may be perhaps accepted taxonomically as species in the future, but such taxonomic treatment by splitting should be based on the convincing information including molecular-phylogenetical and speciological data obtained from a series of detailed studies.

Species groups of *Stenus* and the size of species groups suitable for the good *Stenus*-taxonomy

Traditionally the genus *Stenus* has been classified into 6 subgenera (*Hypostenus*, *Hemistenus*, etc.). The subgenera of *Stenus* were replaced with species groups in order for adequately classifying the species of *Stenus* by several taxonomists (Puthz, 2008; Naomi, 2012; Tang *et al.*, 2018, etc.). The taxonomists have been at present faced with the problem on what the taxonomically adequate size of species groups are. In some previous taxonomic studies, the taxonomists have regarded some various sizes of groups of species as species groups in *Stenus*. For example, one treats a more or less large number of species as belonging to one species group (Puthz, 2013, etc.), while other treats a relatively small number of species or only one species as belonging to one species group (Naomi, 1988a, etc.).

The questions we here pose are as follows: What kinds of species groups are there in the present phylogenetic systems of species groups names in the *Stenus*? And, which species groups are taxonomically acceptable? In the *Stenus*, there are certainly many taxonomically good (or monophyletic) species groups (*pilicornis*-group, Puthz, 2013, p. 1402; *bispinus*-group, Puthz, 1985, p. 75; *indubius*-group, Part 2, p. 130; *cirrus*-group, Part 2, p. 206; etc.). They are well-characterized by stringent autapomorphic character conditions. For example, the *cirrus*-group is well-characterized by the occurrence of sparse, suberect setae of abdomen, etc., while the *pilicornis*-group is by the sileniform paraglossae. Thus, one can promptly identify the *Stenus*-beetles as those of a species of a particular species group if these beetles belong to the species of such a well-characterized species group.

In addition to these well-established, good species groups, there are also many other species groups of *Stenus* which seem to be monophyletic but are only incompletely characterized by the incomplete (or underlying) apomorphic conditions of characters, or by the particular conditions which are only tentatively regarded as apomorphic. They are here called tentatively-monophyletic groups of species. This is concerned with the *asyura*-group (Part 2, p. 5) and *cephalotes*-group (Part 3, p. 53). At first sight, it seems to us that such groups are not adequate for regarding as species groups in the formal taxonomic studies. However, these groups seem to be substantially discernable during the actual taxonomic studies of *Stenus* when the studies are carefully done for example in such a way as in this paper. Taxonomists may positively understand that some such indistinctly discernible species groups should be at least temporarily considered to be candidates of monophyletic groups for understanding the regional fauna of *Stenus*.

Furthermore, some other species groups of *Stenus* seem to be presumably paraphyletic (e.g., *clavicornis*-group, Part 1, p. 68). At the present stage, these paraphyletic groups may remain more or less stable in the classification, or they may still now be unchanged taxonomically, in order to avoid the confusion about the names of species groups in the tasks of species identification and then in the various biodiversity studies until the taxonomy of *Stenus* is completed in the future.

The genus *Stenus* is even now neither sufficiently nor fully studied taxonomically because it

is extremely difficult to identify the species owing to the very large number of species. When taking this into consideration, it may be possible in some cases that more easily noticeable (i.e., paraphyletic) groups of species are only tentatively introduced into a classification of species in the *Stenus* because of the reasons mentioned above. However, this is decidedly not good nor useful for further studies of other fields including phylogenetics, biogeography, etc., because such species groups do not form solid discussion bases in any way. Thus, out of the above-mentioned, 3 qualitatively different kinds of species groups, the tentatively-monophyletic as well as monophyletic groups of species will be acceptable taxonomically.

Then, we here pose the other question: Which size of species groups are adequate for understanding the phylogeny and biodiversity of whole species of *Stenus*? Generally speaking, whatever the Coleopterous taxa are for the taxonomic studies, it has been and is still the best to do the taxonomy under the global way, where the species of wider distributional ranges (hopefully, Biogeographical Regions or world-wide) are taken into consideration, with the careful morphological studies of taxonomically important characters. Therefore, it will be here recommended that for a better establishment of a series of the species groups in the *Stenus*, the larger sizes of species groups are hopefully accepted taxonomically. This is just so when considering that small species groups of narrow local areas which comprise small number of species, even if they are well-recognized by a series of good apomorphies, will never bring to us an array of rich and thus heuristic morphological and phylogenetic information, by which to then positively promote further studies of *Stenus* from a more or less global point of view.

Therefore, in conclusion, the tentatively-monophyletic as well as monophyletic groups of species which probably each comprise for example 50, 100 or more species, will be the good examples suitable and also adequate for the *Stenus*-taxonomy, and such species groups will be truly useful as bases for further various studies of biodiversity.

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Corrigenda and Addenda to the Steninae of Japan Parts 1 and 2

Corrigendum to the Steninae of Japan Part 1

Page 1, line 16. For “(30 species groups and 117 species), read “(30 species groups and 111 species and 1 subspecies)”

Corrigenda to the Steninae of Japan Part 2

Page v, line 4. For “Materials and Methods”, read “Materials of the Steninae treated”

Page 1, line 33. For “Materials and Methods”, read “Materials of the Steninae treated”

Addenda to the Steninae of Japan Part 1

Page 177, line 32. Add the following sentence: “Note that the data of the holotype of *S. hiroyukii* Puthz was first added in Puthz (2001e)”.

Page 178. Add the following data below the line 26: “Type material. Type locality: Far East, Inland in Sungari River IX.”

Page 327. Add the following paper after the paper of Puthz (2001d): “Puthz, V., 2001e. Note on *Stenus hiroyukii* Puthz (Coleoptera, Staphylinidae). *Entomological Review of Japan*, **56**: 73.

Addendum to the Steninae of Japan Part 2

Page iv. Add the following note on the cover illustration below the last line: “Cover Illustration: *Stenus kiyosumiensis* Naomi & Takeda.”

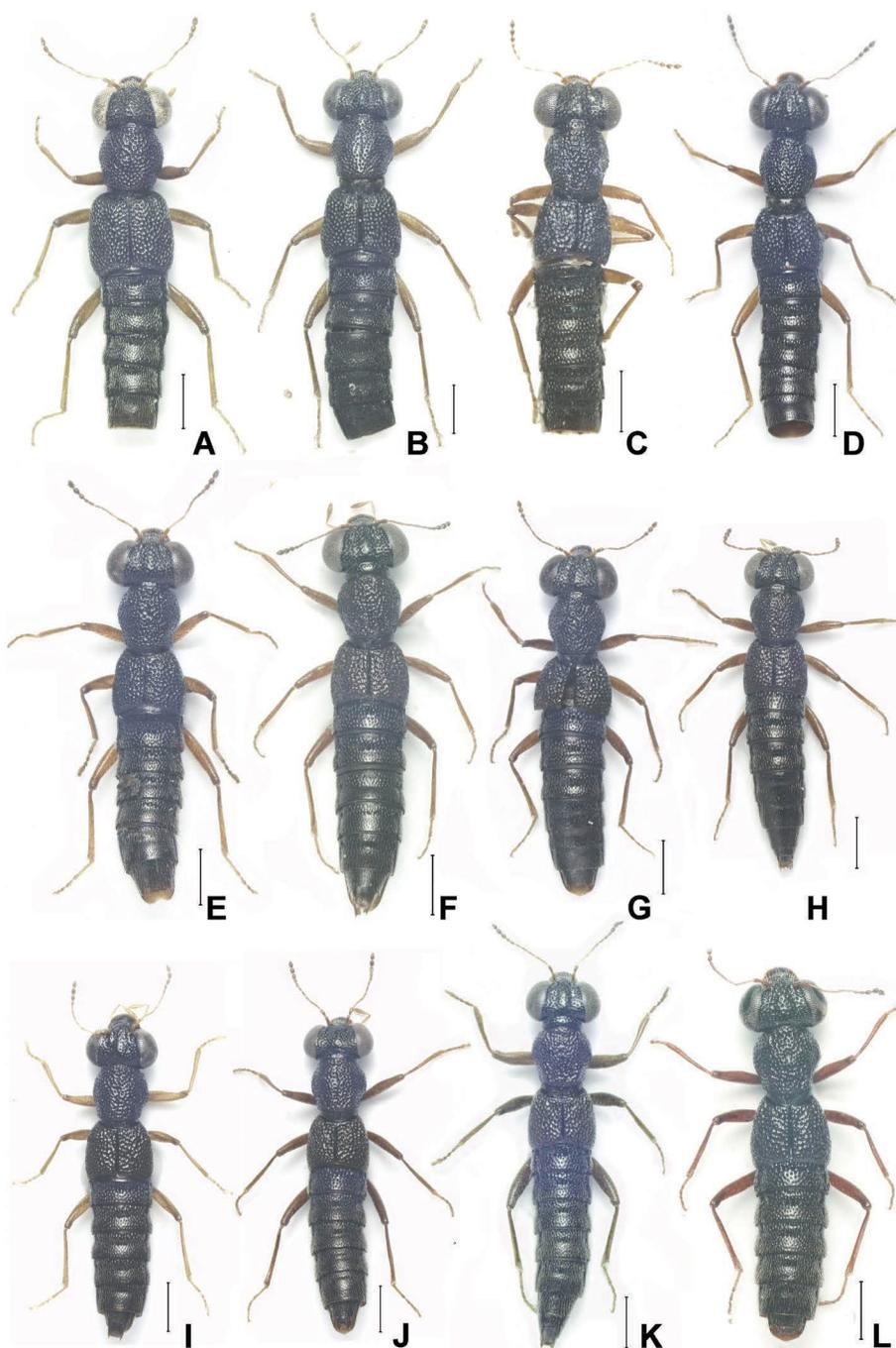


Fig. 130. A, *S. pallipes* Gravenhorst (East Europe); B, *S. kolbei* Gerhardt (East Europe); C, *S. kajika* Naomi & Puthz (Nara: Mt. Odaigahara); D, *S. okayamaensis* Naomi (Okayama: Niimi); E, *S. satsuki* Naomi (Ehime: Mt. Ishizuchi); F, *S. intermixtus* Puthz (Nagano: Nomugi-tôge); G, *S. kannoi* Naomi, Nomura & Puthz sp. nov. (Mie: Inabe); H, *S. volkerputhzi* Naomi, Nomura & Puthz (Ishikawa: Mt. Hakusan); I, *S. uneme* Naomi (Tokushima: Mt. Takashiro); J, *S. taoi* Naomi (Yamanashi: Yanagisawa Pass); K, *S. fujimontis* Puthz (Shizuoka: Mt. Fuji); L, *S. fujiensis* Puthz (Shizuoka: Mt. Fuji). Scale: 0.5 mm.

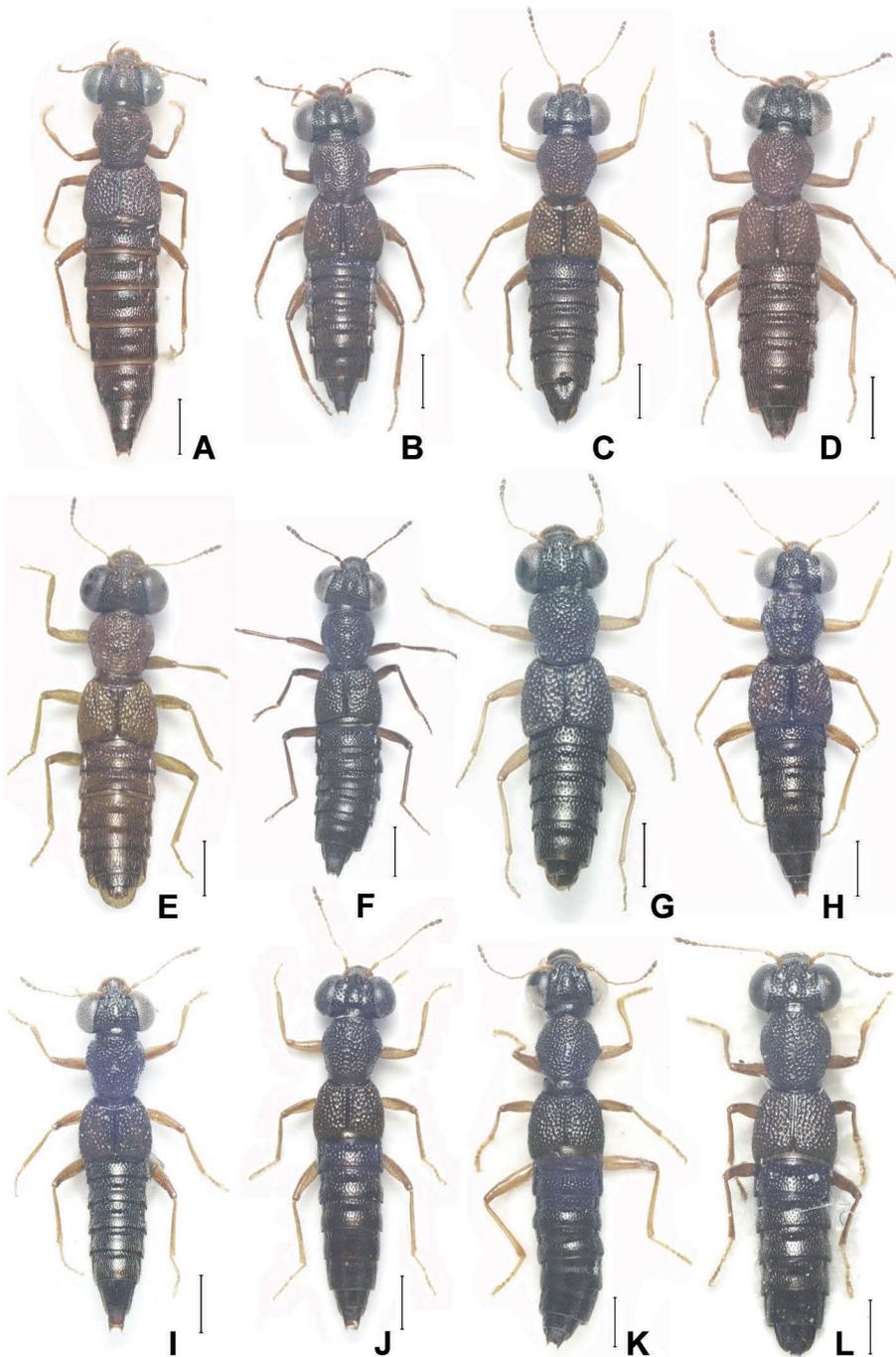


Fig. 131. A, *S. friebi* Benick (Far East: Khabarovsk Territory: Odyr cordon); B, *S. etsukoae* Naomi (Hokkaido: Nissho Pass); C, *S. kazami* Naomi (Akita: Shirakami Mts.); D, *S. silvaticulus* Naomi (Fukushima: Iitate-mura); E, *S. koinobori* Hromádka (Hokkaido: Mt. Kariba); F, *S. puthziellus* Naomi (Iwate: Mt. Hayachine); G, *S. hagoromo* Naomi (Okinawa : Ishigaki Is.); H, *S. perspicabilis* Puthz (Taiwan: Kaohshun); I, *S. sugayai* Puthz (Taiwan: Mt. Amma-shan); J, *S. cephalotes* Sharp (Nagasaki: Hirado Is.); K, *S. oblongulus* Naomi (Miyazaki: Tano-cho); L, *S. inexoratus* Puthz (Hiroshima: Toyosaka-machi). Scale: 0.5 mm.

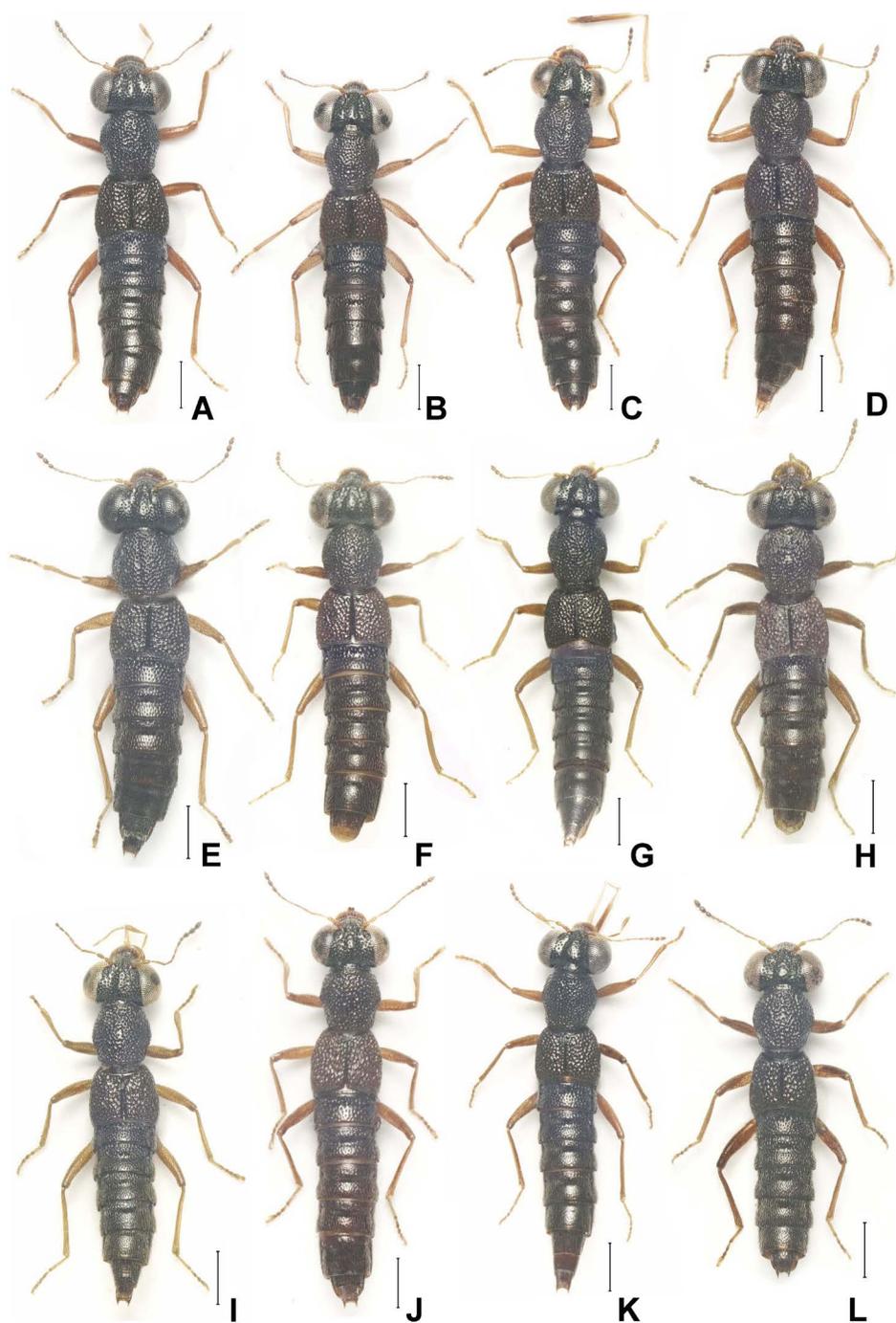


Fig. 132. A, *S. coffeatus* Naomi (Kochi: Ashizuri); B, *S. ryugu* Naomi (Nagasaki: Tsushima Is.); C, *S. kaguyahime* Naomi (Saga: Mt. Seburi); D, *S. dainichi* Puthz (Wakayama: Mt. Nachi); E, *S. subtruncatus* Naomi, Nomura & Puthz sp. nov. (Mie: Kiwa-cho); F, *S. kyotoensis* Naomi, Nomura & Puthz sp. nov. (Kyoto: Mt. Ooe); G, *S. cinanomontis* Naomi & Nomura (Nagano: Hyogoe Pass); H, *S. incalcaratus* Naomi (Shizuoke: Amagi Pass); I, *S. inamatus* Puthz (Niigata: Yagizawa); J, *S. keman* Naomi (Gifu: Nishihotakaguchi); K, *S. warabi* Naomi & Nomura (Hyogo: Ushiroyama); L, *S. himiko* Naomi (Nara: Ohdaigahara). Scale: 0.5 mm.

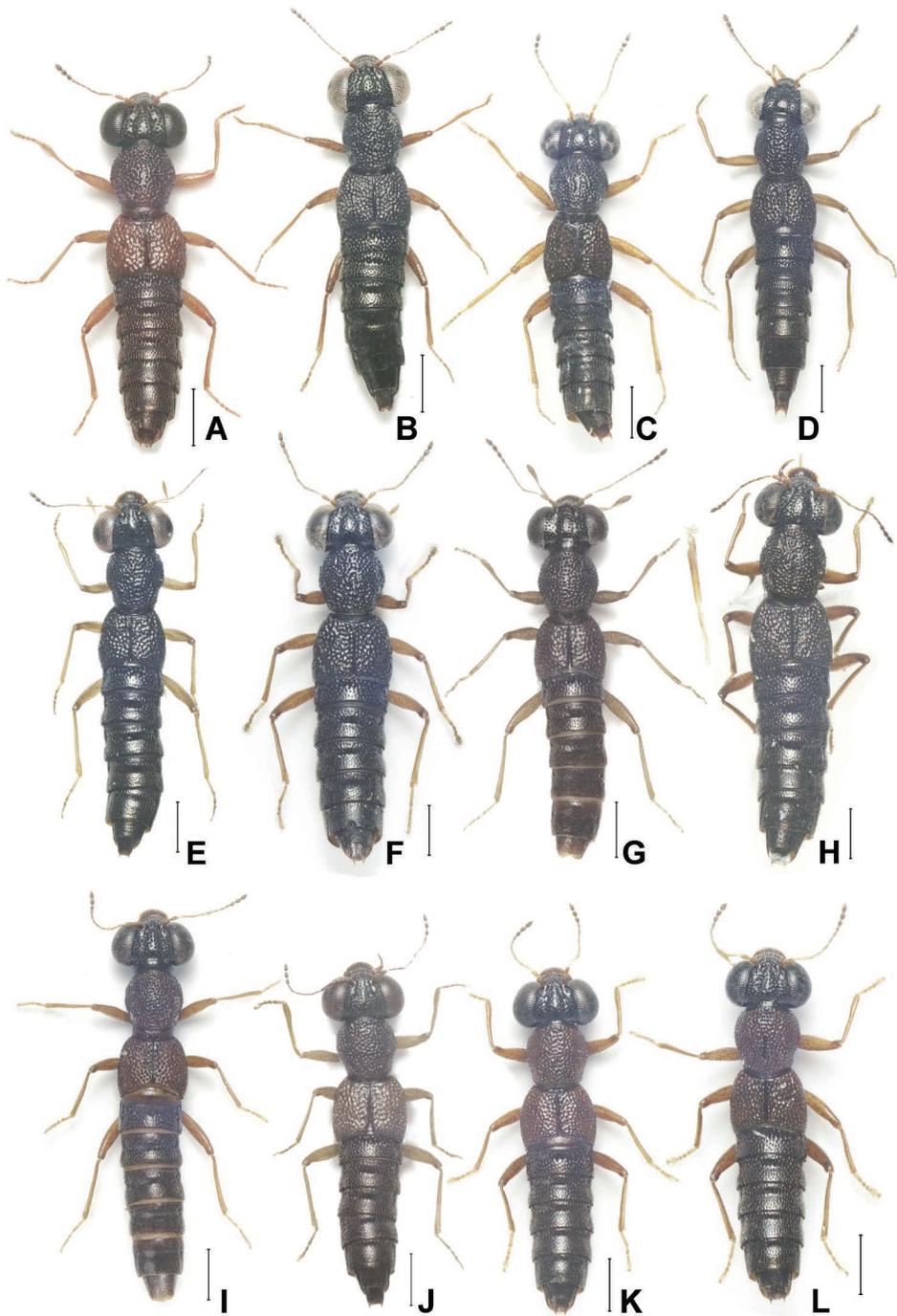


Fig. 133. A, *S. aoi* Naomi & Puthz (Fukui: Mt. Ohtake); B, *S. intrarius* Naomi & Ito (Shiga: Oisugi Forest); C, *S. inaspectus* Puthz (Ehime: Omogokei); D, *S. imasakai* Naomi (Nagasaki: Ohseto-cho); E, *S. cosiciensis* Naomi & Hayashi (Kagoshima: Shimokoshiki Is.); F, *S. daimio* Naomi (Nagasaki: Nagasaki City); G, *S. yoshidai* Naomi (Tokushima: Shishikui-cho); H, *S. hirashimai* Naomi (Fukuoka: Mt. Hiko); I, *S. gion* Naomi & Ito (Kyoto: Ashiu); J, *S. inclarescens* Puthz (Ishikawa: Hakui); K, *S. coiffaitellus* Naomi & Puthz (Mie: Ise); L, *S. productus* Naomi (Mie: Ise). Scale: 0.5 mm.

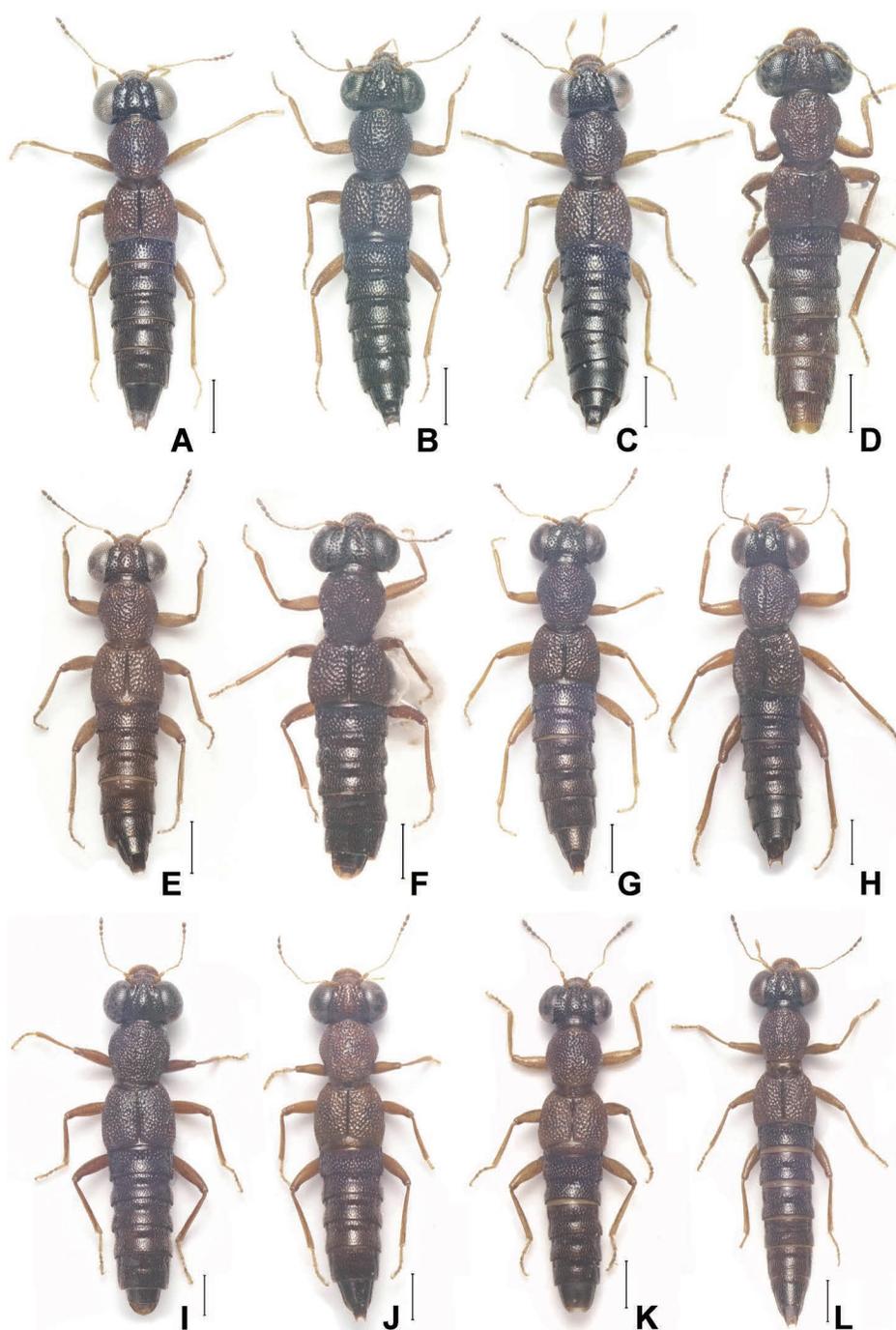


Fig. 134. A, *S. kagura* Naomi & Puthz (Okayama: Mt. Kuma); B, *S. toshiharui* Naomi (Nagasaki: Oonohara); C, *S. akome* Naomi (Miyazaki: Mt. Morotsuka); D, *S. amida* Naomi (Tokushima: Mt. Tsurugi); E, *S. rufescens* Sharp (Hyogo: Mt. Mayasan); F, *S. jukata* Hromádka (Wakayama: Mt. Kôyasan); G, *S. deltooides* Naomi, Nomura & Kamezawa (Fukui: Karikomi Pond); H, *S. olliformis* Naomi (Nara: Oomine Mts.); I, *S. ebisu* Naomi (Nara: Ohdaigahara); J, *S. daigonis* Naomi & Puthz (Kyoto: Uji City); K, *S. mikawanis* Naomi (Gifu: Ena-jinja); L, *S. nakanei* Hromádka (Kôchi: Niyodo-mura). Scale: 0.5 mm.

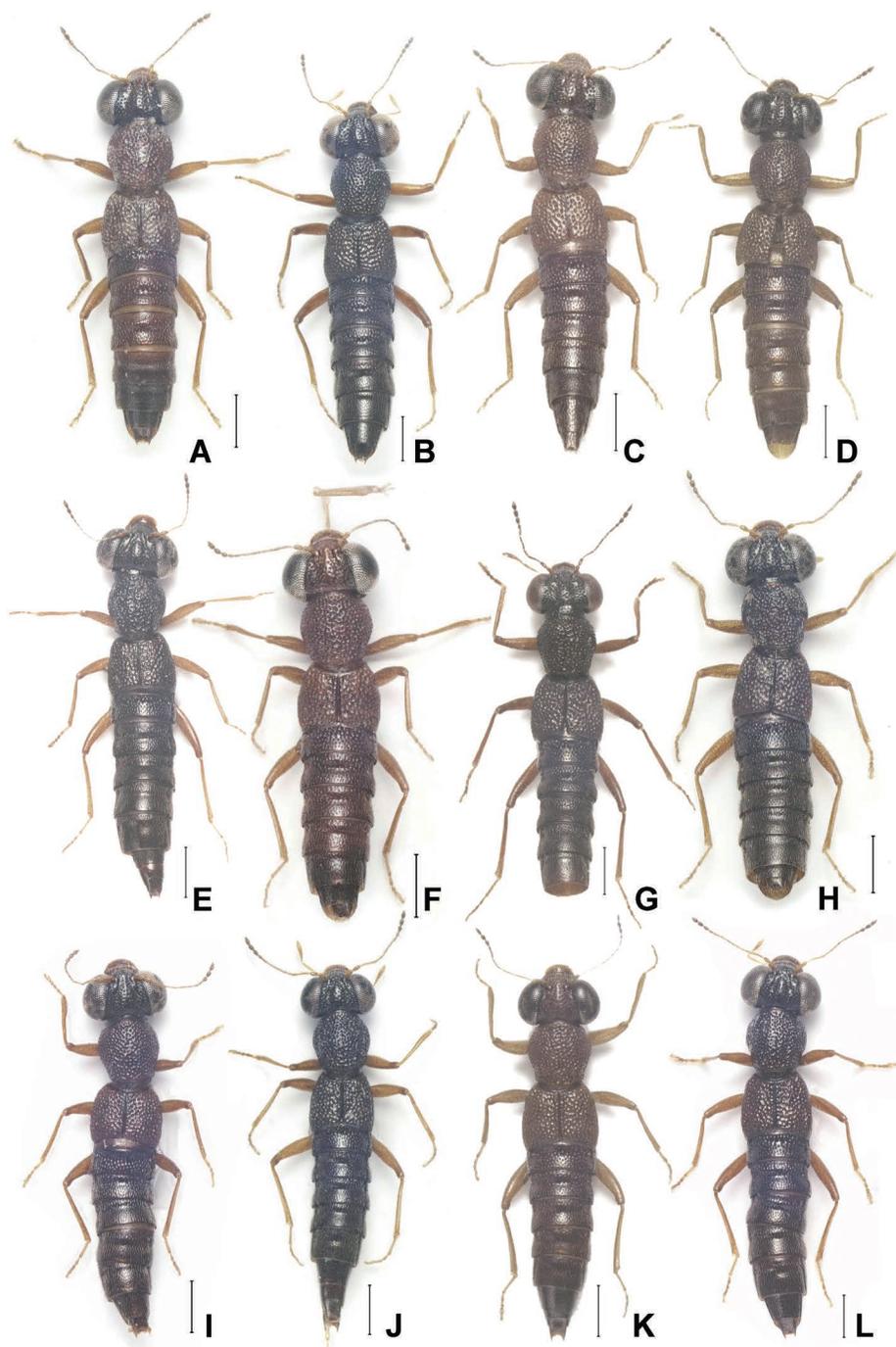


Fig. 135. A, *S. testaceopiceus* Bernhauer (Osaka: Nose); B, *S. okiensis* Naomi & Shimada (Shimane: Oki Isls.); C, *S. akojagai* Hromádka (Tottori: Misasa Spa); D, *S. gagyumontis* Naomi (Okayama: Mt. Gagyusan); E, *S. okamotoi* Naomi (Hiroshima: Toyosaka-machi); F, *S. amma* Naomi & Nomura (Nara: Dorogawa); G, *S. expansus* Naomi & Ito (Gifu: Araidashi Forest); H, *S. bosatsu* Naomi (Yamanashi: Kaminikkawa Pass); I, *S. usitatus* Naomi & Nomura (Shizuoka: Mt. Fuji); J, *S. bifurcatus* Naomi (Mie: Hokusei); K, *S. syaca* Naomi (Ishikawa: Senami); L, *S. asiensis* Naomi, Nomura & Puthz sp. nov. (Shizuoka: Izu City). Scale: 0.5 mm.

Index

In this index, for each of the *Dianous* and *Stenus*, the specific and subspecific epithets (in the valid names of species or subspecies described, redescribed or taxonomically treated in various ways in the Parts 1, 2 and 3), together with the names of authors, and also the names of the groups, subgroup and complex of species are arranged alphabetically. The synonymic names of species and subspecies are also added and printed in italics. Part 1 means the paper of Naomi *et al.* (2017), Part 2 means the paper of Naomi *et al.* (2019), and Part 3 means the present paper.

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