National Museum of Nature and Science Monographs No. 51
ISSN 1881-9109

THE SUBFAMILY STENINAE MACLEAY, 1825 (COLEOPTERA: STAPHYLINIDAE) OF JAPAN PART 2. *STENUS ASYURA*-GROUP TO *S. CIRRUS*-GROUP

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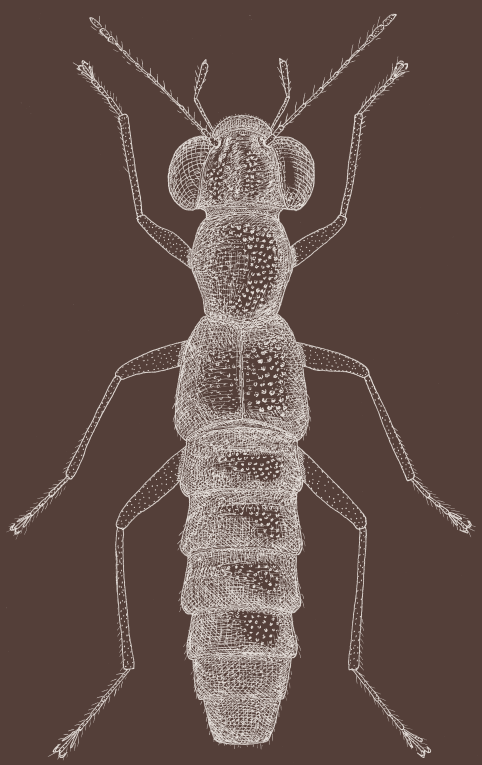

**National Museum of Nature and Science Tokyo,
August 2019**

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Tokyo, August 2019

National Museum of Nature and Science
Ueno Park, Tokyo, 110–8718
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Published on 1 February, 2019
Printed by International Academic Publishing Co., Ltd., Tokyo
ISSN 1881-9109
ISBN 978-4-87803-045-1

CONTENTS

The subfamily Steninae Macleay, 1825 (Coleoptera: Staphylinidae) of Japan Part 2. *Stenus asyura*-group to *S. cirrus*-group

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Abstract This is the second part of a monographic study of the subfamilial-level clade Steninae Macleay, 1825 (Coleoptera: Staphylinidae) of Japan. It treats taxonomically four Asian species-groups of the genus *Stenus* Latreille, 1797 and their Japanese species: *asyura*-group (54 species), *indubius*-group (29 species), *flammeus*-group (3 species) and *cirrus*-group (15 species). The known species of *Stenus* treated here all are redescribed; and the following 6 *Stenus* species are described as new to science: *S. kisomontanus* (Nagano Pref.); *S. scissilis* (Gifu Pref.); *S. uncinatus* (Gifu Pref.); *S. campaniformis* (Yamagata Pref.); *S. tuberascens* (Fukui Pref.); and *S. angusticulus* (Ehime Pref.). Keys to the species of *Stenus* treated here are given, together with the detailed illustrations of the taxonomically important structures of all species, and with the habitus photos of the 92 species of Japan and the 4 species of East Asia.

Introduction

This is the second 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 second part (Puthz: Contribution No. 356 on Steninae; Naomi: Contribution No. 59 on Steninae), four Asian species-groups of *Stenus* (*asyura*-group, *indubius*-group, *flammeus*-group and *cirrus*-group) are treated taxonomically, which comprise 101 species from Japan. All known Japanese species of these 4 species-groups are redescribed; and 6 new species are described, together with keys to the species. The taxonomically important structures are illustrated in detail for all *Stenus* species treated; and the habitus photos are also given for the 92 species of Japan and the 4 species of East Asia.

Materials and Methods

Holotypes of the all species of *Stenus* treated here are examined by Naomi and/or Puthz. Depositories of the type specimens are as follows:

Institutions

AACO: Agriculture and Agrifood Canada, Ottawa
CBM: Natural History Museum and Institute, Chiba
KUF: Kyushu University, Fukuoka
EUMM: Ehime University Museum, Matsuyama
FMC: Field Museum of Natural History, Chicago
MHNG: Muséum d'histoire naturelle, Genève
NHML: Natural History Museum, London
NHMW: Naturhistorisches Museum Wien
NMNST: National Museum of Nature and Science, Tsukuba
NMP: National Museum of Prague—Natural History Museum
OMNH: Osaka Museum of Natural History, Osaka
SMNS: Staatliches Museum für Naturkunde, Stuttgart
TUAA: Tokyo University of Agriculture, Atsugi

Private collections

cN: Collection of Shun-Ichiro Naomi, Chiba
cP: Collection of Volker Puthz, Schlitz
cZ: Collection of Lother Zerche, Eberswalde

As far as the methods of the dissection for observation and illustration, see Naomi *et al*. (2017: 4–5).

Characters Used for the Taxonomy of Steninae

The characters used in the Part 2 of the Japanese Steninae monograph are basically the same as in the Part 1 (Naomi *et al*., 2017: 5–20). However, since we observed several new aedeagal structures in some species of *Stenus* examined in the Part 2, we here describe these new structures as taxonomic characters, and newly use them for the descriptions of species, in which they are found. Furthermore, during the course of our *Stenus* studies for the Part 2, we first clearly identified the bursa copulatrix in the postabdominal chamber of female *Stenus*. Thus, we also mention the bursa copulatrix.

Aedeagal median lobe

When the aedeagal median lobe has a small process-like structure at the apicomedian part, it was termed "apicomedian projection" in the Part 1 (Naomi *et al*., 2017; fig. 5A). On the other hand, in the many advanced members of *asyura*-group, the median lobe is tricuspidate at apex by the 3 teeth, which are more or less pointed. Out of these 3 teeth, the median one is here called *median cusp*, while the lateral ones are called *lateral cusps*. In this paper, we do not discuss the matter as to whether or not the apicomedian projection is homologous with the median cusp in *Stenus*.

Endophallic dorsal membrane

There exists the characteristically dotted membrane which is dorsal to the endophallic copulatory tube in several species of the *asyura*-group (Fig. 26E) and *indubius*-group (Fig. 61H). Since it is dorsal in position in the chamber of aedeagal media lobe, it is here called "*dorsal*

membrane" for the sake of description.

Endophallic copulatory tube

In most species of *Stenus*, the main tube of a copulatory tube is simple (i.e., not divided into the basal and apical tubes; Fig. 60B), or it is more or less divided into the basal and apical tubes without modification (Fig. 3E), or with modifications (e.g., lateral processes; Fig. 17B). However, in *S. ohishii* and *S. fusciceps* (*indubius*-group), the main tube of a copulatory tube is different in structure from these forms. Namely, it is double-structured by the inner and outer tubes; and a thin, inner tube exists or runs inside the outer tube (Figs. 80E, 81H).

Bursa copulatrix and the opening (basal pouch) of spermatheca

When observing the proximal part of a spermatheca in the female *Stenus*, we often obviously see a sack, which is usually subconical or conical. The sack has been often called infundibulum (Puthz, 2005), basal pouch (Naomi, 2006a; etc.), etc. in the previous studies of Steninae. The sack certainly forms the opening of a spermathecal duct, but it was found that it usually almost completely overlaps dorsoventrally with the "bursa copulatrix" (Naomi, 2018a). Morphologically speaking, the bursa copulatrix is a genital structure of female that is completely different from the opening of a spermathecal duct. Thus, we need to recognize them separately in the descriptive studies. Namely, the bursa copulatrix is dorsal in position, relative to the basal pouch (e.g., Figs. 85D, 86D). The bursa copulatrix is the receptacle, to which the apex of aedeagal median lobe of male is inserted, for fixing the median lobe in the female genital chamber during copulation, while the basal pouch is the opening of a spermathecal duct, into which the endophallic copulatory tube is inserted, for depositing a spermatophore there (Naomi, 2018a).

Methods of Characterizations, Descriptions and Illustrations

As in the Part 1 of the Japanese Steninae monograph, the species-groups of *Stenus* treated are characterized (or diagnosed) in the Part 2; and the species treated are redescribed or newly described, together with the keys to the species, the illustrations of the taxonomically important structures, and the habitus photos. See at base "Methods of descriptions and illustrations" (Naomi *et al*., 2017: 20–21), regarding the methods of descriptions and illustrations in the Part 2.

Being different from the Part 1, the species-groups of *Stenus* treated (i.e., *asyura*-group, *indubius*-group, *flammeus*-group and *cirrus*-group) all are, however, Asian species-groups, many species of which are distributed in the East Asia. Thus, in the Part 2, added for each species-group is a list of all species which belong to each species-group. The research history on each species-group of *Stenus* is, when necessary, also added in short. Here, in order for readers to see more precisely how we deal taxonomically with the species in *Stenus* in the Part 2, we think it better to take up separately and mention in short the matters with characterizations, "*incertae cedis*", and revised descriptions (for several structures).

Characterizations

The basic idea on how the species-group of *Stenus* is characterized in the Part 2, is here mentioned in short. It will be good for us staphylinists in a morphology-based taxonomy, if we manage to finally detect that a species-group of *Stenus* results in a monophyletic one (with several autapomorphies), after we have carefully studied all the species of the species-group in question during the taxonomic study. On the other hand, in cases where we find that a species-group in

question does not seem to possess a set of robust apomorphic characters, we must do our best in carefully searching the candidates of the morphological characters that will be useful for characterization of the species-group in question, together with a careful survey of the basal (primitive) species which must belong to the concerned species-group. In such cases we tentatively propose a combination of several "good" characters of the species-group for the sake of species identification.

See Tang & Zhao (2008) and Puthz (2017) for the characterizations of *indubius*-group; see Tang *et al*. (2016) for that of *flammeus*-group; see Puthz (2003a) and Tang *et al*. (2008) for those of *cirrus*-group. We will find their characterizations to be proper. And, we hope that this paper will contribute to the characterization of the *asyura*-group.

Incertae cedis

In the case where the taxonomic position of a *Stenus*-species is uncertain, the species in question is treated as "*incertae cedis*". The "uncertain" taxonomic position here means that, based on our taxonomic studies, a *Stenus*-species cannot be accurately classified into a species-group nor its subgroup, to which it should belong. We virtually treated only *S. dubitativus* as *incertae cedis* in the Part 2.

Revised descriptions

In the Part 2, aiming at the concise and more morphologically adequate descriptions of the species-groups and species in *Stenus*, we slightly change the methods of descriptions and also revise some morphological terms for descriptions. We think it better to add annotations on some morphological characters.

Hind wings. All *Stenus* species treated in the Part 2 are brachypterous. Thus, the matter as to whether the *Stenus* species in question is macropterous or brachypterous, is not mentioned in the description of each species.

Lateroventrites. The descriptions of how the lateroventrites develop in the pregenital abdominal segments are useful for species identification in *Stenus.* The typical conditions of the lateroventrites are usually found in the 4th to 6th segments of abdomen in *Stenus*, and thus they are described for each species treated, without reiterating the phrase "4th to 6th segments of abdomen" in each description.

Ninth tergum of male. The ventral apophysis of male 9th tergum was identified as the anteroventral extension of antecostal ring in Aleocharinae (Peschke, 1978). The 9th tergum of male in Steninae is, we think, basically same in structure as in Aleocharinae. Thus, the ventral apophysis of male 9th tergum in *Stenus* is here termed *antecostal apophysis*.

Endophallic longitudinal bands. In the endophallus of the aedeagus in *Stenus*, there exist a pair of median longitudinal bands and a pair of lateral longitudinal bands (Naomi *et al*., 2017). This is also true of the species treated in the Part 2. In the descriptions of species, the median longitudinal bands and the lateral longitudinal bands are abbreviated as "median bands" and "lateral bands", respectively, for the sake of convenience. Furthermore, the "ventral bands" and the "dorsal bands" of the median bands are here termed the *basal bands* and the (*dorsally*) *folded bands*, respectively, because in the chamber of median lobe, the median bands are wholly ventral in position, relative to the copulatory tube.

Endophallic copulatory tube. The endophallic "copulatory piece" of *Stenus* was, in the Part 1 (Naomi *et al*., 2017, p.15), called "basal tube", which is composed of the "basal room" and "tube body" However, it is here newly called "copulatory tube", following Naomi (2018). Parts of the

copulatory tube are also newly called as follows: The copulatory tube comprises the "basal chamber" and "main tube"; and the main tube is divided into the "basal tube" and "apical tube" in cases where the basal part (e.g., very thick, rod-like) is distinctly different in structure from the apical part (e.g., thin, attenuate).

Bursa copulatrix and basal pouch of spermatheca. In cases where both the bursa copulatrix and the basal pouch of spermatheca can be clearly observed in the female of a *Stenus*-species treated (e.g., Fig. 85D), we are to describe the bursa copulatrix just after the description of spermathecal structures. However, it is not easy in many cases for us to clearly observe the bursa copulatrix in the female genital chamber, due to the dorsoventral overlap of it with the basal pouch of spermatheca. This is so especially in cases where they are not sclerotized and more or less membranous. Thus, if we cannot precisely identify "what we might be able to identify at first sight as the basal structure of spermatheca", as "bursa copulatrix" or "basal pouch of spermatheca", we are to simply describe it as "basal structure" after the description of the spermathecal structures.

Taxonomy and Descriptions

Subfamily Steninae MacLeay, 1825
Genus *Stenus* Latreille, 1797

Species-group of *S. asyura* Naomi

The *asyura*-group is an East Asian species-group of *Stenus*, which comprises 62 species. The species of this group are presently distributed only in Japan, Korea and China. This species-group is not characterized by the robust autapomorphies, but it is still considered a natural group, as discussed below in detail, based on the important apomorphic characters of aedeagal median lobe (tricuspidation or bifurcation of the apex of aedeagal median lobe), together with the combination of the characters including the unique habitus, coloration, some postabdominal structures of male and female, etc.

The *tenuimargo*-group, *asyura*-group (*kasumi*-subg., Figs. 102, 103A–F) and *indubius*-group (Figs. 106, 107, 108A–E) are at base similar to one another not only in their habitus and coloration, but in several other characters (e.g., 9th ventrite of male; 9th gonocoxites of female), suggesting that they seem to be closely allied phylogenetically. The *asyura*-group is, however, at base distinctly separable from its allied species-groups by the unique tricuspidate or bifurcate apex of aedeagal median lobe. The basal (primitive) species of *asyura*-group (whose median lobe is not tricuspidate nor bifurcate at apex) are also separable from the species of the allied species-groups, by their possession of the habitus, coloration and postabdominal structures which are unique to the *asyura*-subgroup. In addition, the *asyura*-group is separable from the *tenuimargo*-group by the smaller body size and the shorter antennae and legs; and furthermore, the *kasumi*-subg. and *asyura*-subg. are also separable from the latter by the *Hypostenus*-typed abdomen. The *asyura*-group is also separable from the *indubius*-group by the basic form of spermatheca (Figs. 1E. 23C, 46D).

Subgrouping of the *asyura*-group: The subgrouping of the *asyura*-group is here taken up, together with the brief description on the research history of this species-group.

The *asyura*-group was first established by Naomi (1988a), which comprised the following 5 species: *S. asyura*, *S. basara*, *S. santira*, *S. bicara* and *S. kazami*; (note here that *S. kazami* pres-

ently belongs to the other species-group; unpublished data). Naomi (2012) vaguely referred to the members of *asyua*-group, but he characterized the *asyua*-group as follows: "secondary sexual characters of abdominal 6th and 7th sternites of male not developed in general; median lobe of aedeagus broad in general, with its apicolateral corner distinctly angulate".

In the list of the Japanese Steninae (Naomi & Puthz, 2013), the *asyura*-group was divided into the following 4 subgroups: *dubitativus*-subg., *kasumi*-subg., *oni*-subg. (as *hannia*-subg. there) and *asyura*-subg. Out of them, the latter 3 subgroups are here treated as the subgroups of *asyura*-group, although the *kasumi*-subg. and *asyura*-subg. are here differently recognized in their members from those treated in Naomi & Puthz (2013). On the other hand, the *dubitativus*-subg. is recognized as a polyphyletic group, so that the members previously classified there each should be adequately reclassified to the corresponding species-group, to which each belongs. Out of the 14 species of the *dubitativus*-subg., only 4 species (*S. dubitativus*; *S. incommodus*; *S. hayashii*; *S. nyorai*) are recognized as members of *asyura*-group in the Part 2. *S. dubitativus* itself is tentatively treated as *incertae cedis* in the *asyura*-group. In this paper, the *asyura*-group is thus constituted by the following 3 subgroups: *kasumi*-subg., *asyura*-subg. and *oni*-subg.

Diagnostic characters of the *asyura*-group: Body elongate, cylindrical, medium-sized (Fig. 102L) to moderately large (Fig. 103F), but often relatively small in *asyura*-subg. (Fig. 104L); coloration: reddish brown (Figs. 103L, 105J) through chocolate brown to dark chocolate brown (Fig. 102L), but often clear yellowish brown to reddish brown in *asyura*-subg. (Fig. 104L); pronotum with surface having an indistinct median longitudinal furrow (excepting *S. scissilis*); brachypterous; tarsi each with 4th tarsomere strongly bilobed; 4th to 6th abdominal segments usually without lateroventrites and tergoventrite sutures in the *kasumi*-subg. and *asyura*-subg. (exceptions: e.g., *S. clio*, *S. bishamon* having those segments with tergoventrite sutures), or always with tergoventrite sutures in the *oni*-subg.

Male: Ninth ventrite with paired macrosetae and pointed apicolateral teeth (Figs. 1B, 21D); aedeagal median lobe moderately broad to broad even at apicolateral corners (i.e., not or only weakly narrowed apically in apical 1/2) and distinctly angulate at apicolateral corners (Figs. 2A, 23A), with the apex usually tricuspidate (*kasumi*-subg. Fig. 3A; and *asyura*-subg. Fig. 27B) or bifurcate (*oni*-subg. Fig. 45C), but showing other diverse forms (e.g., unicuspidate in *S. unicuspidatus* Fig. 11G; bicuspidate in *S. scissilis* Fig. 10C; simply pointed in *S. nyorai* and some other species Fig. 8C; etc.); endophallus usually with expulsion hooks and copulatory tube well-developed (Figs. 1F, 21E).

Female: Gonocoxites each with a pointed apicolateral tooth (Figs. 1G, 21F); spermatheca having the basic form (Naomi *et al*., 2017: fig. 7A), usually with capsule very small to small, RT-duct more or less thicker than spermathecal duct, the spermathecal duct usually moderately long (Fig. 1E) to very long (Fig. 8D) but sometimes short with 2 turns (Fig. 2F).

Naturalness of the *asyura*-group: In many species of the *kasumi*-subg. (14 out of 21 species) and *asyura*-subg. (17 out of 30 species), the apex of aedeagal median lobe is tricuspidate (Figs. 3A, 7D, 12D, 27B, 39B); and the tricuspidation has only rarely occurred at the apex of median lobe in the other East Asian and Oriental species-groups of *Stenus*: *indubius*-group (e.g., *S. inimitabilis*, *S. sawadai*). No tricuspidation has hitherto been observed in the species of the *tenuimargo*-group. Such a biased distributional pattern of the tricuspidate condition in the East Asian and Oriental species-groups of *Stenus* shows that the tricuspidation can be no doubt assessed as an important apomorphic condition for the *asyura*-group.

The *oni*-subg. is basically equal in almost all external structures and coloration Fig. 105E–K to some members of the *kasumi*-subg. and *asyura*-subg.; and thus it should be included in the

asyura-group. However, the *oni*-subg. has, interestingly, the aedeagus with the bifurcated apex (Fig. 46E; instead of the tricuspidate apex). The tricuspidate apex of median lobe is supposed to have secondarily lost at the same time when the bifurcated apex has instead evolved.

As a result, the *asyura*-group will be perhaps considered a natural species-group of *Stenus*, based on the unique combination of the unique habitus, coloration, and some important postabdominal structures of male and female (described above), in addition to the afore-mentioned morphological facts: Namely, many species of *kasumi*-subg. and *asyura*-subg. possess the aedeagal apomorphic characters (i.e., median lobe moderately broad to broad even at the apicolateral corners, with the tricuspidate apex), while all species of *oni*-subg. possess the aedeagal apomorphic character (i.e., the median lobe characteristically bifurcate at apex).

A list of the species of *S. asyura*-group

kasumi-subgroup

nomuraianus Puthz, 2012 Distribution: Korea (Chungcheongbuk; Geongsangnam)
hayashii Puthz, 2003 Distribution: Japan (Honshu)
incommodus Puthz, 1993a Distribution: Japan (Honshu)
davidhulli Naomi, 2015 Distribution: Japan (Honshu)
inbecillus Naomi, 2015 Distribution: Japan (Honshu)
bishamon Naomi, 1998a Distribution: Japan (Shikoku)
carura Naomi, 1989 Distribution: Japan (Shikoku)
trispinosus Naomi & Nomura, 2015 Distribution: Japan (Honshu)
nyorai Naomi, 1990 Distribution: Japan (Honshu)
=*geisha* Puthz, 2001a
kisomontanus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu)
scissilis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu)
unicuspidatus Naomi & Nomura, 2015 Distribution: Japan (Honshu)
kasumi Naomi, 1987 Distribution: Japan (Honshu)
yatsugatakensis Naomi, 2015 Distribution: Japan (Honshu)
sawadaiellus Naomi & Puthz, 1994 Distribution: Japan (Honshu)
uncinatus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu)
inaequatus Puthz, 1993a Distribution: Japan (Honshu)
houou Naomi, 2010 Distribution: Japan (Honshu)
yasuhikoiellus Naomi, 2010 Distribution: Japan (Honshu)
kumoma Naomi, 1987 Distribution: Japan (Honshu)
izanagi Naomi & Puthz, 1994 Distribution: Japan (Honshu)

asyura-subgroup

dongbaishanus Tang, Liu & Zhao, 2017 Distribution: China (Zhejiang)
gajisanensis Oh & Cho, 2017 Distribution: Korea (Gyeongnam, Chungbuk)
suryongensis Oh & Cho, 2017 Distribution: Korea (Chungbuk, Gyeongbuk)
foliaceus Oh & Cho, 2017 Distribution: Korea (Chungnam, Chungbuk)
fusciformis Oh & Cho, 2017 Distribution: Korea (Jeonnam)
brendelli Naomi, 1997 Distribution: Japan (Kyushu)
ruricoralis Naomi, 1998 Distribution: Japan (Kyushu)
clio Naomi Distribution: Japan (Honshu)

komonoensis Naomi, 2015 Distribution: Japan (Honshu)
anfractus Naomi, 2015 Distribution: Japan (Honshu)
hijiri Naomi, 1989 Distribution: Japan (Honshu)
maruyamai Naomi, 2004a Distribution: Japan (Honshu)
oisami Naomi & Puthz, 1994 Distribution: Japan (Honshu)
biwa Hromádka, 1980 Distribution: Japan (Honshu)
bicara Naomi, 1988a Distribution: Japan (Honshu)
araiorum Naomi, 2015 Distribution: Japan (Honshu)
jurojin Naomi, 2004a Distribution: Japan (Honshu)
tsukubamontis Naomi, Nomura & Kamezawa, 2015 Distribution: Japan (Honshu)
santira Naomi, 1988a Distribution: Japan (Honshu)
=*tengu* Hromádka
ellipsoides Naomi, 2015 Distribution: Japan (Honshu)
protuberans Naomi & Watanabe, 2015 Distribution: Japan (Honshu)
fulvivestis Naomi & Watanabe, 2015 Distribution: Japan (Honshu)
basara Naomi, 1988a Distribution: Japan (Honshu)
asyura Naomi, 1988a Distribution: Japan (Honshu)
hakonensis Naomi, 2004b Distribution: Japan (Honshu)
nogohakusanus Naomi, Nomura & Kamezawa, 2015 Distribution: Japan (Honshu)
yukawai Naomi, 2004c Distribution: Japan (Honshu)
alesi Naomi, 2015 Distribution: Japan (Honshu)
daikoku Naomi, 2004b Distribution: Japan (Honshu)

***oni*-subgroup (=*hannia*-subgroup)**
praeclarus Naomi, 2005 Distribution: Japan (Shikoku)
hannia Naomi, 1990a Distribution: Japan (Honshu)
naturalis Naomi & Watanabe, 2015 Distribution: Japan (Honshu)
zdenae Hromádka, 1990 Distribution: Japan (Honshu)
bunraku Hromádka, 1990 Distribution: Japan (Honshu)
haginoi Naomi, 1997a Distribution: Japan (Honshu)
oni Naomi, 1988a Distribution: Japan (Honshu)
triprotrudens Naomi & Watanabe, 2015 Distribution: Japan (Honshu)
protrudens Naomi & Watanabe, 2015 Distribution: Japan (Honshu)

incertae sedis
sulcifer Oh & Cho, 2016 Distribution: Korea (Ganwon)
dubitativus Puthz, 1993 Distribution: Japan (Kyushu: Amami Is.)

Japanese fauna of the *asyura*-group

The *asyura*-group consists of 54 species in Japan. The Japanese species are classified into the 3 subgroups (*kasumi*-subg.:20 species; *asyura*-subg.: 24 species; and *oni*-subg. 9 species) and *insertae cedis* (1 species). All of these species are indigenous to the Japanese Archipelago.

The *kasumi*-subgroup

The *kasumi*-subg. was only recently first recognized as a subgroup (14 species) of the *asyura*-group in the list of Japanese Steninae (Naomi & Puthz, 2013), but the diagnostic characters were not described there. At present, this subgroup comprises 20 species in Japan; and it is here first characterized as below. Although the good apomorphic characters are not found for the whole subgroup, the 9 derived species (*S. kasumi*, *S. yatsugatakensis*, *S. sawadaiellus*, *S. uncinatus*, *S. inaequatus*, *S. houou*, *S. yasuhikoiellus*, *S. kumoma*, *S. izanagi*) are certainly well-characterized by the highly apomorphic conditions of endophallic copulatory tube as mentioned below. The 9 basal members are considered to belong to the *kasumi*-subg., because the habitus, coloration and also the several important aedeagal characters (e.g., shape of median lobe, endophallic expulsion hooks, copulatory tube) are more or less similar in their conditions to those of the derived members.

Diagnostic characters of the *kasumi*-subgroup: Habitus (Figs., 102L, 108I) similar to the species of *indubius*-subg.; antennae usually moderately long; abdomen without lateroventrites nor tergoventrite sutures in 4th to 6th segments (*Hypostenus*-type). Male: Endophallic expulsion hooks well-developed, large, each hook usually broad, with anterior plate rounded (Fig. 2D) or pointed (Fig. 9G); copulatory tube with main tube simply attenuate (Fig. 7E) or its basal and apical tubes more or less demarcated by a constriction (Fig. 3E) in the basal members, while the advanced members are well-diagnosed as follows: Copulatory tube with the whole main tube (Fig. 17B) or the apical part of main tube (Fig. 14A) rhombic or sub-rhombic in shape, usually reinforced by paired lateral processes and paired apical processes, in addition to the membrane found between the lateral and apical processes. (Note here that the paired lateral processes of copulatory tube are possessed also by a basal member *S. carura*; Fig. 6E). Female: Gonocoxite with apicolateral tooth acutely pointed, apicolateral setae very long (Fig. 8F); spermatheca variously formed from the duct short with 2 distinct turns (Fig. 2F), through moderately long and coiled (Fig. 1E) or very long and strongly coiled (Fig. 7C).

Key to the Japanese species of the *kasumi*-subgroup

1(12) Male: Aedeagal median lobe more or less simply pointed or bicuspidate at apex.

2(3) Male: Aedeagal median lobe bicuspidate at apex (Fig. 10C) .... *S. scissilis* Naomi, Nomura & Puthz sp. nov.

3(2) Male: Aedeagal median lobe more or less simply pointed.

4(9) Male: Aedeagal median lobe narrowed apically from the middle to the apicolateral corners, with its apicolateral corner rounded or obtusely angulate.

5(8) Male: Endophallic expulsion hooks connected at posteromesial corners, each with posterior plate shorter, broader. Female: Spermathecal duct shorter, thicker.

6(7) Male: Endophallic copulatory tube with main tube swollen at apex (Fig. 1F). Female: Spermatheca with capsule larger, duct longer with 6 turns (Fig. 1E)..... *S. hayashii* Puthz

7(6) Male: Endophallic copulatory tube with main tube simply thin at apex (Fig. 2E). Female: Spermatheca with capsule smaller, duct shorter with 2 turns (Fig. 2F)..... ..... *S. incommodus* Puthz

8(5) Male: Endophallic expulsion hooks connected at anteromesial corners, each with posterior plate longer, narrower (Fig. 8G). Female: Spermathecal duct longer, thinner (Fig. 8D) .... *S. nyorai* Naomi

9(4) Male: Aedeagal median lobe almost parallel-sided from the middle to the apicolateral corners, with its apicolateral corner more or less angulate.

10(11) Male: Aedeagal median lobe narrower, bluntly pointed at apex (Fig. 9D); endophallic copulatory tube attenuate but strongly curved at apex (Fig. 9F) ....*S. kisomontanus* Naomi, Nomura & Puthz sp. nov.

11(10) Male: Aedeagal median lobe broader, distinctly unicuspidate at apex (Fig. 11G); endophallic copulatory tube attenuate and only very weakly curved at its full length (Fig. 11G)..... .....*S. unicuspidatus* Naomi & Nomura

12(1) Male: Aedeagal median lobe tri-angulate or tricuspidate at apex.

13(22) Male: Endophallic copulatory tube with main tube not rhombic nor subrhombic.

14(21) Male: Legs with femora thinner; endophallic copulatory tube with main tube more or less baculiform, narrowed apically.

15(18) Male: Aedeagus median lobe with 3 apical cusps located apically and the incision between median cusp and lateral cusp broader.

16(17) Male: Aedeagal median lobe with median cusp smaller (Fig. 3A); endophallic expulsion hooks developed (Fig. 3A). Female: Spermathecal duct shorter and thicker (Fig. 3C) ....*S. davidhulli* Naomi

17(16) Male: Aedeagal median lobe with median cusp larger (Fig. 6E); endophallic expulsion hooks atrophied (Fig. 6E). Female: Spermathecal duct longer and thinner (Fig. 6A)..... .....*S. inbecillus* Naomi

18(15) Male: Aedeagus median lobe with 3 apical cusps located apicomedially and the incision between apical cusp and lateral cusp narrower.

19(20) Male: Aedeagal median lobe with apical sclerotized area longer and median cusp larger than lateral cusps (Fig. 7B); paramere longer (Fig. 7B). Female: Spermathecal duct much shorter and thicker (Fig. 7E) .....*S. bishamon* Naomi

20(19) Male: Aedeagal median lobe with apical sclerotized area shorter and median cusp equal in size and shape to lateral cusps (Fig. 9D); paramere shorter (Fig. 7D). Female: Spermathecal duct much longer and thinner (Fig. 9C) ..... *S. trispinosus* Naomi & Nomura

21(14) Male: Legs with femora thicker; endophallic copulatory tube with main tube nearly Y-shaped (Fig. 8E) ..... *S. carura* Naomi

22(13) Male: Endophallic copulatory tube with the whole main tube or the apical part of main tube almost rhombic or subrhombic.

23(36) Male: Aedeagal paramere with apical area mesially not having flaps; endophallic copulatory tube with apical area narrower.

24(27) Male: Endophallic copulatory tube without lateral processes.

25(26) Male: Aedeagal median lobe with median cusp longer (Fig. 12D); endophallic copulatory tube with apical processes not or hardly divided right and left, opened ventrally (Fig. 12E).....*S. kasumi* Naomi

26(25) Male: Aedeagal median lobe with median cusp shorter (Fig. 18C); endophallic copulatory tube with apical processes deeply bifurcate apically, closed ventrally (Fig. 18E)..... ..... *S. yasuhikoiellus* Naomi

27(24) Male: Endophallic copulatory tube with lateral processes.

28(29) Male: Aedeagal median lobe rounded at apicolateral corners (Fig. 15A) ....*S. uncinatus* Naomi, Nomura & Puthz sp. nov.

29(28) Male: Aedeagal median lobe more or less angulate at apicolateral corners.

30(31) Male: Endophallic expulsion hook with anterior plate acutely pointed at apex (Fig. 17F)..

..... *S. houou* Naomi

31(30) Male: Endophallic expulsion hook with anterior plate obtusely angulate at apex.

32(33) Male: Aedeagus median lobe with apical sclerotized area longer (Fig. 16A); endophallic expulsion hook with posterior plate broader, more weakly, arcuately emarginate at lateral side (Fig. 16F)..... *S. inaequatus* Puthz

33(32) Male: Aedeagus median lobe with apical sclerotized area shorter; endophallic expulsion hook with posterior plate narrower, more strongly, arcuately emarginate at lateral side.

34(35) Male: Aedeagal median lobe with median cusp longer (Fig. 13C); endophallic copulatory tube with apical subrhombic area larger (Fig. 13E).....*S. yatsugatakensis* Naomi

35(34) Male: Aedeagal median lobe with median cusp shorter (Fig. 14C); endophallic copulatory tube with apical subrhombic area smaller (Fig. 14A)..... *S. sawadaiellus* Naomi & Puthz

36(23) Male: Aedeagal paramere with apical area mesially having dorsal and ventral flaps; endophallic copulatory tube with apical area broader.

37(38) Male: Endophallic expulsion hook with its posterior plate subtriangular (Fig. 19C); copulatory tube with its basal chamber ovoidal (Fig. 19E). Female: spermatheca with its duct longer and thinner (Fig. 19B).....*S. kumoma* Naomi

38(37) Male: Endophallic expulsion hook with its posterior plate almost C-shaped (Fig. 18C); copulatory tube with its basal chamber almost missing (Fig. 20D). Female: spermatheca with its duct shorter and thicker (Fig. 20A)..... *S. izanagi* Naomi & Puthz

Stenus hayashii Puthz
(Figs. 1A–G, 102A)

Stenus hayashii Puthz, 2003: 17; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (SMNS), Dorogawa, Nara Pref., 15. vii. 2000, Y. Hayashi leg.

Other material examined. [HONSHU]: 3 ♂1 ♀, Oomine, Nara Pref. (Yamato), 1. vi. 1985, T. Ito leg.; 1 ♀, Mt. Wasamata, Nara Pref. (Yamato), 14–15. vi. 1997, T. Ito leg.

Distribution. Japan: Honshu (Nara Pref.).

Redescription. Male and female: Body 4.5–4.6 mm (fore body 2.0–2.1 mm) in length, moderately shining, with antennae relatively short, very thin, legs relatively short. Head black; pronotum and elytra reddish chocolate brown; abdomen dark chocolate brown; labrum reddish brown; antennae reddish brown to dark reddish brown; legs reddish brown. Head weakly concave, with a pair of distinct, longitudinal furrows; punctures round, sparse to moderately dense, very small to small, somewhat irregular. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures very dense, moderately large, coarse, somewhat subrugose. Elytra with surface uneven, almost flat near suture; punctures very dense, coarse, subrugose. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense, small but a bit various in size, shallow in anterior segments, while posterior segments hardly or only indistinctly punctate. Lateroventrites missing; tergoventrite sutures almost missing or very thin.

Male: Sixth ventrite (Fig. 1C) posteromedially with a semicircular flat area; 7th ventrite (Fig. 1C) posteromedially with an elongate bell-shaped, shallow depression, which is very shallowly emarginate; 8th ventrite (Fig. 1C) posteriorly with a small emargination; 9th tergum (Fig. 1A) with antecostal apophyses long; 9th ventrite (Fig. 1B) minutely serrate posteriorly, with macrosetae short, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 1A) very

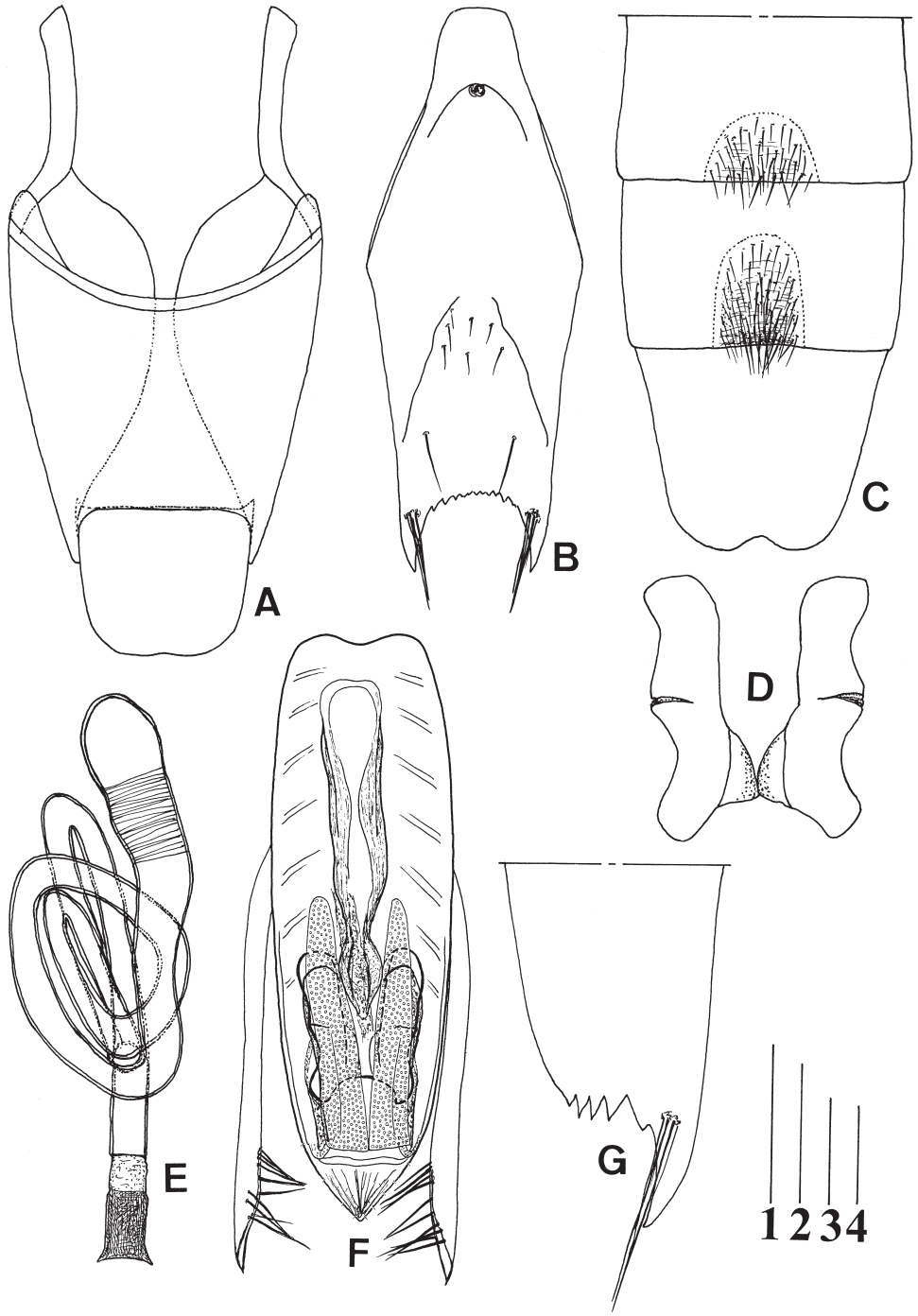

Fig. 1. *Stenus hayashii* Puthz (A–E, G, Oomine, Nara; F, Dorogawa, Nara). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 6th to 8th ventrites of male; D, expulsion hooks; E, spermatheca; F, aedeagus; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, 0.1 mm for D, G; Scale 2: 0.3 mm for C; Scale 3: 0.05 mm for E; Scale 4: 0.1 mm for F.

shallowly emarginate. Aedeagal median lobe (Fig. 1F) elongate, uniformly rounded apicolaterally, with pointed apex; apical sclerotized area (Fig. 1F) triangular, relatively narrow. Endophallic median bands (Fig. 1F) broad, each with basal band longer than folded band; lateral bands (Fig. 1F) very thin; expulsion hooks (Fig. 1D) connected at the posteromesial corners, each hook large, thick, with anterior plate partially separated by a transverse cleft from posterior plate, the posterior plate turning posterolaterally; copulatory tube (Fig. 1F) long, stout, main tube thick, strongly constricted near the apical 1/3, with apical area fusiform. Parameres (Fig. 1F) each long, almost straight, very acutely pointed at apex; apical area long, hardly swollen mesially, furnished basally with a tuft of 4 to 5 setae, mesially with 5 to 6 moderately long setae.

Female: Eighth ventrite simply pointed posteromedially; gonocoxites (Fig. 1G) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 1E) with capsule subovoidal, moderately large; RT-duct short, moderately thick; duct long, relatively loosely coiled, with 6 turns; basal valve very short, basal sclerotized duct longer than basal valve.

Biology and ecology. *S. hayashii* is distributed in the mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. *S. hayashii* is allied to *S. incommodus*, but it is separable from the latter species by the endophallic copulatory tube with its main tube fusiform at the apical part (Fig. 1F), and the spermatheca with its capsule larger and its duct longer, with 6 turns (Fig. 1E).

Etymology. This species is named in honor of Mr. Yasuhiko Hayashi (Kawanishi, Hyogo), who studies the Staphylinidae and related groups.

Stenus incommodus Puthz
(Figs. 2A–G, 102B)

Stenus incommodus Puthz, 1993a: 146; Herman, 2001: 2229; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (MHNG), Seryo Pass, Kyoto, 6. viii. 1980, I. Löbl leg.

Other material examined. [HONSHU]: 1 ♂, Kamijyohou-ji, Eiheiji-cho, Fukui Pref., 9. v. 2010, M. Saito leg.; 1 ♀, Mt. Kunimi, Fukui Pref., 13. vi. 1982, T. Ito leg.; 2 ♂2 ♀, Hanase, Kyoto-fu, 4. vii. 1987, T. Ito leg.; 1 ♂, Kibune, Kyoto-fu, 1. vi. 1958, Y. Hayashi leg.; 1 ♂, Kurama, Kyoto-fu, 28. v. 1994, T. Ito leg.; 1 ♂1 ♀, Ashiu, Kyoto-fu, 12. vi. 1999, Y. Hayashi leg.; 1 ♂2 ♀, Syuzan, Kyoto-fu, 3. xi. 1979, T. Ito leg.; 1 ♂, Yawata C., Kyoto-fu, 7. xii. 1986, T. Ito leg.; 2 ♂, Sasayama, Sanda, Hyogo Pref., 26. iv. 1998, T. Ito leg.

Distribution. Japan: Honshu (Chubu and Kinki districts).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae moderately long, very thin. Head black; pronotum and elytra reddish chocolate brown; abdomen dark chocolate brown; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to moderately dense, small, somewhat umbilicate. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, various in size, somewhat coarse, two or more punctures sometimes partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, various in size, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense to dense, small, distinct in anterior segments, while punctures in posterior segments indistinct (i.e., socket hardly concave

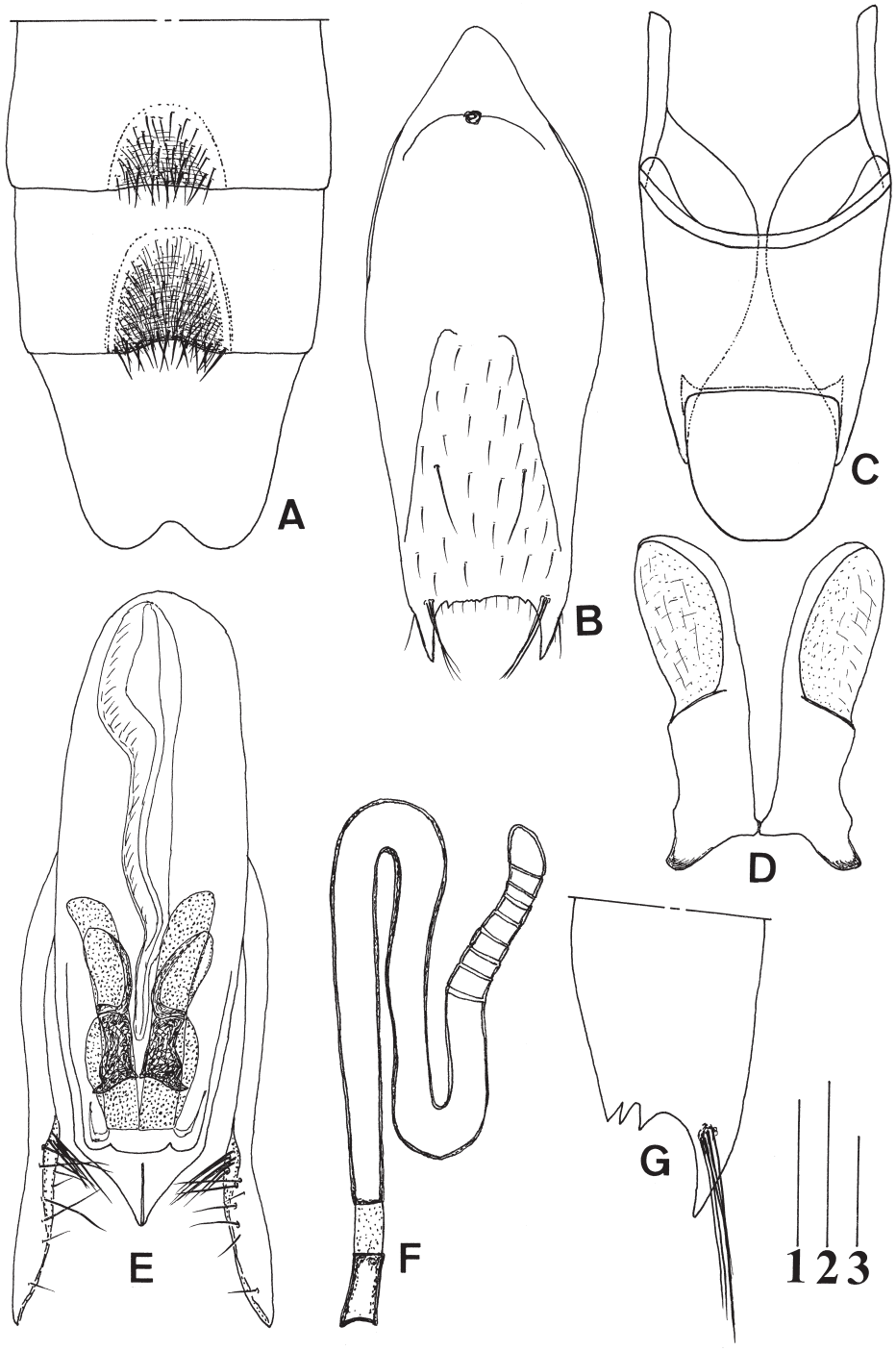

Fig. 2. *Stenus incommodus* Puthz (A, F, G, Hanase, Kyoto; B, E, Sasayama, Hyogo; C, D, Kurama, Kyoto). A, 6th to 8th ventrites of male; B, 9th ventrite of male; C, 9th and 10th terga of male; D, expulsion hooks; E, aedeagus; F, spermatheca; G, posterior part of gonocoxite. Scale 1: 0.3 mm for A; Scale 2: 0.2 mm for B, E, 0.1 mm for G; Scale 3: 0.2 mm for C, 0.1 mm for F.

at the base of each pubescence). Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 2A) posteromedially with a bell-shaped, shallow depression, which is very shallowly emarginate; 7th ventrite (Fig. 2A) posteromedially with a large, moderately deep depression, which is arcuately emarginate; 8th ventrite (Fig. 2A) posteriorly with a medium-sized emargination; 9th tergum (Fig. 2C) with antecostal apophyses long; 9th ventrite (Fig. 2B) minutely or hardly serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 2C) entire. Aedeagal median lobe (Fig. 2E) moderately broad, almost distinctly angulate apicolaterally, acutely pointed at apex; apical sclerotized area (Fig. 2E) triangular with median longitudinal suture, bidentate at anterior margin. Endophallic median bands (Fig. 2E) broad, each with basal band distinctly longer than folded band; lateral bands (Fig. 2E) very thin; expulsion hooks (Fig. 2D) connected at the posteromesial corners, each hook large, thick, with anterior plate almost wholly hollowed ventrally, rounded anteriorly, partially separated by a midlateral ridge from posterior plate, the posterior plate projecting posterolaterally; copulatory tube (Fig. 2E) very long, stout, with basal chamber large, almost ovoidal, main tube with basal tube thick, apical tube thin. Parameres (Fig. 2E) very long, each weakly curved laterally behind the base of apical area, pointed apically; apical area very long, weakly swollen mesially, furnished basally with a tuft of 5 to 6 setae, mesially with 7 to 8 setae of different length.

Female: Seventh ventrite medially with an elongate-elliptical, very shallow depression or flat area; 8th ventrite indistinctly angulate posteromedially; gonocoxites (Fig. 2G) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 2F) with capsule small; RT-duct short to moderately long, thin; duct short with two distinct turns; basal valve short; basal sclerotized duct a little longer than basal valve.

Biology and ecology. *S. incommodus* is distributed in the plains and low mountainous regions of Kinki district and its neighboring areas, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. *S. incommodus* is allied to *S. hayashii*, but it is separable from the latter species by the endophallic copulatory tube with its main tube simply thin at the apical part (Fig. 2E), and the spermatheca with its capsule smaller and its duct shorter with 2 turns (Fig. 2F).

Stenus davidhulli Naomi
(Figs. 3A–F, 102C)

Stenus davidhulli Naomi, 2015: 12.

Type material examined. Holotype: ♂ (CBM), Mt. Hisamatsu, Tottori Pref., 9. vi. 1984, S. Nomura leg. Paratypes: 2 ♂3 ♀, Akazai, Hyogo Pref., 23. ix. 1979, T. Ito leg.; 3 ♀, same locality, 15. ix. 1986, T. Ito leg.

Other material examined. [HONSHU]: 4 ♂1 ♀, Makura, Maizuru City, Kyoto Pref., 7. iv. 2004, T. Murao leg.

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

Redescription. Male and female: Body 4.2–4.3 mm (fore body 2.0–2.1 mm) in length, moderately or strongly shining, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to moderately dense, small, somewhat umbilicate, distinct. Pronotum

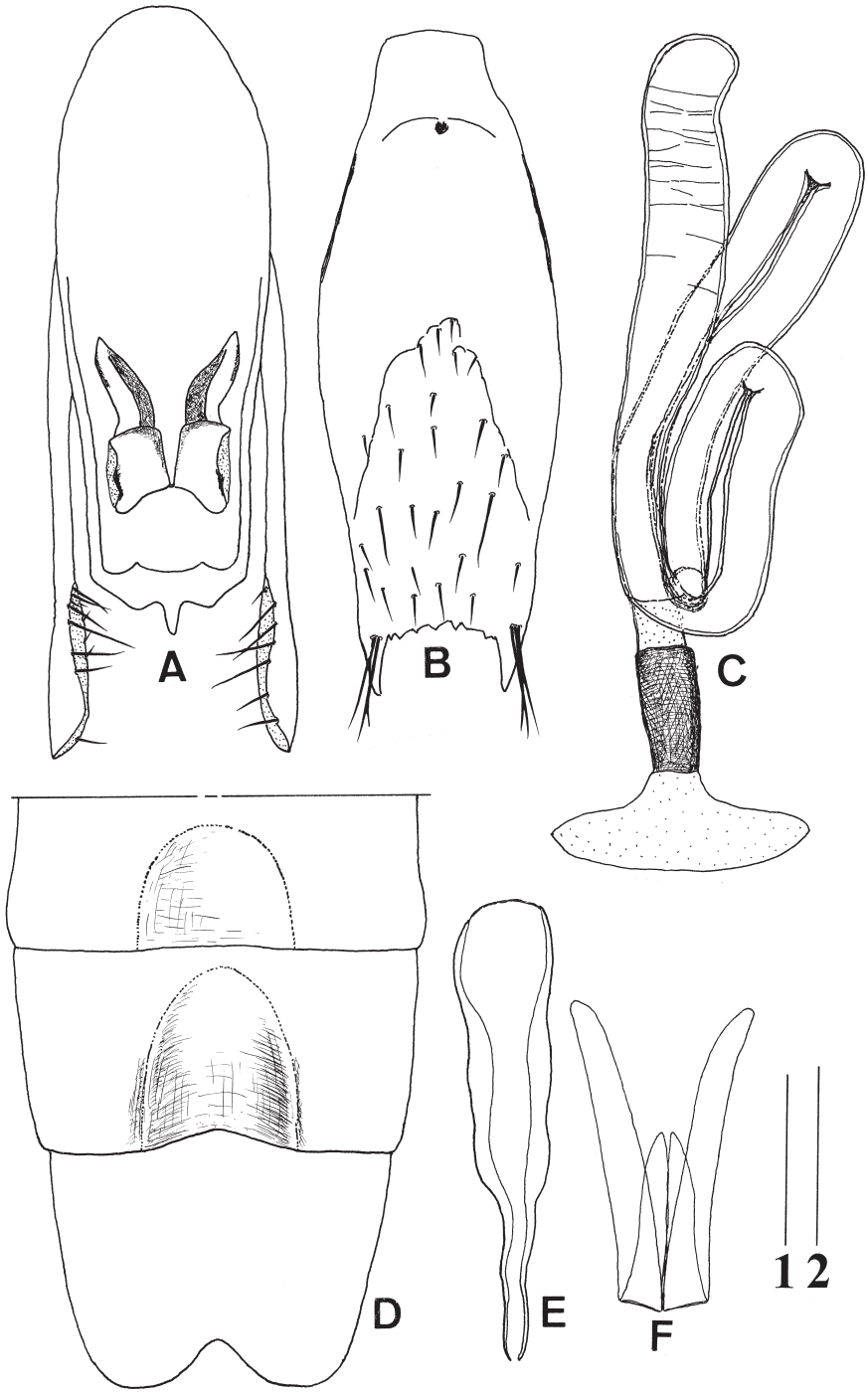

Fig. 3. *Stenus davidhulli* Naomi (A, E, F, Kyûshô, Tottori; B–D, Akazai, Hyogo). A, aedeagus; B, 9th ventrite of male; C, spermatheca; D, 6th to 8th ventrites of male; E, copulatory tube; F, median bands. Scale 1: 0.2 mm for A, B, E, F, 0.1 mm for C; Scale 2: 0.3 mm for D.

with surface slightly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, various in size but moderately large in average, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense, small, distinct in anterior segments, while punctures in posterior segments very fine, sparse. Lateroventrites and tergoventritel sutures missing.

Male: Sixth ventrite (Fig. 3D) posteromedially with a large, semicircular flat area, which is very shallowly emarginate; 7th ventrite (Fig. 3D) with a very large, moderately deep depression, and posteromedially with a large, broad-triangular emargination; 8th ventrite (Fig. 3D) posteromedially with a V-shaped emargination; 9th tergum with antecostal apophyses thick, short; 9th ventrite (Fig. 3B) irregularly serrate posteriorly, with macrosetae short, apicolateral teeth short, pointed, apicolateral setae moderately long; 10th tergum entire. Aedeagal median lobe (Fig. 3A) broad, angulate apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 3A) transverse, with median cusp moderately long, pointed, lateral cusps weakly developed, blunt. Endophallic median bands (Fig. 3F) relatively broad, with basal bands long, distinctly divergent anteriorly, folded band short, narrowed anteriorly; explusion hooks (Fig. 3A) connected at the posteromesial corners, each with anterior plate demarcated by a transverse suture from posterior plate, the posterior plate shortly projecting posterolaterally; copulatory tube (Fig. 3E) with basal chamber ovoidal, main tube with basal tube very thick, apical tube baculiform, thin, slightly sinuous. Parameres (Fig. 3A) each very long, straight, rounded apically; apical area long, moderately swollen mesially, furnished mesially with 6 to 7 setae of moderate length on the ventro-marginal area, and with a few short setae on the dorso-marginal area.

Female: Eighth ventrite bluntly pointed posteromedially; gonocoxites each with apicolateral tooth short, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 3C) robust, with capsule rounded apically; RT-duct very thick, only indistinctly demarcated from spermathecal duct; duct thick, almost tightly coiled with 4 distinct turns; basal valve short; basal sclerotized duct stout, long. Basal structure mushroom-shaped.

Biology and ecology. *S. davidhulli* is distributed in the plains and low mountainous regions. The beetles inhabit leaf litter in the natural forests.

Remarks. Given that *S. davidhulli* and *S. incommodus* have in common the 6th and 7th modifications of male ventrites, the very long parameres of aedeagus, and the particular structures of endophallus (expulsion hooks and copulatory tube), they are closely allied phylogenetically. However, *S. davidhulli* is separable from the latter species by the aedeagal median lobe tricuspidate at apex (Fig. 3A) and the spermatheca with its duct thicker and longer with 4 turns (Fig. 3C). *S. davidhulli* is also allied to *S. inbecillus*, but it is separable from the latter species by the aedeagal median lobe with its 3 apical cusps shorter (Fig. 3A), the endophallic expulsion hook larger (or not atrophied) (Fig. 3A), the copulatory tube with its main tube thicker (Fig. 3E), and the spermathecal duct shorter and thicker (Fig. 3C).

Etymology. This species is named in honor of the biophilosopher Dr. David L. Hull (Northwestern University, Evanston).

Stenus inbecillus Naomi
(Figs. 4A–F, 102D)

Stenus inbecillus Naomi, 2015: 14.
Stenus sawadaiellus Naomi & Puthz, 1994: 299 (*partim*).

Type material examined. Holotype of *S. inbecillus*: ♂ (CBM), Nomugi Pass, Nagawa Vil., Nagano Pref., 8. viii. 1996, T. Kishimoto leg. Paratypes of *S. inbecillus*: 2 ♂6 ♀ (cN), Kozodaira, Hinoemata Vil., Fukushima Pref., 26. vii. 1996, S. Naomi leg.; 1 ♂ (cN), Mt. Azuma, Fukushima Pref., 10. vii. 1985, S. Nomura leg.; 3 ♂1 ♀ (cN), Nakatsugawa, Mt. Azuma, Fukushima Pref., 19. viii. 1996, S. Naomi leg.; 1 ♂ (cN), Renge Spa, Itoigawa City, Niigata Pref., 8. vi. 1990, T. Kishimoto leg.; 2 ♂ (cN), Mikuni Pass, Niiharu Vil., Gunma Pref., 27. vi. 1997, S. Naomi leg.; 1 ♂ (cN), Mihira Pass, Ozegahara, Gunma Pref., 24. vii. 1995, H. Tamura leg.; 1 ♂, Near Marunuma, Gunma Pref., 7. ix. 1965, Y. Watanabe leg.; 1 ♂ (cN), Yumoto, Nikko, Tochigi Pref., 10. vii. 1994, S. Naomi leg.; 1 ♂, near Marunuma, Nikko, Tochigi Pref., 19. viii. 1991, Y. Shibata leg.; 5 ♀ (cN), same data as holotype; 2 ♂2 ♀, Mt. Ontake, Kiso, Nagano Pref., 25. vii. 1986, T. Ito leg.

Paratypes of *S. sawadaiellus*: 1 ♂1 ♀ (cN), Nigorigo Spa, Gifu Pref., 22. ix. 1972, R. Yosii leg.

Distribution. Japan: Honshu (Tohoku, Chubu and Kanto districts).

Redescription. Male and female: Body 3.6–4.5 mm (fore body 1.8–2.3 mm) in length, moderately shining, with antennae moderately long, thin. Head and abdomen reddish brown to dark brown; pronotum and elytra yellowish brown to reddish brown; labrum, antennae and legs clear yellow to yellowish brown or reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface slightly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface uneven, almost flat near suture; punctures round to elliptical, very dense, medium-sized to moderately large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, moderately dense, small in anterior segments, while punctures in posterior segments elliptical, sparse to moderately dense, very small. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 4F) posteromedially with a subtriangular flat area; 8th ventrite (Fig. 4F) posteromedially with a subtriangular emargination; 9th tergum with antecostal apophyses short, thin; 9th ventrite (Fig. 4B) regularly serrate posteriorly, with macrosetae short, apicolateral teeth very long, acutely pointed, apicolateral setae moderately long; 10th tergum rounded posteriorly. Aedeagal median lobe (Fig. 4E) moderately broad, constricted near the apical 1/3, moderately expanded laterally and angulate at apicolateral corners, tricuspidate at apex; apical sclerotized area (Fig. 4E) anteriorly with a pair of small teeth, medially with a longitudinal line, and with median cusp large, very long, pointed, lateral cusps each bluntly pointed. Endophallic median bands (Fig. 4E) moderately long, narrow; explusion hooks (Fig. 4E) connected mesially, atrophied into very small sclerites; copulatory tube (Fig. 4E) moderately long, with basal chamber long, comprising two rods, main tube short, thin, straight, attenuate. Parameres (Fig. 4E) each very long, slender, slightly incurved, pointed apically; apical area very long, weakly broadened apically toward the part a little before the tip, furnished with 9 to 10 setae of various length along the mesial margin.

Female: Eighth ventrite (Fig. 4C) bluntly pointed posteromedially; gonocoxites (Fig. 4D) each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 4A) with capsule long, rounded apically; RT-duct thick; spermathecal duct moderately thick, tightly coiled; basal valve short; basal sclerotized duct long.

Biology and ecology. *S. inbecillus* is a relatively common species, which is widely distributed in the mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forest.

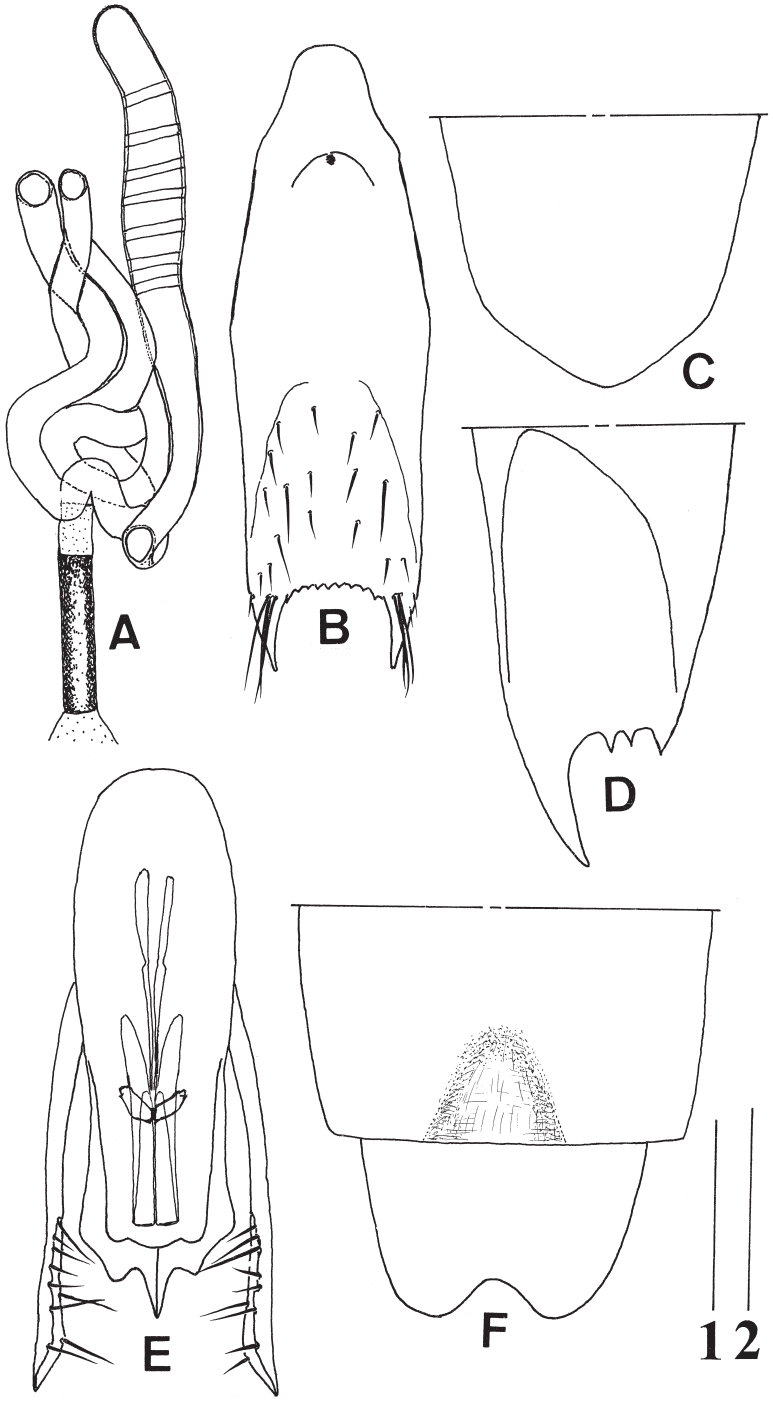

Fig. 4. *Stenus inbecillus* Naomi (A, Hinoemata, Fukushima; B–F, Nomugi, Nagano). A, spermatheca; B, 9th ventrite of male; C, posterior part of 8th ventrite of female; D, posterior part of gonocoxite; E, aedeagus; F, 7th and 8th ventrites of male. Scale 1: 0.2 mm for B, E, 0.1 mm for A, D; Scale 2: 0.4 mm for C, F.

Remarks. *S. inbecillus* is allied to *S. davidhulli*, but it is separable from the latter species by the aedeagal median lobe with its 3 apical cusps longer (Fig. 4E), the endophallic expulsion hook smaller (or atrophied) (Fig. 4E), the copulatory tube with its main tube thinner (Fig. 4E), and the spermathecal duct shorter and thicker (Fig. 4A).

Stenus bishamon Naomi
(Figs. 5A–F, 102E)

Stenus bishamon Naomi, 1998a: 390; Herman, 2001: 2092; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Ichinotani Val., Tsuzuro, Ichiu, Tokushima Pref., 5. iv. 1968, M. Yoshida leg. Paratype: 1 ♀, same data as holotype.

Other material examined. [SHIKOKU]: 1 ♂1 ♀, Mt. Tonomaru (1310 m), Kuwadaira, Ichiu, Tokushima Pref., 23. v. 2010, M. Yoshida leg.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 3.5–4.2 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae moderately long, very thin. Head and abdomen dark brown to black; pronotum and elytra dark red; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, moderately dense, small. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, moderately large, a little coarse. Elytra with surface uneven, weakly depressed near suture; punctures round to almost round, very dense, various in size but moderately large in average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while in posterior segments, punctures very small and sparse, or existing simply as setal sockets. Lateroventrites missing; tergoventral sutures distinct, thin.

Male: Fourth and 5th ventrites (Fig. 5A) each posteromedially with a bell-shaped, flat area; 6th ventrite (Fig. 5A) posteromedially with a similar flat area, but a little narrower and longer; 7th ventrite (Fig. 5A) posteromedially with an elongate bell-shaped, shallow depression, which is weakly emarginate; 8th ventrite (Fig. 5A) posteriorly with a small, almost U-shaped emargination; 9th tergum (Fig. 5C) with antecostal apophyses very long; 9th ventrite (Fig. 5D) minutely serrate posteriorly, with macrosetae long, apicolateral teeth short, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 5C) rounded posteriorly. Aedeagal median lobe (Fig. 5B) broad, angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 5B) broad, subtriangular, with median cusp long, acutely pointed, lateral cusps small, acutely pointed. Endophallic median bands (Fig. 5B) long, very broad; lateral bands (Fig. 5B) long, thin; expulsion hooks (Fig. 5B) large, each with the anterior plate acutely pointed anteriorly, partially divided antero-posteriorly into two parts by a lateral membranous area, demarcated by a suture from posterior plate, the posterior plate much smaller than anterior plate; copulatory tube (Fig. 5B) very long, with basal chamber large, ovoidal, main tube thin, almost attenuate. Parameres (Fig. 5B) very long, sinuous in apical 1/3, acutely pointed apically; stem rather thin, mesially with several setae just before apical area; apical area distinctly swollen mesially, furnished mesially with 20 to 23 setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 5F) irregularly toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 5E) stout, with capsule rounded apically, short; RT-duct thick, short;

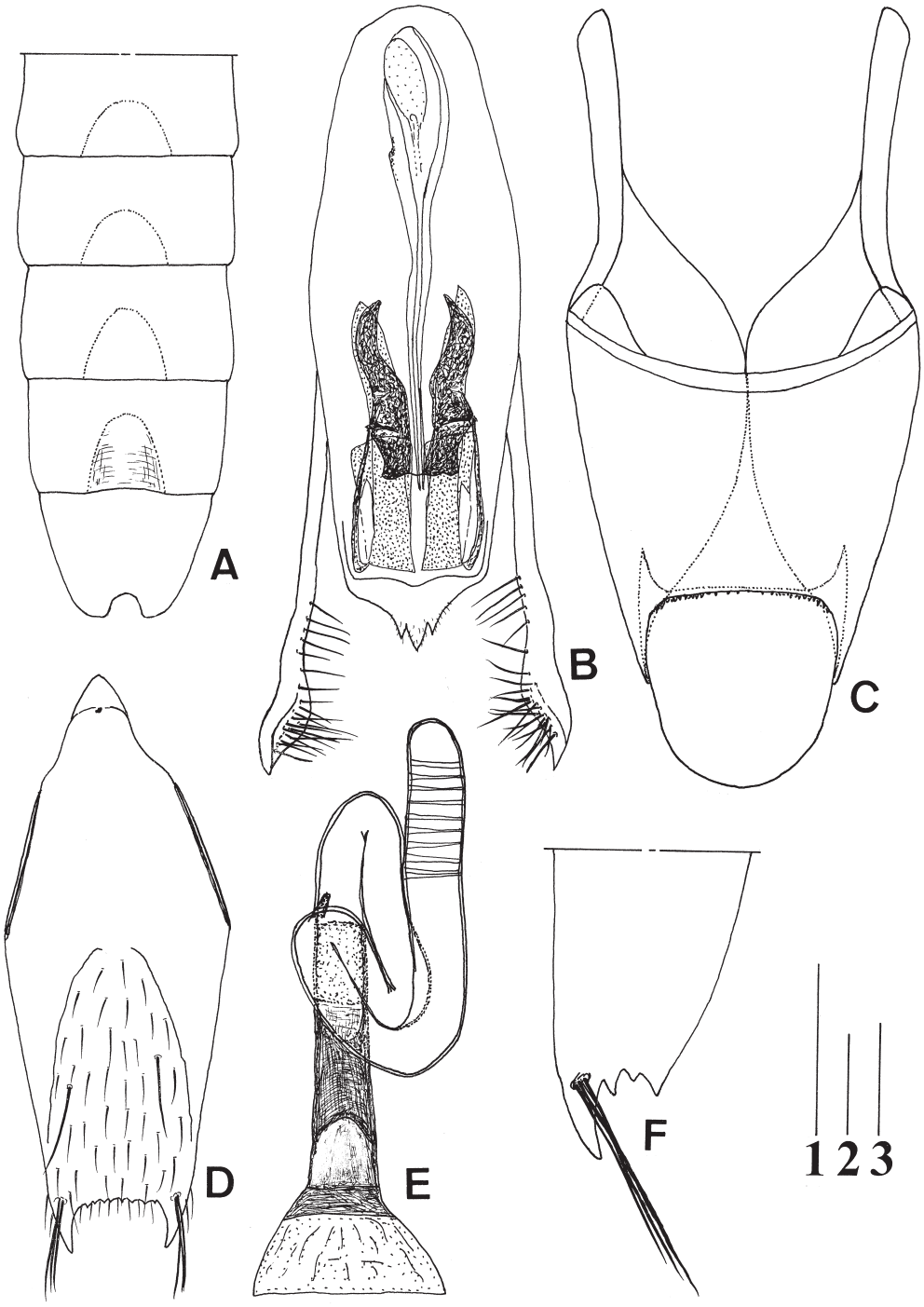

Fig. 5. *Stenus bishamon* Naomi (A–D, Ichinotani, Tokushima; E, F, Tonomaru, Tokushima). A, 4th to 8th ventrites of male; B, aedeagus; C, 9th and 10th terga of male; D, 9th ventrite of male; E, spermatheca; F, posterior part of gonocoxite. Scale 1: 0.2 mm for B–D, 0.1 mm for F; Scale 2: 0.3 mm for A; Scale 3: 0.1 mm for E.

duct moderately thick to thick, coiled with 4 turns; basal valve moderately long; basal sclerotized duct long, thick. Basal structure bowl-shaped, membranous but sclerotized only at the distal part.

Biology and ecology. *S. bishamon* is a rare species; and it is distributed in the high mountainous regions of eastern Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. bishamon* is allied to *S. davidhulli* and *S. inbecillus*, but it is separable from the latter 2 species by the aedeagal median lobe with its apical sclerotized area well-developed and subtriangular, and its 3 apical cusps located on the apicomedian part (Fig. 5B), the paramere characteristically bisinuous in apical 1/3 (Fig. 5B), the endophallic copulatory tube much longer (Fig. 5B), and the spermathecal with its basal sclerotized duct thicker (Fig. 5E).

Etymology. The specific epithet of this species is derived from the name of god "Bishamon", which appears in the Japanese ancient mythology.

Stenus carura Naomi
(Figs. 6A–F, 102F)

Stenus carura Naomi, 1989: 48; Herman, 2001: 2115; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (KUF), Mt. Ishizuchi, Ehime Pref., 16. vi. 1981, S. Naomi leg.

Other material examined. [SHIKOKU]: 1 ♂, Saijyo City, Ehime Pref., 9. vii. 2011. M. Saito leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Redescription. Male: Body 3.7–4.5 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head transverse, weakly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round, very dense, small to medium-sized, coarse. Elytra with surface uneven; punctures round, very dense, small to medium-sized, coarse. Legs with femora thick, tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, dense, small, distinct in anterior segments, while punctures in posterior segments very small, shallow. Lateroventrites and tergoventrite sutures missing.

Sixth ventrite (Fig. 6A) posteromedially with a shallow, semicircular depression, which is very weakly emarginate; 7th ventrite (Fig. 6A) posteromedially with a bell-shaped, moderately deep depression, which is weakly ridged laterally and moderately emarginate posteriorly; 8th ventrite (Fig. 6B) posteromedially with a semicircular emargination; 9th tergum with antecostal apophyses very long; 9th ventrite (Fig. 6F) elongate, hardly serrate posteriorly, with macrosetae very short, apicolateral teeth short, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 6D) entire. Aedeagal median lobe (Fig. 6E) elongate, distinctly angulate apicolaterally, almost tricuspidate at apex; apical sclerotized area (Fig. 6E) transverse, longitudinally striated, with median cusp short, pointed, lateral cusps each existing as simple angulation. Endophallic median bands (Fig. 6E) moderately long, broad; expulsion hooks (Fig. 6C) large, connate by the posteromesial parts, posteromedially with a round projection, each hook broad-bean-shaped, with anterior plate hollowed mesially, demarcated by an oblique ridge from posterior plate, the posterior plate posteriorly with a small, sclerorized tooth; copulatory tube (Fig. 6E) stout, broad, almost Y-shaped but weakly asymmetrical, with basal chamber small, basal constriction distinct,

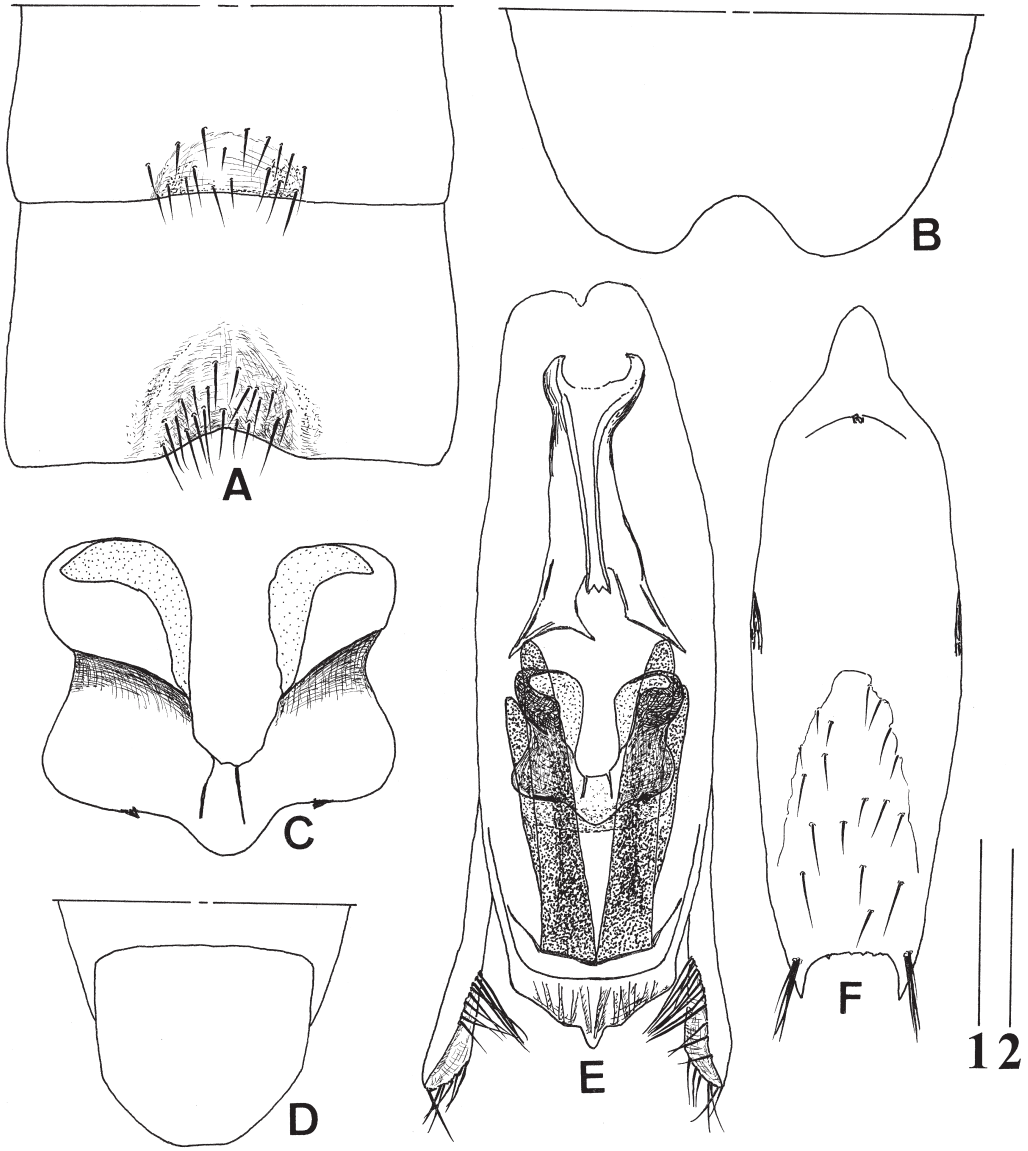

Fig. 6. *Stenus carura* Naomi (Ishizuchi, Ehime). A, 6th and 7th ventrites of male; B, posterior part of 8th ventrite of male; C, expulsion hooks; D, 9th and 10th terga of male; E, aedeagus; F, 9th ventrite of male. Scale 1: 0.3 mm for A; Scale 2: 0.2 mm for B, D–F, 0.1 mm for C.

main tube becoming broader apically, with a pair of apicolateral processes, the right process bifurcate, left process acutely pointed. Parameres (Fig. 6E) each almost rounded apically; apical area moderately long, weakly swollen mesially, furnished basally with a tuft of 8 to 9 long setae on the ventral margin, and mesially with 6 to 10 setae on the ventral and apical margins.

Female: Unknown.

Biology and ecology. *S. carura* is a rare species; and it is distributed in the mountainous regions of the western part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. carura* seems to be allied to *S. bishamon* and *S. davidhulli*, but it is easily sepa-

rable from the latter 2 species by the head more strongly transverse (Fig. 102F), the legs with the femora thicker in male (Fig. 102F), the aedeagal paramere shorter (Fig. 6E), and the copulatory tube with its main tube Y-shaped (Fig. 6E).

Etymology. The specific epithet of this species is derived from the name of a god "Carura" in an ancient Japanese mythology.

Stenus trispinosus Naomi & Nomura
(Figs. 7A–G, 102G)

Stenus trispinosus Naomi & Nomura, 2015: 188.

Type material examined. Holotype (NMNST): ♂, Mt. Misaka, Kawaguchi Lake, Yamanashi Pref., 24. x. 1999, S. Nomura leg. Paratype, ♀ (cN), same data as holotype.

Distribution. Japan: Honshu (Yamanashi Pref.).

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.7–1.8 mm) in length, moderately shining, with antennae relatively short, thin. Head and abdomen black; pronotum and elytra dark red; labrum reddish brown to dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of shallow longitudinal furrows; punctures round, moderately dense to dense, small, umbilicate. Pronotum with surface slightly uneven, with shallow median longitudinal furrow; punctures round to elliptical, very dense, moderately large, sometimes two or more punctures partially fused. Elytra with surface weakly uneven, shallowly concave along suture; punctures round to elliptical, very dense, various in size, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, dense to very dense, small to medium-sized in anterior segments, while punctures in posterior segments round to elliptical, sparse to dense or very dense, very small to small, regular. Lateroventrites and tergoventral sutures missing.

Male: Sixth ventrite posteromedially with a semicircular flat area; 7th ventrite posteromedially with a shallow, elliptical depression, which is very shallowly emarginate; 8th ventrite posteromedially with a medium-sized, arcuate emargination; 9th tergum (Fig. 7A) with antecostal apophyses relatively short, thin; 9th ventrite (Fig. 7B) very minutely serrate posteriorly, with apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum (Fig. 7A) entire. Aedeagal median lobe (Fig. 7D) moderately broad, obtusely angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 7D) transverse, weakly bisinuate at anterior margin, with three cusps of same size, each acutely pointed. Endophallic median bands (Fig. 7E) each broad, narrowed anteriorly; explusion hooks (Fig. 7F) posteromesially connected by membrane, each with anterior plate partially demarcated by a suture from posterior plate, the posterior plate posterolaterally protruding, rounded apically, covered with fine denticles; copulatory tube (Fig. 7E) simple, basal chamber with two shafts of different length, main tube simply attenuate. Parameres (Fig. 7D) each thin, very weakly incurved, acutely pointed at apex; apical area very short, weakly swollen mesially at base, furnished mesially with 5 to 6 short setae.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 7G) each with apicomesial tooth small, pointed, apicolateral tooth incurved, pointed. Spermatheca (Fig. 7C) with capsule very small; RT-duct long, relatively thick; duct very long, thin, almost tightly coiled; basal valve short; basal duct sclerotized, longer than basal valve. Bursa copulatrix (Fig. 7C) large, cone-shaped.

Biology and ecology. *S. trispinosus* is a rare species; and it is distributed in the mountainous

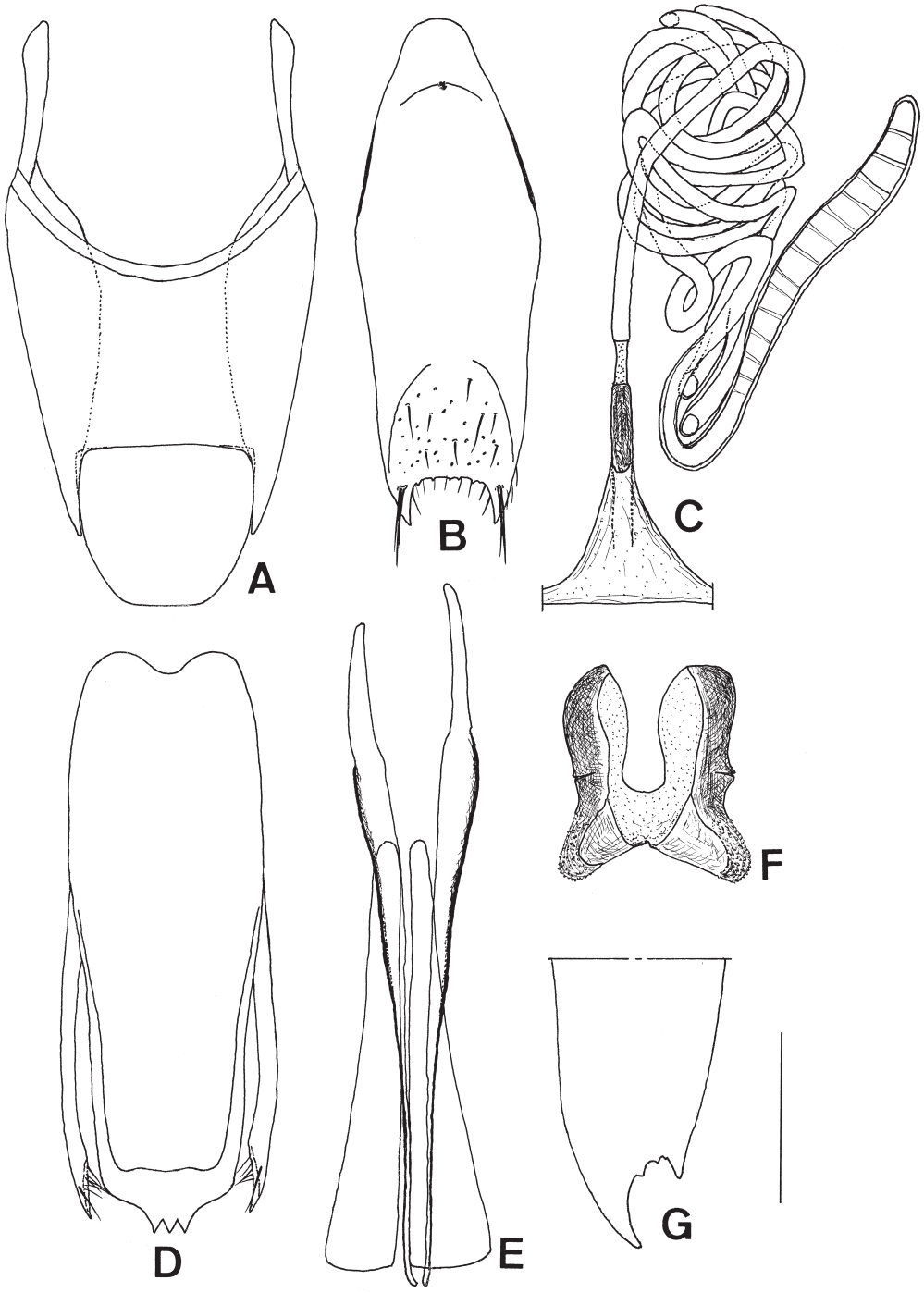

Fig. 7. *Stenus trispinosus* Naomi & Nomura (Misaka, Yamanashi). A, 9th and 10th terga of male; B, 9th ventrite of male; C, spermatheca; D, aedeagus; E, endophallus; F, expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A–B, D, 0.1 mm for C, E–G.

regions of Chubu district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. trispinosus* is allied to *S. nyorai*, but it is separable from the latter species by the aedeagal median lobe apicomedially tricuspidate by the 3 cusps of same size (Fig. 7D), and the endophallic expulsion hook smaller, with its posterior plate much shorter and rounded posterolaterally (Fig. 7F).

Stenus nyorai Naomi
(Figs. 8A–G, 102H)

Stenus nyorai Naomi, 1990: 8; Herman, 2001: 2307; Naomi & Puthz, 2013: 142.
Stenus geisha Puthz, 2001a: 45.

Type material examined. Holotype of *S. nyorai*: ♂ (KUF), Aokigahara, Mt. Fuji, Yamanashi Pref., 23. vii. 1984, S. Nomura leg. Paratypes: 1 ♀ (cN), same data as holotype.

Holotype of *S. geisha*: ♀ (cP), Subaru-line (2050 m), Mt. Fuji, Yamanashi Pref., 1. viii. 1999, V. Puthz leg.

Other material examined. [HONSHU]: 3 ♂3 ♀, Shirabiso Highland, Ue-mura, Nagano Pref., 16. xi. 1999, S. Nomura leg.; 1 ♂1 ♀, same locality, 28. vi. 1991, T. Ito leg.; 3 ♂, Abe Pass, Yamanashi Pref., 11. xi. 2007, Y. Hirano leg.; 2 ♂2 ♀, Mt. Yanbushi, Shizuoka City, Shizuoka Pref., 1. viii. 2001, T. Watanabe leg.; 2 ♂3 ♀, Fujinomiya, Mt. Fuji, Shizuoka Pref., 8. vi. 1996, S. Nomura leg.; 1 ♂, Mt. Takahachi, Fijinomiya City, Shizuoka Pref., 17. vi. 2010, T. Watanabe leg.; 2 ♂3 ♀, Mizugazuka, Susono City, Shizuoka Pref., 5. xi. 2000, S. Nomura leg.

Distribution. Japan: Honshu (Chubu district).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 1.8–2.1 mm) in length, moderately shining, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum dark brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface weakly uneven, with median longitudinal furrow high indistinct or almost missing; punctures round to elliptical, very dense, small to medium-sized, coarse, sometimes two or more punctures partially fused. Elytra with surface uneven; punctures round to almost round, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense to very dense, small in anterior segments, while punctures in posterior segments round to elliptical, moderately dense to dense, very small. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite sometimes posteromedially with a semicircular flat area; 7th ventrite (Fig. 8E) posteromedially with a bell-shaped, flat area; 8th ventrite (Fig. 8E) posteromedially with an arcuate emargination; 9th tergum (Fig. 8A) with antecostal apophyses long; 9th ventrite (Fig. 8B) very minutely, irregularly serrate posteriorly, with macrosetae long, apicolateral teeth moderately long, acutely pointed, apicolateral setae long; 10th tergum (Fig. 8A) entire. Aedeagal median lobe (Fig. 8C) broad, gently rounded apicolaterally, pointed at apex; apical sclerotized area (Fig. 8C) almost triangular, covered ventrally with longitudinal or oblique striate and with a median longitudinal suture. Endophallic median bands (Fig. 8C) each moderately long, very broad at base; latreral bands (Fig. 8C) long; expulsion hooks (Fig. 8G) very large, connected by membrane at the anteromesial corners of posterior plates, each hook with anterior plate weakly incurved, demarcated by a suture from posterior plate, the posterior plate elongate, much longer

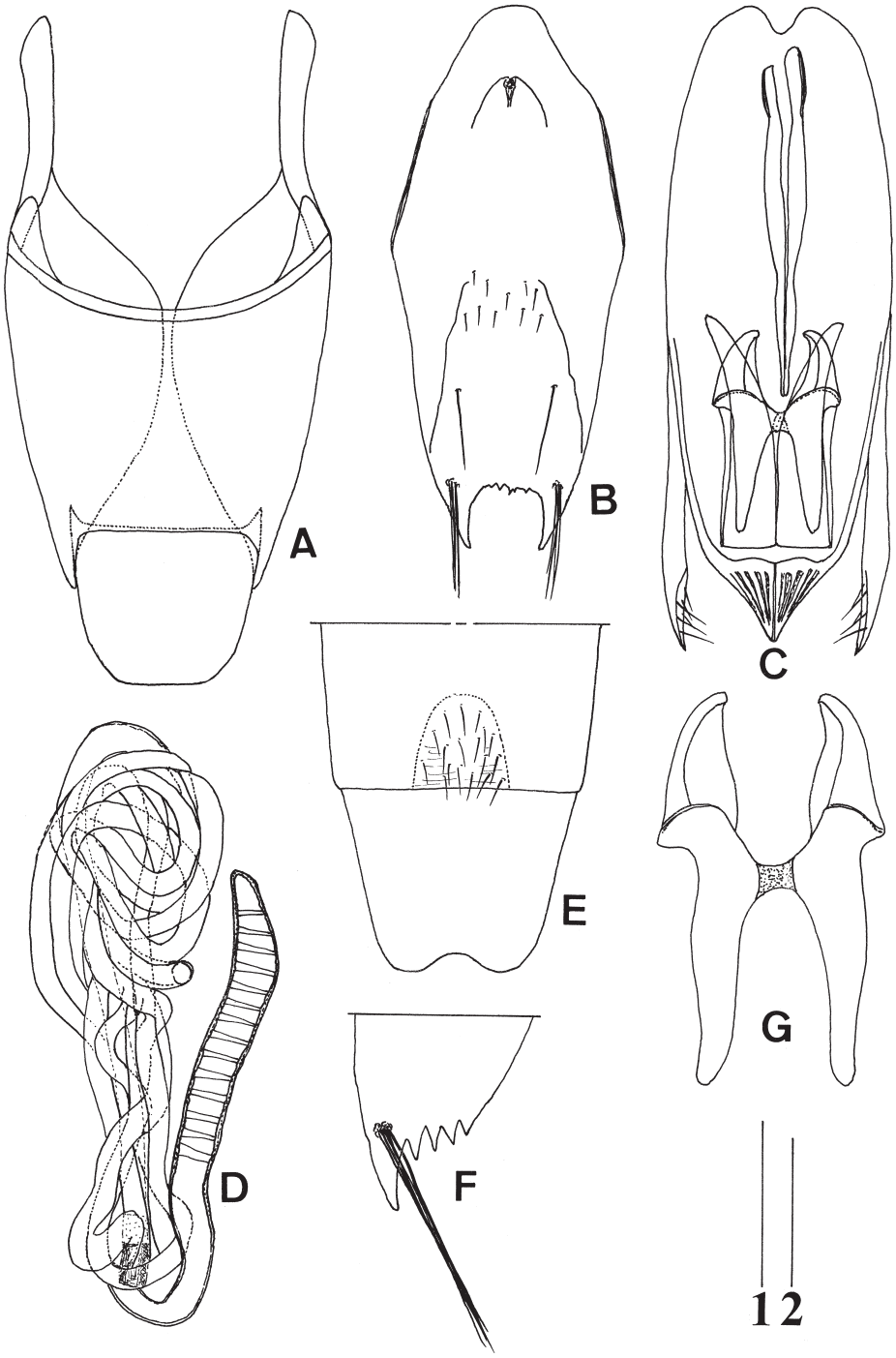

Fig. 8 *Stenus nyorai* Naomi (A, E, Fujinomiya, Yamanashi; B, Abe, Yamanashi; C, D, F, G, Aokigahara, Yamanashi). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, expulsion hooks. Scale 1: 0.2 mm for A–C, 0.1 mm for D, F, G; Scale 2: 0.3 mm for E.

than anterior plate; copulatory tube (Fig. 8C) with main tube simple, straight, weakly constricted between the basal and apical tubes. Parameres (Fig. 8C) each acutely pointed apically; apical area short, weakly swollen at base, furnished mesially with 5 to 6 short setae.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 8F) toothed posteriorly, each with apicolateral tooth pointed, apicolateral setae very long. Spermatheca (Fig. 8D) with capsule very small; RT-duct long, relatively thick; duct very long, thin, almost tightly coiled; basal valve very short; basal sclerotized duct short.

Biology and ecology. *S. nyorai* is distributed in the low mountainous to mountainous regions of the central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. nyorai* is allied to *S. trispinosus*, but it is separable from the latter species by the aedeagal median lobe simply pointed at apex (Fig. 8C), and the endophallic expulsion hook larger, with its posterior plate much longer and moderately narrowed apically (Fig. 8G).

Etymology. The specific epithet of this species "Nyorai" is derived from a traditionally recognized title of Buddha in Japan.

Stenus kisomontanus Naomi, Nomura & Puthz sp. nov.
(Figs. 9A–G, 102I)

Type material. Holotype: ♂ (NSMT-I-C-200325 in NMNS), Mt. Kiso-komagatake (alt. 1550 m), Nagano Pref., 21. ix. 1996, T. Kishimoto leg.

Distribution. Japan: Honshu (Nagano Pref.).

Description. Male: Body 4.5 mm (fore body 2.1 mm) in length, somewhat robust, moderately shining, with antennae moderately long, legs robust. Head black; pronotum and elytra reddish chocolate brown; abdomen dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense, small, umbilicate. Pronotum with surface uneven, with indistinct, shallow median longitudinal furrow; punctures round, very dense, moderately large, somewhat coarse, two or more punctures sometimes partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large in average, coarse. Legs with femora thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, dense, small, regular in anterior segments, while punctures in posterior segments moderately dense, very small, regular. Lateroventrites and tergoventrite sutures missing.

Sixth ventrite (Fig. 9B) posteromedially with a small, semicircular flat area; 7th ventrite (Fig. 9B) almost centrally with a round flat area; 8th ventrite (Fig. 9B) posteriorly with a subtriangular emargination; 9th tergum (Fig. 9C) with antecostal apophyses very long; 9th ventrite (Fig. 9A) irregularly, very minutely serrate posteriorly, apicolateral teeth short, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 9C) almost rounded. Aedeagal median lobe (Fig. 9D) elongate, angulate apicolaterally, pointed at apex; apical sclerotized area (Fig. 9D) subtriangular, with surface sculptured with very thin lines. Endophallic median bands (Fig. 9E) broad, with basal bands almost fused each other, each short, folded band very long; lateral bands thin, long; expulsion hooks (Fig. 9G) connected at the anteromesial parts of posterior plates, each hook with anterior plate acutely pointed, demarcated by a transverse suture from posterior plate, the posterior plates almost parallel in position; copulatory tube (Fig. 9F) with basal chamber elongate-ovoidal, main tube attenuate but strongly curved at apex. Parameres (Fig. 9D) each slender, almost straight, very acutely pointed at apex; apical area short, weakly swollen at base, furnished mesially with 7 to 8 setae.

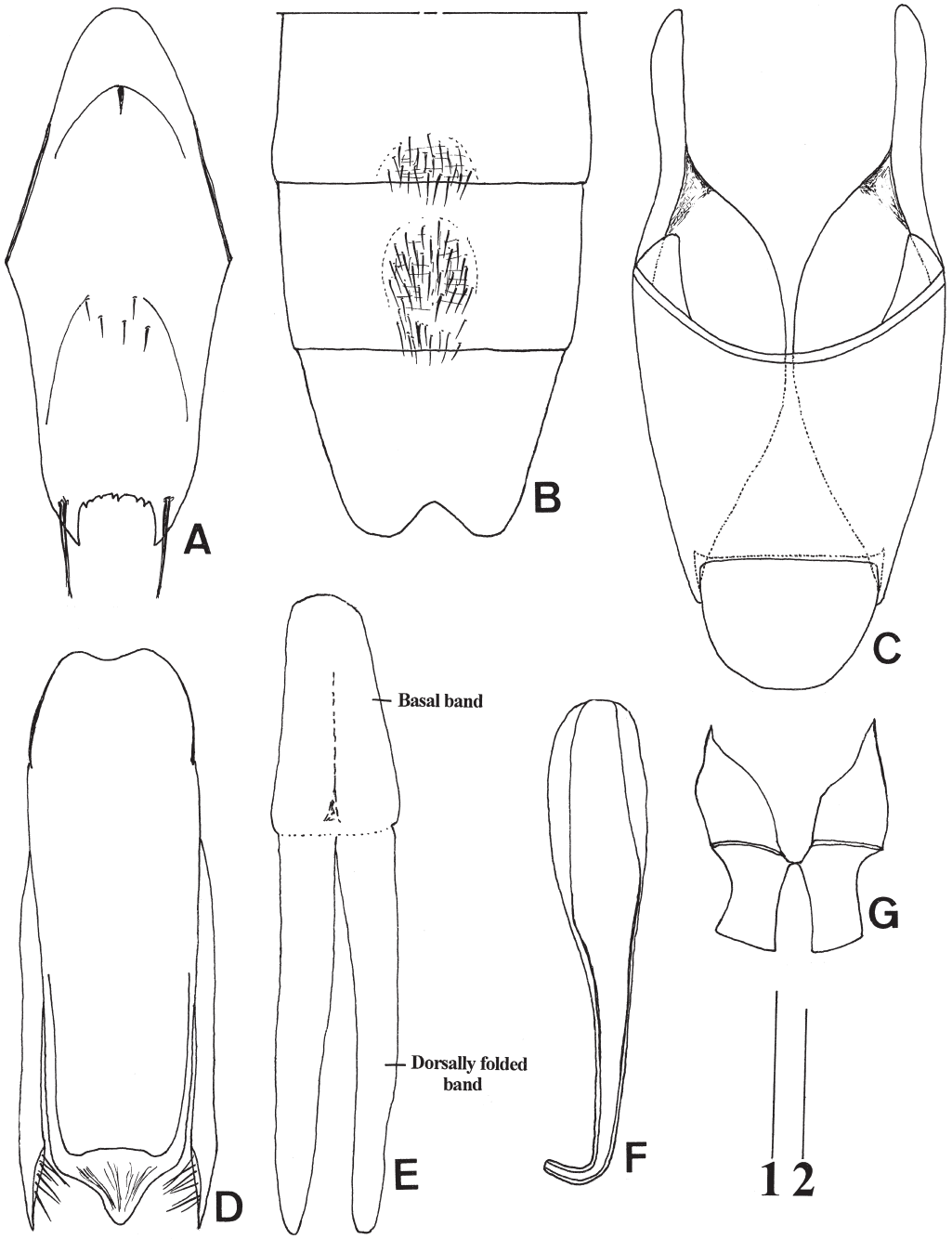

Fig. 9. *Stenus kisomontanus* Naomi, Nomura & Puthz (Kiso-komagatake, Nagano). A, 9th ventrite of male; B, 6th to 8th ventrites of male; C, 9th and 10th terga of male; D, aedeagus; E, median bands; F, copulatory tube; G, expulsion hooks. Scale 1: 0.2 mm for A, C, D, 0.1 mm for E–G; Scale 2: 0.3 mm for B.

Female: Unkonwn.

Biology and ecology. *S. kisomontanus* was collected once from the mountainous region of Chubu district, Honshu. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. kisomontanus* is allied to *S. scissilis* and *S. unicuspidatus*, but it is separable

from the latter two species by the aedeagal median lobe with its apical sclerotized area subtriangular (Fig. 9D), and the endophallic copulatory tube with its main tube strongly curved at apex (Fig. 9F).

Etymology. The specific epithet of this new species is derived from the name of type locality "Kiso" + the Latin adjective "*montanus*" which means "mountainous".

Stenus scissilis Naomi, Nomura & Puthz sp. nov.
(Figs. 10A–F, 102J)

Type material. Holotype: ♂ (NSMT-I-C-200326 in NMNS), Kamisaka Pass, Nakatsugawa City, Gifu Pref., 15. x. 2006, H. Yokozeki leg.

Distribution. Japan: Honshu (Gifu Pref.).

Description. Male: Body 4.3 mm (fore body 2.0 mm) in length, robust, moderately shining, with antennae moderately long, thin, legs moderately thick. Head and abdomen black; pronotum and elytra dark reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to moderately dense, small, umbilicate. Pronotum with surface slightly uneven, with median longitudinal depression hardly developed; punctures round to almost round, very dense, moderately large, somewhat coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to almost round, very dense, moderately large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense to very dense, small in anterior segments, while punctures in posterior segments round to elliptical, sparse to dense, very small, regular. Lateroventrites and tergoventral sutures missing.

Sixth ventrite (Fig. 10B) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 10B) medially with an elongate, very shallow depression; 8th ventrite (Fig. 10B) posteriorly with a medium-sized emargination; 9th tergum (Fig. 10A) with antecostal apophyses long; 9th ventrite (Fig. 10F) irregularly, minutely serrate posteriorly, with apicolateral teeth short, acutely pointed; 10th tergum (Fig. 10A) rounded posteriorly. Aedeagal median lobe (Fig. 10C) broad, parallel-sided behind the middle, distinctly angulate apicolaterally, bicuspidate at apex; apical sclerotized area (Fig. 10C) transverse, very short. Endophallic median bands (Fig. 10C) very broad; lateral bands (Fig. 10C) thin, long; explusion hooks (Fig. 10D) separated but connected by the C-shaped rod, anterior plate acutely pointed, demarcated by a transverse suture from posterior plate, the posterior plate obliquely truncate posteriorly; copulatory tube (Fig. 10E) with basal chamber moderately broad, main tube broad at base, distinctly narrowed and weakly curved toward apex. Parameres (Fig. 10C) each very acutely pointed at apex; apical area moderately long, weakly swollen mesially at base, furnished mesially with 7 to 8 setae.

Female: Unknown.

Biology and ecology. *S. scissilis* is collected only once from the mountainous region of the western part of Chubu district, Honshu. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. scissilis* is allied to *S. kisomontanus* and *S. unicuspidatus*, but it is clearly separable from the latter two species by the bicuspidate apex of aedeagal median lobe (Fig. 10C).

Etymology. The specific epithet of this new species is derived from the Latin adjective "*scissilis*" which means "splitting"; and the apical cusps of aedeagal median lobe split at base.

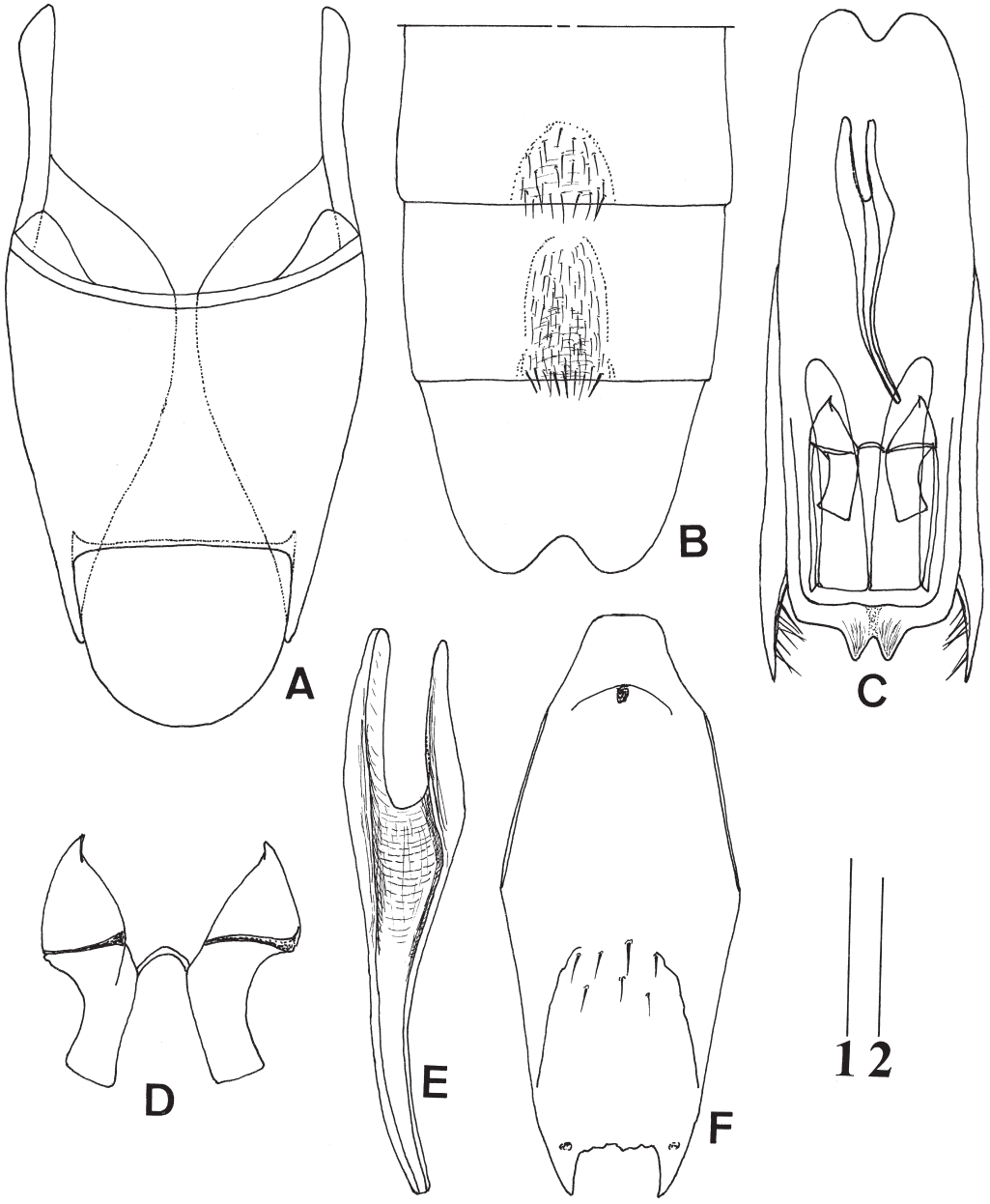

Fig. 10. *Stenus scissilis* Naomi, Nomura & Puthz sp. nov. (Kamisaka, Gifu). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, aedeagus; D, expulsion hooks; E, copulatory tube; F, 9th ventrite of male. Scale 1: 0.2 mm for A, C, F, 0.1 mm for D, E; Scale 2: 0.3 mm for B.

Stenus unicuspidatus Naomi & Nomura
(Figs. 11A–G, 102K)

Stenus unicuspidatus Naomi & Nomura, 2015: 185.

Type material examined. Holotype: ♂ (NMNST), Oohira Pass, Nagiso-cho, Nagano Pref.,

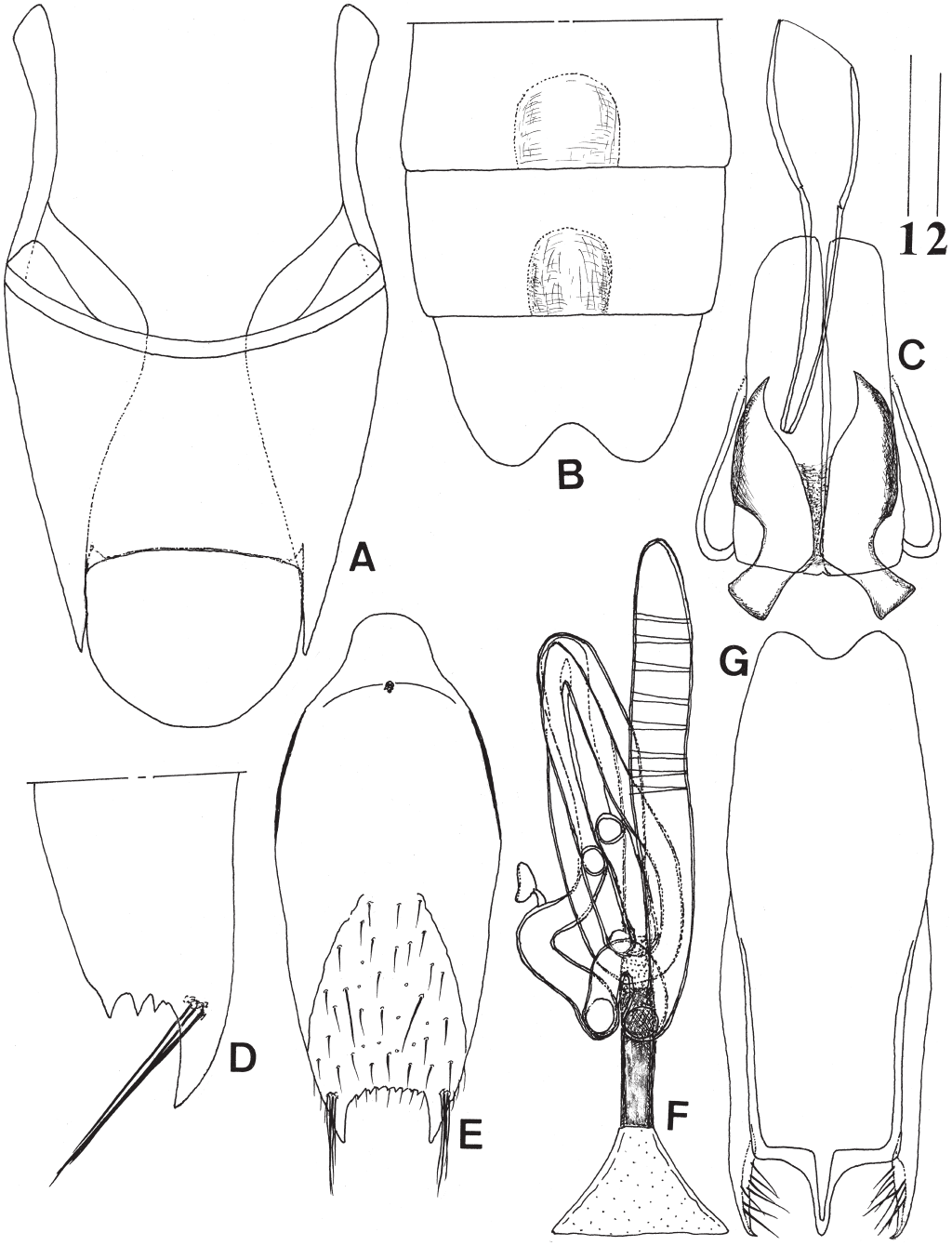

Fig. 11. *Stenus unicuspidatus* Naomi & Nomura (Oohira, Nagano). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, endophallus; D, posterior part of gonocoxite; E, 9th ventrite of male; F, spermatheca; G, aedeagus. Scale 1: 0.2 mm for A, E, G, 0.1 mm for C–F; Scale 2: 0.3 mm for B.

15. xi. 1999, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♀ (cN), same data as holotype.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male and female: Body 4.5–4.6 mm (fore body 2.0–2.1 mm) in length, moderately shining, with antennae moderately long, thin. Head black; pronotum and elytra reddish brown; abdomen dark reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface slightly uneven, with indistinct median longitudinal depression; punctures round to elliptical, very dense, small, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large, somewhat coarse. Legs with femora relatively thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense, small in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites and tergoventral sutures missing.

Male: Sixth ventrite (Fig. 11B) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 11B) posteromedially with a shallow, bell-shaped depression, which is smaller than that on 6th ventrite; 8th ventrite (Fig. 11B) posteriorly with a large emargination; 9th tergum (Fig. 11A) with antecostal apophyses very long; 9th ventrite (Fig. 11E) minutely serrate posteriorly, with macrosetae short, apicolateral teeth moderately long, acutely pointed, apicolateral setae long; 10th tergum (Fig. 11A) rounded posteriorly. Aedeagal median lobe (Fig. 11G) broad, parallel-sided behind the middle, angulate to form the almost right-angle at apicolateral corners; apical sclerotized area (Fig. 11G) with the very long median cusp. Endophallic median bands (Fig. 11C) very broad; lateral bands (Fig. 11C) thin; explusion hooks (Fig. 11C) each with anterior plate acutely pointed, completely fused with posterior plate, the posterior plates diverging posterolaterally, obliquely truncate posteriorly; copulatory tube (Fig. 11C) with basal chamber large, main tube simply attenuate and weakly curved toward apex. Parameres (Fig. 11G) each weakly incurved, acutely pointed at the apicalmost part; apical area short, weakly swollen mesially at base, furnished mesially with 7 to 9 setae.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 11D) toothed posteriorly, each with apicolateral tooth large, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 11F) with capsule longer than broad, rounded at apex; RT-duct moderately long, broad; duct moderately broad to broad, long, almost tightly coiled; basal valve short; basal sclerotized duct about 3 times as long as the basal valve. Basal structure conical, membranous.

Biology and ecology. *S. unicuspidatus* is collected only once from the mountainous region of Chubu district, Honshu. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. unicuspidatus* is allied to *S. kisomontanus* and *S. scissilis*, but it is separable from the latter two species by the aedeagal median lobe with its median cusp very long (Fig. 11G) and the endophallic expulsion hook with its posterior plate turning posterolaterally (Fig. 11C).

Stenus kasumi Naomi
(Figs. 12A–H, 102L)

Stenus kasumi Naomi, 1987: 6; Herman, 2001: 2244; Naomi & Puthz, 2013: 142.
Stenus basara Naomi, 1988a: 76 (*partim*).

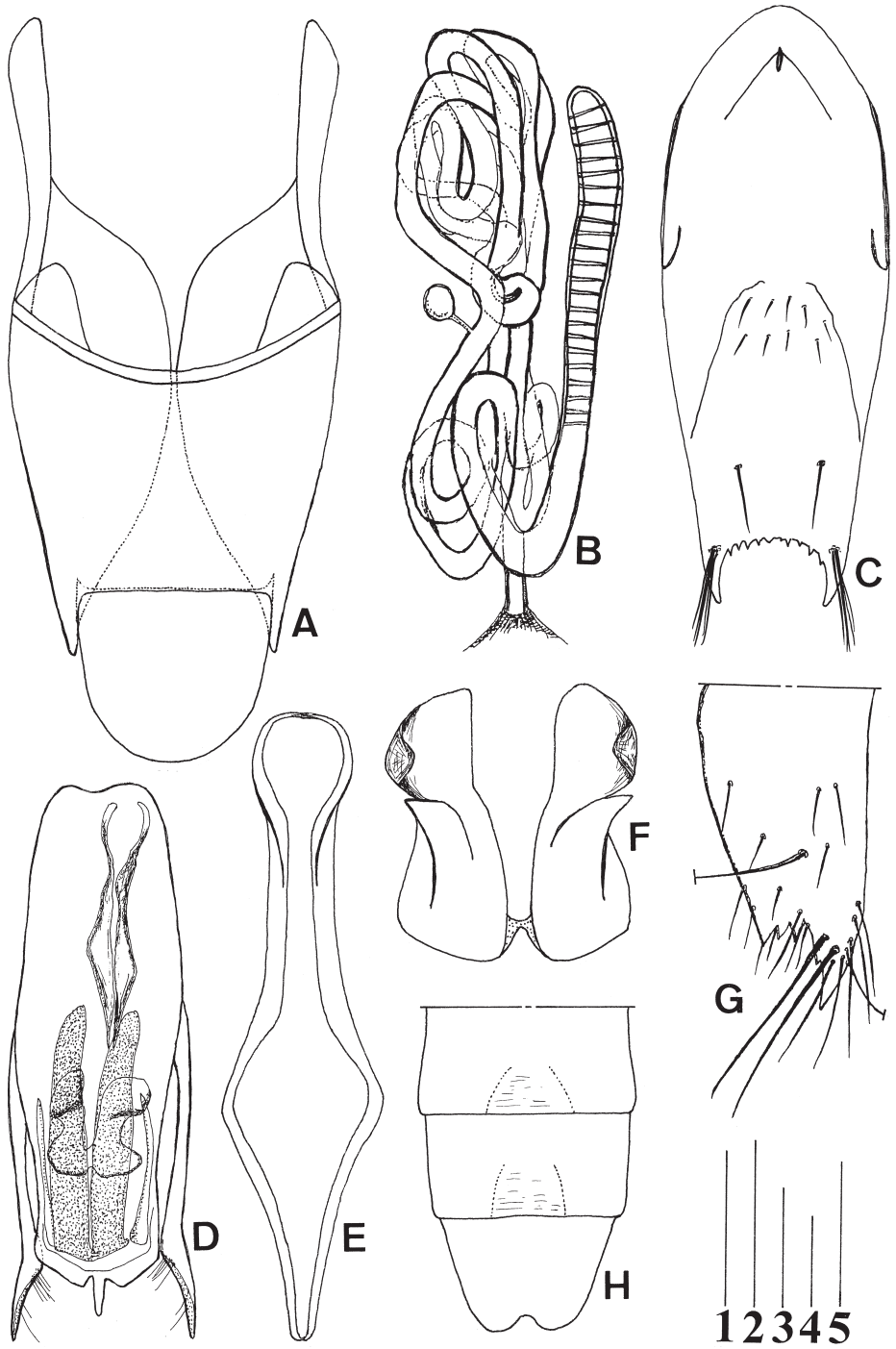

Fig. 12. *Stenus kasumi* Naomi (A, C, H, Konsei, Gunma; B, D, G, Yumoto, Tochigi; E, Marunuma, Gunma; F, Kuriyama, Tochigi). A, 9th and 10th terga of male; B, spermatheca; C, 9th ventrite of male; D, aedeagus; E, copulatory tube; F, expulsion hooks; G, posterior part of gonocoxite; H, 6th to 8th ventrites of male. Scale 1: 0.2 mm for A, C, 0.1 mm for E, F; Scale 2: 0.1 mm for B; Scale 3: 0.2 mm for D; Scale 4: 0.3 mm for H; Scale 5: 0.1 mm for G.

Type material. Holotype: ♂ (KUF), Mt. Maeshirane, Nikko, Tochigi Pref., 2. vii. 1982. S. Naomi leg.

Type material examined. Paratype of *S. basara* Naomi: 1 ♂ (cN), Konsei Pass, Oku-Nikko, Tochigi Pref., 30. vi. 1982, S. Naomi leg.

Other material examined. [HONSHU]: 1 ♂, Miike, Oze Moor, Hinoemata Vil., Fukushima Pref., 23. vi. 1990, T. Kishimoto leg.; 1 ♀, Mt. Shibitsu, Oze Moor, Gunma Pref., 8. ix. 1996, S. Nomura leg.; 1 ♂1 ♀, Konsei Pass, Oku-Nikko, Gunma Pref., 13. viii. 1980, Y. Shibata leg.; 1 ♂, Hanasaki, Katashina Vil., Gunma Pref., 26. v. 1990, T. Shimizu leg.; 6 ♂1 ♀, Marunuma Highland, Gunma Pref., 29. iv. 1991, T. Ito leg.; 3 ♂2 ♀, Nikkozawa-Kinunuma, Kuriyama Vil., Tochigi Pref., 3. ix. 1991, S. Naomi leg.; 1 ♀, Yumoto, Oku-Nikko, Tochigi Pref., 10. vii. 1994, S. Naomi leg.

Distribution. Japan: Honshu (Tohoku and Chubu districts).

Redescription. Male and female: Body 4.3–4.8 mm (fore body 1.8–2.3 mm) in length, weakly shining, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark brown; labrum dark brown; antennae and legs reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense, small, umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, coarse, rugose. Elytra with surface uneven, shallowly depressed or almost flat near suture; punctures round to elliptical, very dense, various in size, coarse, rugose. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments, while punctures in posterior segments very fine, shallow. Lateroventrites obsoletely retaining only in outline but tergoventrite sutures are completely missing.

Male: Sixth ventrite (Fig. 12H) posteromedially with a subtrapezoidal flat area; 7th ventrite (Fig. 12H) posteromedially with a nearly bell-shaped flat area, which is very weakly emarginate; 8th ventrite (Fig. 12H) posteromedially with a small semicircular emargination; 9th tergum (Fig. 12A) with antecostal apophyses very long; 9th ventrite (Fig. 12C) serrate posteriorly, with macrosetae relatively short, apicolateral teeth moderately long, pointed, apicolateral setae long; 10th tergum (Fig. 12A) rounded posteriorly. Aedeagal median lobe (Fig. 12D) moderately broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 12D) hardly developed, with median cusp very long, thin, lateral cusps weakly developed, blunt. Endophallic median bands (Fig. 12D) long, very broad; lateral bands (Fig. 12D) very long, thin; expulsion hooks (Fig. 12F) connected by a narrow membrane at the posteromesial parts, anterior plate laterally with a hook turning ventrally, partially demarcated by an oblique line from posterior plate, the posterior plate broad, more or less angulate posterolaterally; copulatory tube (Fig. 12E) with basal chamber ovoidal, main tube elongate-rhombic with apical processes not or hardly divided right and left. Parameres (Fig. 12D) thin, each weakly incurved before apical area, then weakly turning laterally at the apical area, very acutely pointed at apex; apical area moderately long, distinctly swollen mesially at base, furnished mesially with a tuft of 5 to 6 setae at base and with 2 or more setae near the middle.

Female: Eighth ventrite bluntly pointed posteromedially; gonocoxites (Fig. 12G) each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 12B) with capsule hardly developed; RT-duct long, moderately thick; duct very long, relatively thin to moderately thick, almost tightly coiled; basal sclerotized duct long; spermathecal gland small, spherical.

Biology and ecology. *S. kasumi* is distributed in the high mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. kasumi* is allied to *S. yatsugatakensis*, but it is separable from the latter species by the endophallic expulsion hook with its posterior plate distinctly broader (Fig. 12F), the copulatory tube its main tube subrhombic, without the lateral processes (Fig. 12E) and the spermatheca with its duct thinner and longer (Fig. 12B).

Etymology. The specific epithet of this species is derived from the Japanese noun “kasumi”, which means “spring haze”.

Stenus yatsugatakensis Naomi
(Figs. 13A–G, 103A)

Stenus yatsugatakensis Naomi, 2015: 14.

Type material examined. Holotype: ♂ (OMNH), Shirakoma, Kitayatsu, Mt. Yatsugatake, Nagano Pref., 13–16. ix. 1996, T. Ito leg. Paratypes: 1 ♂1 ♀, same data as holotype.

Other material examined. [HONSHU]: 1 ♂1 ♀, Ameike, Yachiho Vil., Nagano Pref., 19. viii. 1996, S. Nomura leg.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male and female: Body 4.1-4.2 mm (fore body 2.0-2.1 mm) in length, dull to weakly shining, antennae moderately long, thin. Head and abdomen dark brown to black; prothorax and elytra dark reddish brown; labrum dark brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, irregular. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, coarse, rugose. Elytra with surface uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in 7th and 8th segments very small, sparse. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 13D) posteromedially with a bell-shaped flat area, which is shallowly emarginate; 8th ventrite (Fig. 13D) posteromedially with a subtriangular emargination; 9th tergum (Fig. 13B) with antecostal apophyses moderately long; 9th ventrite (Fig. 13F) minutely serrate posteriorly, with macrosetae short, apicolateral teeth acutely pointed, apicolateral setae short; 10th tergum (Fig. 13B) rounded posteriorly. Aedeagal median lobe (Fig. 13C) broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 13C) transverse, with median cusp very long, thin, lateral cusps broad, blunt. Endophallic median bands (Fig. 13C) each with basal band moderately long, broad, folded band short; explusion hooks (Fig. 13G) connected by a submembrane at the posteromesial parts of posterior plates, anterior plate broad, demarcated by a transverse suture from posterior plate, the posterior plate narrowed medially, swollen posterolaterally; copulatory tube (Fig. 13E) robust, with basal chamber comprising two sclerotized rods, not swollen laterally, main tube broad, subrhombic, with apical processes each long, thick, lateral processes each incurved, attenuate. Parameres (Fig. 13C) each thin, acutely pointed at apex; apical area short, hardly or weakly swollen at base, furnished mesially with 7 to 9 setae of various length.

Female: Eighth ventrite bluntly pointed posteromedially; gonocoxites each serrate posteriorly, with apicolateral tooth short, pointed, apicolateral setae long. Spermatheca (Fig. 13A) robust, with capsule rounded apically; RT-duct thick; spermathecal duct long, moderately thick to thick, moderately coiled; basal valve moderately long; basal sclerotized duct long; basal pouch

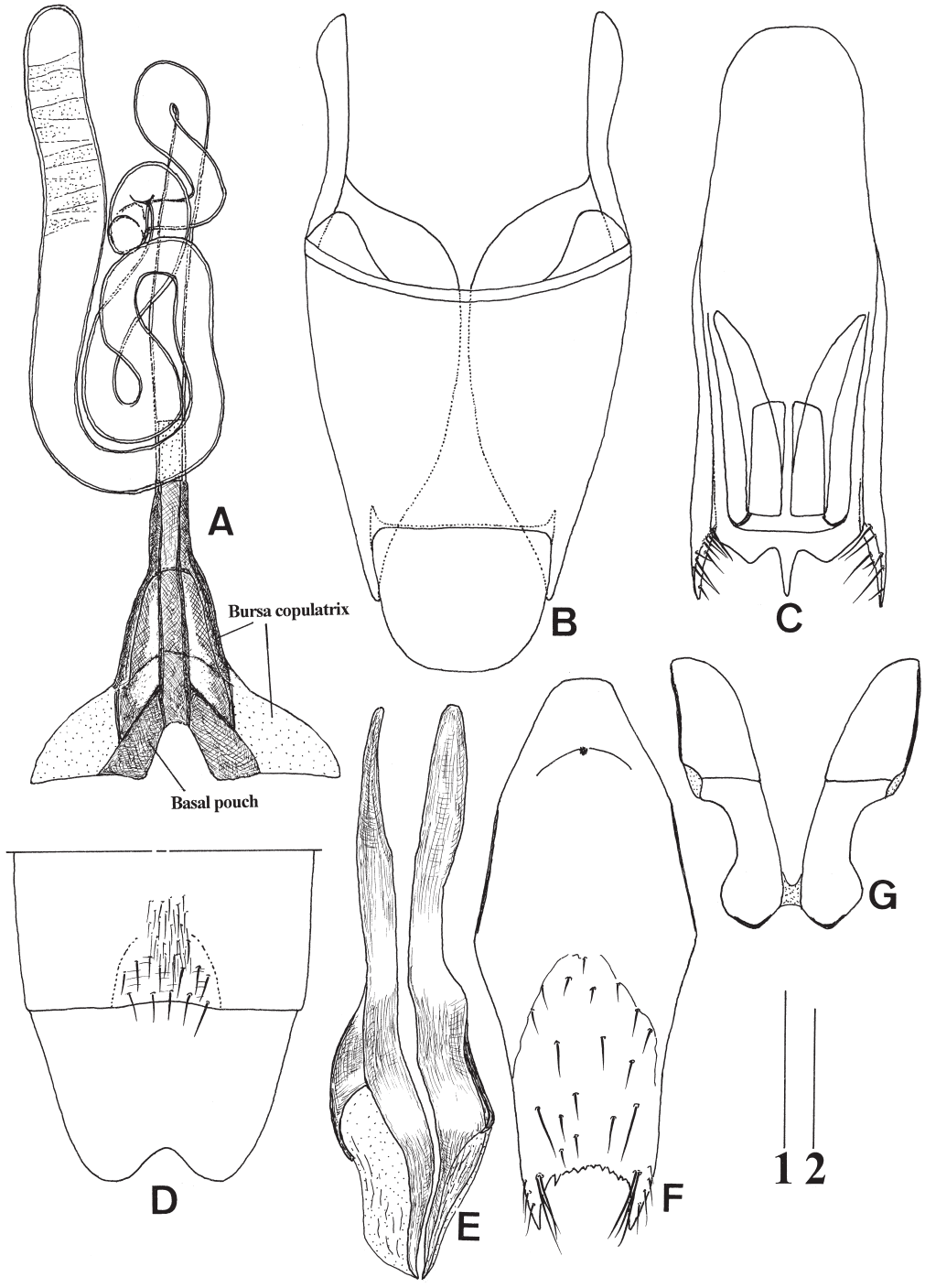

Fig. 13. *Stenus yatsugatakensis* Naomi (Shirakoma, Nagano). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 7th and 8th ventrites of male; E, endophallic copulatory tube; F, 9th ventrite of male; G, endophallic expulsion hooks. Scale 1: 0.1 mm for A, E, G, 0.2 mm for B, C, F; Scale 2: 0.3 mm for D.

conical, sclerotized. Bursa copulatrix (Fig. 13A) funnel-shaped, with anterior (narrower) area sclerotized, posterior (broader) area membranous.

Biology and ecology. *S. yatsugatakensis* is distributed in the high mountainous regions of central Chubu, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. yatsugatakensis* is allied to *S. kasumi*, but it is separable from the latter species by the endophallic expulsion hook with its posterior plate distinctly narrower (Fig. 13G), the copulatory tube with its main tube rhombic and having the lateral processes (Fig. 13E), and the spermatheca with its duct thicker and shorter (Fig. 13A).

Stenus sawadaiellus Naomi & Puthz
(Figs. 14A–F, 103B)

Stenus sawadaiellus Naomi & Puthz, 1994: 299; Herman, 2001: 2379; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: 1 ♂ (cP), Mt. Ontake, Ohtaki Vil., Nagano Pref., 6. x. 1972, K. Sawada leg.

Other material examined. [HONSHU]: 1 ♂ (cN), Mt. Ontake, Ohtaki Vil., Nagano Pref., 4. viii. 1997, S. Nomura leg.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male: Body 3.2–4.2 mm (fore body 1.9–2.0 mm) in length, weakly shining, with antennae long, thin. Body dark chocolate brown to black; labrum dark red; antennae and legs reddish brown. Head weakly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense, small, irregular, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, rugose. Elytra (Fig. 14D) with surface uneven, almost flat near suture; punctures round to elliptical, very dense, various in size but moderately large on average, subrugose, coarse. Tarsi each with 4th tarsomere bilobed. Abdomen with punctures round, dense, small, regular in anterior segments, while punctures in posterior segments very small, shallow, regular. Lateroventrites and tergoventrite sutures missing.

Seventh ventrite (Fig. 14E) posteromedially with a nearly bell-shaped, flat or very shallow depression, which is very shallowly emarginate; 8th ventrite (Fig. 14E) posteromedially with a semicircular emargination; 9th tergum (Fig. 14B) with antecostal apophyses long; 9th ventrite with apicolateral teeth acutely pointed; 10th tergum (Fig. 14B) rounded posteriorly. Aedeagal median lobe (Fig. 14C) broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 14C) transverse, with median cusp short, pointed, lateral cusps broad, angulate. Endophallic median bands (Fig. 14A) moderately long, broad; lateral bands (Fig. 14A) long, thin; expulsion hooks (Fig. 14A, F) separated but connected each other by a submembranous plate at the mesial sides of posterior plates, each hook with anterior plate having a lateral sclerotized flap, demarcated by a transverse suture from posterior plate, the posterior plate weakly hooked ventrally along posterior margin; copulatory tube (Fig. 14A) elongate, with basal chamber hardly swollen laterally, main tube thick, baculiform, subrhombic at apical part, with apical processes moderately long, acutely pointed, lateral processes very short, membranous plate dotted, arcuately emarginate laterally. Parameres (Fig. 14C) each constricted before the apical area, very acutely pointed at apex; apical area moderately long, swollen mesially, furnished mesially with 7 to 8 short and 1 or 2 long setae, but glabrous on the apicalmost 1/3.

Female: Unknown.

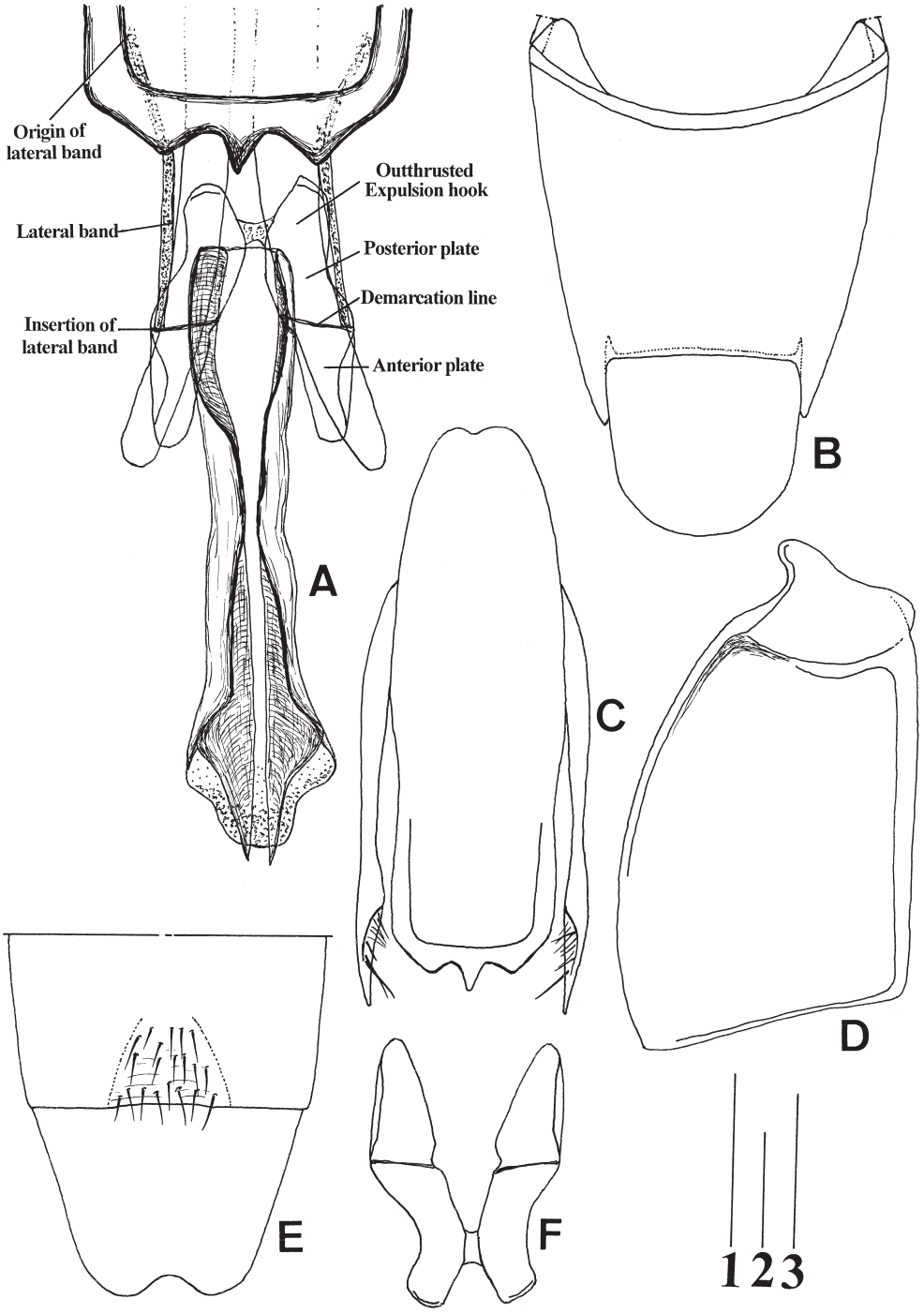

Fig. 14. *Stenus sawadaiellus* Naomi (Ontake, Nagano). A, apical part of median lobe with outthrusted endophallus; B, 9th and 10th terga of male (antecostal apophyses not illustrated); C, aedeagus; D, left elytron; E, 7th and 8th ventrites of male; F, expulsion hooks. Scale 1: 0.1 mm for A, F, 0.2 mm for B–D; Scale 2: 0.3 mm for E.

Biology and ecology. *S. sawadaiellus* is distributed in the mountainous region of central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sawadaiellus* is allied to *S. uncinatus* and *S. inaequatus*, but it is separable from the latter two species by the aedeagal median lobe with its median cusp shorter (Fig. 14C), and the endophallic copulatory tube with its main tube more slender and its subrhombic apical tube smaller (Fig. 14A). Furthermore, *S. sawadaiellus* is separable also from *S. uncinatus* by the aedeagal median lobe broader at the apicolateral corners (Fig. 14C), and from *S. inaequatus* by the aedeagal median lobe with its apical sclerotized area less strongly developed (much shorter) (Fig. 14C).

Etymology. This species is named in honor of Dr. Kohei Sawada (Takatsuki, Osaka), who studies the Aleocharinae (Staphylinidae) based on the chaetotaxal morphology.

Stenus uncinatus Naomi, Nomura & Puthz sp. nov.
(Figs. 15A–G, 103C)

Type material. Holotype: ♂ (NSMT-I-C-200327 in NMNST), Shinhotaka Spa, Kamitakara Vil., Gifu Pref., 1. x. 2000. T. Watanabe leg. Paratypes: 2 ♂1 ♀ (cN), same data as holotype; 1 ♀ (cN), Tokugo Pass, Nagano Pref., 22. vii. 1967, T. Hozumi leg.

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

Description. Male and female: Body 3.6–4.2 mm (fore body 2.0–2.3 mm) in length, weakly shining, with antennae moderately long, very thin. Head black; pronotum and elytra dark brown; abdomen dark brown to black; labrum dark red; antennae and legs reddish brown. Head weakly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense, small, irregular, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, rugose. Elytra with surface uneven, almost flat near suture; punctures round to elliptical, very dense, various in size, subrugose, coarse. Tarsi each with 4th tarsomere bilobed. Abdomen with punctures round, moderately dense to dense, small in anterior segments, while punctures in posterior segments very fine, shallow. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 15E) posteromedially with a bell-shaped, very shallow depression, which is very shallowly emarginate; 8th ventrite (Fig. 15E) posteromedially with a nearly semicircular emargination; 9th tergum (Fig. 15C) with antecostal apophyses long; 9th ventrite (Fig. 15B) minutely, sparsely serrate posteriorly, with macrosetae moderately long, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 15C) entire. Aedeagal median lobe (Fig. 15A) moderately broad, gently rounded apicolaterally; apical sclerotized area (Fig. 15A) nearly arched, with median cusp moderately long, lateral cusps short, angulate. Endophallic median bands (Fig. 15A) moderately long, broad; lateral bands very thin (Fig. 15A); expulsion hooks (Fig. 15F) separated, with anterior plate demarcated by a transverse suture from posterior plate, the posterior plate weakly hooked ventrally along posterior margin; copulatory tube (Fig. 15A) stout, basal chamber hardly swollen laterally, main tube almost baculiform basally, funnel-shaped at apex, with apical processes each moderately long, pointed, lateral processes each short, pointed. Parameres (Fig. 15A) each almost straight, acutely pointed at apex; apical area long, weakly swollen mesially at base, furnished mesially with 9 to 11 setae.

Female: Eighth ventrite bluntly pointed posteromedially; gonocoxites (Fig. 15G) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Sper-

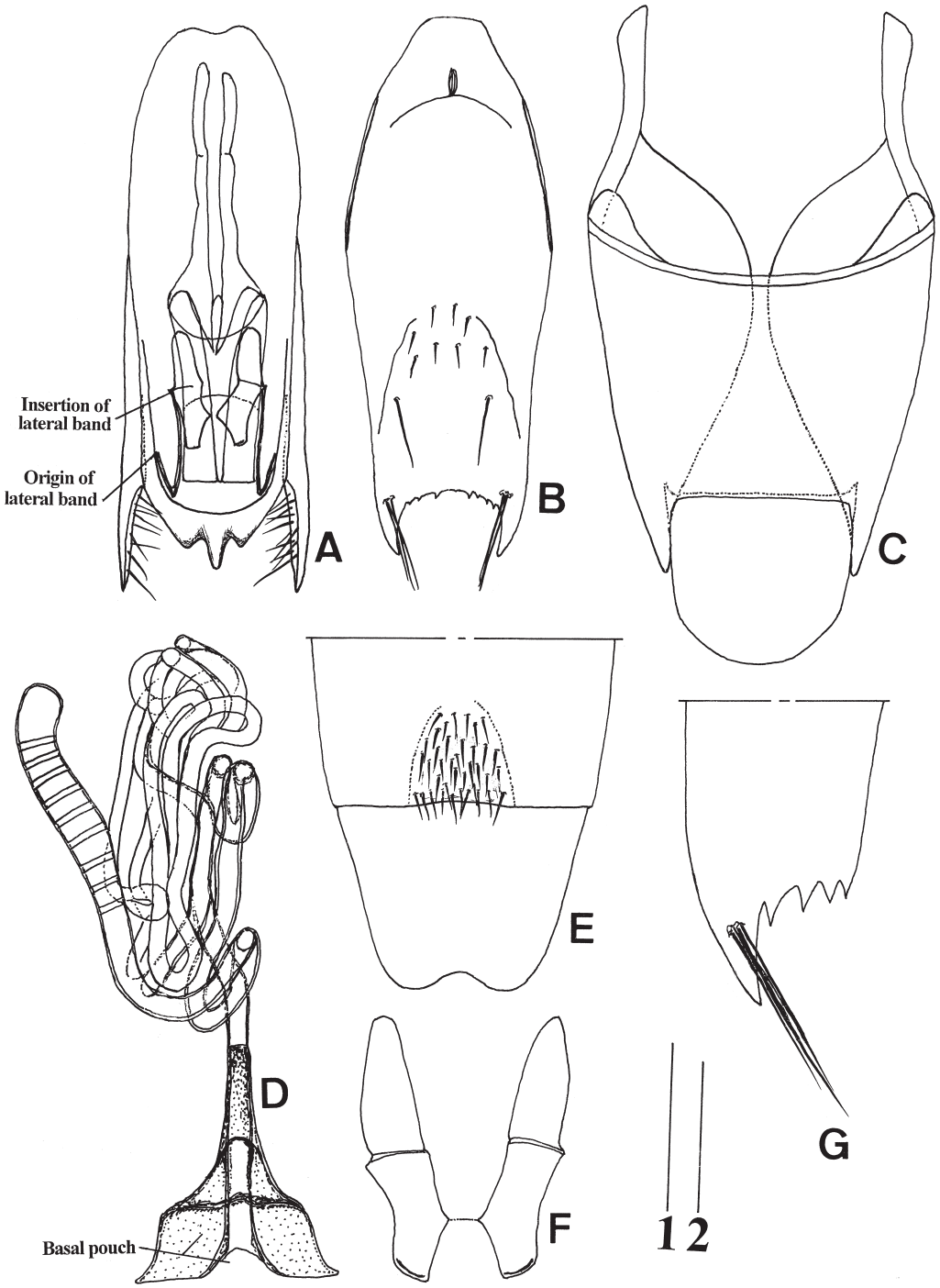

Fig. 15. *Stenus uncinatus* Naomi, Nomura & Puthz sp. nov. (Shinhotaka, Gifu). A, aedeagus; B, 9th ventrite of male; C, 9th and 10th terga of male; D, spermatheca; E, 7th and 8th ventrites of male; F, expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A–C, 0.1 mm for D, F, G; Scale 2: 0.3 mm for E.

matheca (Fig. 15D) with capsule rounded apically; RT-duct moderately long, thick; duct very long, thin, tightly coiled; basal sclerotized duct long; basal pouch funnel-shaped, weakly sclerotized in distal part, submembranous in proximal part.

Biology and ecology. *S. uncinatus* is distributed in the mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests; and they were collected under moss in Shinhotaka, Gifu.

Remarks. *S. uncinatus* is allied to *S. inaequatus*, but it is separable from the latter species by the aedeagal median lobe simply rounded apicolaterally, with its apical sclerotized area narrower (Fig. 15A), the endophallic expulsion hook with its anterior plate a little longer than posterior plate (Fig. 15F), and the copulatory tube with its subrhombic apical part shorter (Fig. 15A).

Etymology. The specific epithet of this new species is derived from the Latin adjective "*uncinatus*" which means "hooked"; and the posterior margin of the posterior plate of endophallic copulatory tube is hooked ventrally.

Stenus inaequatus Puthz
(Fig. 16A–F)

Stenus inaequatus Puthz, 1993a: 150; Herman, 2001: 2227; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (MHNG), Mt. Kurofu (2100 m), Gunma Pref., 19. vii. 1980, I. Löbl leg. Paratype: 1 ♂ (cP), Mt. Shirane (1750 m), Gunma Pref., 22. vii. 1980, I. Löbl leg.

Distribution. Japan: Honshu (Gunma Pref.).

Redescription. Male and female: Body 3.6–4.2 mm (fore body 2.0–2.1 mm) in length, moderately shining, with antennae moderately long, thin. Head and abdomen dark brown to black; pronotum and elytra reddish brown to dark brown; labrum dark brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, dense to very dense, somewhat umbilicate, sometimes two punctured partially fused. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, strongly rugose. Elytra with surface strongly uneven, weakly concave near suture; punctures round to elliptical, very dense, subrugose, coarse. Tarsi each with 4th tarsomere bilobed. Abdomen with punctures round, dense, small in anterior segments, while punctures in 7th and 8th segments very small, sparse to moderately dense, irregular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 16E) posteromedially with a semicircular, flat area; 7th ventrite (Fig. 16E) posteromedially with a bell-shaped, shallow depression, which is very shallowly emarginate posteriorly, and narrower than the flat area in the 6th; 8th ventrite (Fig. 16E) posteromedially with a relatively small emargination; 9th tergum (Fig. 16C) with antecostal apophyses moderately long; 9th ventrite (Fig. 16D) minutely serrate posteriorly, with macrosetae short, apicolateral teeth broad at base, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 16C) rounded posteriorly. Aedeagal median lobe (Fig. 16A) broad, weakly angulate or rounded apicolaterally, with apicolateral parts weakly expanding laterally; apical sclerotized area (Fig. 16A) well-developed, with median cusp long, thin, lateral cusps broad, angulate. Endophallic median bands moderately long, broad; lateral bands moderately broad; expulsion hooks (Fig. 16F) separated but connected by a transverse rod, each hook broad, with anterior plate partially demarcated by a suture from posterior plate, the posterior plate weakly, arcuately emarginate at

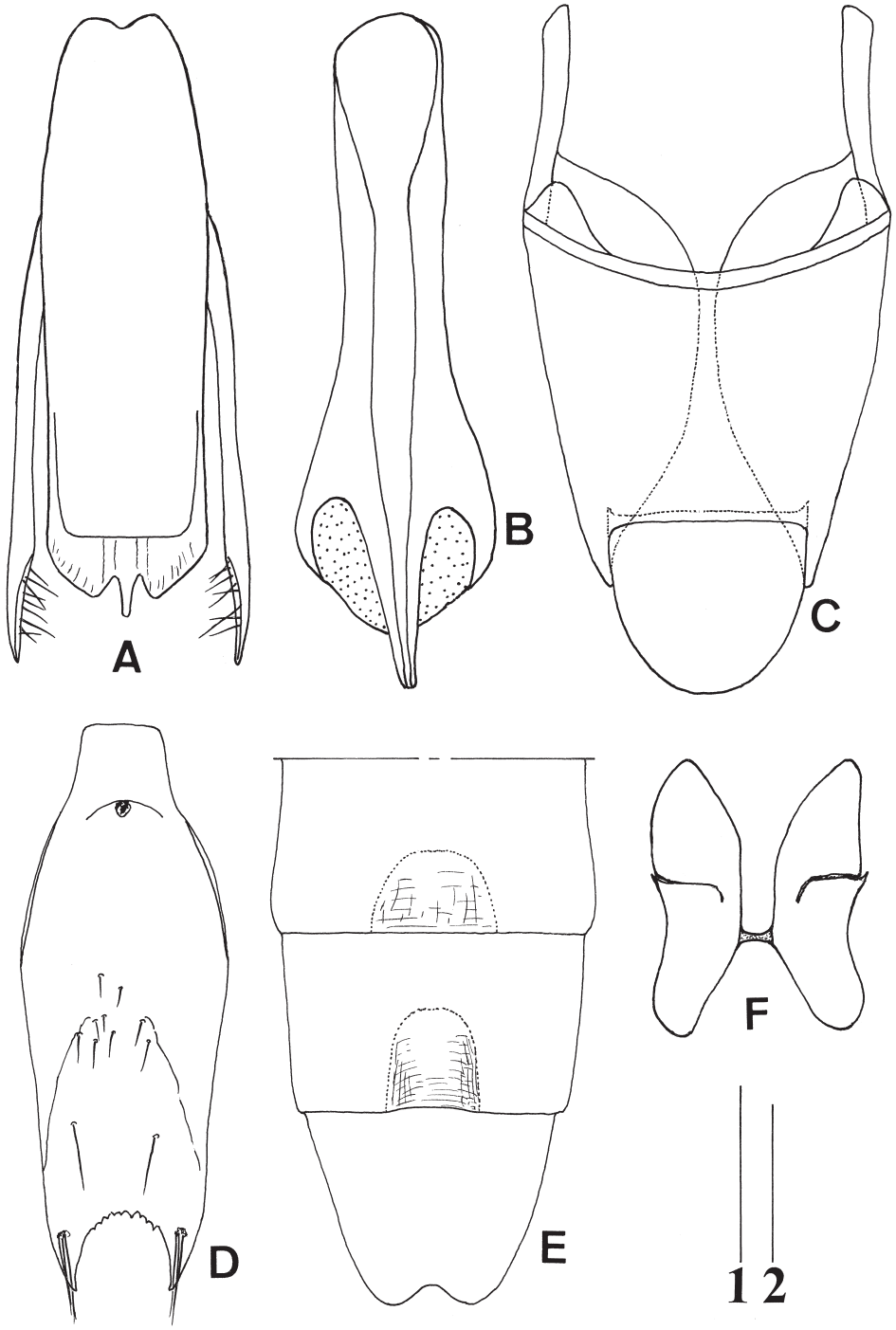

Fig. 16. *Stenus inaequatus* Puthz (Shirane, Gunma). A, aedeagus; B, copulatory tube; C, 9th and 10th terga of male; D, 9th ventrite of male; E, 6th to 8th ventrites of male; F, expulsion hooks. Scale 1: 0.2 mm for A, C, D, 0.1 mm for B, F; Scale 2: 0.3 mm for E.

lateral side, almost rounded posteriorly; copulatory tube (Fig. 16B) stout, main tube baculiform basally, subrhombic apically, with apical processes each long, pointed, lateral processes each short, incurved, pointed. Parameres (Fig. 16A) each almost straight, very acutely pointed at apex; apical area moderately long, hardly swollen mesially at base, furnished mesially with 8 to 9 setae.

Female: Unknown.

Biology and ecology. *S. inaequatus* is distributed in the mountainous regions of the northern part of Kanto district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. inaequatus* is allied to *S. uncinatus*, but it is separable from the latter species by the aedeagal median lobe angulate and weakly expanding laterally at the apicolateral corners, with its apical sclerotized area broader (Fig. 16A), the endophallic expulsion hook with its anterior plate shorter than posterior plate (Fig. 16F), and the copulatory tube with its subrhombic apical part longer (Fig. 16B).

Stenus houou Naomi
(Figs. 17A–H, 103D)

Stenus houou Naomi, 2010: 35; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Houou Lodge, Mt. Houou, Nirasaki City, Yamanashi Pref., 13. xi. 1991, K. Hosoda leg. Paratypes: 5 ♂1 ♀, same data as holotype; 1 ♂, same locality, 1. x. 1992, K. Hosoda leg.; 1 ♂, same locality, 8. vi. 1991, K. Hosoda leg.; 1 ♂, 1. vii. 1989, K. Hosoda leg.; 1 ♀, same locality, 17. vii. 1992, K. Hosoda leg.; 1 ♀, same locality, 8. viii. 1992, K. Hosoda leg.; 1 ♀, same locality, 21. x. 1988, K. Hosoda leg.; 1 ♀, same locality, 22. vii. 1992, K. Hosoda leg.; 2 ♀, same locality, 3. vi. 1990, K. Hosoda leg.; 1 ♂, Maruno-cho, Yamanashi Pref., 25. xii. 1992, K. Hosoda leg.

Other material examined. [HONSHU]: 1 ♂, Houou Lodge, Mt. Houou, Nirasaki City, Yamanashi Pref., 18. vii. 2016, M. Saito leg.

Distribution. Japan: Honshu (Yamanashi Pref.).

Redescription. Male and female: Body 3.7–4.0 mm (fore body 1.7–2.1 mm) in length, weakly to moderately shining, antennae moderately long, thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark brown; antennae and legs reddish brown to brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, irregular, somewhat umbilicate. Pronotum with surface uneven with indistinct median longitudinal furrow; punctures round to elliptical, very dense, rugose, coarse. Elytra with surface uneven, weakly depressed near suture; punctures round to almost round, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense to dense, small in anterior segments, while punctures in posterior segments very fine, sparse. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 17H) posteromedially with a subtriangular emargination; 9th tergum (Fig. 17C) with antecostal apophyses long; 9th ventrite (Fig. 17D) serrate posteriorly, with macrosetae moderately long, apicolateral teeth moderately long, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 17C) rounded posteriorly. Aedeagal median lobe (Fig. 17E) broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 17E) weakly developed, arcuately emarginate at anteromedial part, with median cusp long, moderately thick, lateral

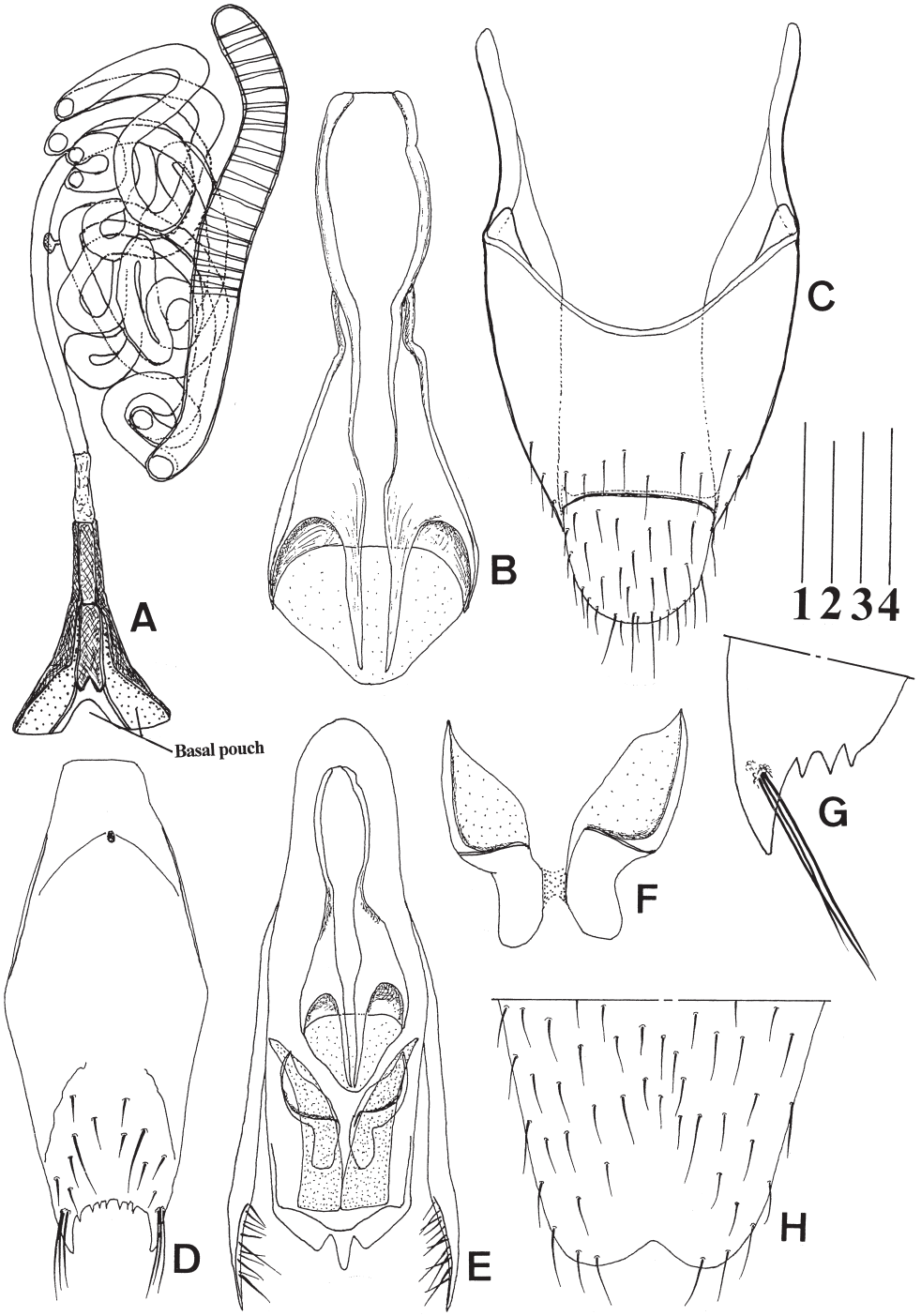

Fig. 17. *Stenus houou* Naomi (Houou, Yamanashi). A, spermatheca; B, copulatory tube; C, 9th and 10th terga of male; D, 9th ventrite of male; E, aedeagus; F, expulsion hooks; G, posterior part of gonocoxite; H, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, G; Scale 2: 0.1 mm for B, F, 0.2 mm for C, D; Scale 3: 0.2 mm for E; Scale 4: 0.25 mm for H.

cusps angulate. Endophallic median bands (Fig. 17E) each moderately long, very broad at base; expulsion hooks (Fig. 17F) connected by a membrane at the mesial margins of posterior plates, each hook with anterior plate acutely pointed, widely membranous mesially, demarcated by a suture from posterior plate, the posterior plate smaller than anterior plate, more or less rounded posteriorly; copulatory tube (Fig. 17B) robust, basal chamber large, elongate-ovoidal, main tube subrhombic with apical processes each long, thin, lateral processes each acutely pointed. Parameres (Fig. 17E) thin; apical area long, weakly swollen mesially at base, furnished mesially with 11 to 12 setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 17G) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 17A) with capsule rounded apically very small; RT-duct long, thick; duct very long, usually thin but thick at the distal part, almost tightly coiled; basal valve moderately long; basal sclerotized duct long; basal pouch conical, sclerotized.

Biology and ecology. *S. houou* is distributed in the high mountainous regions of Southern Alps and its neighboring areas, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. houou* is allied to *S. yasuhikoiellus*, but it is separable from the latter species by the aedeagus with its lateral cusps developed and distinctly angulate (Fig. 15E) and the endophallic copulatory tube with its apical processes narrowly separated ventrally and its lateral processes pointed (Fig. 17B).

Etymology. The specific epithet of this species is derived from the name of type locality "Houou", which is however virtually the name of imaginary bird in the ancient mythology.

Stenus yasuhikoiellus Naomi
(Fig. 18A–F)

Stenus yasuhikoiellus Naomi, 2010: 36; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Kiso-komagadake, Nagano Pref., 24. viii. 1962, Y. Hayashi leg.

Distribution. Japan: Honshu (Nagano Pref.).

Redescription. Male: Body 4.0 mm (fore body 1.8 mm) in length, weakly to moderately shining. Head dark brown; pronotum, elytra and abdomen reddish brown to dark brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, somewhat irregular, distinct. Pronotum with surface uneven with indistinct median longitudinal furrow; punctures round to elliptical, very dense, various in size, rugose, coarse. Elytra with surface almost even, almost flat near suture; punctures round, very dense, large, almost regular. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, various in size but small on average in anterior segments, while punctures in posterior segments round, very small, almost regular. Lateroventrites and tergoventrite sutures missing.

Seventh ventrite posteromedially with an almost flat area, which is very shallowly emarginate; 8th ventrite (Fig. 18D) posteromedially with a shallow, arcuate emargination; 9th tergum (Fig. 18A) with antecostal apophysis long; 9th ventrite (Fig. 18B) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth short, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 18A) bluntly angulate posteromedially. Aedeagal median

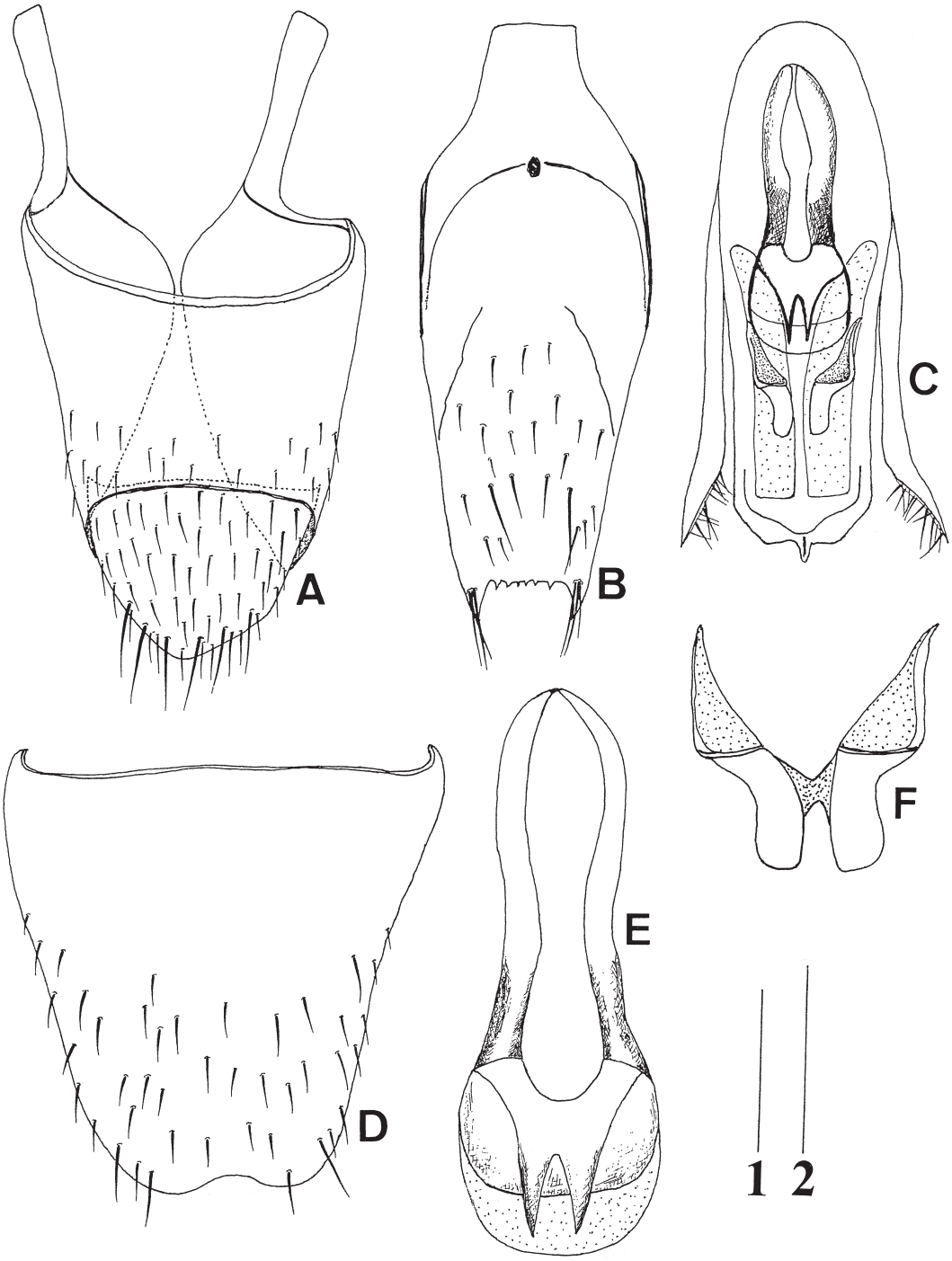

Fig. 18. *Stenus yasuhikoiellus* Naomi (Kisokomagadake, Nagano). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, 8th ventrite of male; E, copulatory tube; F, expulsion hooks. Scale 1: 0.2 mm for A to C, 0.1 mm for E, F; Scale 3: 0.25 mm for D.

lobe (Fig. 18C) broad, angulate apicolaterally; apical sclerotized area (Fig. 18C) weakly developed, arcuately emarginate at anteromedial part, with median cusp short, thin, lateral cusps each existing as a low, broad angulation. Endophallic median bands (Fig. 18C) long, very broad; expulsion hooks (Fig. 18F) connected by a membrane at the mesial margins of posterior plates, each with anterior plate acutely pointed, widely membranous mesially, posterior plate rounded posterolaterally; copulatory tube (Fig. 18E) very large, nearly spatulate, with basal chamber elongate-ovoidal, main tube subrhombic, apicodorsally with the large, subspherical membranous plat, ventrally with apical processes fused ventrally, each acutely pointed. Parameres (Fig. 18C) diverging posterolaterally in apical parts, each very acutely pointed at apex; apical area moderately long, swollen mesially at base, furnished mesially with 12 to 13 short setae.

Female: Unknown.

Biology and ecology. *S. yasuhikoiellus* is a rare species; and it is only once collected from the high mountainous region of Chubu district, Honshu. The beetle inhabits leaf litter in the natural forests.

Remarks. *S. yasuhikoiellus* is allied to *S. houou*, but it is separable from the latter species by the aedeagal median lobe with its lateral cusp existing as a low, broad angulation (Fig. 18C) and the endophallic copulatory tube with its apical processes fused ventrally and its lateral processes missing (Fig. 18E).

Etymology. This species is named in honor of Mr. Yasuhiko Hayashi (Kawanishi, Hyogo).

Stenus kumoma Naomi
(Figs. 19A–H, 103E)

Stenus kumoma Naomi, 1987: 7; Herman, 2001: 2250; Naomi & Puthz, 2013: 142.

Type material. Holotype: 1 ♂ (KUF), Kawarabo, Mt. Hayachine, Hanamaki City, Iwate Pref., 22–24. vi. 1980, S. Naomi leg.

Type material examimed. Paratype: 1 ♂ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂1 ♀, Mt. Hayachine, Iwate Pref., 17. vii. 1985, S. Nomura leg.; 1 ♂, Odagoe, Mt. Hayachine, Hanamaki City, Iwate Pref., 12. vi. 2014, H. Yokozeki leg.; 1 ♂2 ♀, Mt. Hayachine, Iwate Pref., 16. v. 2000, Y. Hagino & T. Fujikawa leg.

Distribution. Japan: Honshu (Iwate Pref.).

Redescription. Male and female: Body 4.5–5.0 mm (fore body 2.0–2.2 mm) in length, weakly to moderately shining, with antennae moderately long, thin. Head black; pronotum, elytra and abdomen dark reddish brown to dark brown; labrum dark brown; antennae and legs reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven with indistinct median longitudinal furrow; punctures round to almost round, very dense, coarse, sometimes subrugose. Elytra with surface uneven, almost flat near suture; punctures round to almost round, very dense, various in size but moderately large on average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, regular in anterior segments, while punctures in posterior segments very small, sparse. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 19H) medially with an elongate flat area, which is very shallowly emarginate; 8th ventrite (Fig. 19H) posteromedially with an arcuate emargination; 9th tergum (Fig. 19A) with antecostal apophyses long; 9th ventrite (Fig. 19D) hardly serrate posteri-

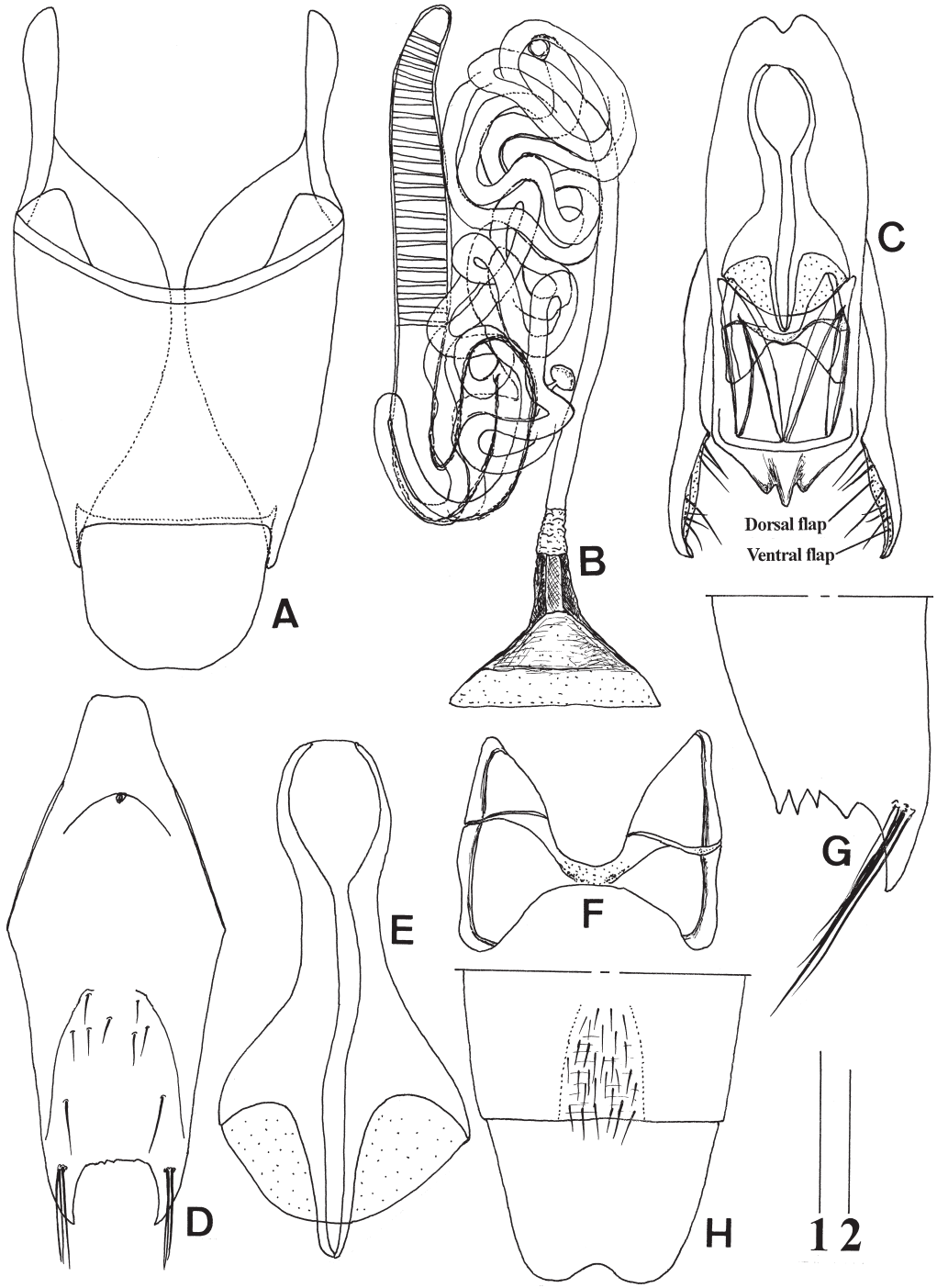

Fig. 19. *Stenus kumoma* Naomi (Hayachine, Iwate). A, 9th and 10th terga of male; B, spermatheca; C, aedeagus; D, 9th ventrite of male; E, copulatory tube; F, expulsion hooks; G, posterior part of gonocoxite; H, 7th and 8th ventrites of male. Scale 1: 0.2 mm for A, C, D, 0.1 mm for B, E–G; Scale 2: 0.3 mm for H.

orly, with macrosetae relatively short, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 19A) very weakly emarginate posteriorly. Aedeagal median lobe (Fig. 19C) broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 19C) developed, subtriangular, with median cusp short, pointed, lateral subcusps short, angulate. Endophallic median bands (Fig. 19C) each short, very broad at base, narrowed anteriorly; lateral bands (Fig. 19C) thin; expulsion hooks (Fig. 19F) connected by a membranous bar at the mesial sides of posterior plates, each hook almost elongate-triangular, sclerotized along the lateral margin, with anterior plate demarcated by a suture from posterior plate; copulatory tube (Fig. 19E) very large, with basal chamber ovoidal, main tube subrhombic, with apical processes each long, thin, lateral processes each broad, pointed, membranous plate large, rounded posteriorly. Parameres (Fig. 19C) robust, each weakly incurved and pointed at the apicalmost part; apical area stout, very long, swollen and distinctly angulate mesially at base, having a very low dorsal and a very low ventral flaps, furnished mesially with 7 setae of various lengths.

Female: Eighth ventrite obtusely pointed posteromedially; gonocoxites (Fig. 19G) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 19B) with capsule rounded apically, very small; RT-duct long, thick; duct very long, usually thin but moderately thick to thick at the distal part, almost tightly coiled; basal valve short, a little shorter than basal sclerotized duct; basal pouch broad-conical, sclerotized distally.

Biology and ecology. *S. kumoma* is presently collected only from Mt. Hayachine of Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. kumoma* is allied to *S. izanagi*, but it is separable from the latter species by the body smaller, the 9th tergum with its antecostal apophysis thinner (Fig. 19A), the 9th ventrite with its apicolateral tooth longer and more strongly pointed (Fig. 19D), the endophallic expulsion hook subtriangular (Fig. 19F), the copulatory tube with its basal chamber large (Fig. 19E), and the spermatheca with its duct much longer and thinner (Fig. 19B). Note that the endophallic expulsion hook of *S. kumoma* is, interestingly, similar in structure to the expulsion hook (e.g., Fig. 57G) of some members of the *inimitabilis*-subgroup of *indubius*-group.

Etymology. The specific epithet of this species is derived from a Japanese noun "kumoma", which means the "blue sky broken through the clouds". This word is often used for describing a beautiful scenery that we can see at the high mountains like Mt. Hayachine.

Stenus izanagi Naomi & Puthz
(Figs. 20A, C–J, 103F)

Stenus izanagi Naomi & Puthz, 1994: 302; Herman, 2001: 2236; Naomi & Puthz, 2013: 142.

Type material. Holotype: 1 ♂ (CBM), Mt. Hayachine, Hanamaki City, Iwate Pref., 17. vii. 1985, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂, Mt. Hayachine, Hanamaki City, Iwate Pref., 17. vii. 1985, S. Nomura leg.; 1 ♂1 ♀, Mt. Kattadake, Miyagi Pref., 22. ix. 1991, Y. Hirano leg.

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

Redescription. Male and female: Body 5.0–5.5 mm (fore body 2.3–2.6 mm) in length, robust, weakly to moderately shining, with antennae moderately long, thin. Head and abdomen dark brown to black; pronotum and elytra dark reddish brown; labrum reddish brown to dark brown; antennae reddish brown, with apical segments infuscate; legs reddish brown. Head weakly con-

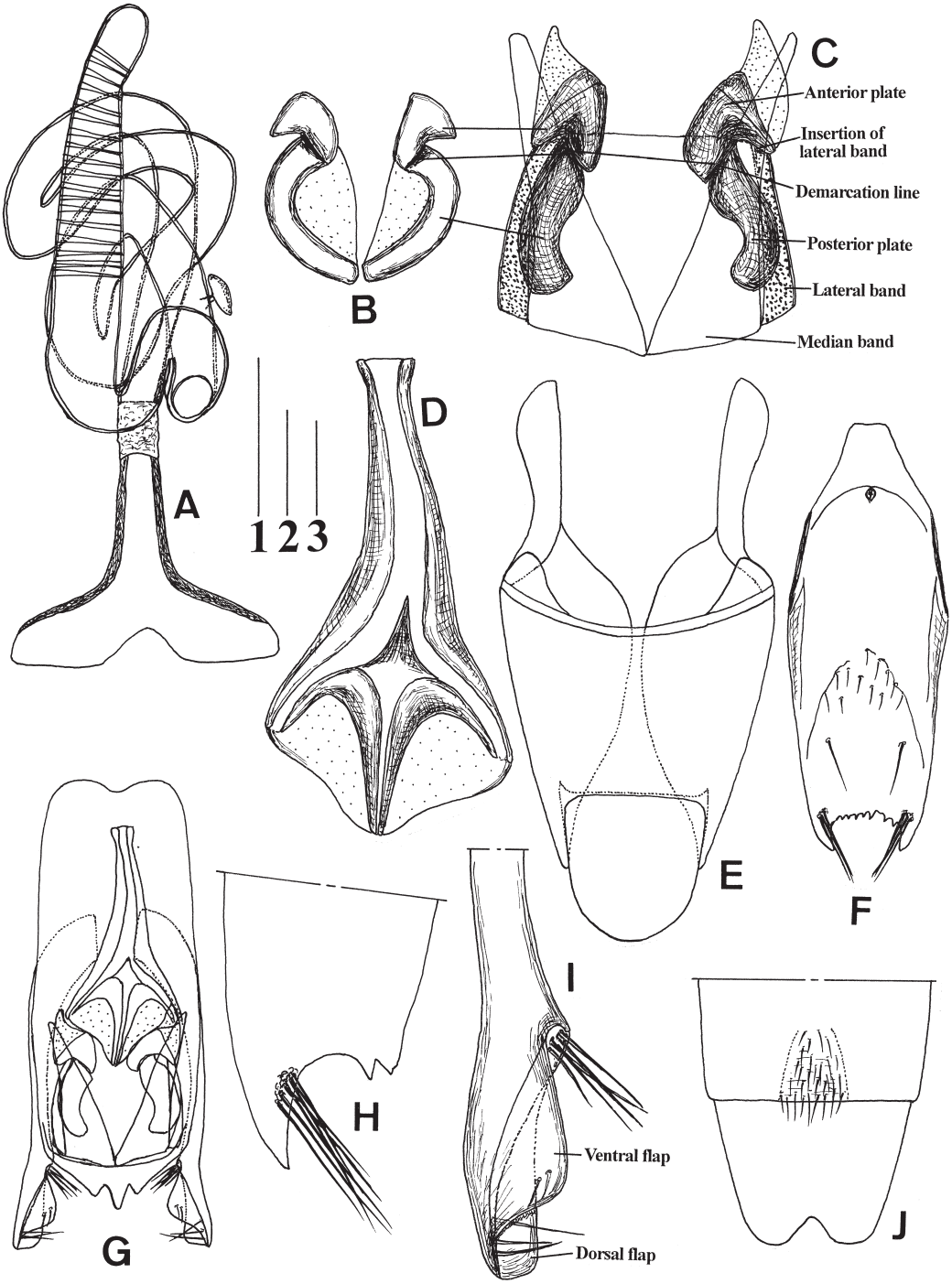

Fig. 20. A, C–J, *Stenus izanagi* Naomi (A, H, Hayachine, Iwate; C–G, I, J, Kattadake, Miyagi); B, *S. nomuraianus* Puthz (Cheon, Korea). A, spermatheca; B, C, expulsion hooks; D, copulatory tube; E, 9th and 10th terga of male; F, 9th ventrite of male; G, aedeagus; H, posterior part of gonocoxite; I, apex of paramere; J, 7th and 8th ventrites of male. Scale 1: 0.1 mm for A, H, I; 0.05 mm for B; Scale 2: 0.2 mm for E–G, 0.1 mm for C, D; Scale 3: 0.3 mm for J.

cave, with a pair of longitudinal furrows; punctures round to elliptical, moderately dense to dense, small. Pronotum with surface uneven, median longitudinal furrow indistinct, with its central area weakly concave; punctures round, very dense, various in size, coarse, subrugose. Elytra with surface uneven, weakly depressed near the base of suture; punctures round to almost round, very dense, various in size but moderately large on average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, regular in anterior segments, while punctures in 7th and 8th segments very fine, sparse. Lateroventrites and tergoventrite sutures missing.

Male: Legs with femora thick; 7th ventrite (Fig. 20J) posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 20J) posteromedially with a subtriangular emargination; 9th tergum (Fig. 20E) with antecostal apophyses long, very broad; 9th ventrite (Fig. 20F) minutely serrate posteriorly, with macrosetae relatively short, apicolateral tooth short, pointed, apicolateral setae moderately long; 10th tergum (Fig. 20E) rounded posteriorly. Aedeagal median lobe (Fig. 20G) broad, angulate at apicolateral corners; apical sclerotized area (Fig. 20G) broad-subtriangular, with median cusp moderately long, thick, lateral cusps short, pointed. Endophallic median bands (Fig. 20C) each short, very broad at base, strongly narrowed anteriorly; lateral bands (Fig. 20C) moderately long and broad; expulsion hooks (Fig. 20C) widely separated, each hook with anterior plate small, nearly V-shaped, demarcated by a cleft from posterior plate, the posterior plate almost C-shaped, thin; copulatory tube (Fig. 20D) large, robust, with basal chamber hardly developed, main tube subrhombic, with apical processes each long, pointed, lateral processes each thick, membranous plate weakly emarginate apicolaterally. Parameres (Fig. 20G) each very broad at base, weakly turning laterally at apical area, pointed at apex; apical area (Fig. 20I) moderately long, swollen and distinctly angulate mesially at base, having a low dorsal and a subtriangular ventral flaps, furnished basally with a tuft of 5 to 6 setae, apically with 3 setae, and also with 2 short setae on ventral flap.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 20H) each with apicolateral tooth long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 20A) with capsule subovoidal, rounded apically; RT-duct long, thick to very thick; duct moderately long, thick to very thick, almost tightly coiled; basal valve short; basal sclerotized duct long; basal pouch mushroom-shaped.

Biology and ecology. *S. izanagi* is a rare species; and it is distributed in the high mountainous regions of Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. izanagi* is allied to *S. kumoma*, but it is separable from the latter species by the body larger, the 9th tergum with its antecostal apophysis thicker (Fig. 20E), the 9th ventrite with its apicolateral tooth shorter and less strongly pointed (Fig. 20F), the endophallic expulsion hook with its anterior plate nearly V-shaped and its posterior plate almost C-shaped (Fig. 20C), the copulatory tube with its basal chamber almost missing (Fig. 20D), and the spermatheca with its duct shorter and thicker (Fig. 20A). Note that *S. izanagi* has a peculiar expulsion hook, as described above (i.e., the anterior plate small and nearly V-shaped; and the posterior plate almost C-shaped and much longer than the anterior plate). This peculiar condition is not found in *S. kumoma*, but also in the other members of *kasumi*-subg. in Japan. However, the very similar condition of expulsion hook (Fig. 20B) is found in *S. nomuraianus* (Fig. 108I) from Korea. This may show that *S. izanagi* is allied also to *S. nomuraianus*.

Etymology. The specific epithet of this species is derived from the name of god “Izanagi”, which appears in the Japanese ancient mythology.

The *asyura*-subgroup

The *asyura*-subg. was only recently first recognized as a subgroup (13 species) of the *asyura*-group in the list of Japanese Steninae (Naomi & Puthz, 2013); and the diagnostic characters were not described there. At present, this subgroup comprises 24 species in Japan; and it is here first characterized as below. The robust autapomorphic characters are not found for the whole subgroup. However, based on the unique combination of the characteristic habitus with yellowish brown to reddish brown coloration (Fig. 104A, K), the less-developed modifications of the 6th and 7th ventrites of male (Fig. 32C), and the several important aedeagal characters (as described below), the *asyura*-subg. can be characterized to form a natural group.

Diagnostic characters of the *asyura*-subgroup: Habitus and coloration (yellowish brown to reddish brown) (Figs. 104K, 108J) usually similar to some members of the *cephalotes*-group with bright coloration (e.g., *S. okamotoi* Naomi, 1989a), but a few species (e.g., *S. clio*; *S. nogohakusanus*) having the reddish brown to dark reddish brown coloration (Fig.103I); antennae usually moderately long; abdomen without lateroventrites nor tergoventrite sutures in 4th to 6th segments (*Hypostenus*-type). Male: Ninth ventrite with relatively small apicolateral teeth (Figs. 32F, 39A); aedeagal paramere often furnished with the anteriorly curved setae (Figs. 28E, 33B) and 2 rather long setae (Figs. 24C, 36E), in addition to the common, straight setae of various length; endophallic expulsion hooks well-developed, variously formed; copulatory tube with main tube simple and attenuate (Figs. 21E, 4E), sometimes strongly curved (Fig. 28E), rarely modified with spiral (Fig. 31C), funnel (Fig. 36C), paired lateral processes (Fig. 33D) or apical swollen area (Figs. 35B, 39D). Female: Gonocoxite with apicolateral tooth acutely pointed, apicolateral setae very long (Fig. 21E); spermathecal RT-duct usually moderately long and thick, but rarely very thick (Figs. 32B, 40A); spermathecal duct short with 2 turns (Fig. 23C), moderately long (Fig. 36B) or very long (Fig. 27A), with surface usually smooth (Fig. 39H), but rarely covered sporadically with small tubercles (Fig. 33F).

Key to the Japanese species of the *asyura*-subgroup

1(18) Male: Aedeagal median lobe simply angulate or pointed at apex.

2(3) Male: Endophallic expulsion hooks fused to form a Y-shaped structure (Fig. 42B) ..... *S. yukawai* Naomi

3(2) Male: Endophallic expulsion hooks composed of paired sclerites.

4(5) Male: Endophallic expulsion hook with posterior plate bilobed (Fig. 26E) ..... *S. hijiri* Naomi

5(4) Male: Endophallic expulsion hook with posterior plate not bilobed.

6(9) Male: Aedeagal paramere with apical area longer; endophallic expulsion hook with anterior plate bipartite.

7(8) Male: Endophallic expulsion hook with posterior plate shortly projecting and acutely pointed posterolaterally (Fig. 24D); copulatory tube only weakly curved at apex (Fig. 24C)..... *S. komonoensis* Naomi

8(7) Male: Endophallic expulsion hook with posterior plate not having posterolateral projection (Fig. 25E); copulatory tube strongly curved at apex (Fig. 25B)..... *S. anfractus* Naomi

9(6) Male: Aedeagal paramere with apical area shorter; endophallic expulsion hook with anterior plate solid.

10(13) Male: Eighth ventrite more shallowly emarginate. Female: Spermatheca with RT-duct

attached at the apicolateral side of the weakly swollen distal part of spermathecal duct.

11(12) Male: Aedeagal median lobe with apical sclerotized area as broad as the median lobe at apicolateral corners (Fig. 21E); endophallic expulsion hook shorter (Fig. 21E)..... ..... *S. brendelli* Naomi

12(11) Male: Aedeagal median lobe with apical sclerotized area much narrower than the median lobe at apicolateral corners (Fig. 22E); endophallic expulsion hook longer (Fig. 22G) .... *S. ruricolaris* Naomi

13(10) Eighth ventrite more deeply emarginate. Female: Spermatheca with RT-duct simply connected with spermathecal duct antero-posteriorly.

14(17) Male: Endophallic expulsion hook more or less rounded posterolaterally; copulatory tube without lateral processes.

15(16) Male: Aedeagal median lobe simply pointed at apex (Fig. 23A); endophallic copulatory tube weakly curved near apex (Fig. 23A). Female: Spermatheca with duct much shorter with 2 turns (Fig. 23C)..... *S. clio* Naomi

16(15) Male: Aedeagal median lobe pointed apically with median cusp (Fig. 28E); endophallic copulatory tube strongly curved (Fig. 28E). Female: Spermatheca with duct much longer, tightly coiled (Fig. 28B)..... *S. oisami* Naomi & Puthz

17(14) Male: Endophallic expulsion hook acutely pointed posterolaterally (Fig. 33B); copulatory tube with lateral processes (Fig. 33D) ..... *S. tsukubamontis* Naomi, Nomura & Kamezawa

18(1) Male: Aedeagal median lobe tricuspidate at apex.

19(22) Male: Endophallic expulsion hooks fused to form a Y-shaped structure.

20(21) Male: Aedeagal median lobe simply tricuspidate at apex (Fig. 43B); endophallic copulatory tube only weakly curved near the middle (Fig. 43D)..... *S. alesi* Naomi

21(20) Male: Aedeagal median lobe tricuspidate apically, but distinctly excavated at the base of median cusp (Fig. 44B); endophallic copulatory tube distinctly constricted near the middle (Fig. 44D)..... *S. daikoku* Naomi

22(19) Male: Endophallic expulsion hooks composed of paired sclerites.

23(38) Male: Endophallic copulatory tube simple or only weakly modified (e.g., weakly curved near the middle; weakly swollen apically).

24(27) Male: Aedeagal median lobe with median and lateral cusps much smaller. Female: Spermatheca with duct longer, thinner.

25(26) Male: Endophallic expulsion hook narrower, acutely pointed anteriorly (Fig. 27B); copulatory tube with main tube straight except for the weakly curved apex (Fig. 27B)..... ..... *S. maruyamai* Naomi

26(25) Male: Endophallic expulsion hook broader, obtusely angulate anteriorly (Fig. 29F); copulatory tube with main tube strongly curved (Fig. 29C)..... *S. biwa* Hromádka

27(24) Male: Aedeagal median lobe with median and lateral cusps much larger. Female: Spermatheca with duct shorter, thinner. (Note: Spermatheca of *S. fulvivestis* not observed).

28(31) Male: Endophallic copulatory tube weakly swollen at apex.

29(30) Male: Aedeagal median lobe larger (Fig. 35B); paramere with apical area furnished mesially with dense setae (Fig. 35B); endophallic expulsion hook broader, projecting posterolaterally (Fig. 35B)..... *S. ellipsoides* Naomi

30(29) Male: Male: Aedeagal median lobe smaller (Fig. 39B); paramere with apical area mesially having two separated setal areas (Fig. 39B); endophallic expulsion hook narrower, projecting posteriorly (Fig. 39G)..... *S. asyura* Naomi

31(28) Male: Endophallic copulatory tube pointed at apex.

32(33) Male: Aedeagal paramere longer (Fig. 34A); endophallic expulsion hook distinctly angulate posterolaterally (Fig. 34E) ..... *S. santira* Naomi
33(32) Male: Aedeagal paramere shorter; endophallic expulsion hook rounded posterolaterally.
34(35) Male: Aedeagal median lobe with apical sclerotized area more developed, having the notch between the median and lateral cusps deeper (Fig. 40E)..... *S. hakonensis* Naomi
35(34) Male: Aedeagal median lobe with apical sclerotized area less developed, having the notch between the median and lateral cusps shallower.
36(37) Male: Endophallic expulsion hook narrower (Fig. 37F); copulatory tube with main tube thicker, moderately curved at apex (Fig. 37E)..... *S. fulvivestis* Naomi & Watanabe
37(36) Male: Endophallic expulsion hook broader (Fig. 41G); copulatory tube with main tube thinner, simply attenuate toward apex (Fig. 41B)..... *S. nogohakusanus* Naomi, Nomura & Kamezawa
38(23) Male: Endophallic copulatory tube strongly modified (e.g., with flaps, spiral, funnel, lateral or apical processes).
39(40) Male: Endophallic copulatory tube spiral (Fig. 31C) ..... *S. araiorum* Naomi
40(39) Male: Endophallic copulatory tube not spiral.
41(42) Male: Aedeagal median lobe with median cusp much longer (Fig. 38F); endophallic expulsion hook rounded posteriorly (Fig. 38D)..... *S. basara* Naomi
42(41) Male: Aedeagal median lobe with median cusp much shorter; endophallic expulsion hook angulate or pointed posterolaterally.
43(46) Male: Aedeagal paramere shorter; endophallic copulatory tube with main tube not funnel-formed.
44(45) Male: Aedeagal median lobe with lateral cusp usually composed of a simple angulation (Fig. 30H); endophallic expulsion hook thinner (Fig. 30H). Female: Spermatheca with capsule and RT-duct much thinner (Fig. 30B) ..... *S. bicara* Naomi
45(44) Male: Aedeagal median lobe with lateral cusp small but distinctly pointed (Fig. 32D); endophallic expulsion hook thicker (Fig. 32H). Female: Spermatheca with capsule and RT-duct much thicker (Fig. 32B) ..... *S. jyurojin* Naomi
46(43) Male: Aedeagal paramere longer (Fig. 36E); endophallic copulatory tube with its main tube funnel-formed (Fig. 36C)..... *S. protuberans* Naomi & Watanabe

Stenus brendelli Naomi
(Figs. 21A–F, 103G)

Stenus brendelli Naomi, 1997: 755; Herman, 2001: 2098; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Mt. Jyôyama, Munakata, Fukuoka Pref., 8. iii. 1986, S. Nomura leg. Paratype: 1 ♀ (cN), same data as holotype.

Distribution. Japan: Kyushu (Fukuoka Pref.).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae moderately long, thin. Head dark reddish brown to black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum reddish brown; antennae yellowish or reddish brown, with apical segments more or less infuscate; legs yellowish brown to reddish brown. Head weakly concave, with a pair of midlateral longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large,

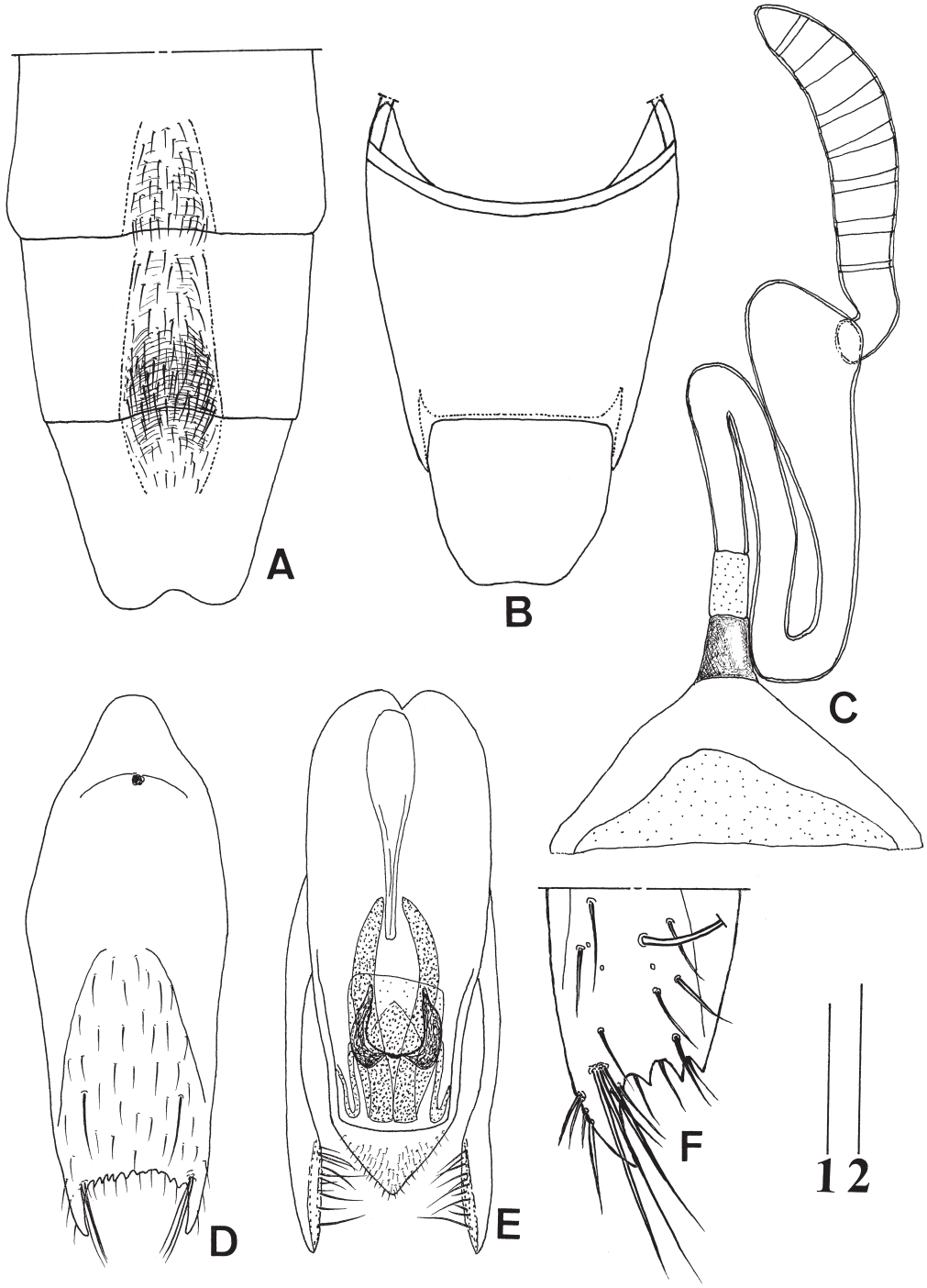

Fig. 21. *Stenus brendelli* Naomi (Jôyama, Fukuoka). A, 6th to 8th ventrites of male; B, 9th and 10th terga of male (antecostal apophyses not illustrated); C, spermatheca; D, 9th ventrite of male; E, aedeagus; F, posterior part of gonocoxite. Scale 1: 0.3 mm for A; Scale 2: 0.2 mm for B, D, E, 0.1 mm for C, F.

somewhat coarse, two or more punctures sometimes partially fused. Elytra with surface uneven, almost flat or weakly depressed near suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, moderately dense, small, almost regular in anterior segments, while punctures in 7th and 8th segments sparse to moderately dense, shallow. Lateroventrites missing; tergoventrite suture existing only at the base of each segment, virtually missing in the posterior part.

Male: Sixth ventrite (Fig. 21A) posteromedially with an elongate shallow depression, which is very shallowly emarginate; 7th ventrite (Fig. 21A) medially with an elongate depression, which is arcuately emarginate posteriorly; 8th ventrite (Fig. 21A) anteromedially with a bell-shaped, shallow despression, posteriorly with a small, nearly semicircular emargination; 9th tergum as in Fig. 21B; 9th ventrite (Fig. 21D) serrate posteriorly, with macrosetae moderately long, apicolateral teeth pointed, apicolateral setae moderately long; 10th tergum (Fig. 21B) very weakly emarginate posteriorly. Aedeagal median lobe (Fig. 21E) broad, angulate apicolaterally, simply pointed at apex; apical sclerotized area (Fig. 21E) triangular, covered sparsely with thin, short setae. Endophallic median bands (Fig. 21E) each with basal band moderately broad, gently incurved, folded bands fused each other; lateral bands (Fig. 21E) thin; expulsion hooks (Fig. 21E) connected at the posteromesial corners, each hook almost C-shaped, thin, pointed at anterior tip; copulatory tube (Fig. 21E) with basal chamber almost elongate-ovoidal, main tube simply rod-like. Parameres (Fig. 21E) each weakly incurved, pointed at apex; apical area large, long, moderately swollen mesially, furnished mesially with 11 to 12 setae of different length.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 21F) each toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 21C) robust, with capsule conical, very small; RT-duct moderately long, thick, branched from the lateral side of the distal swollen area of spermathecal duct; duct short with two turns, with the distal part becoming thicker distally; basal valve short; basal sclerotized duct short. Basal structure (Fig. 21C) very large, broad-conical.

Biology and ecology. *S. brendelli* is known only from the low mountainous region of the northern part of Kyushu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their common possession of the peculiar spermathecal structure (i.e., RT-duct branched from the lateral side of the distal swollen area of the spermathecal duct; Figs. 21C, 22F), *S. brendelli* is the sister species of *S. ruricolaris*, and it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area larger and broader (Fig. 21E) and the endophallic explusion hook is C-shaped (Fig. 21E).

Etymology. This species is named in honor of Mr. Martin J. D. Brendell (Natural History Museum, London).

Stenus ruricolaris Naomi
(Figs. 22A–G, 103H)

Stenus ruricolaris Naomi, 1998: 102; Herman, 2001: 2375; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Mt. Tachibana, Fukuoka City, Fukuoka Pref., 21. vii. 1986, S. Naomi leg. Paratype: 1 ♂11 ♀ (cN), same data as holotype.

Other material examined. [KYUSHU]: 1 ♂ (cN), same data as holotype.

Distribution. Japan: Kyushu (Fukuoka Pref.).

Redescription. Male and female: Body 3.8–4.7 mm (fore body 1.8–2.2 mm) in length, mod-

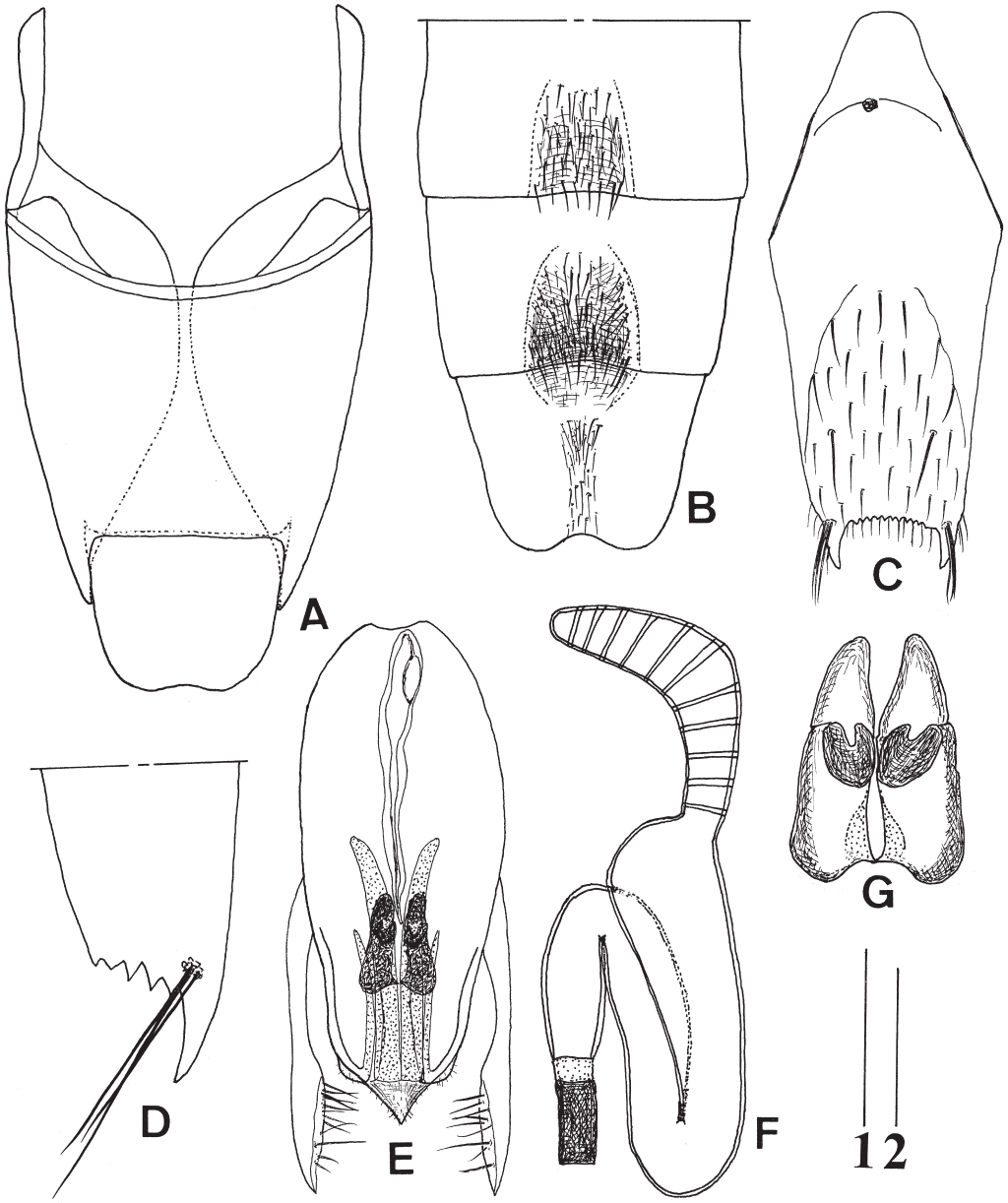

Fig. 22. *Stenus ruricolaris* Naomi (Tachibana, Fukuoka). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, posterior part of gonocoxite; E, aedeagus; F, spermatheca; G, expulsion hooks. Scale 1: 0.2 mm for A, C, E, 0.1 mm for D, F, G; Scale 2: 0.3 mm for B.

erately shining, with antennae moderately long, thin. Head and abdomen dark reddish brown to black; pronotum and elytra reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to very dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse, two or more punctures sometimes partially fused. Elytra with surface uneven,

almost flat or weakly depressed near suture; punctures round to almost round, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small, almost regular in anterior segments, while punctures in 7th and 8th segments sparse to moderately dense, shallow. Lateroventrites missing; tergoventrite sutures almost missing but sometimes existing, very thin.

Male: Fifth ventrite posteromedially with a bell-shaped flat area; 6th ventrite (Fig. 22B) posteromedially with a shallow, elongate-subtrapezoidal depression which is very shallowly emarginate; 7th ventrite (Fig. 22B) posteromedially with a large, bell-shaped depression, which is arcuately emarginate; 8th ventrite (Fig. 22B) anteromedially with a short, shallow depression, posteriorly with a semicircular emargination; 9th tergum (Fig. 22A) with antecostal apophyses moderately long; 9th ventrite (Fig. 22C) minutely serrate posteriorly, with macrosetae relatively short, apicolateral teeth short, pointed, apicolateral setae short; 10th tergum (Fig. 22A) weakly emarginate. Aedeagal median lobe (Fig. 22E) broad, gently rounded apicolaterally, weakly swollen at the area just dorsal from the apicolateral corner, acutely pointed at apex; apical sclerotized area (Fig. 22E) triangular, narrow, covered sparsely with very thin, short setae. Endophallic median bands (Fig. 22E) each with ventral band long, relatively thin; lateral bands (Fig. 22E) long, thin; expulsion hooks (Fig. 22G) connected at the posteromesial corners, each broad, rounded posteriorly; copulatory tube (Fig. 22E) long, with basal chamber nearly elongate-elliptical, basal constriction indistinct, main tube rod-like, weakly, twice constricted on its way. Parameres (Fig. 22E) each weakly incurved, acutely pointed apically; apical area large, robust, long, moderately swollen mesially, furnished mesially with 9 to 12 setae of different length.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 22D) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 22F) stout, with capsule very small; RT-duct moderately long, thick, branched from the lateral side of the distal swollen area of spermathecal duct; duct thick to very thick, short with two turns, the distal part becoming swollen distally; basal valve very short; basal sclerotized duct moderately long.

Biology and ecology. *S. ruricolaris* is known only from the low mountainous region of the northern part of Kyushu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. ruricolaris* is the sister species of *S. brendelli*, and it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area smaller and narrower (Fig. 22E) and the endophallic explusion hooks each much thicker (Fig. 22G). Given their common possession of the structural similarities on the endophallic expulsion hooks and copulatory, *S. ruricolaris* is also allied to *S. clio*, but it is separable from the latter species by the aedeagal median lobe weakly swollen at the area just dorsal from the apicolateral corner (Fig. 22E), the paramere with its apical area longer (Fig. 22E), and the spermatheca with its duct distinctly thickened at the distal part (Fig. 22F).

Stenus clio Naomi
(Figs. 23A–F, 103I)

Stenus clio Naomi, 2015: 20.

Type material examined. Holotype: ♂ (CBM), Mt. Kamagadake, Komono-cho, Mie Pref., 27. viii. 1994, H. Yokozeki leg. Paratypes: 3 ♂1 ♀ (cN), same data as holotype.

Distribution. Japan: Honshu (Mie Pref.).

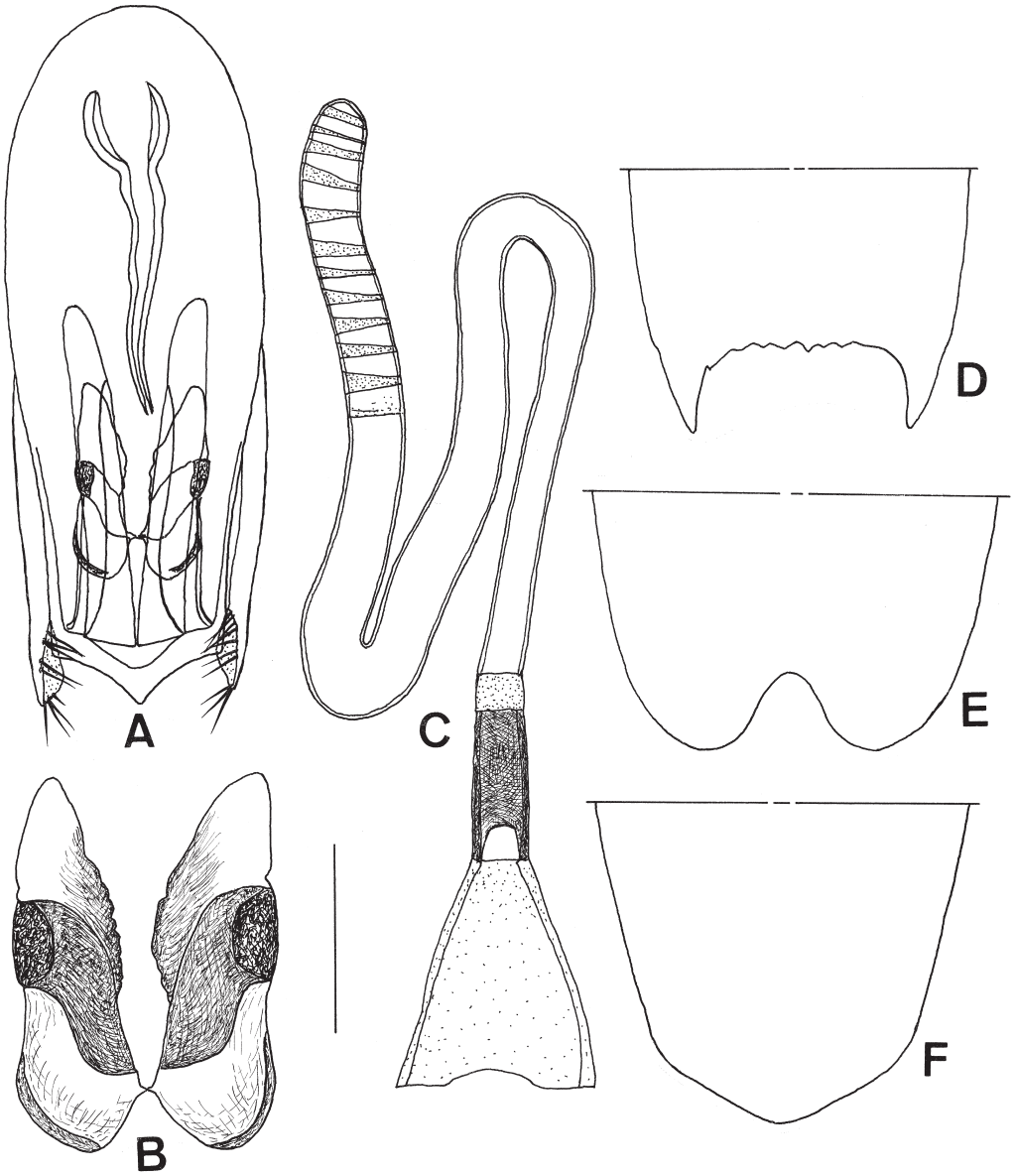

Fig. 23. *Stenus clio* Naomi (Kamagatake, Mie). A, aedeagus; B, expulsion hooks; C, spermatheca; D, apical part of 9th ventrite of male; E, posterior part of 8th ventrite of male; F, posterior part of 8th ventrite of female. Scale: 0.2 mm for A, E, F, 0.1 mm for B–D.

Redescription. Male and female: Body 3.5–3.8 mm (fore body 1.8–2.0 mm) in length, weakly shining, with antennae moderately long, thin. Head dark brown to black; pronotum and elytra reddish brown; abdomen dark reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, and small except for the sparsely punctate median area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat

near suture; punctures round to elliptical, very dense, large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while punctures in posterior segments elliptical, very small. Lateroventrites missing; tergoventrite sutures existing, distinct.

Male: Sixth ventrite posteromedially with or without a semicircular flat area; 7th ventrite posteromedially with or without a very shallow, elongate-elliptical depression, which is very shallowly emarginate; 8th ventrite (Fig. 23E) posteromedially with a deep, moderately large emargination; 9th tergum with ventral apophyses relatively long, thin; 9th ventrite (Fig. 23D) irregularly, indistinctly serrate posteriorly, with macrosetae short, apicolateral teeth short, apicolateral setae long; 10th tergum entire. Aedeagal median lobe (Fig. 23A) broad, distinctly angulate apicolaterally, simply pointed at apex; apical sclerotized area (Fig. 23A) weakly developed, widely arcuate at apicomedian margin. Endophallic median bands (Fig. 23A) long, broad; lateral bands (Fig. 23A) long, very thin; expulsion hooks (Fig. 23B) large, robust, connected at the mesial margins of posterior plates, with anterior plate roughly crenulate at mesial margin, demarcated by a curved suture from posterior plate, the posterior plate composing of its strongly sclerotized anterolateral part, and its posterior part with a low, folded rim along posterolateral margin; copulatory tube (Fig. 23A) with basal chamber large, ovoidal, main tube attenuate but slightly curved in apical half. Parameres (Fig. 23A) each slender, almost straight; apical area short, hardly swollen mesially, furnished mesially with 9 to 10 short setae at marginal area.

Female: Eighth ventrite (Fig. 23F) weakly angulate posteromedially; gonocoxites each hardly serrate posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 23C) with capsule missing; RT-duct moderately long and thick; spermathecal duct moderately thick to thick, short with two turns; basal valve very short; basal sclerotized duct stout, long. Basal structure elongate-conical, membranous.

Biology and ecology. *S. clio* is a rare species; and it is collected only once from the mountainous region of Kansai district, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. The 3 distinct but morphologically similar species *S. clio*, *S. komonoensis* and *S. anfractus* all are distributed in the eastern part of Kansai district. *S. clio* is allied to *S. komonoensis* and *S. anfractus*, but it is separable from them by the 8th ventrite with the larger emargination (Fig. 23E), and the endophallic expulsion hook with its posterior plate rounded posteriorly (Fig. 23B). *S. clio* is also allied to *S. ruricolaris* from Kyushu, but it is separable from the latter species by the aedeagal median lobe simply pointed at the apicolateral corner (Fig. 23A), the paramere with its apical area shorter (Fig. 23A), and the spermathecal duct most thick at the 2nd turn and then becoming thinner distally (Fig. 23C).

Stenus komonoensis Naomi
(Figs. 24A–G, 103J)

Stenus komonoensis Naomi, 2015: 5.

Type material examined. Holotype: ♂ (CBM), Komono-cho, Mie Pref., 26. xi. 1989, A. Amagasu leg.

Other material examined. [HONSHU]: 1 ♂3 ♀, Mt. Gozaisho, Mie Pref., 11. x. 2009, T. Ito leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male and female: Body 3.9–4.5 mm (fore body 2.0–2.2 mm) in length,

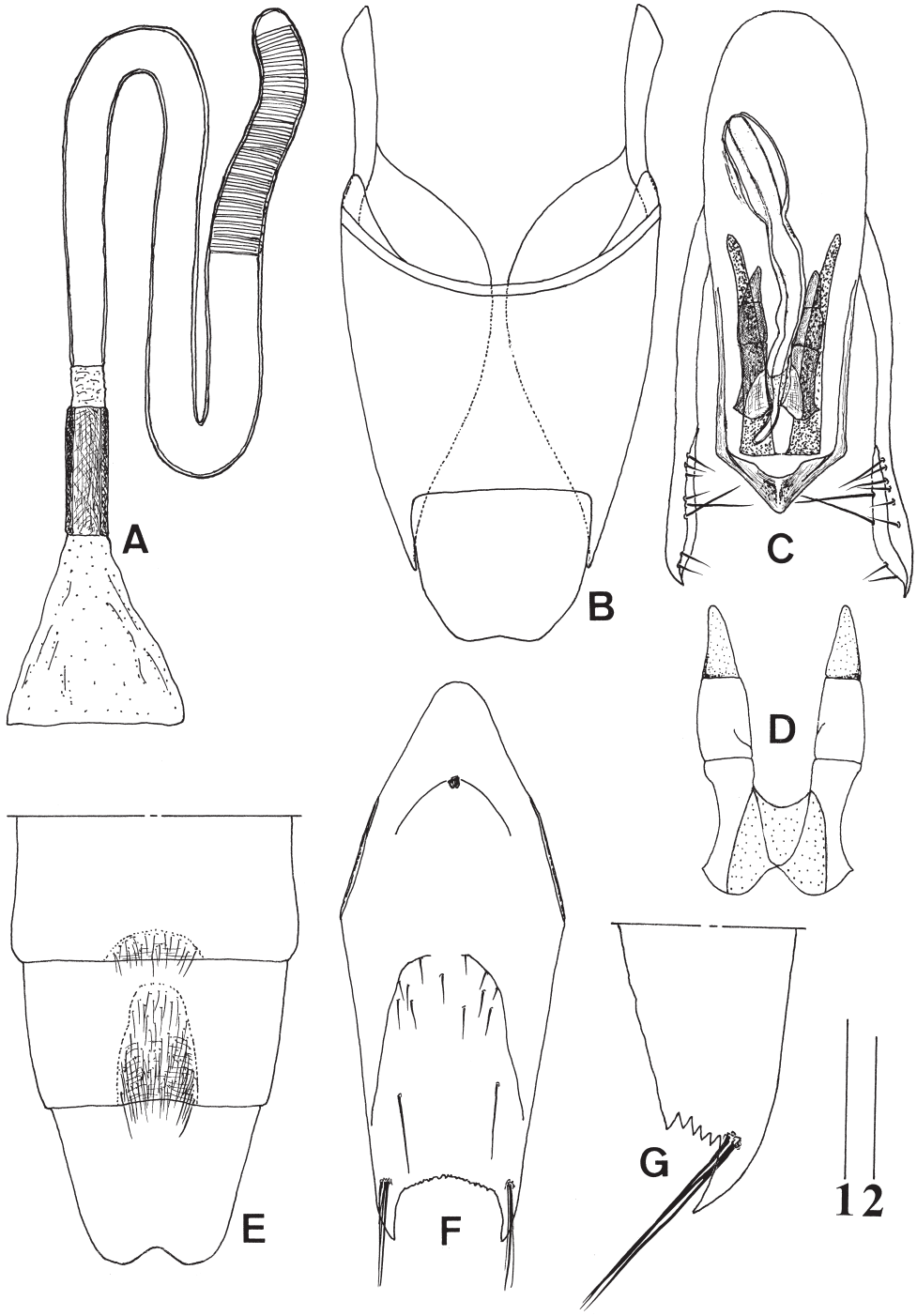

Fig. 24. *Stenus komonoensis* Naomi (A, B, F, G, Gozaisho, Mie; C, D, E, Komono, Mie). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, expulsion hooks; E, 6th to 8th ventrites of male; F, 9th ventrite of male; G, posterior part of gonocoxite. Scale 1: 0.1 mm for A, D, G, 0.2 mm for B, C, F; Scale 2: 0.3 mm for E.

weakly shining, with antennae moderately long, very thin, legs moderately thick. Head black; prothorax, elytra and abdomen reddish brown to dark red; labrum reddish brown; antennae reddish brown to dark reddish brown; legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense, small. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large. Elytra with surface very weakly uneven; punctures round, very dense, moderately large. Tarsi with 4th tarsomeres strongly bilobed. Abdomen with punctures round, moderately dense, various in size, regular in anterior segments, while punctures in 7th and 8th segments very small, indistinct. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 24E) posteromedially with a transverse flat area; 7th ventrite (Fig. 24E) medially with an elongate shallow depression, which is weakly emarginate; 8th ventrite (Fig. 24E) posteriorly with a subtriangular emargination; 9th tergum (Fig. 24B) with antecostal apophyses moderately long; 9th ventrite (Fig. 24F) very minutely serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 24B) weakly emarginate. Aedeagal median lobe (Fig. 24C) broad, distinctly angulate apicolaterally, pointed at apex; apical sclerotized area (Fig. 24C) broad, subtriangular, arcuately emarginate anteriorly. Endophallic median bands (Fig. 24C) long, moderately broad; expulsion hooks (Fig. 24D) connected posteromedially by membrane, with the anterior plate divided antero-posteriorly into two parts, demarcated by a transverse suture from posterior plate, the posterior plate membranous posteromesially, weakly protruding and pointed posterolaterally; copulatory tube (Fig. 24C) long, with basal chamber almost elliptical, main tube weakly constricted twice or thrice, weakly curved in its full length. Parameres (Fig. 24C) long, each very acutely pointed and incurved at the apicalmost part; apical area very long, moderately swollen mesially, furnished mesially with 8 to 10 setae of different length.

Female: Eighth ventrite pointed or angulate posteromedially; gonocoxites (Fig. 24G) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 24A) with capsule very small; RT-duct moderately long and thick; duct thick, short with two turns; basal valve short; basal sclerotized duct long. Basal structure (Fig. 24A) almost conical, membranous.

Biology and ecology. *S. komonoensis* is distributed in the plains and low mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. komonoensis* is the sister species of *S. anfractus*, and it is separable from the latter species by the endophallic expulsion hook with its posterior plate distinctly protruding and pointed posterolaterally (Fig. 24D), and the copulatory tube with its main tube only weakly curved at apex (Fig. 24C).

Stenus anfractus Naomi
(Figs. 25A–E, 103K)

Stenus anfractus Naomi, 2015: 5.

Type material examined. Holotype: ♂ (CBM), Mt. Kamagadake, Komono-cho, Mie Pref., 27. viii. 1994, H. Yokozeki leg.

Distribution. Japan: Honshu (Mie Pref.).

Redescription. Male: Body 4.5 mm (fore body 2.2 mm) in length, robust, weakly shining, with antennae very thin, moderately long, legs moderately thick. Head black; prothorax, elytra

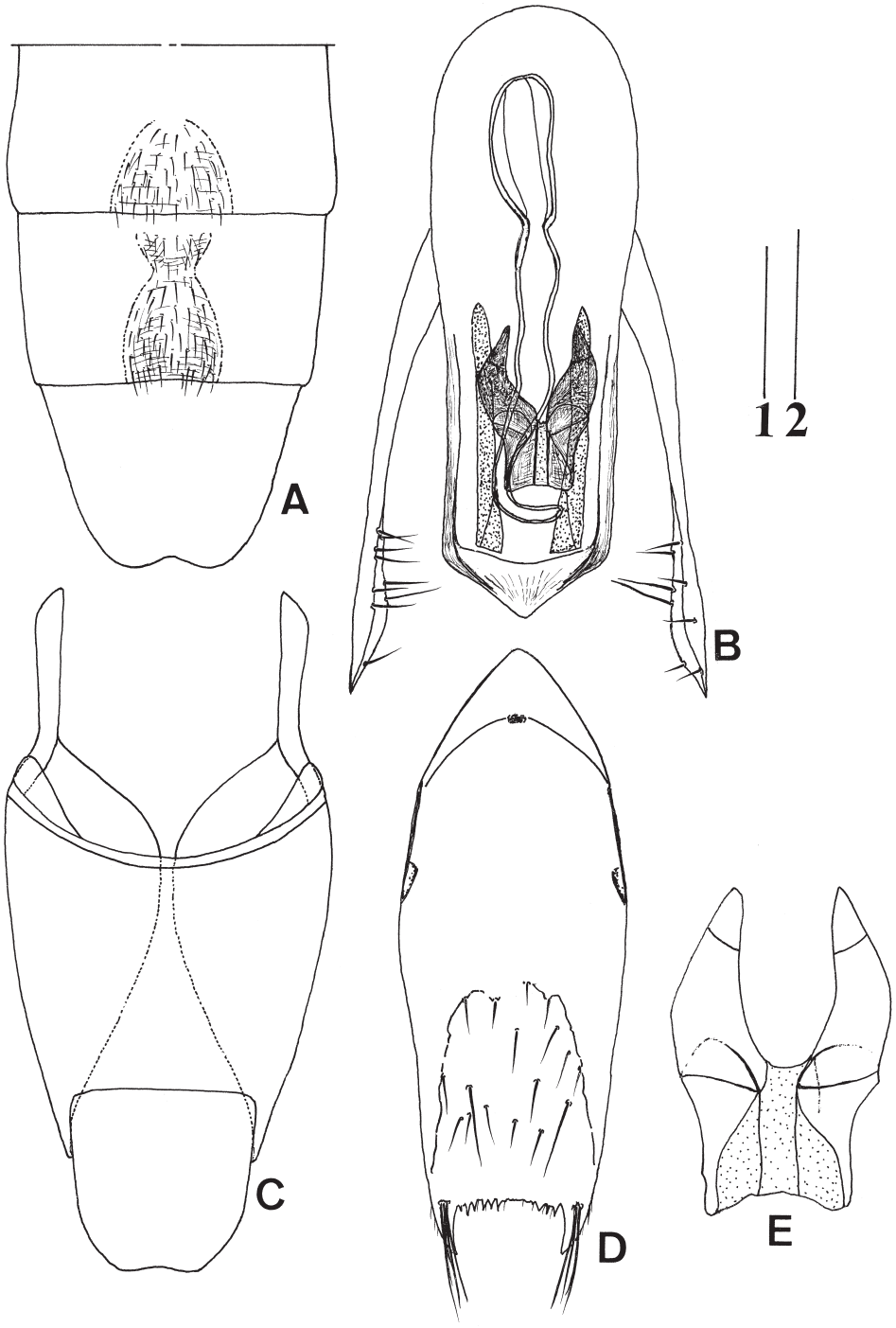

Fig. 25. *Stenus anfractus* Naomi (Kamagadake, Mie). A, 6th to 8th ventrites of male; B, aedeagus; C, 9th and 10th terga of male; D, 9th ventrite of male; E, expulsion hooks. Scale 1: 0.3 mm for A; Scale 2: 0.2 mm for B–D, 0.1 mm for E.

and abdomen dark red; labrum reddish brown; antennae reddish brown to dark reddish brown; legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to moderately dense, small. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface very weakly uneven, almost flat near suture; punctures round, very dense, moderately large. Tarsi with 4th tarsomeres strongly bilobed. Abdomen with punctures round, moderately dense, various in size in anterior segments, while punctures in 7th and 8th segments very small, indistinct. Lateroventrites and tergoventrite sutures missing.

Sixth ventrite (Fig. 25A) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 25A) anteromedially with a very shallow, small depression, posteromedially with a shallow, bell-shaped depression, which is very weakly emarginate; 8th ventrite (Fig. 25A) posteriorly with a shallow, arcuate emargination; 9th tergum (Fig. 25C) with antecostal apophyses moderately long, thin; 9th ventrite (Fig. 25D) irregularly serrate posteriorly, with macrosetae moderately long, apicolateral teeth short, pointed, apicolateral setae moderately long; 10th tergum (Fig. 25C) weakly emarginate. Aedeagal median lobe (Fig. 25B) broad, distinctly angulate apicolaterally, bluntly pointed at apex; apical sclerotized area (Fig. 25B) broad, subtriangular. Endophallic median bands (Fig. 25B) narrow, relatively long; expulsion hooks (Fig. 25E) moderately large, broadly connected by membrane behind the middle, each with the anterior plate weakly incurved, divided antero-posteriorly into two parts, demarcated by a transverse suture from posterior plate, the posterior plate membranous mesially, almost parallel-sided behind the middle; copulatory tube (Fig. 25B) very long, stout, with basal chamber almost elliptical, main tube weakly constricted twice, strongly curved at apical part. Parameres (Fig. 25B) long, each very acutely pointed at apex; apical area very long, moderately swollen mesially, furnished mesially with 8 to 9 setae of different length.

Female: Unknown.

Biology and ecology. *S. anfractus* is once collected in the mountainous region of Kinki district, Honshu. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. anfractus* is the sister species of *S. komonoensis*, and it is separable from the latter species by the endophallic expulsion hooks with the posterior plates almost parallel-sided behind the middle (Fig. 25E), and the copulatory tube with its main tube strongly curved at apex (Fig. 25B).

Stenus hijiri Naomi
(Figs. 26A–H, 103 L)

Stenus hijiri Naomi, 1989: 45; Herman, 2001: 2214; Naomi & Puthz, 2013: 143.

Type material. Holotype: ♂ (KUF), Hirogawara, Mt. Shirane, Yamanashi Pref., 9–13. vii. 1982, S. Naomi leg.

Type material examined. Paratype: 2 ♂5 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂2 ♀, Senpei Pass, Mt. Nyugasa, Nagano Pref., 24. viii. 1997, H. Sakayori leg.; 1 ♂2 ♀, Mt. Norikura, Azumi Vil., Nagano Pref., 20. viii. 1996, S. Nomura leg.; 1 ♂, Mt. Houou, Nirasaki City, Yamanashi Pref., 16. viii. 1996, T. Ito leg.; 2 ♂1 ♀, same locality, 13–15. viii. 1989, T. Ito leg.; 1 ♂, same locality, 11. x. 1997; 1 ♂, Gozaishi Spa, Nirasaki City, Yamanashi Pref., 17. viii. 1996, T. Ito leg.

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

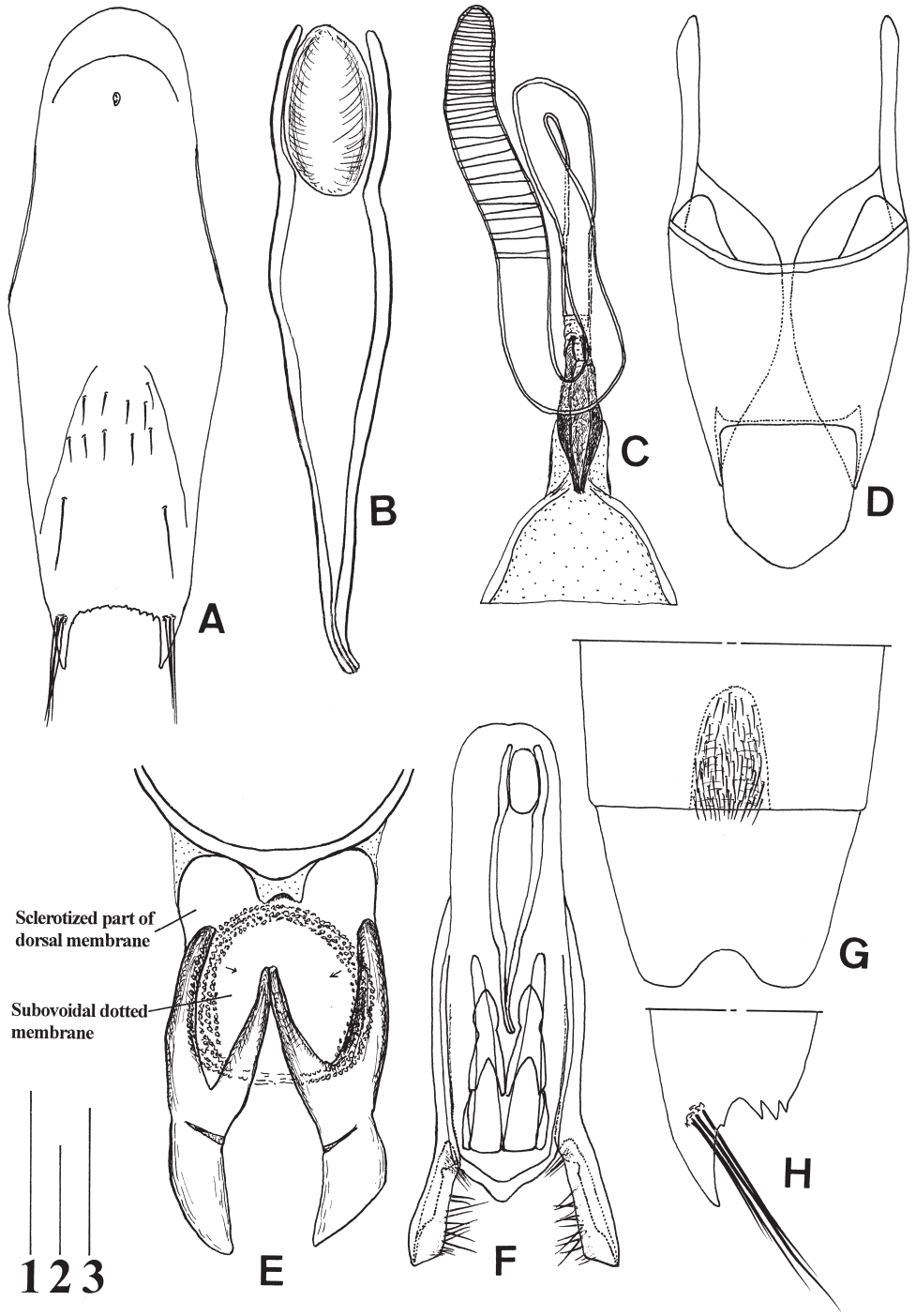

Fig. 26. *Stenus hijiri* Naomi (A–C, F–H, Hirogawara, Yamanashi; D, Nyugasa, Nagano; E, Gozaisho, Yamanashi). A, 9th ventrite of male; B, copulatory tube; C, spermatheca; D, 9th and 10th terga of male; E, apex of median lobe with inverted expulsion hooks and dorsal membrane; F, aedeagus; G, 7th and 8th ventrites of male; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, 0.1 mm for E, H; Scale 2: B, C for 0.1 mm, D, F for 0.2 mm; Scale 3: G for 0.3 mm.

Redescription. Male and female: Body 3.8–4.3 mm (fore body 1.9–2.1 mm) in length, weakly shining or dull, with antennae relatively short, thin. Body entirely reddish brown but head and abdomen infuscate. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, coarse, subrugose. Elytra with surface uneven, weakly concave near suture; punctures round, very dense, various in size but moderately large in average, coarse, subrugose. Tarsi with 4th tarsomeres strongly bilobed. Abdomen with punctures round to elliptical, very dense, small in anterior segments, while punctures in posterior segments elliptical, sparse to moderately dense, very small, shallow. Lateroventrites and tergoventrite sutures missing.

Male: Legs moderately thick; 7th ventrite (Fig. 26G) posteromedially with an elongate shallow depression; 8th ventrite (Fig. 26G) posteromedially with a semicircular emargination; 9th tergum (Fig. 26D) with antecostal apophyses very long; 9th ventrite (Fig. 26A) very minutely serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 26D) obtusely angulate posteromedially. Aedeagal median lobe (Fig. 26F) elongate, angulate apicolaterally, obtuse or weakly swollen at apex; apical sclerotized area (Fig. 26E, F) hardly developed except for the weakly swollen apicomedian area. Endophallic dorsal membrane (Fig. 26E) large, subovoidal, regularly dotted; median bands (Fig. 26F) moderately broad and long; lateral bands (Fig. 26F) short; expulsion hooks (Fig. 26E, F) each almost Y-shaped; copulatory tube (Fig. 26B) long, with basal chamber subovoidal, main tube broad at base, narrowed apically, only weakly curved at apex. Parameres (Fig. 26F) long, stout, with stem incurved; apical area very large, long, thick, turning posterolaterally, swollen mesially at base, with a basal tuft of 7 to 8 setae; dorsal subtransparent flap broad, furnished with 3 to 5 short and 10 to 12 moderately long setae along the mesial margin of its apical half.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 26H) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 26C) with capsule missing; RT-duct moderately long, thick; duct moderately thick to thick, short with two turns; basal valve very short; basal sclerotized duct almost fusiform, surrounded at base by membrane. Basal structure (Fig. 26C) subconical, membranous.

Biology and ecology. *S. hijiri* is distributed in the high mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their similarities regarding the modification of 7th ventrite of male, aedeagus, spermatheca, etc., *S. hijiri* seems to be allied to *S. komonoensis* and *S. anfractus*, but it is clearly separable from the latter two species by the endophallic expulsion hook Y-shaped (Fig. 26E).

Etymology. The specific epithet of this species is derived from the Japanese noun “Hijiri” which here means “mountain ascetic”.

Stenus maruyamai Naomi
(Figs. 27A–F, 104A)

Stenus maruyamai Naomi, 2004: 106; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Sanjyo Spa, Tabayama Vil., Yamanashi Pref., 4. v. 1996, M. Maruyama leg. Paratype: 1 ♂ (cN), Magoso Valley, Okutama-cho, Tokyo, 12. vii. 1992, T. Kishimoto leg.

Other material examined. [HONSHU]: 3 ♂5 ♀, Karisaka, Ohtaki Vil., Saitama Pref., 30. v. 1997, S. Naomi leg.; 1 ♂1 ♀, Mt. Tenso, Okutama-cho, Tokyo, 14. iv. 2002, S. Nomura leg.; 2 ♂, Nippara, Okutama-cho, Tokyo, 14. iv. 2002, S. Nomura leg.; 3 ♂2 ♀, Mt. Mitake, Tokyo, 12. viii. 1990, T. Ito leg.; 3 ♂1 ♀, Mt. Tanba, Yamanashi Pref., 27. v. 2001, K. Haga leg

Distribution. Japan: Honshu (Yamanashi and Saitama Prefs.; Tokyo-to).

Redescription. Male and female: Body 3.9–4.3 mm (fore body 2.0–2.2 mm) in length, moderately shining, with antennae moderately long, thin. Head dark brown, often with median area reddish brown; pronotum and elytra reddish brown; abdomen reddish brown to dark brown; labrum yellowish red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of moderately deep, longitudinal furrows; punctures usually round, sparse to moderately dense and small, but punctures at the median area very small. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, moderately large, coarse, sometimes two or more punctures partially fused. Elytra with surface uneven, weakly concave near suture; punctures round to almost round, very dense, moderately large to large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, dense, very small in anterior segments, while punctures in posterior segments hardly developed, each forming only setal socket. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped, flat area; 8th ventrite (Fig. 27C) posteromedially with a moderately large, subtriangular emargination; 9th tergum (Fig. 27F) with antecostal apophyses very long; 9th ventrite (Fig. 27D) minutely serrate and bi-arcuate posteriorly, with macrosetae short, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 27F) entire. Aedeagal median lobe (Fig. 27B) broad, distinctly angulate apicolaterally, minutely tricuspidate at apicomedian part; apical sclerotized area (Fig. 27B) weakly developed only at the median part. Endophallic median bands (Fig. 27B) moderately long; lateral bands (Fig. 27B) very thin; expulsion hooks (Fig. 27B) widely separated but connected by the arcuate, very thin rod, each thin, with the anterior plate small, acutely pointed anteriorly, much shorter than, and demarcated by a suture from posterior plate, the posterior plate moderately curved laterally; copulatory tube (Fig. 27B) slender, with main tube thin, baculiform, straight but weakly curved only at apical part. Parameres (Fig. 27B) each turning posterolaterally at the apical area; apical part moderately long, swollen and distinctly angulate mesially at base, furnished mesially with a tuft of 5 to 6 short setae at base, with 17 to 18 short setae in apical half.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 27E) toothed posteriorly, with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 27A) with capsule rounded apically, small; RT-duct moderately long, moderately thick to thick; duct very long, usually thin but thick at the distalmost part, strongly coiled; basal valve short; basal sclerotized duct about as long as basal valve. Bursa copulatrix (Fig. 27A) subtriangular, with its posterolateral corners each strongly protruding posterolaterally.

Biology and ecology. *S. maruyamai* is distributed in the mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. maruyamai* is allied to *S. oisami* and *S. biwa*, but it is separable from the latter two species by the endophallic expulsion hook narrower and acutely pointed anteriorly (Fig. 27B) and the copulatory tube with its main tube thinner and straight at the middle (Fig. 27B).

Etymology. This species is named in honor of Dr. Munetoshi Maruyama (Kyushu University Museum, Fukuoka), who studies the Aleocharinae (Staphylinidae), the myrmecophilous and termitophilous insects, and others.

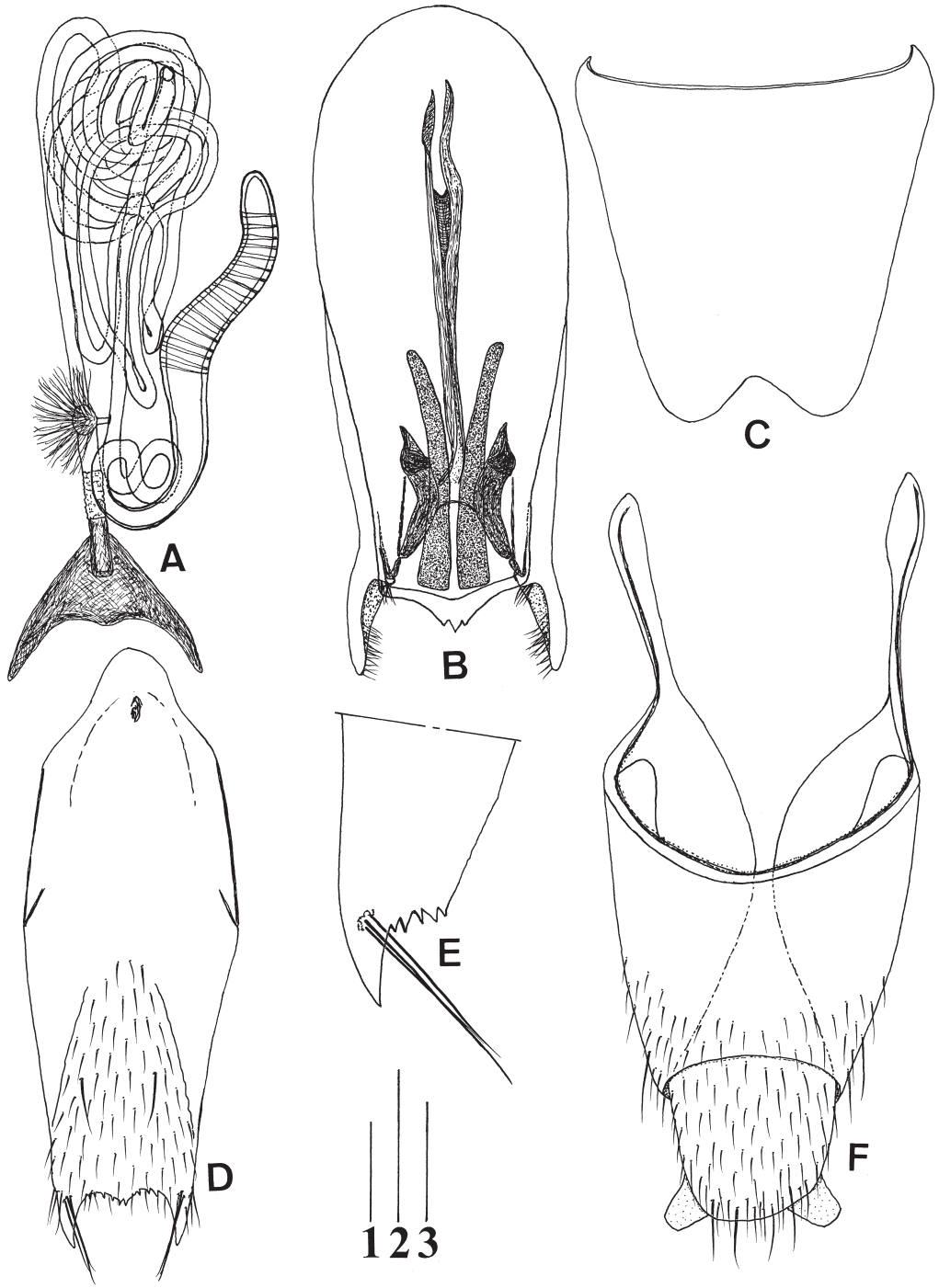

Fig. 27. *Stenus maruyamai* Naomi (A, E, Karisaka, Saitama; B–D, F, Sanjyo, Yamanashi). A, spermatheca; B, aedeagus; C, 8th ventrite of male; D, 9th ventrite of male; E, posterior part of gonocoxite; F, 9th and 10th terga of male. Scale 1: 0.1 mm for A; Scale 2: B, D, F for 0.2 mm, E for 0.1 mm; Scale 3: C for 0.2 mm.

Stenus oisami Naomi & Puthz
(Figs. 28A–G, 104B)

Stenus oisami Naomi & Puthz, 1994: 304; Herman, 2001: 2313; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (NHMW), Mt. Fuji (2,000–2,300 m), Yamanashi & Shizuoka Prefs., Franz col.

Other material examined. [HONSHU]: 2 ♂2 ♀, Mt. Ryogami, Ryogami Vil., Saitama Pref., 10. v. 1997, M. Maruyama leg.; 3 ♂2 ♀, same locality and date, T. Kishimoto leg.; 2 ♂2 ♀, Sumiyaki-daira (1250 m), Mt. Mitsumine, Ootaki Vil., Saitama Pref., 29. iv. 2001, A. Arai leg.; 2 ♂, Daibosatsu, Yamanashi Pref., 6. vii. 1988, T. Ito leg.; 1 ♂2 ♀, same locality, 26. vi. 1991, T. Ito leg.; 4 ♂2 ♀, Subaru-line, Mt. Fuji, Yamanashi Pref., 1. viii. 1999, S. Naomi leg.; 4 ♂3 ♀, Azami-line, Mt. Fuji, Shizuoka Pref., 2. viii. 1999, S. Naomi leg.

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

Redescription. Male and female: Body 3.8–4.3 mm (fore body 1.7–2.0 mm) in length, weakly shining, with antennae moderately long, thin. Head dark brown to black, often with median area reddish brown; pronotum and elytra reddish brown; abdomen reddish brown to dark brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of distinct, moderately deep, longitudinal furrows; punctures round, dense to very dense, small, often with the median area sparsely punctate. Pronotum with surface uneven, with median longitudinal furrow moderately deep; punctures round, very dense, coarse, moderately large, subrugose. Elytra with surface strongly uneven, weakly concave near suture; punctures round to elliptical, very dense, moderately large to large, coarse, subrugose. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, very dense, small, regular in anterior segments, while punctures in posterior segments elliptical, very small, shallow. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 28A) posteromedially with a large, semicircular flat area; 7th ventrite (Fig. 28A) posteromedially with a bell-shaped, flat area; 8th ventrite (Fig. 28A) posteromedially with a moderately large, subtriangular emargination; 9th tergum (Fig. 28C) with antecostal apophyses very long, thin; 9th ventrite (Fig. 28D) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 28C) rounded. Aedeagal median lobe (Fig. 28E) broad, distinctly angulate apicolaterally; apical sclerotized area (Fig. 28C) transverse, broad-subtriangular, with median cusp thick, short, pointed. Endophallic dorsal membrane (Fig. 28E) almost circular, medium-sized; median bands (Fig. 28E) relatively short; lateral bands (Fig. 28E) long; expulsion hooks (Fig. 28G) separated but connected by the V-shaped thin rod, each with anterior plate triangular, small, much smaller than and demarcated by a suture from posterior plate, the posterior plate moderately protruding posterolaterally; copulatory tube (Fig. 28E) with basal chamber small, main tube thick, baculiform but strongly curved near the middle. Parameres (Fig. 28E) each weakly curved laterally behind the base of apical area; apical part moderately long, mesially swollen and angulate at base, furnished mesially with 8 to 10 setae at base and also with 17 to 20 setae at about apical half.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 28F) distinctly toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 28B) with capsule rounded apically, small; RT-duct very long, moderately thick; duct very long, relatively thin to moderately thick, strongly coiled; basal valve short; basal

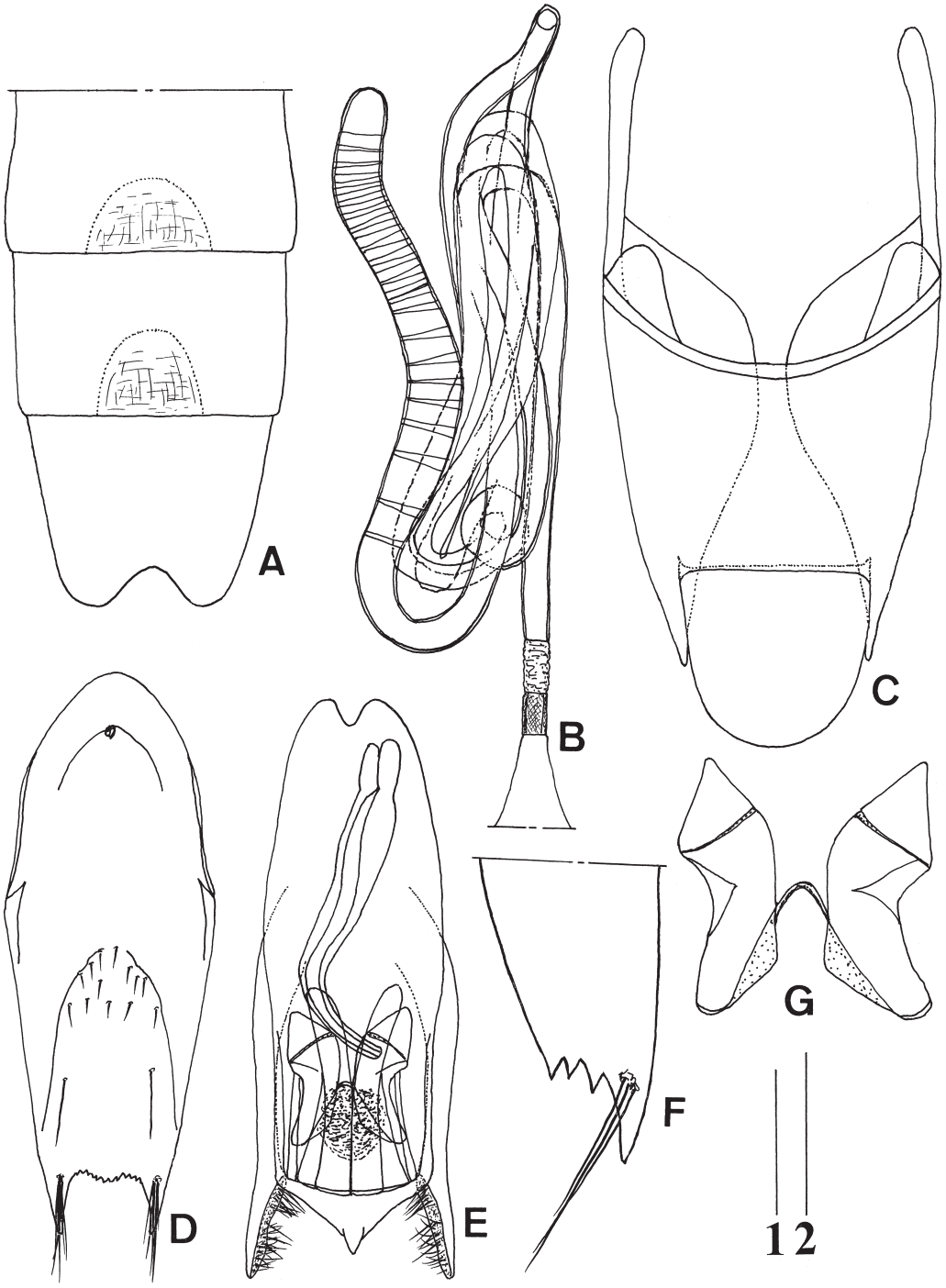

Fig. 28. *Stenus oisami* Naomi & Puthz (Fuji, Yamanashi). A, 6th to 8th ventrites of male; B, spermatheca; C, 9th and 10th terga of male; D, 9th ventrite of male; E, aedeagus; F, posterior part of gonocoxite; G, expulsion hooks. Scale 1: 0.3 mm for A; Scale 2: C–E for 0.2 mm, B, F, G for 0.1 mm.

sclerotized duct about as long as basal valve.

Biology and ecology. *S. oisami* is distributed in the mountainous and high mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests. In Mt. Fuji, they inhabit the forests of timber-limited regions (about 2,000–2,300 m), together with *S. fujimontis* Puthz, 2001 or *S. fujiensis* Puthz, 2001; and the beetles of *S. oisami* are common there.

Remarks. *S. oisami* is probably the sister species of *S. biwa*, but it is separable from the latter species by the 6th ventrite of male with the large posteromedian flat area (Fig. 28A), the 9th ventrite of male with its apicolateral teeth longer (Fig. 28D), the aedeagal median lobe cuspidate apically with the longer median cusp (Fig. 28E), and the endophallic explusion hook with its anterior plate pointed (Fig. 28G).

Etymology. The specific epithet of this species is derived from the name of a sacred music "oisami" for the ancient dance performance at the shrines in Japan.

Stenus biwa Hromádka
(Figs. 29A–G, 104C)

Stenus biwa Hromádka, 1980: 113; Herman, 2001: 2094; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (cP), Yasumiya, Lake Towada, Aomori Pref., 27. vii. 1954, K. Sawada leg.

Other material examined. [HONSHU]: 2 ♂3 ♀, Towada Lake, Aomori Pref., 4. viii. 1987, S. Nomura leg.; 1 ♂, Tsuta spa, Towada Lake, Aomori Pref., 6. viii. 1987, S. Nomura leg.; 1 ♂, Oirase, Towada Lake, Aomori Pref., 6. viii. 1987, S. Nomura leg.; 2 ♂2 ♀, Towada Lake, Aomori Pref., 30. ix 1992, M. Sakai leg.

Distribution. Japan: Honshu (Aomori Pref.).

Redescription. Male and female: Body 3.6–3.8 mm (fore body 1.7–1.9 mm) in length, weakly to moderately shining, with antennae moderately long, thin. Body orange red to reddish brown but the inner marginal areas of head and postabdomen more or less infuscate; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse, sometimes two or more punctures partially fused. Elytra with surface strongly uneven, weakly concave near suture; punctures round to almost round, very dense, moderately large to large, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, sparse to moderately dense, shallow. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 29D) posteromedially with an elongate, bell-shaped, very shallow depression; 8th ventrite (Fig. 29D) posteromedially with a moderately deep, subtriangular emargination; 9th tergum (Fig. 29B) with antecostal apophyses long; 9th ventrite (Fig. 29E) very minutely serrate posteriorly, with macrosetae short, apicolateral teeth short, pointed, apicolateral setae short; 10th tergum (Fig. 29B) rounded. Aedeagal median lobe (Fig. 29C) broad, angulate or weakly projecting apicolaterally, minutely tricuspidate at the apicomedian part; apical sclerotized area (Fig. 29C) weakly developed near the middle, with median cusp very small, thin, a little longer than lateral cusps. Endophallic median bands (Fig. 29C) very broad; lateral bands (Fig. 29C) very thin; expulsion hooks (Fig. 29F) connected at the posteromesial margins of posterior plates,

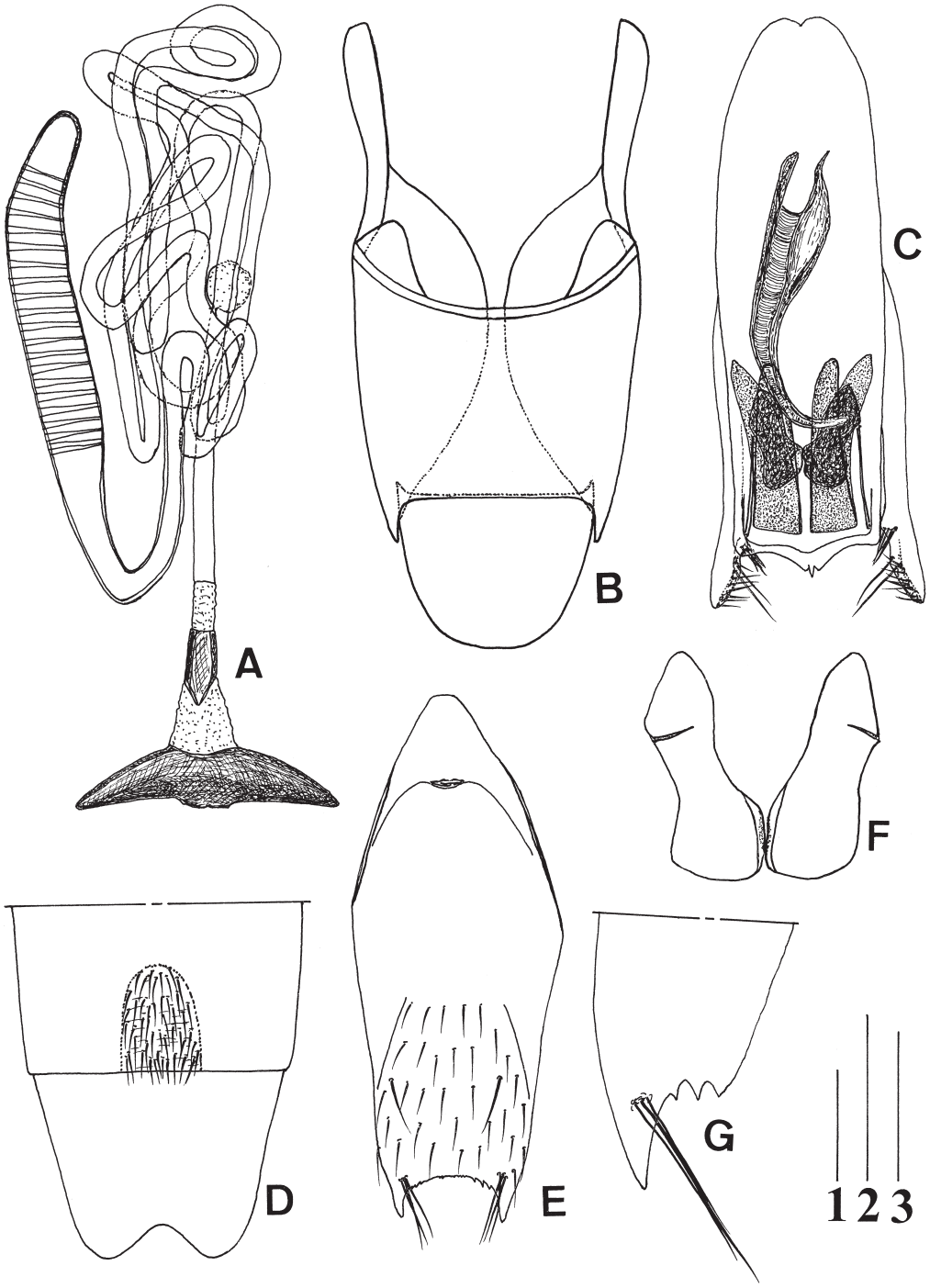

Fig. 29. *Stenus biwa* Hromádka (A, G, Towada, Aomori; B–F, Tsuta, Aomori). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 7th and 8th ventrites of male; E, 9th ventrite of male; F, expulsion hooks; G, posterior part of gonocoxite. Scale 1: 0.1 mm for A; Scale 2: 0.2 mm for B, C, E, 0.1 mm for F, G; Scale 3: 0.3 mm for D.

each with anterior plate much smaller than and partially demarcated by a suture from posterior plate, the posterior plate gently rounded posteriorly; copulatory tube (Fig. 29C) long, with main tube thick basally, distinctly narrowed and strongly curved toward apex. Parameres (Fig. 29C) each weakly turning laterally at the apical area; apical part boot-shaped, moderately long, furnished mesially with a tuft of 4 to 5 setae at base, 2 long setae near the middle, with 7 to 9 setae at about apical half.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 29G) toothed posteriorly, with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 29A) with capsule rounded apically, moderately long; RT-duct long, thick; duct very long, thin but moderately thick at the distal part, irregularly coiled; basal valve short; basal sclerotized duct about as long as basal valve. Bursa copulatrix (Fig. 29A) disc-shaped, strongly sclerotized.

Biology and ecology. *S. biwa* is distributed in the mountainous regions of the northern-most part of Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. biwa* is probably the sister species of *S. oisami*, but it is separable from the latter species by the 6th ventrite of male without modification, the 9th ventrite of male with its apicolateral teeth shorter (Fig. 29E), the aedeagal median lobe tricuspidate apicomedially, with its median cusp smaller (Fig. 29C), and the endophallic explusion hook with its anterior plate obtuse (Fig. 29C).

Etymology. The specific epithet of this species is derived from the Japanese name of the Japanese lute “biwa”.

Stenus bicara Naomi
(Figs. 30A–H, 104D)

Stenus bicara Naomi, 1988: 79; Herman, 2001: 2001; Naomi & Puthz, 2013: 143.

Type material. Holotype: ♀ (KUF), Chuzenji, Nikko, Tochigi Pref., 28–30. vi. 1982, S. Naomi leg.

Type material examined. Paratypes: 1 ♂1 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂1 ♀, Iidate Vil., Fukushima Pref., 21. vii. 1985, S. Nomura leg.; 1 ♂2 ♀, Mt. Oharashi, Tateiwa Vil., Fukushima Pref., 23. vii. 1996, S. Naomi leg.; 1 ♂1 ♀, Miyakawa, Hanawa-cho, Fukushima Pref., 24. v. 1998, K. Haga leg.; 3 ♂, Konaka, Seta-Azuma Vil., Gunma Pref., 11. viii. 2004, T. Watanabe leg.; 3 ♂3 ♀, Marunuma, Katashina Vil., Gunma Pref., 29–30. iv. 1991. T. Ito leg.; 1 ♂2 ♀, Hoshi Spa, Niiharu Vil., Gunma Pref., 26. vi. 1997, S. Naomi leg.; 1 ♂, Mikuni Pass, Niiharu Vil., Gunma Pref., 19–20. viii. 1998, K. Ishii leg.; 1 ♂, Sawairi, Higashi Vil., Seta-gun, Gunma Pref., 22. iv. 2003, N. Kanai leg.; 1 ♂1 ♀, Chuzenji, Nikko, Tochigi Pref., 24. vii. 1985, S. Nomura leg.; 3 ♂2 ♀, Yumoto, Oku-Nikko, Tochigi Pref., 23–25. vii. 1985, S. Nomura leg.

Distribution. Japan: Honshu (Tohoku and Kanto districts).

Redescription. Male and female: Body 3.0–3.7 mm (fore body 1.5–1.8 mm) in length, weakly shining, with antennae moderately long, thin. Body orange red to reddish brown but the inner marginal areas of head and postabdomen infuscate; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface strongly uneven, with indistinct long median longitudinal furrow, paired basilateral lon-

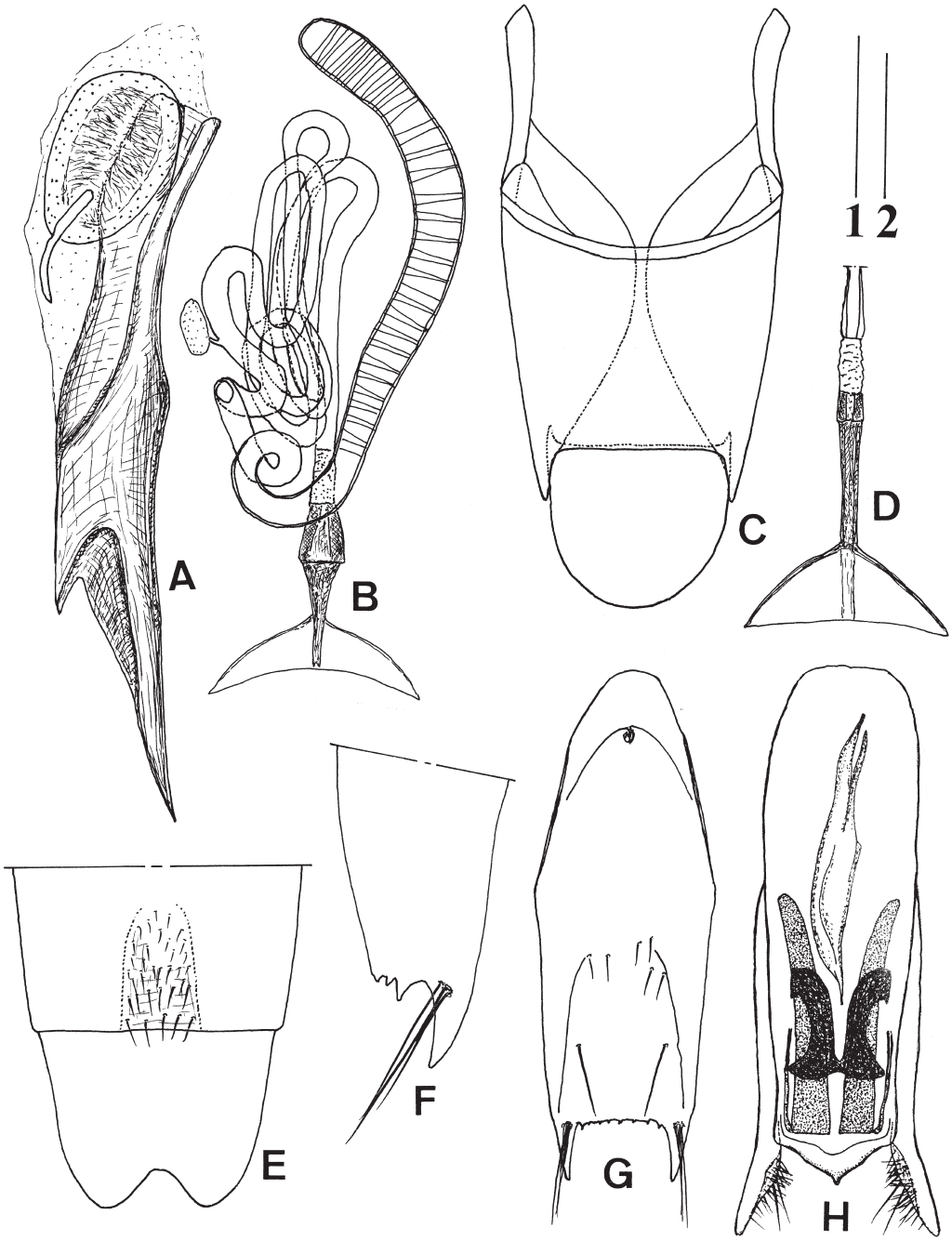

Fig. 30. *Stenus bicara* Naomi (A, Sawairi, Gunma; B, F, H, Chuzenji, Tochigi; C–E, G, Yumoto, Tochigi). A, copulatory tube; B, spermatheca; C, 9th and 10th terga of male; D, basal part of spermatheca; E, 7th and 8th ventrites of male; F, posterior part of gonocoxite; G, 9th ventrite of male; H, aedeagus. Scale 1: 0.1 mm for A, B, D, F, 0.2 mm for C, G, H; Scale 2: E for 0.3 mm.

gitudinal keels, and with an indistinct fovea between the median longitudinal furrow and basilateral longitudinal keel; punctures round to almost round, very dense, moderately large, coarse, sometimes subrugose. Elytra with surface strongly uneven, weakly concave near suture; punctures round to elliptical, very dense, various in size but moderately large in average, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense to very dense, small in anterior segments, while punctures in posterior segments very small, shallow, sometimes faint, almost equal to the sockets of setae. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 30E) medially with an elongate, bell-shaped, very shallow depression, which is very shallow emarginate; 8th ventrite (Fig. 30E) posteromedially with a moderately large, subtriangular emargination; 9th tergum (Fig. 30C) with antecostal apophyses moderately long; 9th ventrite (Fig. 30G) very minutely serrate posteriorly, with macrosetae long, apicolateral teeth thin, acutely pointed, apicolateral setae long; 10th tergum (Fig. 30C) rounded. Aedeagal median lobe (Fig. 30H) moderately broad, angulate apicolaterally; apical sclerotized area (Fig. 30C) weakly developed, with median cusp small, pointed, lateral cusps each existing as a weak angulation. Endophallic median bands (Fig. 30H) long, broad; lateral bands (Fig. 30H) very thin; expulsion hooks (Fig. 30H) connected at the posteromesial corners, each hook curved laterally at anterior part, acutely pointed and projectiong at posterolateral part; copulatory tube (Fig. 30A) long, main tube thick, very acutely pointed at apex, with ventral processes closed ventrally, acutely pointed at apex (Fig. 30A) or opened ventrally (Fig. 30H). Parameres (Fig. 30H) each turning laterally at the apical area; apical area moderately long, swollen mesially at base, furnished mesially with 19 to 23 short and 2 long setae.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 30F) toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 30B) with capsule rounded apically, very short; RT-duct very long, moderately thick to thick; duct long, relatively thin to moderately thick, irregularly coiled; basal valve short; basal sclerotized duct short (Fig. 30B) or long (Fig. 30D), consisting of the distal thicker part and the proximal thinner part. Bursa copulatrix saucer-shaped (Fig. 30B) or broad-conical (Fig. 30D).

Biology and ecology. *S. bicara* is distributed in the high mountainous regions. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. bicara* is allied to *S. araiorum*, but it is separable from the latter species by the endophallic copulatory tube with its apical tube attenuate and very acutely pointed at apex (Fig. 30A, H), and the spermatheca with its capsule much smaller (Fig. 30B).

S. bicara is a polytypic species; and the infraspecific variations are found in the apex of aedeagal median lobe, the anterior and posterior parts of endophallic expulsion hooks, and the copulatory tube. Out of them, the copulatory tubes highly vary in structure; and their structures are different from one locality to another. For example, the main tube (of copulatory tube) is closed ventrally, with its apical tube very long and very acutely pointed in the beetles of Sawairi (Fig. 30A), or open ventrally, with its apical tube moderately long and acutely pointed in the beetles of Oku-Nikko (Fig. 30H).

Etymology. The specific epithet of this species is derived from the name of god “Bicara”, which appears in the Japanese ancient mythology.

Stenus araiorum Naomi
(Figs. 31A–I, 104E)

Stenus araiorum Naomi, 2015: 22.

Type material examined. Holotype: ♂ (CBM), Kitamuki-Jizo, Moroyama, Saitama Pref., 11. x. 1998, S. Arai leg. Paratypes: 3 ♂ (cN), same data as holotype.

Other material examined. [HONSHU]: 3 ♂5 ♀, Mt. Takao, Tokyo, 11. viii. 1990, T. Ito leg.; 1 ♂2 ♀, Fudago, Mt. Kiyosumi, Kimitsu City, Chiba Pref., 18. vii. 1991, S. Naomi leg.; 4 ♂, Kaisho, Mt. Kiyosumi, Ootaki-cho, Chiba Pref., 19. vii. 1991, S. Naomi leg.; 1 ♂2 ♀, Mt. Kiyosumi, Amatsu-Kominato, Chiba Pref., 27. iv. 1997, S. Naomi leg.; 1 ♂, Komatsu Shrine, Chikura-machi, Chiba Pref., 26. vi. 1994, S. Naomi leg.; 1 ♂4 ♀, Chikura-machi, Chiba Pref., 26. vi. 1994, S. Naomi leg.; 4 ♂2 ♀, Utogi, Futtu City, Chiba Pref., 3. v. 1996, S. Naomi leg.; 2 ♂1 ♀, Mt. Takago, Kimitsu City, Chiba Pref., 5. v. 1996, S. Naomi leg.; 1 ♂2 ♀, Umegase Valley, Mt. Daifuku, Chiba Pref., 6. v. 1998, S. Naomi leg.; 1 ♂1 ♀, Kasamori, Chonan-machi, Chiba Pref., 12. iv. 1997, S. Naomi leg.

Distribution. Japan: Honshu (Kanto district).

Redescription. Male and female: Body 3.3–3.6 mm (fore body 1.6–1.8 mm) in length, elongate, weakly shining, with antennae moderately long, thin. Body bright reddish brown but the inner marginal areas of head and abdomen infuscate; labrum, antennae and legs yellowish brown to reddish brown. Head with a pair of shallow longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface slightly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface slightly uneven; punctures round, very dense, moderately large. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments, while punctures in posterior segments very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with or without a semicircular flat area; 8th ventrite (Fig. 31H) posteromedially with an arcuate, moderately large emargination; 9th tergum (Fig. 31B) with antecostal apophyses very long; 9th ventrite (Fig. 31E) indistinctly serrate posteriorly, with apicolateral teeth pointed, apicolateral setae short; 10th tergum (Fig. 31B) rounded posteriorly. Aedeagal median lobe (Fig. 31A) broad, distinctly angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 31A) weakly developed at the middle, with median cusp long, pointed, lateral cusps each small, short, pointed. Endophallic median bands (Fig. 31A) each moderately long, broad; lateral bands (Fig. 31A) each long, very thin; expulsion hooks (Fig. 31G) separated, each boot-shaped, protruding posterolaterally, with anterior plate fused with posterior plate; copulatory tube (Fig. 31C) very large, robust, basal chamber ovoidal, main tube with basal tube thick, apical tube attenuate but distinctly spiralling 3 times, with a subtransparent flap at the right side of middle part. Parameres (Fig. 31A) each weakly turning laterally at the apical area; apical area moderately long, swollen mesially at base, furnished mesially with 15 to 17 setae, several ones of which are decumbent anteriorly.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 31I) toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 31D) with capsule rounded apically, very long; RT-duct moderately long and thick; spermathecal duct very long, rather thin but moderately thick at its distal part, irregularly coiled; basal valve short; basal sclerotized duct moderately long, consisting of the distal and proximal

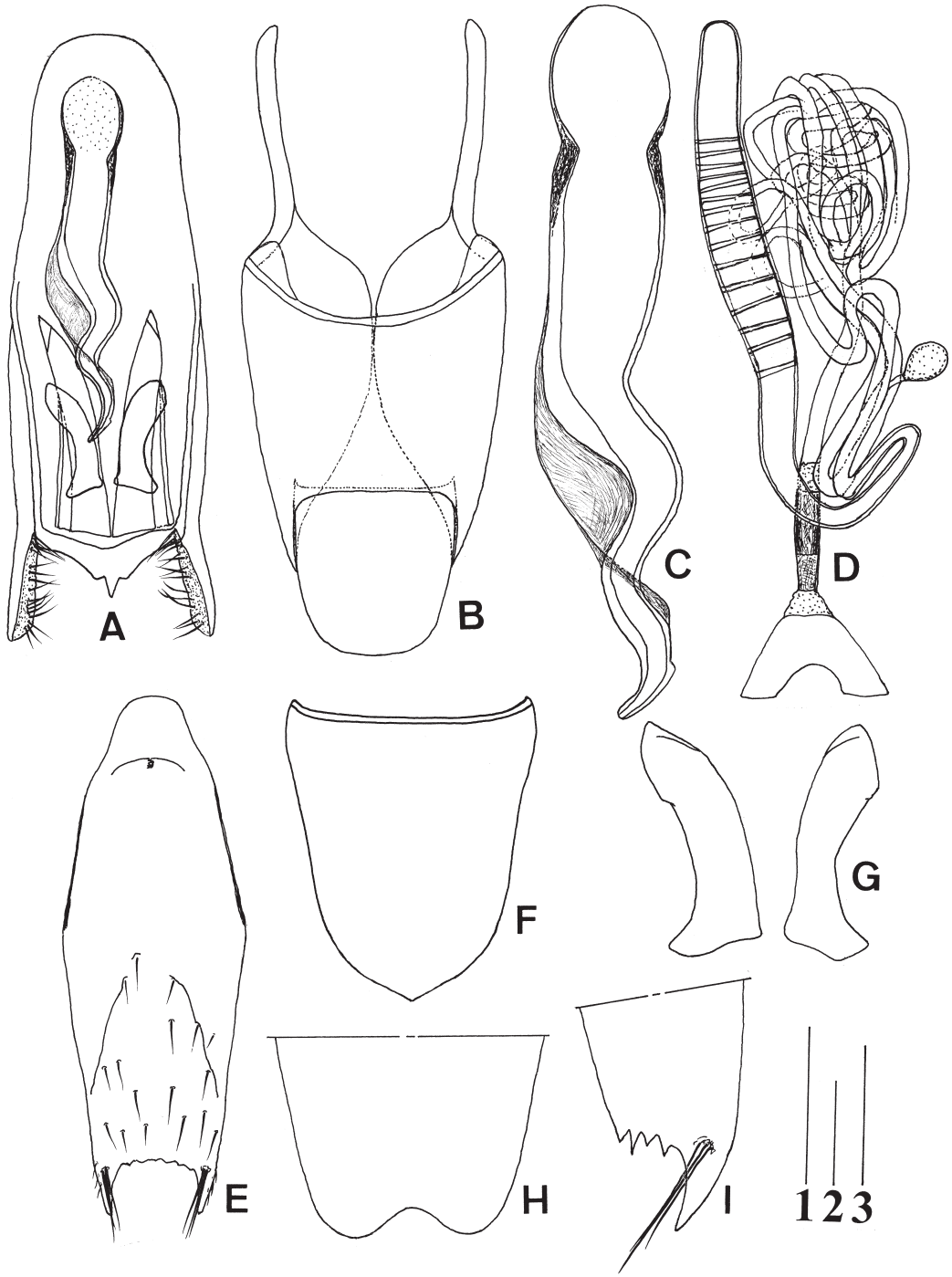

Fig. 31. *Stenus araiorum* Naomi (A–C, E, G, H, Kitamuki, Saitama; D, F, I, Utogi, Chiba). A, aedeagus; B, 9th and 10th terga of male; C, copulatory tube; D, spermatheca; E, 9th ventrite of male; F, 8th ventrite of female; G, expulsion hooks; H, posterior part of 8th ventrite of male; I, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, E, 0.1 mm for C, G, I; Scale 2: 0.1 mm for D; Scale 3: 0.3 mm for F, H.

portions; basal structure subconical, emarginate basimedially.

Biology and ecology. *S. araiorum* is distributed in the plains and low mountainous regions of the Kanto district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. araiorum* is allied to *S. bicara*, but it is separable from the latter species by the endophallic copulatory tube with its apical tube distinctly spiralling three times (Fig. 31C), and the spermatheca with its capsule much larger (Fig. 31D). In *S. araiorum*, there is an infraspecific variation regarding the shape of the apical part of aedeagal median lobe. It is usually tricuspidate as in Fig. 29A, but it is simply pointed in a local population of Mt. Takao, Tokyo.

Etymology. This species is named in honor of Mr. Koji Arai and Mrs. Shiho Arai (Ranzan, Saitama), who studies Staphylinidae.

Stenus jurojin Naomi
(Figs. 32A–H, 104F)

Stenus jurojin Naomi, 2004: 108; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Mt. Nantai, Nikko, Tochigi Pref., 28. v. 1994, Y. Hagino leg. Paratype: 1 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Yokokawa, Hara-machi, Fukushima Pref., 22. v. 1999, K. Haga leg.; 4 ♂, Mt. Tsukiore, Daigo-machi, Ibaraki Pref., 1. xii. 1995, S. Nomura leg.

Distribution. Japan: Honshu (Tohoku and Kanto districts).

Redescription. Male and female: Body 3.5–4.0 mm (fore body 1.6–1.8 mm) in length, moderately shining, with antennae moderately long, thin. Body reddish brown but the inner marginal areas of head and abdomen infuscate; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of shallow longitudinal furrows; punctures round, moderately dense, small. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface uneven, weakly depressed near suture; punctures round to elliptical, very dense, various in size but moderately large in average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments sparse and very small, or existing simply as setal sockets. Lateroventrites and tergoventral sutures missing.

Male: Sixth ventrite (Fig. 32C) posteromedially with a semicircular flat area; 7th ventrite (Fig. 32C) posteromedially with a semicircular, very shallow depression; 8th ventrite (Fig. 32C) posteriorly with a broad-subtriangular emargination; 9th tergum (Fig. 32A) with antecostal apophyses very long; 9th ventrite (Fig. 32F) very minutely serrate posteriorly, with macrosetae short, apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum (Fig. 32A) rounded posteriorly. Aedeagal median lobe (Fig. 32D) broad, distinctly angulate apicolaterally, minutely tricuspidate at apicomedial part; apical sclerotized area (Fig. 32D) short, weakly protruding apicomedially. Endophallic median bands (Fig. 32D) very broad, moderately long; lateral bands (Fig. 32D) each long, weakly broadened anteriorly; expulsion hooks (Fig. 32H) each with anterior plate pointed anteriorly, demarcated by a suture from posterior plate, the posterior plate deeply emarginate laterally, posterolaterally with 1 or 2 small, pointed teeth; copulatory tube (Fig. 32D, E) large, main tube robust, the basal tube thick with paired lateral processes connected apically to form an arched sclerotized band, and also with a thin, subtransparent plate between the lateral processes, the apical tube very thin, attenuate, pointed, with (Fig. 32E) or without

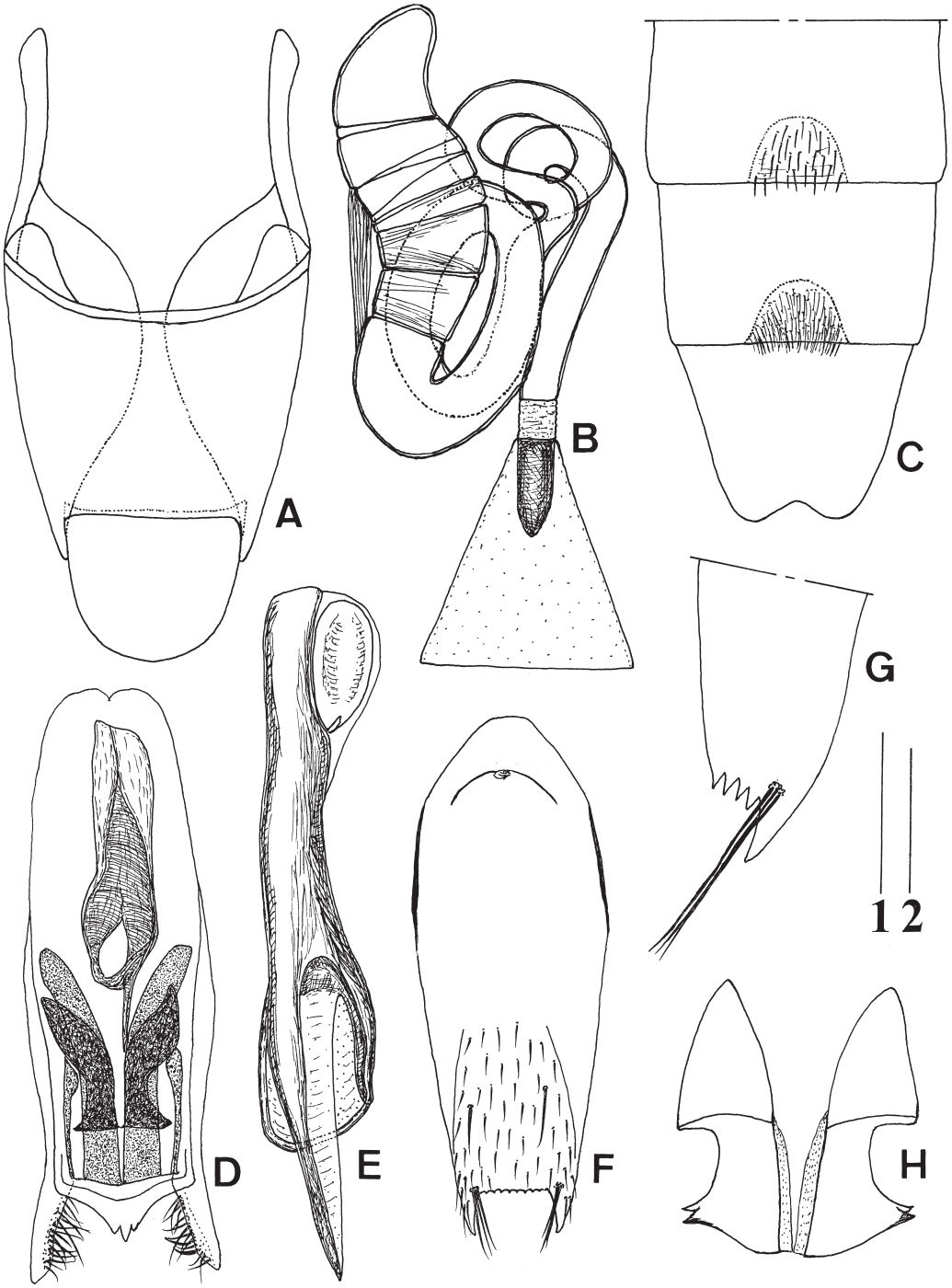

Fig. 32. *Stenus jyurojin* Naomi (A, C, E, H, Tsukiore, Ibaraki; B, D, F, G, Nantai, Tochigi). A, 9th and 10th terga of male; B, spermatheca; C, 6th to 8th ventrites of male; D, aedeagus; E, copulatory tube (dorsal view); F, 9th ventrite of male; G, posterior part of gonocoxite; H, expulsion hooks. Scale 1: 0.2 mm for A, D, F, 0.1 mm for B, E, G, H; Scale 2: 0.3 mm for C.

(Fig. 32D) a lateral subtransparent flap. Parameres (Fig. 32D) thick, each weakly turning laterally at the apical area; apical area swollen mesially at base, furnished mesially with 16 to 17 setae, several setae of which are decumbent anteriorly.

Female: Eighth ventrite weakly pointed posteromedially; gonocoxites (Fig. 32G) toothed posteriorly, each with apicolateral tooth acutely pointed, apicolateral setae very long. Spermatheca (Fig. 32B) very stout, with capsule very large, subconical; RT-duct very large, thick; duct moderately long and thick, coiled; basal valve short; basal sclerotized duct about 2 times as long as basal valve. Basal structure (Fig. 32B) large, conical, membranous.

Biology and ecology. *S. jurojin* is distributed in the low to high mountainous regions. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. jurojin* is allied to *S. tsukubamontis*, but it is separable from the latter species by the aedeagal median lobe tricuspidate at the apicomedial part (Fig. Fig. 32D), the endophallic copulatory tube with its basal tube having the shorter lateral processes (Fig. 32E), and the spermatheca with its RT-duct much thicker, and its surface almost smooth (Fig. 32B).

S. jurojin is a polytypic species; and the infraspecific variations are found in the aedeagal endophallic structures as follows: Regarding the expulsion hook, the anterior plate usually more or less turns laterally and the posterior plate is simply pointed at the posterolateral corners (Fig. 32D). However, the anterior plate simply turns anteriorly and the posterior plate is bi-toothed at the posterolateral corners (Fig. 32H) in some males of Tsukiore. Regarding the copulatory tube, the main tube in the male of Nantai (Fig. 32D) is thicker and shorter than in the male of Tsukiore (Fig. 32E). Furthermore, the lateral process of basal tube in the male of Yokokawa is a little larger than in the males of Nantai and Tsukiore.

Etymology. The specific epithet of this species is derived from the name of one of the Seven Gods of Good Fortune "Jurojin", which appears in the Japanese ancient mythology.

Stenus tsukubamontis Naomi, Nomura & Kamezawa
(Figs. 33A–H, 104G)

Stenus tsukubamontis Naomi, Nomura & Kamezawa, 2015: 320.

Type material examined. Holotype: ♂ (NMNST), Mt. Tsukuba, Ibaraki Pref., 10. ix. 1991, T. Ito leg. Paratypes: 4 ♂7 ♀, same data as holotype; 4 ♂6 ♀ (NMNST) & 3 ♂3 ♀ (cN), Mt. Ashio, Makabe-machi, Ibaraki Pref., 11. xii. 1997, S. Nomura leg.

Distribution. Japan: Honshu (Ibaraki Pref.).

Redescription. Male and female: Body 3.7–4.3 mm (fore body 1.6–1.8 mm) in length, weakly to moderately shining, with antennae moderately long. Body yellowish brown to reddish brown, but the inner marginal areas of head more or less infuscate; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of shallow longitudinal furrows; punctures round, moderately dense, small. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, somewhat irregular. Elytra with surface weakly uneven; punctures round to elliptical, very dense, large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, regular in anterior segments, while punctures in posterior segments extremely small, sparse. Lateroventrites and tergoventral sutures missing.

Male: Sixth ventrite (Fig. 33H) posteromedially with a semicircular flat area; 7th ventrite (Fig.33H) posteromedially with a semicircular flat area, which is a little smaller than that on 6th

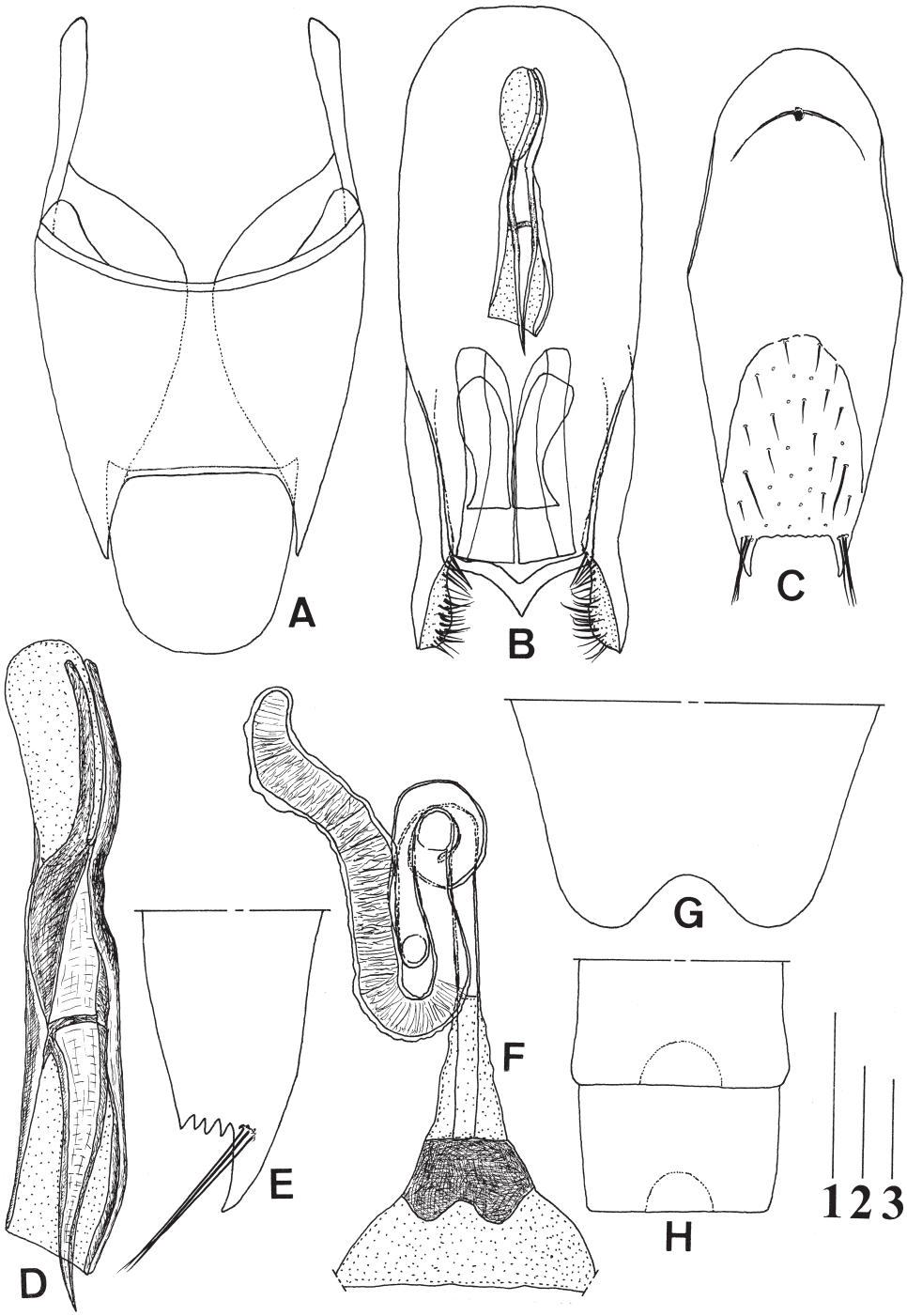

Fig. 33. *Stenus tsukubamontis* Naomi, Nomura & Kamezawa (Tsukuba, Ibaraki). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, copulatory tube; E, posterior part of gonocoxite; F, spermatheca; G, posterior part of 8th ventrite of male; H, 6th and 7th ventrites of male. Scale 1: 0.2 mm for A-C, G and 0.1 mm for D-E; scale 2: 0.1 mm for F; and scale 3: 0.3 mm for H.

ventrite; 8th ventrite (Fig. 33G) posteromedially with an arcuate, moderately large and deep emargination; 9th tergum (Fig. 33A) with antecostal apophyses long; 9th ventrite (Fig. 33C) hardly serrate posteriorly, with macrosetae short, apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum (Fig. 33A) rounded posteriorly. Aedeagal median lobe (Fig. 33B) broad, distinctly angulate apicolaterally, acutely pointed at apex; apical sclerotized area (Fig. 33B) weakly developed. Endophallic median bands (Fig. 33B) moderately long, very broad; expulsion hooks (Fig. 33B) broadly contiguous by the posteromesial margins, each rounded anteriorly, pointed posterolaterally, truncate posteriorly; copulatory tube (Fig. 33B, D) moderately long, with basal chamber elongate-ovoidal, with two shafts of same length, main tube attenuate but weakly curved, acutely pointed, with two long, thin lateral processes connected by the subtransparent plate. Parameres (Fig. 33B) thick, each weakly turning laterally at the apical area; apical area swollen mesially to form its submembranous area, furnished mesially with 20 to 22 setae, several setae of which are decumbent anteriorly.

Female: Eighth ventrite weakly pointed posteromedially; gonocoxites (Fig. 33E) toothed posteriorly, each with apicolateral tooth acutely pointed, apicolateral setae very long. Spermatheca (Fig. 33F) with capsule missing; RT-duct very long, moderately thick, surface sporadically with small, ovoidal or elongate-ovoidal tubercles which exist almost transversely along the transverse ductal stripes; duct short, moderately thick, tightly coiled with 6 turns; basal valve long; basal sclerotized area not observable. Basal structure (Fig. 33F) subconical, membranous, distally with the sclerotized area almost W-shaped at posterior part.

Biology and ecology. *S. tsukubamontis* is distributed only in Mt. Tsukuba and its neighboring areas of the Kanto district, central Honshu. The beetles inhabit leaf litter in the natural forests. In Mt. Tsukuba, the beetles of *S. tsukubamontis* inhabit the leaf litter together with those of *S. asyura* in the same *Fagus*-forests developed around the summit.

Remarks. *S. tsukubamontis* is allied to *S. jurojin*, but it is separable from the latter species by the aedeagal median lobe simply pointed at the apicomedial part (Fig. 33B), the endophallic copulatory tube with its basal tube having the longer lateral processes (Fig. 33D), and the spermatheca with its RT-duct much thinner, and its surface sporadically covered with small, ovoidal or elongate-ovoidal tubercles (Fig. 33F).

Stenus santira Naomi
(Figs. 34A–J, 104H)

Stenus santira Naomi, 1988: 78; Herman, 2001: 2378; Naomi & Puthz, 2013: 143.
Stenus tengu Hromádka, 1990: 57.

Type material. Holotype of *S. santira*: ♂ (KUF), Mt. Zao, Miyagi Pref., 25. vi. 1983, S. Nomura leg.

Holotype of *S. tengu*: ♂ (AACO), Bijyo-daira (1000 m), Toyama Pref., 28. vii. 1980, A & Z. Smetana leg.

Type material examined. Paratype: 1 ♂ (cN), Mt. Chokai, Yamagata Pref., 5. vii. 1985, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♂2 ♀, Futakuchi Valley, Miyagi Pref., 12. vii. 1985, S. Nomura leg.; 2 ♂, Mt. Zao, Miyagi Pref., 25. vi. 1983, S. Nomura leg.; 1 ♂1 ♀, same data as holotype; 1 ♂2 ♀, Nakatsugawa, Mt. Azuma, Fukushima Pref., 19. viii. 1996, S. Naomi leg.; 3 ♂, Makugawa Spa, Fukushima Pref., 19. vii. 1985, S. Nomura leg.; 2 ♂1 ♀, Arakawa,

Sanpoku-machi, Niigata Pref., 5. vii. 1985, S. Nomura leg.; 1 ♂, Tainai, Niigata Pref., 3. vii. 1985, S. Nomura leg.

Distribution. Japan: Honshu (Tohoku and Chubu districts).

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.7–2.0 mm) in length, weakly shining, antennae relatively short, thin. Head black, with median longitudinal area reddish brown; pronotum and elytra reddish brown; abdomen dark reddish brown, often with the posterior segments almost black; antennae and legs yellowish brown to reddish brown. Head weakly convex, with a pair of longitudinal furrows; punctures round to almost round, moderately dense to dense, small. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round, very dense, various in size, moderately large, coarse. Elytra with surface uneven, weakly depressed near suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere bilobed. Abdomen with punctures round to elliptical, moderately dense, small in anterior segments, while punctures in posterior segments very small, sparse, regular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 34F) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 34F) posteromedially with a shallow, subelliptical depression; 8th ventrite (Fig. 34F) posteriorly with a subtriangular, relatively large emargination; 9th tergum (Fig. 34G) with antecostal apophyses very long; 9th ventrite (Fig. 34C) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth acutely pointed, apicolateral setae long; 10th tergum (Fig. 34G) rounded posteriorly. Aedeagal median lobe (Fig. 34A) moderately broad, distinctly angulate apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 34A) transverse, short, with median cusp long, thin, pointed, lateral cusps each existing as obtuse angulation. Endophallic median bands (Fig. 34A) moderately long; lateral bands (Fig. 34A) long, thin; expulsion hooks (Fig. 34A, E) moderately large, partially fused at the mesial sides of posterior plates, each with the anterior plate pointed at anterior tip, partially fused with posterior plate, the posterior plate nearly rectangular, weakly emarginate posteriorly; copulatory tube (Fig. 34A, H–J) varied in structure (especially in its apical part), with basal chamber subovoidal (Fig. 34J) or parallel-sided (Fig. 34I), main tube baculiform, weakly swollen (Fig. 34H) or moderately curved (Fig. 34I, J) behind the middle, with the apical-most part strongly narrowed apically and curved to various degrees (Fig. 34H–J). Parameres (Fig. 34A) each very long; apical area very large, somewhat fusiform, having the developed dorsal flap, furnished mesially with 23 to 28 setae of various lengths, two setae of which are very long.

Female: Eighth ventrite weakly pointed posteromedially; gonocoxites (Fig. 34D) each toothed posteriorly, with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 34B) with capsule missing; RT-duct moderately long, thick; duct relatively thin to moderately thick, loosely coiled; gland ovoidal, with its opening located on the duct a little proximal from the 2nd turn from the apex; basal valve short; basal sclerotized duct long, basally wrapped with membrane. Bursa copulatrix (Fig. 34B) sclerotized, saucer-shaped, arcuately bi-emarginate at base.

Biology and ecology. *S. santira* is widely distributed in the mountainous regions of central to northern Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. santira* is allied to *S. ellipsoides*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area shorter (Fig. 34A), the paramere longer (Fig. 34A), and the endophallic copulatory tube longer, with the main tube having the apex strongly narrowed and more or less curved (Fig. 34A, H–J).

S. santira is a polytypic species; and it shows the geographical variations regarding various

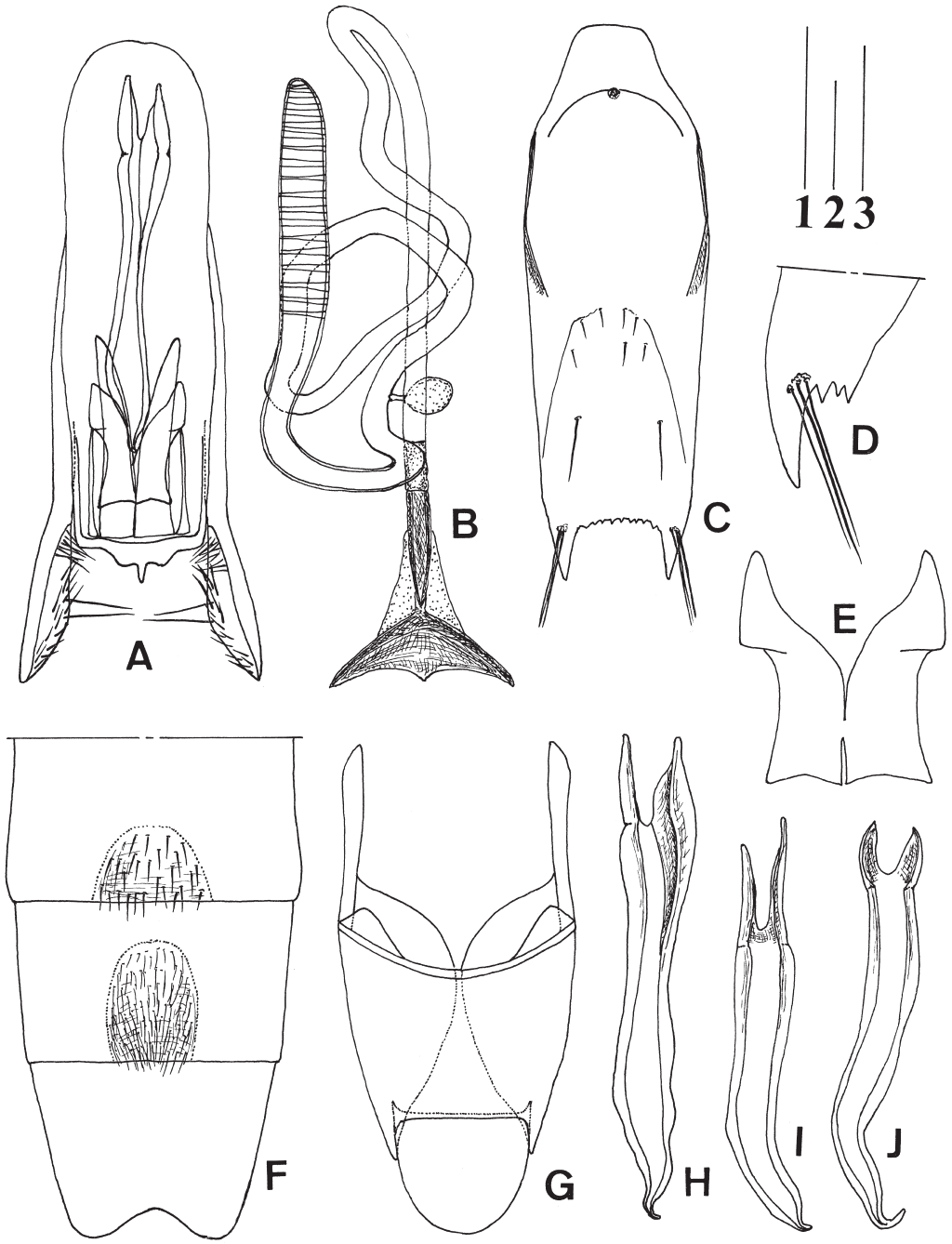

Fig. 34. *Stenus santira* Naomi (A, C, E, F, H, Zao, Miyagi; B, D, Futakuchi, Miyagi; G, Nakatsugawa, Fukushima; I, Tainai, Niigata; J, Chokai, Yamagata). A, aedeagus; B, spermatheca; C, 9th ventrite of male; D, posterior part of gonocoxite; E, expulsion hooks; F, 6th to 8th ventrites of male; G, 9th and 10th terga of male; H–J, copulatory tube. Scale 1: 0.2 mm for A, C, 0.1 mm for D, E; Scale 2: 0.1 mm for B, H–J, 0.2 mm for G; Scale 3: 0.3 mm for F.

parts of the endophallic expulsion hooks and the copulatory tube. The expulsion hook is usually formed as in Fig. 34E, but in some cases the anterior plate is not angulate laterally and the posterior plate has posteriorly a much larger emargination. The copulatory tube varies regarding the shape of basal chamber, the length of main tube, the degree of the curvature of main tube, and the shape of the apical-most part, as illustrated in Fig. 34A, H (Zao, Miyagi), Fig. 34J (Chokai, Yamagata) and Fig. 34I (Tainai, Niigata).

Etymology. The specific epithet of this species is derived from the name of god "Santira", which appears in the Japanese ancient mythology.

Stenus ellipsoides Naomi
(Figs. 35A–F, 104I)

Stenus ellipsoides Naomi, 2015: 24.

Type material examined. Holotype: ♂ (CBM), Futamata, Mt. Asahi, Yamagata Pref., 21. viii. 1996, S. Naomi leg. Paratypes, 3 ♂1 ♀ (cN), same data as holotype; 1 ♂ (cN), Hosono, Urabandai, Fukushima Pref., 9. vii. 1985, S. Nomura leg.

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

Redescription. Male and female: Body 3.5–3.7 mm (fore body 1.7–1.8 mm) in length, weakly shining. Body entirely yellowish brown to reddish brown, but apical segments of antennae and lateral areas of vertex infuscate. Head weakly convex, with a pair of longitudinal furrows; punctures round to elliptical, moderately dense to dense, small. Pronotum with surface slightly uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, various in size, irregular. Elytra with surface slightly uneven, almost flat near suture; punctures round, very dense, moderately large. Legs with femora moderately thick; tarsi each with 4th tarsomere bilobed. Abdomen with punctures round to elliptical, moderately dense, small to moderately large in anterior segments, while punctures in posterior segments very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 35C) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 35C) medially with a very large, shallow, broad depression, which is weakly, arcuately emarginate; 8th ventrite (Fig. 35D) posteriorly with a large emargination; 9th tergum with antecostal apophyses long; 9th ventrite minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth short, acutely pointed, apicolateral setae long; 10th tergum entire. Aedeagal median lobe (Fig. 35B) large, broad, angulate apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 35B) transverse, with median cusp very long, thin, pointed, lateral cusps each obtusely pointed, broad. Endophallic median bands (Fig. 35B) each moderately long, very broad at base; lateral bands (Fig. 35B) long, very thin; expulsion hooks (Fig. 35B) large, each almost C-shaped, pointed at anterior tip, with anterior plate fused with posterior plate; copulatory tube (Fig. 35B) with basal chamber elongate-ovoidal, main tube almost straight, attenuate but ellipsoidal at apex. Parameres (Fig. 35B) each short to moderately long; apical area short, broadened apically, subtransparent in the median longitudinal area, furnished mesially with 21 to 23 setae of various lengths, two setae of which are very long (Fig. 35G).

Female: Eighth ventrite (Fig. 35E) weakly pointed posteromedially; gonocoxites (Fig. 35F) each minutely toothed posteriorly, with apicolateral tooth large, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 35A) with capsule long, rounded apically; RT-duct long, thick; duct moderately thick, loosely coiled; gland subovoidal, broader than long. Bursa

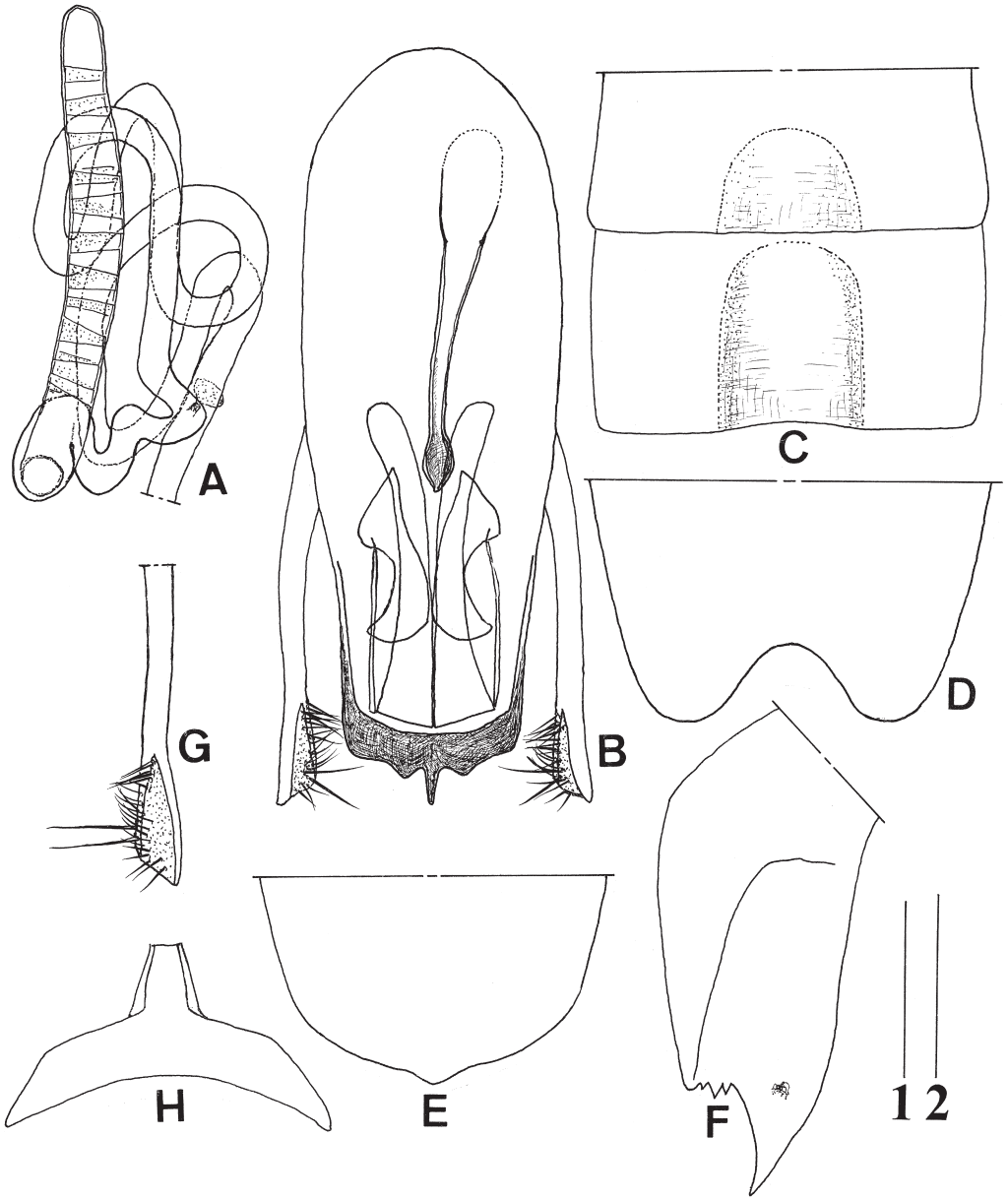

Fig. 35. *Stenus ellipsoides* Naomi (Asahi, Yamagata). A, anterior part of sprmatheca; B, aedeagus; C, 6th and 7th venters of male; D, posterior part of 8th ventrite of male; E, posterior part of 8th ventrite of female; F, gonocoxite of female; G, posterior part of paramere; H, bursa copulatrix. Scale 1: 0.1 mm for A, H, 0.2 mm for B, D–G; Scale 2: 0.3 mm for C.

copulatrix (Fig. 35H) large, saucer-shaped, sclerotized.

Biology and ecology. *S. ellipsoides* is distributed in the mountainous regions of Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. ellipsoides* is allied to *S. santira*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area longer (Fig. 35B), the paramere shorter (Fig. 35B) and the endophallic copulatory tube shorter, with its main tube ellipsoidal at apex (Fig. 35B).

Stenus protuberans Naomi & Watanabe
(Fig. 36A–G)

Stenus protuberans Naomi & Watanabe, 2015: 101.

Type material examined. Holotype: ♂ (TUAA), Mt. Ohasahi, Mts. Asahi, Yamagata Pref., 24. viii. 1994, Y. Watanabe leg. Paratype: ♀ (TUAA), same data as holotype.

Distribution. Japan: Honshu (Yamagata Pref.).

Redescription. Male and female: Body 3.7–4.0 mm (fore body 1.7–1.9 mm) in length, weakly shining. Body entirely reddish brown but apical segments of antennae and lateral areas of vertex more or less infuscate. Head with a pair of longitudinal furrows; punctures round, moderately dense, regular, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, coarse, irregular. Elytra with surface uneven; punctures very dense, coarse, irregular. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, various in size in anterior segments, while punctures in posterior segments small to very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite posteromedially with a semicircular, very shallow depression, which is shallowly emarginate; 7th ventrite medially with a shallow, longitudinal depression, which is shallowly emarginate; 8th ventrite (Fig. 36F) posteriorly with a very large, V-shaped emargination; 9th tergum (Fig. 36A) with antecostal apophyses very long; 9th ventrite (Fig. 36D) very minutely serrate posteriorly, with macrosetae short, apicolateral teeth pointed, apicolateral setae moderately long; 10th tergum (Fig. 36A) entire. Aedeagal median lobe (Fig. 36E) moderately broad, obtusely angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 36E) very short, with median cusp thin, pointed, lateral cusps each obtuse, broad. Endophallic median bands (Fig. 36E) each moderately long, very broad at base; expulsion hooks (Fig. 36E) large, connected by the posteromesial corners, each pointed at anterior tip, with anterior plate almost completely fused with posterior plate; copulatory tube (Fig. 36C) baculiform, very thick, main tube broadly open ventrally, with a large, vessel-like structure at apex, which has the paired, thin, apical processes. Parameres (Fig. 36E) each very long, robust, moderately thick, almost straight; apical area very long, weakly broadened toward apex, obliquely truncate apically, furnished mesially with 23–24 setae of various length, two setae of which are very long.

Female: Eighth ventrite minutely pointed posteromedially; gonocoxites (Fig. 36G) each irregularly toothed posteriorly, with apicolateral tooth acutely pointed. Spermatheca (Fig. 36B) with capsule long; RT-duct moderately long, thick; duct moderately long, relatively thin, loosely coiled with 6 turns; gland small, nearly spherical, located on the tube between 5th and 6th turns; basal valve very long; basal sclerotized duct short, distinctly narrowed basally. Bursa copulatrix (Fig. 36B) saucer-shaped, sclerotized, anteromesially with a pair of small swells.

Biology and ecology. *S. protuberans* is a rare species; and it is only once collected from Mts. Asahi of Tohoku district, Honshu. The beetle inhabits leaf litter in the natural forests.

Remarks. *S. protuberans* is a remarkable species in having the very thick copulatory tube with its main tube vessel-like at apex (Fig. 36C). There are no other species of *asyura*-subg. which possess such peculiar copulatory tube as this. *S. protuberans* is allied to *S. santira* and *S. ellipsoides*, but it is easily separable from the latter two species by the vessel-like apex of copulatory tube (Fig. 36C).

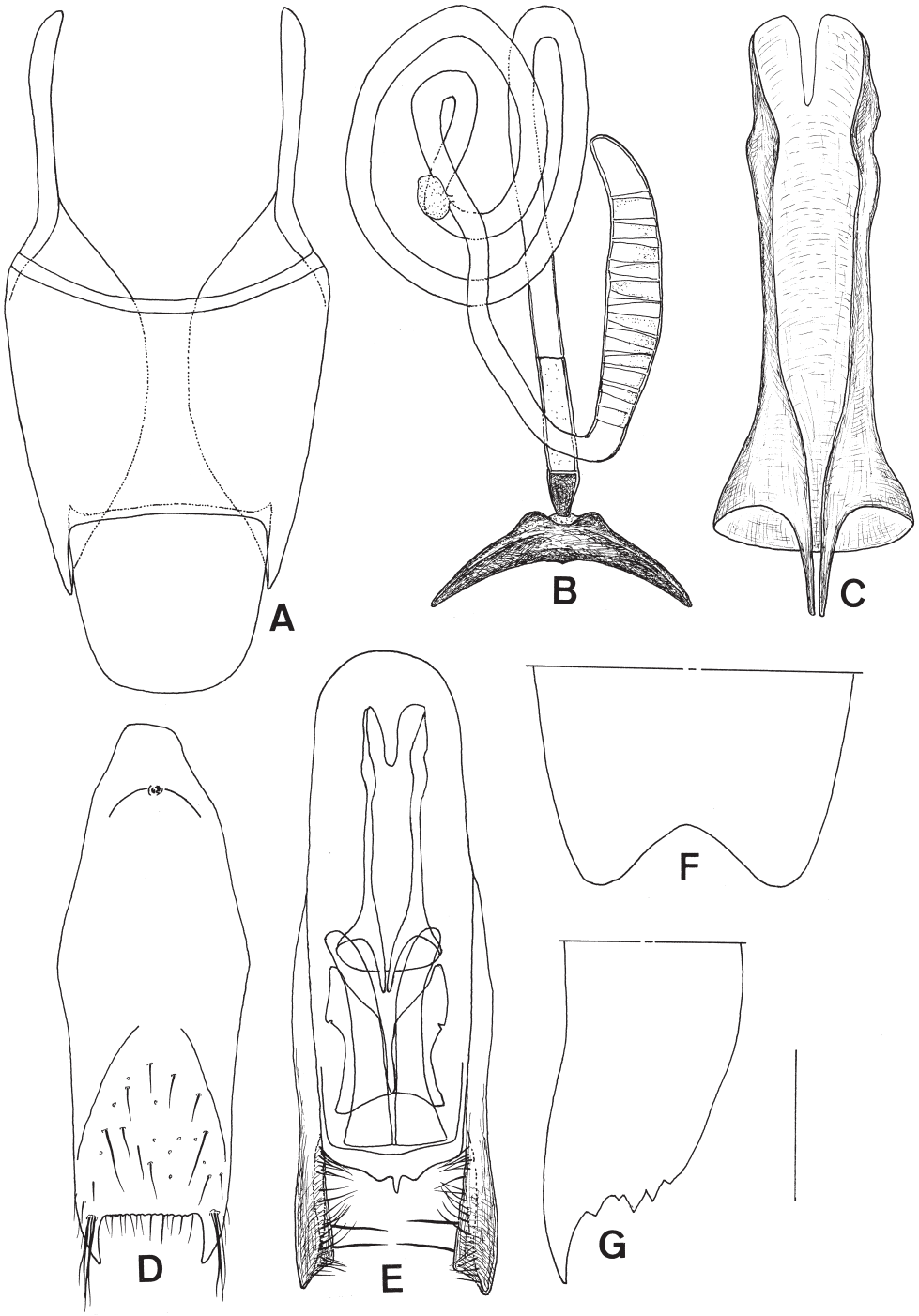

Fig. 36. *Stenus protuberans* Naomi & Watanabe (Ohasahi, Yamagata). A, 9th and 10th terga of male; B, spermatheca; C, copulatory tube; D, 9th ventrite of male; E, aedeagus; F, posterior part of 8th ventrite of male; G, posterior half of gonocoxite. Scale 1: 0.2 mm for A, D–G and 0.1 mm for B, C.

Stenus fulvivestis Naomi & Watanabe
(Figs. 37A–F, 104J)

Stenus fulvivestis Naomi & Watanabe, 2015: 101.

Type material examined. Holotype: ♂ (TUAA), Jinmuji, Yokosuka City, Kanagawa Pref., 29. xii. 1990, T. Nonaka leg. Paratypes: 1 ♂ (TUAA), same data as holotype; 1 ♂ (cN), same locality, 13. vi. 1992, T. Nonaka leg.

Distribution. Japan: Honshu (Kanagawa Pref.).

Redescription. Male: Body 3.7–4.0 mm (fore body 1.7–1.8 mm) in length, weakly shining, with antennae long, thin. Body yellowish brown to reddish brown, but lateral areas of vertex and apical segments of antennae more or less infuscate. Head shallowly concave, with a pair of longitudinal furrows; punctures round, moderately dense, small, umbilicate. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, irregular. Elytra with surface weakly uneven; punctures round to elliptical, very dense, large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures on 3rd segment round, moderately dense, small, regular; punctures becoming gradually smaller from anterior to posterior segments. Lateroventrites and tergoventrite sutures missing.

Seventh ventrite (Fig. 37D) posteromedially with a large, semicircular flat area; 8th ventrite (Fig. 37D) posteromedially with a large, deep, subtriangular emargination; 9th tergum (Fig. 37A) with antecostal apophyses very long; 9th ventrite (Fig. 37B) hardly serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 37A) rounded posteriorly. Aedeagal median lobe (Fig. 37C) broad, distinctly angulate apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 37C) hardly developed, with median cusp moderately long, pointed, lateral cusps each broad, blunt. Endophallic median bands (Fig. 37E) moderately broad and long; lateral bands (Fig. 37E) thin; expulsion hooks (Fig. 37F) connected by the posteromesial corners to form a V-shaped structure, each relatively thin, anterolaterally with a pointed tooth, with anterior plate completely fused with posterior plate; copulatory tube (Fig. 37E) rod-like, long, with main tube curved behind the apical 1/3, acutely pointed at apex. Parameres (Fig. 37C) moderately thick, each curved posterolaterally at the apical area; the apical area moderately long, somewhat fusiform, membranous mesially, furnished mesially with 23–24 setae of various length, two of which are moderately long.

Female: Unknown.

Biology and ecology. *S. fulvivestis* is distributed in the plains of western Kanto district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. fulvivestis* is allied to *S. basara*, but it is separable from the latter species by the aedeagal median lobe apically with its median cusp shorter (Fig. 37C), the endophallic expulsion hook thinner (Fig. 37F) and the copulatory tube with its basal chamber smaller (Fig. 37E).

Stenus basara Naomi
(Figs. 38A–H, 104K)

Stenus basara Naomi, 1988a: 76; Herman, 2001: 2078; Naomi & Puthz, 2013: 143.

Type material. Holotype: ♀ (KUF), Aokigahara, Mt. Fuji, Shizuoka Pref., 20. vii. 1982, S. Naomi leg.

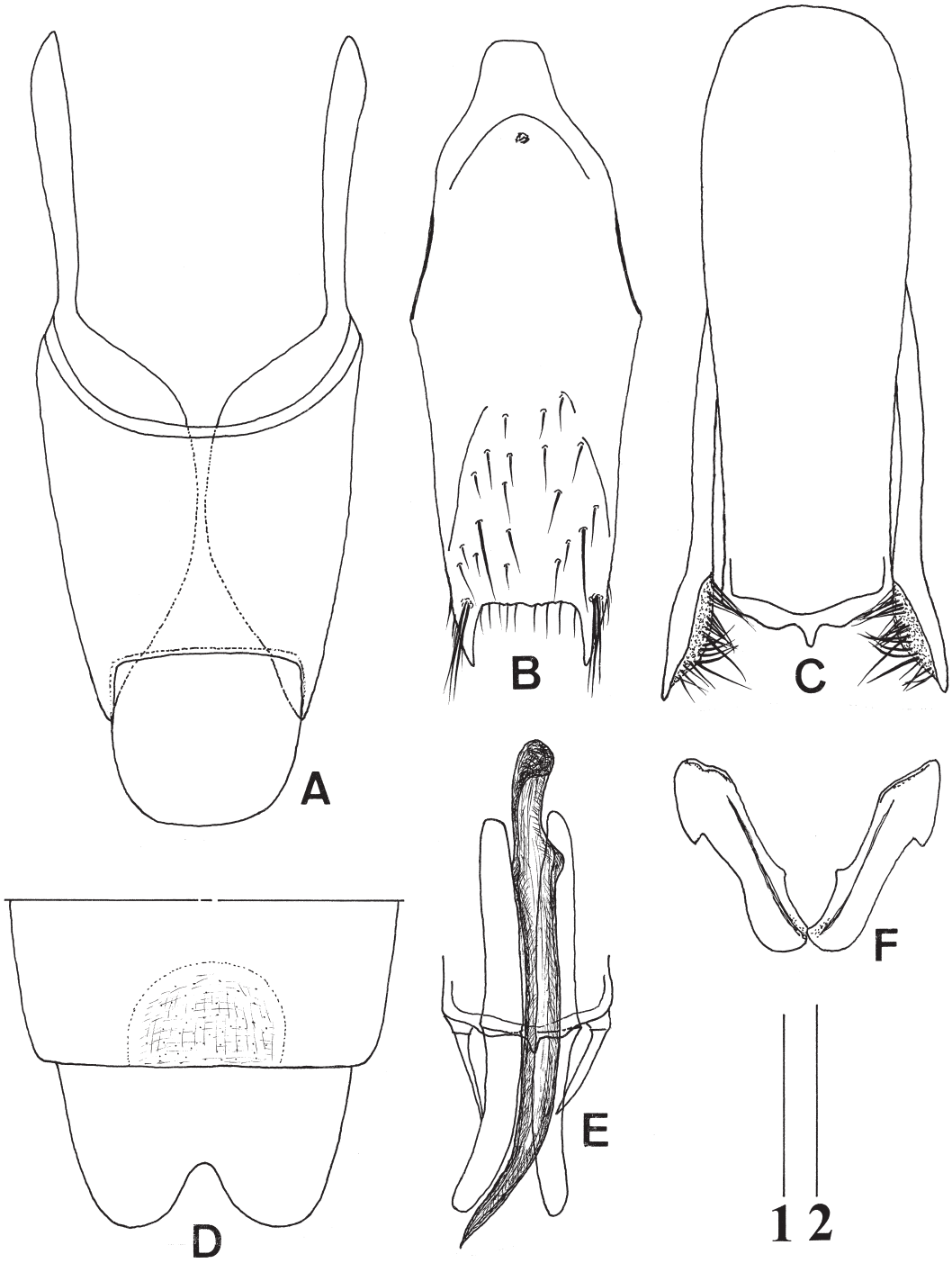

Fig. 37. *Stenus fulvivestis* Naomi & Watanabe (Jinmuji, Kanagawa). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, 7th and 8th ventrites of male; E, apical part of median lobe with the endophallus (median bands, lateral bands and copulatory tube); F, expulsion hooks. Scale 1: 0.2 mm for A–C, E, 0.1 mm for F; scale 2: 0.3 mm for D.

Type material examined. Paratypes: 1 ♂3 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 1 ♂7 ♀, Mizugatsuka, Susono City, Shizuoka Pref., 5. xi. 2000, S. Nomura leg. 2 ♂1 ♀, same locality, 27. x. 2011, T. Watanabe leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 1.8–2.0 mm) in length, weakly to moderately shining, with antennae moderately long, very thin. Head dark red to black; pronotum, elytra and abdomen reddish brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head shallowly concave, with a pair of longitudinal furrows; punctures on the lateral areas round, moderately dense, small but sparse and very small on the central area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, moderately large, coarse, irregular. Elytra with surface uneven, weakly depressed near suture; punctures round to elliptical, very dense, various in size but moderately large in average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, dense, small, regular in anterior segments, while punctures in posterior segments dense and very small, or existing simply as setal sockets. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 38G) posteromedially with a bell-shaped, flat area; 7th ventrite (Fig. 38G) posteromedially with an elongate, bell-shaped, shallow depression, which is shallowly emarginate; 8th ventrite (Fig. 38G) posteromedially with a V-shaped emargination; 9th tergum (Fig. 38A) with antecostal apophyses long; 9th ventrite (Fig. 38B) minutely serrate posteriorly, with macrosetae short, apicolateral teeth very long, acutely pointed, apicolateral setae long; 10th tergum (Fig. 38A) entire. Aedeagal median lobe (Fig. 38F) broad, distinctly angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 38F) very short, arcuate anteriorly, with median cusp very long, pointed, lateral cusps each blunt. Endophallic median bands (Fig. 38F) very long; lateral bands (Fig. 38F) very long, thin; expulsion hooks (Fig. 38D) fused by the posteromesial margins of posterior plate, each thick, with anterior plate partially fused with posterior plate, the posterior plate rounded posteriorly; copulatory tube (Fig. 38E) moderately long, with basal chamber large, elongate-elliptical, main tube moderately thick, curved near apex, basiventrally with paired, sclerotized flaps. Parameres (Fig. 38F) each long; apical area large, long, moderately angulate mesially at base, having a developed dorsal flap, furnished mesially with 30 to 36 setae of various length.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 38C) each toothed posteriorly, with apicolateral tooth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 38H) with capsule elongate, rounded apically; RT-duct moderately thick, broadened distally; duct long, thin, tightly coiled; basal valve moderately long; basal sclerotized duct a little longer than basal valve. Bursa copulatrix subconical, broadly emarginate posteriorly.

Biology and ecology. *S. basara* is presently known only from the southern foot of Mt. Fuji of Chubu district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. basara* is allied to *S. fulvivestis*, but it is separable from the latter species by the aedeagal median lobe with its median cusp longer (Fig. 38F), the endophallic expulsion hook thicker (Fig. 38D), and the copulatory tube with its basal chamber larger (Fig. 38E).

Etymology. The specific epithet of this species is derived from the name of god “Basara”, which appeared in the Japanese ancient mythology.

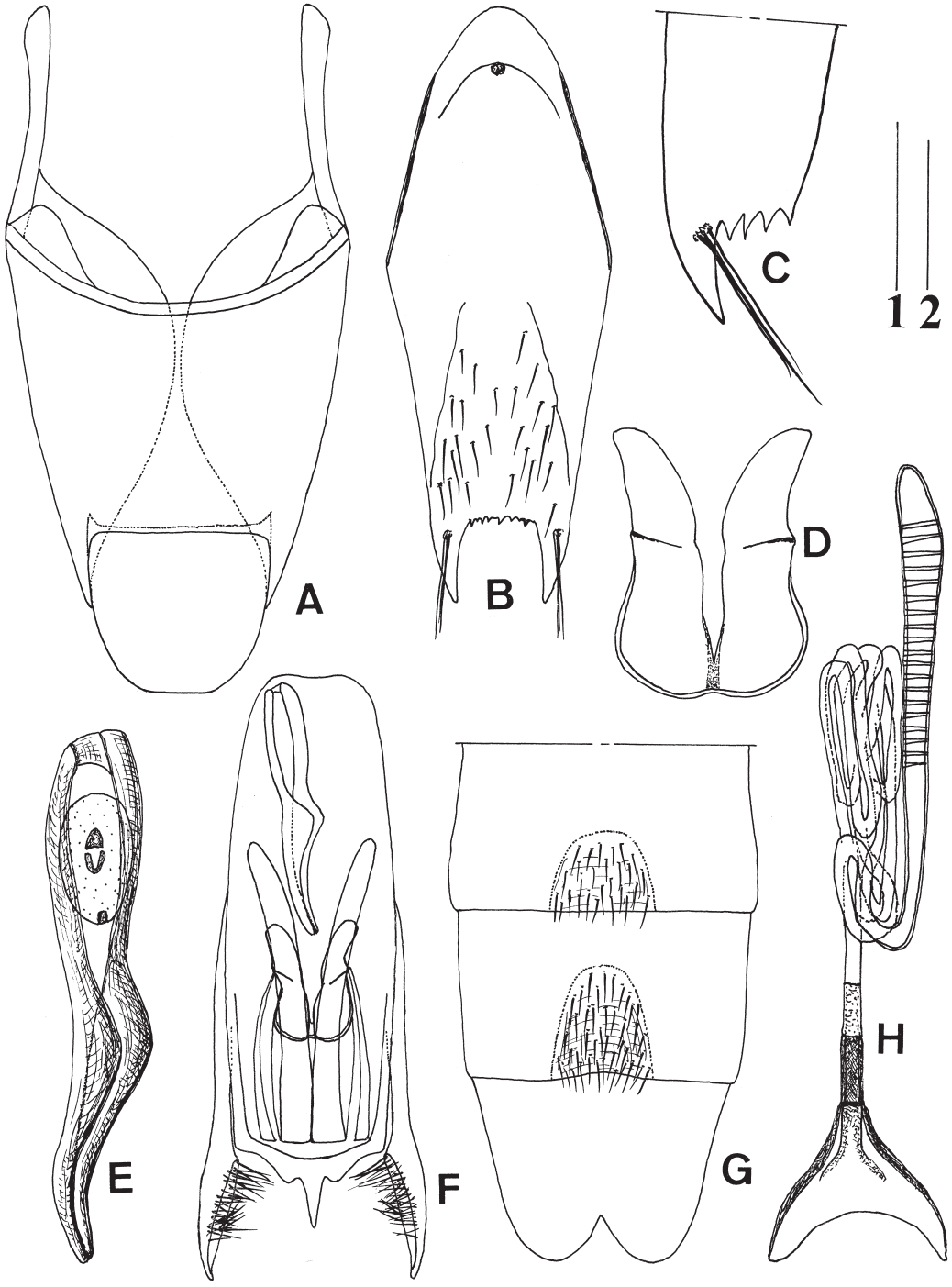

Fig. 38. *Stenus basara* Naomi (A, Mizugatsuka, Shizuoka). A, 9th and 10th terga of male; B, 9th ventrite of male; C, posterior part of gonocoxite; D, expulsion hooks; E, copulatory tube; F, aedeagus; G, 6th to 8th ventrites of male; H, spermatheca. Scale 1: 0.2 mm for A, B, F, 0.1 mm for C–E, H; Scale 2: 0.3 mm for G.

Stenus asyura Naomi
(Figs. 39A–I, 104 L)

Stenus asyura Naomi, 1988a: 75; Herman, 2001: 2068; Naomi & Puthz, 2013: 143.

Type material. Holotype: ♂ (KUF), Jigoku Valley, Kiyosato, Mt. Yatsu, Yamanashi Pref., 8. vii. 1982, S. Naomi leg.

Type material examined. Paratypes: 5 ♂ (cN), same data as holotype.

Other material examined. [HONSHU]: 1 ♂, Mt. Jinbagata, Nakagawa Vil., Nagano Pref., 2. v. 1998, T. Shimada leg.; 2 ♂2 ♀, Kanayama-daira, Sutama-machi, Yamanashi Pref., 13. vi. 1982, T. Kishimoto leg.; 1 ♂, Gozaishi Spa, Yamanashi Pref., 12. viii. 1989, T. Ito leg.; 1 ♂, Aokigahara, Mt. Fuji, Yamanashi Pref., 14. ix. 2011, T. Watanabe leg.; 1 ♂, Tencho, Shioya-cho, Tochigi Pref., 18. v. 1993, T. Kishitomo leg.; 2 ♂2 ♀, Tsukuba City, Ibaraki Pref., 14. iv. 2007, P. Jałoszynski leg.; 1 ♂, Mt. Tsukuba (600–700 m), Tsukuba City, Ibaraki Pref., 2. xii. 2001, P. Jałoszynski leg.; 3 ♂, Komine Pass, Hachioji City, Tokyo, 15–16. vii. 1996, T. Kishimoto leg.; 1 ♂, Oyama, Machida City, Tokyo, 19. v. 1991, T. Kishimoto leg.; 1 ♂, Yokosuka City, Kanagawa Pref., 15. iv. 1999, I. Kawashima leg.; 1 ♂, Tomioka, Yokohama City, Kanagawa Pref., 27–28. vii. 1992, T. Kishimoto leg.; 2 ♂1 ♀, Aoba-cho, Chiba City, Chiba Pref., 31. i. 1994, Y. Hagino leg.; 1 ♀, same locality, 29. ix. 1993, Y. Hagino leg.; 2 ♂, same locality, 6. ii. 1994, Y. Hagino leg.; 1 ♂, Kashiwai, Chiba City, Chiba Pref., 5. iv. 1997, S. Nomura leg.; 1 ♂, Noman, Ichihara City, Chiba Pref., 20. vii. 2004, S. Naomi leg.; 1 ♂, same locality, 31. vii. 2004, Y. Hagino leg.; 2 ♂, Yoro Valley, Ichihara City, Chiba Pref., 1. vi. 1993, S. Naomi leg.

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

Redescription. Male and female: Body 3.0–3.5 mm (fore body 1.6–1.8 mm) in length, moderately shining, with antennae moderately long, very thin. Body clear reddish brown but the lateral parts of head and posterior abdominal segments infuscate. Head shallowly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, distinct. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large to large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while punctures in posterior segments elliptical, dense and very small, or existing simply as setal sockets. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrite (Fig. 39F) posteromedially with a subtriangular emargination; 9th tergum (Fig. 39E) with antecostal apophyses long; 9th ventrite (Fig. 39A) irregularly serrate posteriorly, with macrosetae very long, apicolateral teeth short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 39E) rounded posteriorly. Aedeagal median lobe (Fig. 39B, C) broad, distinctly angulate apicolaterally, tricuspidate at apical part; apical sclerotized area (Fig. 39B, C) short, transverse, with median cusp very long, thin, pointed, lateral cusps each relatively broad, angulate. Endophallic median bands (Fig. 39B, C) each with basal band very long, thin, folded band short; lateral bands (Fig. 39B, C) long, very thin; expulsion hooks (Fig. 39G) connected by membrance at the posteromesial sides of posterior plates, each thin, with anterior plate partially fused with posterior plate, the posterior plate pointed posteriorly; copulatory tube (Fig. 39D) long, with basal chamber ovoidal, main tube rod-like, straight, apically swollen to form a fusiform or subovoidal tip. Parameres (Fig. 39B, C) each with stem very thick at base; apical area

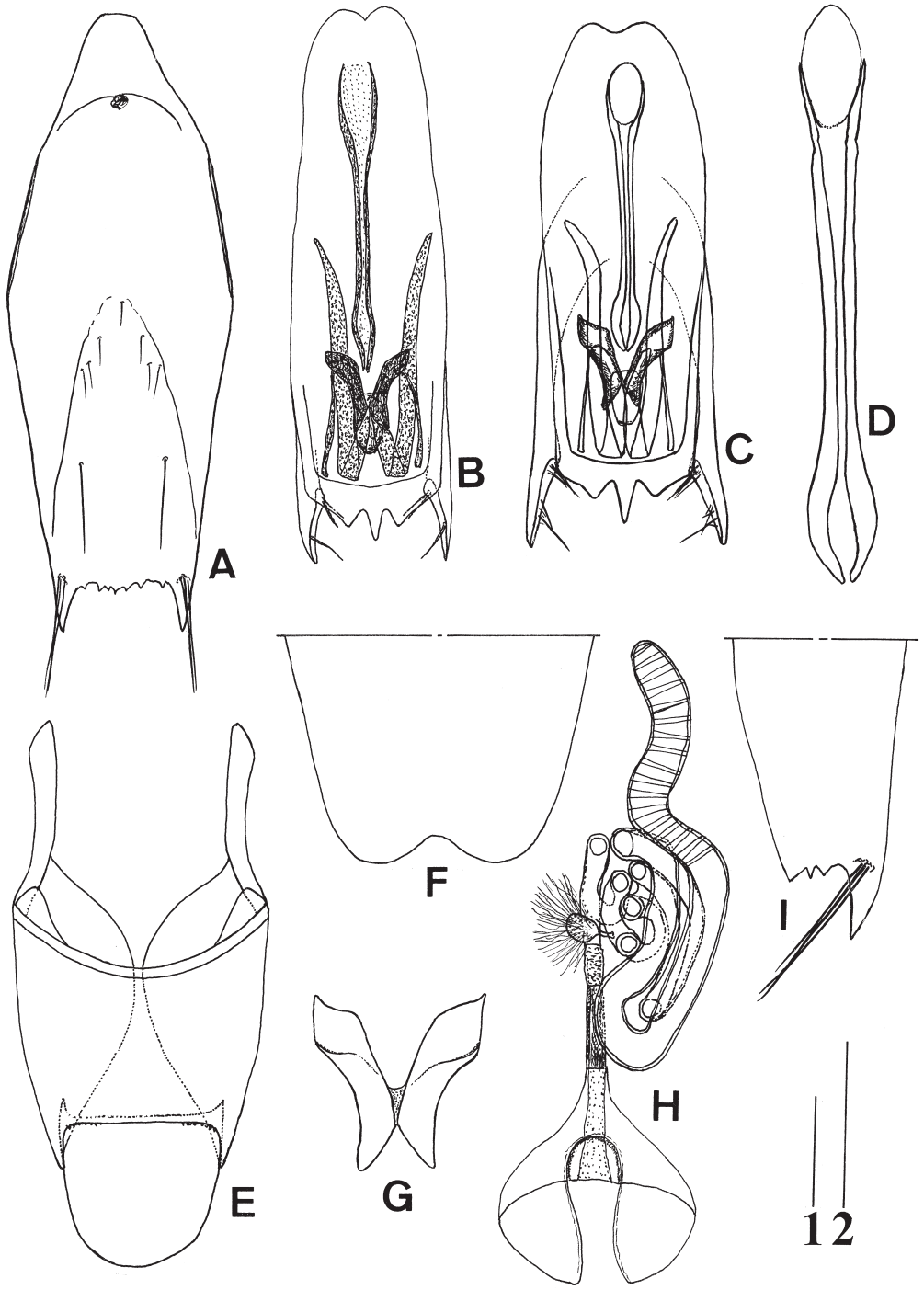

Fig. 39. *Stenus asyura* Naomi (A–D, G–I, Kiyosato, Yamanashi; E, F, Machida, Tokyo). A, 9th ventrite of male; B, C, aedeagus; D, copulatory tube; E, 9th and 10th terga of male; F, posterior part of 8th ventrite of male; G, expulsion hooks; H, spermatheca; I, posterior part of gonocoxite. Scale 1: 0.1 mm for A, H; Scale 2: 0.2 mm for B, C, E, F, 0.1 mm for D, G, I.

moderately long, angulate mesially at base, furnished mesially with 5 to 6 setae at base, with 2 to 3 long and several short setae near the apical 1/3.

Female: Eighth ventrite pointed posteromedially; gonocoxites (Fig. 39I) each toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 39H) with capsule missing; RT-duct moderately long and thick; duct long, thin to moderately thick, irregularly, very tightly coiled; gland small, almost ovoidal, wholly covered with very thin, long ciliae; basal valve short; basal sclerotized duct long. Bursa copulatrix (Fig. 39H) large, funnel-like, with a very deep, narrow emargination at base.

Biology and ecology. *S. asyura* is a common species; and it is widely distributed in the plains and low mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural as well as relatively dried forests.

Remarks. *S. asyura* is the sister species of *S. hakonensis*; and it is separable from the latter species by the lighter coloration of body (Fig. 104L), the endophallic expulsion hook thinner, with its posterior plate pointed posteriorly (Fig. 39G), the copulatory tube with its main tube straight and fusiform or subovoidal at apex (Fig. 39D), and the spermathecal duct with its RT-duct much thinner (Fig. 39H).

Etymology. The specific epithet of this species is derived from the name of god "Asyura", which appeared in the Japanese ancient mythology.

Stenus hakonensis Naomi
(Figs. 40A–H, 105A)

Stenus asyura hakonensis Naomi, 2004b: 29; Naomi & Puthz, 2013: 143.
Stenus hakonensis Naomi, 2015: 26.

Type material examined. Holotype: ♂ (CBM), Sengokubara, Hakone, Kanagawa Pref., 25. x. 1985, S. Nomura leg. Paratypes: 3 ♂1 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂1 ♀, Hiryu fall, Hakone, Kanagawa Pref., 25. iv. 1997, S. Naomi leg.; 2 ♂3 ♀, Jogao Pass, Yamakita-cho, Kanagawa Pref., 16. xi. 1996, S. Nomura leg.; 1 ♂3 ♀, Mt. Daigatake, Hakone, Kanagawa Pref., 3. iii. 2001, H. Mizushima leg.; 3 ♂2 ♀, Shiroishi-zawa, Tanzawa, Kanagawa Pref., 10. xi. 2002, S. Nomura leg.; 2 ♂4 ♀, Shiraito, Shizuoka Pref., 28. vi. 1991, T. Ito leg.; 1 ♂, Nishi-usuzuka, Fujinomiya, Shizuoka Pref., 7. x. 2007, T. Watanabe leg.; 2 ♂2 ♀, Taro-bou, Mt. Fuji, Gotenba, Shizuoka Pref., 10. x. 1991, S. Nomura leg; 1 ♂1 ♀, Mikuni Pass, Yamanakako Vil., Yamanashi Pref., 16. xi. 2002, S. Nomura leg.

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

Redescription. Male and female: Body 3.2–4.0 mm (fore body 1.7–2.0 mm) in length, moderately shining, with antennae moderately long, very thin. Head reddish or dark brown to black; pronotum and elytra reddish brown to dark brown; abdomen dark brown; labrum, antennae and legs yellowish brown to reddish brown. Head shallowly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large to large, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while punctures in posterior segments round to

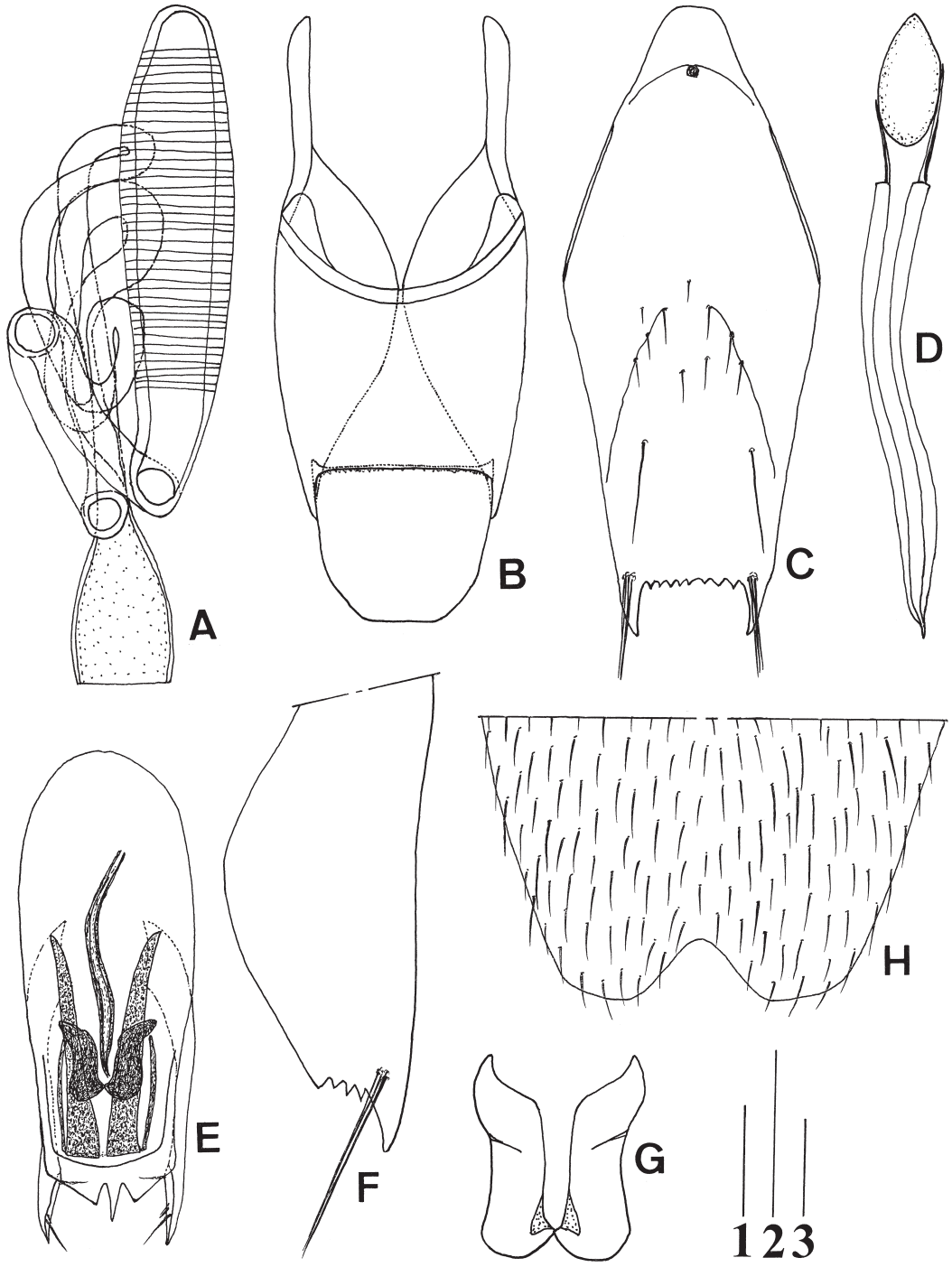

Fig. 40. *Stenus hakonensis* Naomi ((A, F, Shiroishi, Kanagawa; B–D, Daigatake, Kanagawa; E, G, H, Sengokubara Kanagawa). A, spermatheca; B, 9th and 10th terga of male; C, 9th ventrite of male; D, copulatory tube; E, aedeagus; F, gonocoxite; G, expulsion hooks; H, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for C; Scale 2: 0.2 mm for A, D, F, G, 0.1 mm for B, E; Scale 3: 0.1 mm for H.

elliptical, dense, very small. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrite (Fig. 40H) posteromedially with a subtriangular emargination; 9th tergum (Fig. 40B) with antecostal apophyses long; 9th ventrite (Fig. 40C) serrate posteriorly, with macrosetae very long, apicolateral teeth short, acutely pointed, apicolateral setae long; 10th tergum (Fig. 40B) entire. Aedeagal median lobe (Fig. 40E) broad, distinctly angulate apicolaterally, tricuspidate at apicomedian part; apical sclerotized area (Fig. 40E) transverse, arcuate anteriorly, with median cusp very long, thin, pointed, lateral cusps each angulate or pointed. Endophallic median bands (Fig. 40E) each long, narrowed anteriorly; lateral bands (Fig. 40E) long, thin; expulsion hooks (Fig. 40G) fused at the posteromesial corners, each moderately thick, with anterior plate partially fused with posterior plate, the posterior plate rounded posteriorly; copulatory tube (Fig. 40D) moderately long, with basal chamber with two thin rods of the same length (Fig. 40E) or of different length (Fig. 40D), main tube rod-like, curved near the middle, very thin and subulate at the apical-most part. Parameres (Fig. 40E) each with stem very thick at base; apical area short to moderately long, weakly angulate mesially at base, furnished mesially with 1 to 2 setae at base, with 2 to 3 setae near the apical 1/3.

Female: Eighth ventrite rounded or weakly angulate posteromedially; gonocoxites (Fig. 40F) each toothed posteriorly, with apicolateral tooth long, pointed, apicolateral setae very long. Spermatheca (Fig. 40A) with capsule broad, rounded apically; RT-duct very large and thick, long, almost fusiform; duct long, almost tightly coiled, moderately thick except for the thick distal portion; basal pouch bell-shaped.

Biology and ecology. *S. hakonensis* is distributed in the mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests. The habitus and the external structure of the aedeagus of *S. hakonensis* are, as described above, highly similar to those of *S. asyura*, showing that morphologically, these two species form sibling species. However, although their distributional ranges partially overlap in the southern part of central Honshu, they seem to segregate their habitats from each other. Namely, generally speaking, the beetles of *S. hakonensis* tend to inhabit the wet natural forests at the mountainous areas, while the beetles of *S. asyura* tend to inhabit the dry secondary forests at the plain and low mountainous areas. This seems to suggest that they have different ecological requirements at least regarding the degree of humidity.

Remarks. *S. hakonensis* is the sister species of *S. asyura*; and it is separable from the latter species by the darker coloration of body (Fig. 105A), the endophallic expulsion hook thicker, with its posterior plate rounded posteriorly (Fig. 40G), the copulatory tube with its main tube curved near the middle, and very thin and subulate at the apical-most part (Fig. 40D), and the spermathecal duct with its RT-duct much thicker (Fig. 40A).

Stenus nogohakusanus Naomi, Nomura & Kamezawa
(Figs. 41A–H, 105B)

Stenus nogohakusanus Naomi, Nomura & Kamezawa, 2015: 322.

Type material examined. Holotype: ♂ (NMNST), Mt. Nogo-hakusan, Ohno City, Fukui Pref., 4. x. 2002, S. Nomura leg. Paratypes: 2 ♂ 6 ♀ (NMNST) & 6 ♂ 9 ♀ (cN), same data as holotype; 2 ♂ (cN), Nukumi Pass, Ohno City, Fukui Pref., 4. x. 2002, S. Nomura leg.

Distribution. Japan: Honshu (Fukui Pref.).

Redescription. Male and female: Body 4.5–5.6 mm (fore body 2.0–2.6 mm) in length, weakly shining, with antennae moderately long, very thin. Head black; pronotum and elytra red-

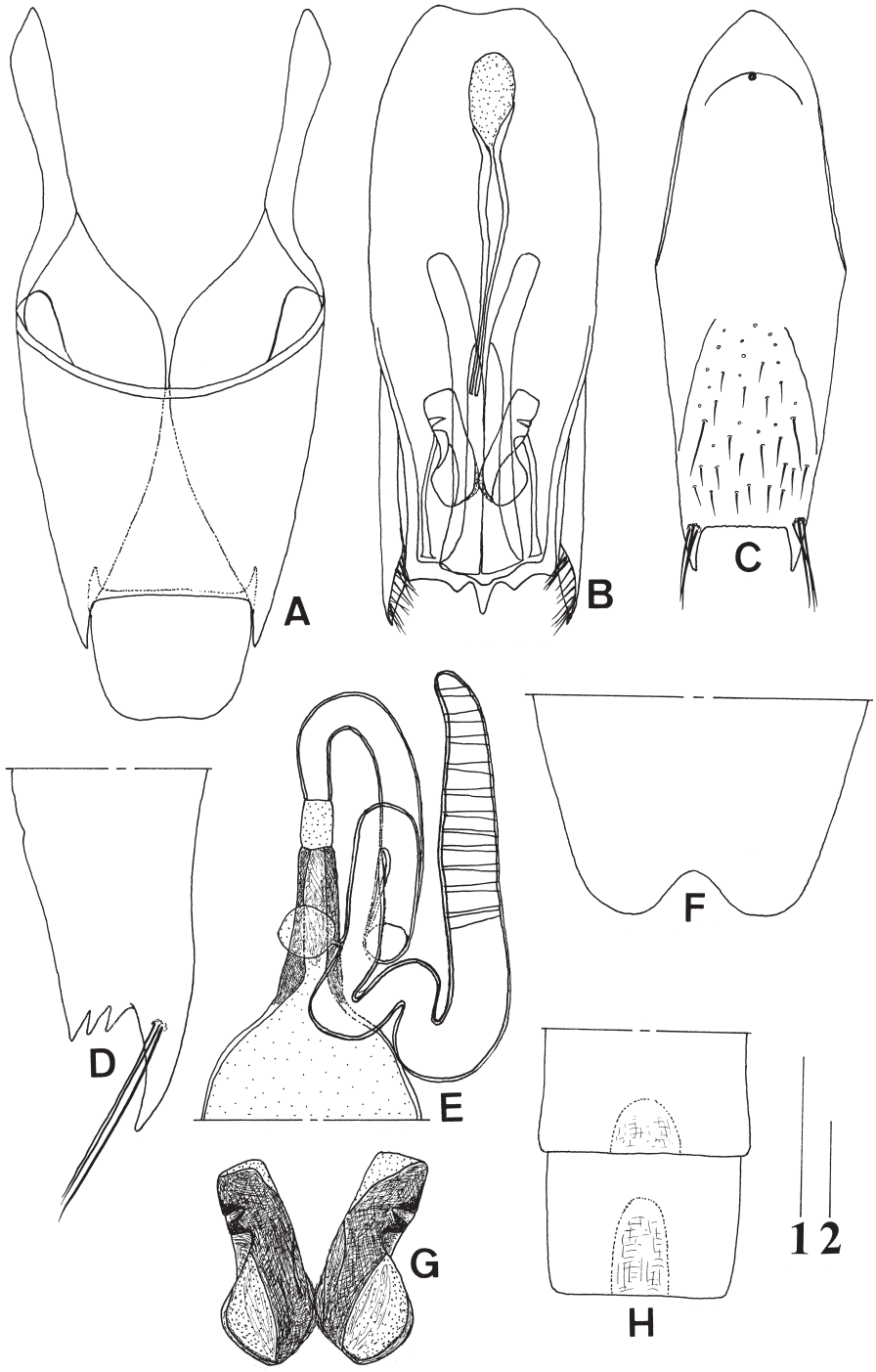

Fig. 41. *Stenus nogohakusanus* Naomi (Nogohakusan, Fukui). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, posterior part of gonocoxite; E, spermatheca; F, posterior part of 8th ventrite of male; G, expulsion hooks; H, 6th and 7th ventrites of male. Scale 1: 0.2 mm for A–C, F, 0.1 mm for D–E, G; Scale 2: 0.3 mm for H.

dish brown; abdomen dark reddish brown to dark brown; labrum, antennae and legs reddish brown. Head weakly concave, with a pair of shallow longitudinal furrows; punctures round, moderately dense, small, regular, somewhat umbilicate. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to almost round, very dense, various in size but large in average, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, regular in anterior segments, while punctures in posterior segments round, sparse, very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 41H) posteromedially with a bell-shaped flat area; 7th ventrite (Fig. 41H) posteromedially with an elongate flat area; 8th ventrite (Fig. 41F) posteromedially with a subtriangular emargination; 9th tergum (Fig. 41A) with antecostal apophyses very long, thick; 9th ventrite (Fig. 41C) hardly serrate posteriorly, with macrosetae short, apicolateral teeth short, pointed, apicolateral setae moderately long; 10th tergum (Fig. 41A) weakly emarginate posteriorly. Aedeagal median lobe (Fig. 41B) broad, distinctly angulate or weakly protruding apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 41B) hardly developed, with median cusp long, pointed, lateral cusps each small, pointed. Endophallic median bands (Fig. 41B) each long, weakly diverging anteriorly; lateral bands (Fig. 41B) long, thin; expulsion hooks (Fig. 41G) connected at the mesial margins, each solid, broad, rounded posterolaterally, anterolaterally with two depressions of different size; copulatory tube (Fig. 41B) long, with basal chamber ovoidal, membranous, main tube rod-like, moderately swollen basally, then attenuate toward apex. Parameres (Fig. 41B) each thin, acutely pointed at apex; apical area rather short, furnished mesially with 12 to 13 setae along the ventral margin.

Female: Eighth ventrite weakly pointed posteromedially; gonocoxites (Fig. 41D) each toothed posteriorly, with apicolateral teeth very long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 41E) with capsule very small; RT-duct long, very thick at base, becoming thinner distally; duct moderately thick to thick, loosely coiled, moderately long with 6 turns; gland large, spherical, with its opening located on the duct between 3rd and 4th turns; basal valve short; basal sclerotized duct stout, about 3 times as long as basal valve. Basal structure (Fig. 41E) bowl-shaped.

Biology and ecology. *S. nogohakusanus* is distributed in the mountainous regions of the northwestern part of Chubu district, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. *S. nogohakusanus* is allied to *S. asyura* and *S. hakonensis*, but it is separable from the latter two species by the darker coloration of body (Fig. 105B), the aedeagal median lobe with its apical sclerotized area more strongly angulate (Fig. 105B), and the paramere with its apical area densely furnished mesially with the more number of setae (Fig. 41B).

Stenus yukawai Naomi
(Figs. 42A–E, 105C)

Stenus yukawai Naomi, 2004c: 186; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Kanaya, Kanaya-cho, Shizuoka Pref., 13–15. iv. 1994, H. Hayakawa leg. Paratype: ♂ (cN), Arano, Hamaoka-cho, Shizuoka Pref., 18. vii. 1991, H. Ishikawa leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

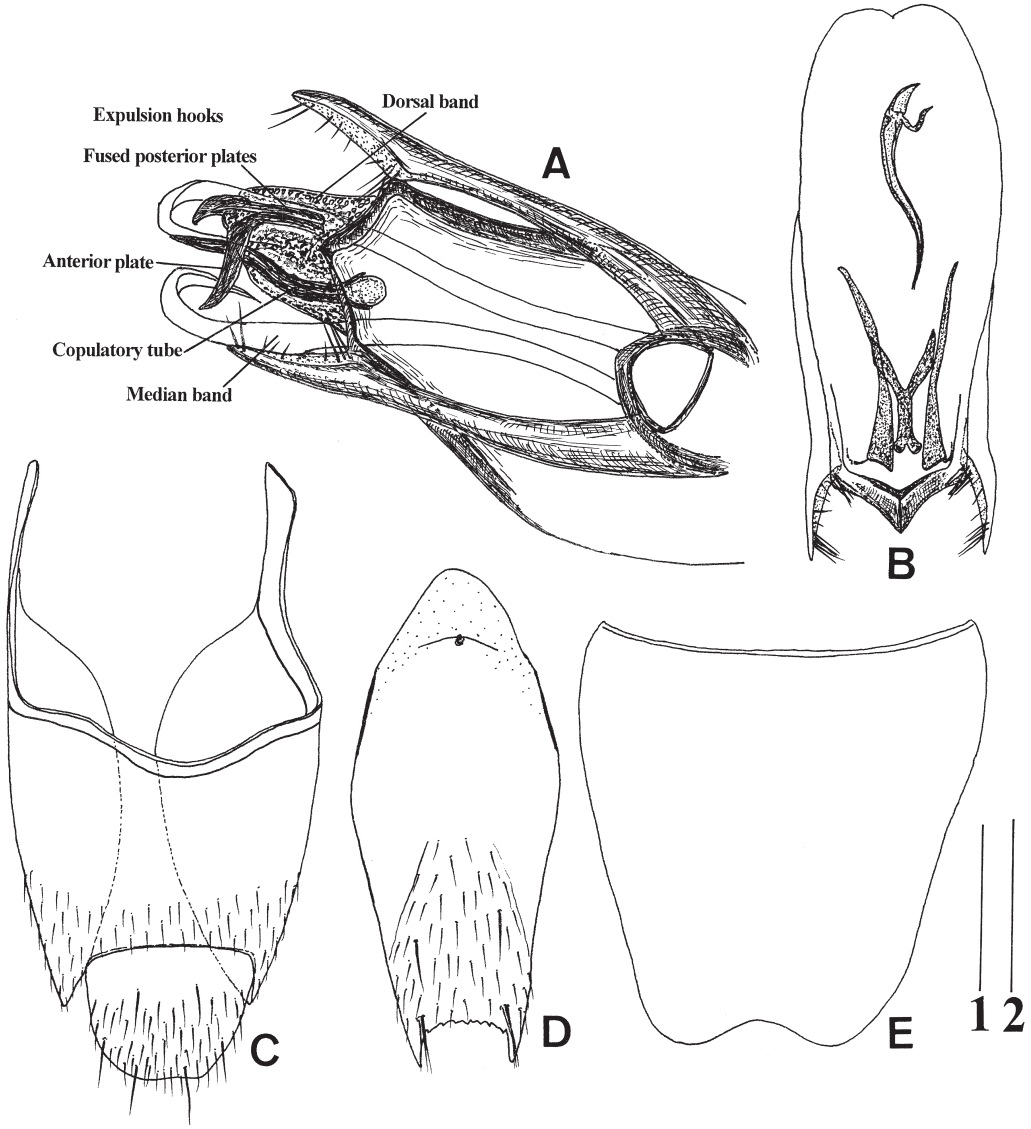

Fig. 42. *Stenus yukawai* Naomi (A, Arano, Shizuoka; B–E, Kanaya, Shizuoka). A, aedeagus of dorsal view; B, aedeagus of ventral view; C, 9th and 10th terga of male; D, 9th ventrite of male; E, 8th ventrite of male. Scale 1: 0.2 mm for A; Scale 2: 0.2 mm for B–E.

Redescription. Male: Body 3.6–4.0 mm (fore body 1.8–1.9 mm) in length, weakly shining, with antennae relatively short, thin. Head and abdomen dark reddish brown to dark brown; pronotum and elytra reddish brown; labrum clear reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, somewhat coarse. Elytra with surface almost even; punctures round to elliptical, very dense, large. Legs relatively thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures ovoidal to elliptical, moderately dense to dense, small in anterior segments, while

punctures in posterior segments elliptical, moderately dense to dense, very small, shallow. Lateroventrites and tergoventrite sutures missing.

Eighth ventrite (Fig. 42E) posteromedially with an arcuate emargination; 9th tergum (Fig. 42C) with antecostal apophyses relatively long; 9th ventrite (Fig. 42D) minutely serrate posteriorly, with macrosetae short, apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum (Fig. 42C) very weakly emarginate posteriorly. Aedeagal median lobe (Fig. 42A, B) broad, distinctly angulate apicolaterally, simply pointed at apex; apical sclerotized area (Fig. 42B) short, broad-V-shaped, declivous posteriorly, with a median longitudinal keel. Endophallic median bands (Fig. 42A, B) long, very thin apically; expulsion hooks (Fig. 42A, B) Y-shaped, thin, with anterior plates V-shaped, posterior plates fused to form a straight, thin, rod-like structure; copulatory tube (Fig. 42A, B) thin, with basal chamber ovoidal, small, main tube thin, attenuate, twice weakly bent dorsoventrally. Parameres (Fig. 42A, B) each moderately thick; apical area moderately long, distinctly swollen and angulate mesially at base, furnished mesially with 5 to 6 setae at base, with 5 to 7 setae at apex, and with 3 to 4 short setae along ventral margin.

Female: Unknown.

Biology and ecology. *S. yukawai* is a rare species; and it is distributed in the plains of the southern part of Chubu, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their similar distributional ranges (Southern part of Chubu district, central Honshu) as well as the unique Y-shaped endophallic expulsion hooks, the 3 species *S. yukawai*, *S. alesi* and *S. daikoku* no doubt form a monophyletic group. *S. yukawai* is separable from the latter two species by the aedeagal median lobe simply pointed apically (Fig. 42B), and the endophallic median bands narrower (Fig. 42B).

Etymology. This species is named in honor of Dr. Junichi Yukawa (Kyushu University, Fukuoma), who studied the biology and taxonomy of gall-making insects.

Stenus alesi Naomi
(Figs. 43A–F, 105D)

Stenus alesi Naomi, 2015: 26.

Type material examined. Holotype: ♂ (CBM), Hirano, Shizuoka City, Shizuoka Pref., 11. xi. 2007, Y. Hirano leg. Paratypes: 1 ♀ (cN), same locality, 11. xi. 2007, Y. Hirano leg.; 1 ♀ (cN), same locality, 11. xi. 2007, T. Shimada leg.

Other material examined. [HONSHU]: 1 ♂ 1 ♀, Udoyama, Shizuoka City, Shizuoka Pref., 23. x. 2016, T. Watanabe leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 2.9–3.0 mm (fore body 1.5–1.6 mm) in length, weakly shining, with antennae moderately long, very thin. Head and abdomen dark reddish or dark brown to black; pronotum and elytra reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, dense, small, umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface almost even, flat near suture; punctures round to elliptical, very dense, moderately large to large. Legs with femora relatively thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, regular. Lateroventrites and tergoventrite

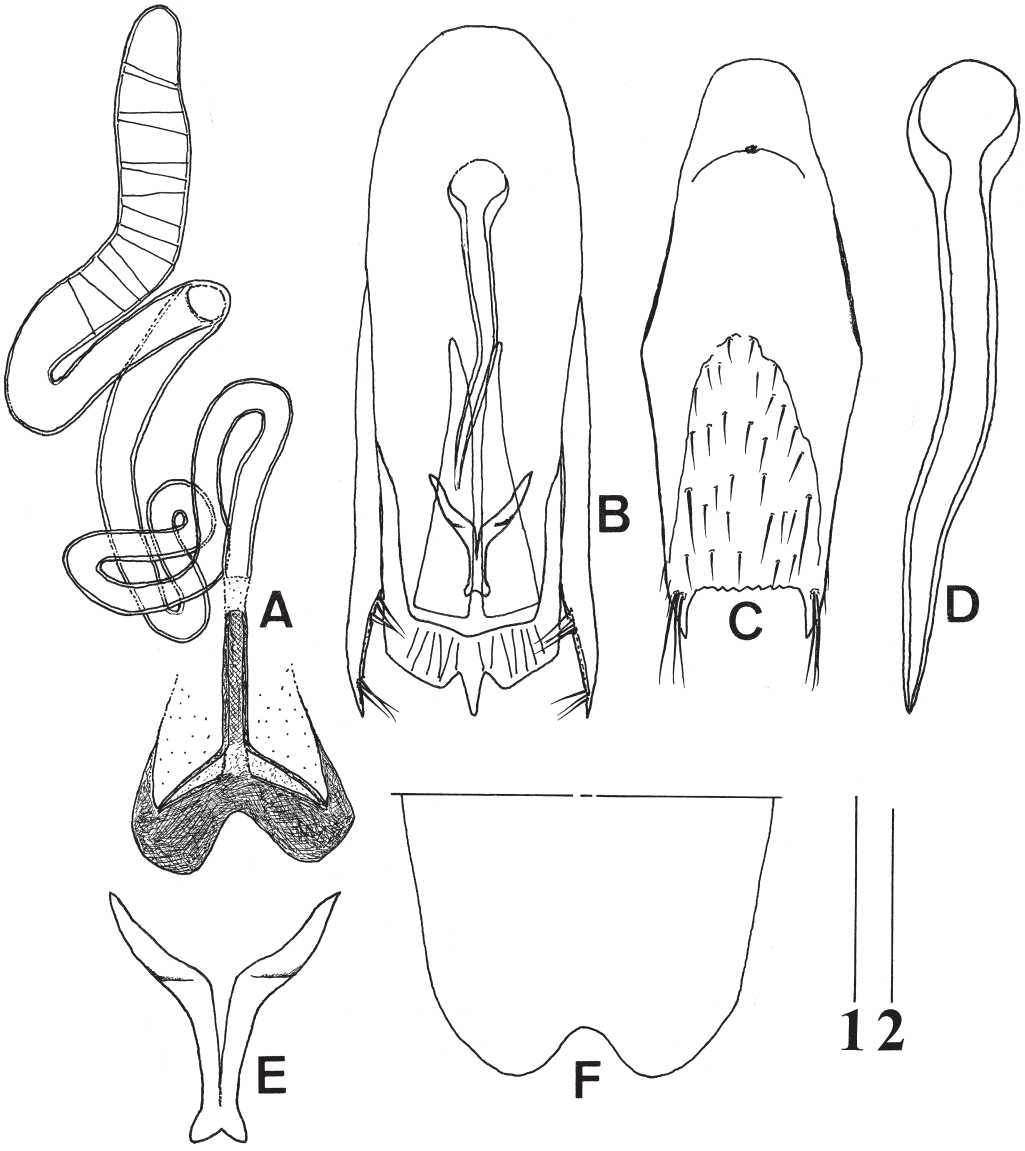

Fig. 43. *Stenus alesi* Naomi (Hirano, Shizuoka). A, spermatheca and bursa copulatrix; B, aedeagus; C, 9th ventrite of male; D, copulatory tube; E, expulsion hooks; F, posterior part of 8th ventrite of male. Scale 1: 0.1 mm for A, D, E, 0.2 mm for B, C; Scale 2: 0.2 mm for F.

sutures missing.

Male: Seventh ventrite posteromedially with a flat area; 8th ventrite (Fig. 43F) posteromedially with a medium-sized emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 43C) minutely serrate posteriorly, with macrosetae short, apicolateral teeth short, acutely pointed, apicolateral setae moderately long; 10th tergum entire. Aedeagal median lobe (Fig. 43B) broad, obtusely angulate apicolaterally, tricuspidate at apical part; apical sclerotized area (Fig. 43B) transverse, with median cusp long, thin, pointed, lateral cusps each broad, obtusely angulate, and also sculptured with thin, longitudinal lines. Endophallic median bands (Fig. 43B) each very broad at base, strongly narrowed anteriorly; expulsion hooks (Fig. 43E)

Y-shaped, with posterior plates partially fused posteriorly (Fig. 43B) or fused only at the posterior parts (Fig. 43E), each hook thin, with anterior plate partially fused with the posterior plate; copulatory tube (Fig. 43D) with basal chamber ovoidal, main tube rod-like, attenuate, twice weakly bent dorsoventrally. Parameres (Fig. 43B) each acutely pointed at apex; apical area long, narrowed apically, furnished mesially with a tuft of 4 to 5 setae at base, and with a tuft of 3 to 4 setae near the apicalmost part.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites each with apicolateral tooth pointed. Spermatheca (Fig. 43A) with capsule small, rounded apically; RT-duct moderately long, thick; duct long, relatively thin to moderately thick; basal valve short; basal sclerotized duct long, thin. Bursa copulatrix (Fig. 43A) well-sclerotized, deeply emarginate at base, with a pair of pointed lateral processes which turn anteriorly.

Biology and ecology. *S. alesi* is a rare species; and it is distributed in the low mountainous regions of the southern part of Chubu district, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. *S. alesi* is allied to *S. daikoku*, but it is separable from the latter species by the aedeagal median lobe with its apicomedian area simply tricuspidate (Fig. 43B), and the endophallic copulatory tube with its main tube attenuate and weakly sinuous (Fig. 43D).

Etymology. This species is named in honor of Dr. Aleš Smetana (Agriculture and Agrifood Canada, Ottawa), who studied the taxonomy of Staphylinidae, Hydrophilidae and other Coleopterous families.

Stenus daikoku Naomi
(Fig. 44A–G)

Stenus daikoku Naomi, 2004b: 29; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Nihondaira, Shimizu City, Shizuoka Pref., 1. v. 1989, Y. Saida leg.

Distribution. Japan: Honshu (Shizuoka Pref.).

Redescription. Male and female: Body 3.9 mm (fore body 1.7 mm) in length, weakly shining, with antennae relatively short, thin. Head and abdomen dark brown to black; pronotum and elytra clear reddish brown; labrum reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, dense, small, umbilicate. Pronotum with surface weakly uneven, with very indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface almost even, flat near suture; punctures round to elliptical, very dense, moderately large, two or more punctures sometimes partially fused. Legs with femora relatively thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, moderately dense, regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite (Fig. 44F) posteromedially with a bell-shaped, flat area; 8th ventrite (Fig. 44F) posteromedially with a medium-sized, triangular emargination; 9th tergum (Fig. 44E) with antecostal apophyses long; 9th ventrite (Fig. 44A) serrate posteromedially, with macrosetae moderately long, apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum very shallowly emarginate. Aedeagal median lobe (Fig. 44B) broad, distinctly angulate at apicolateral corners, tricuspidate at apicomedian part; apical sclerotized area (Fig. 44B) stiff, trans-

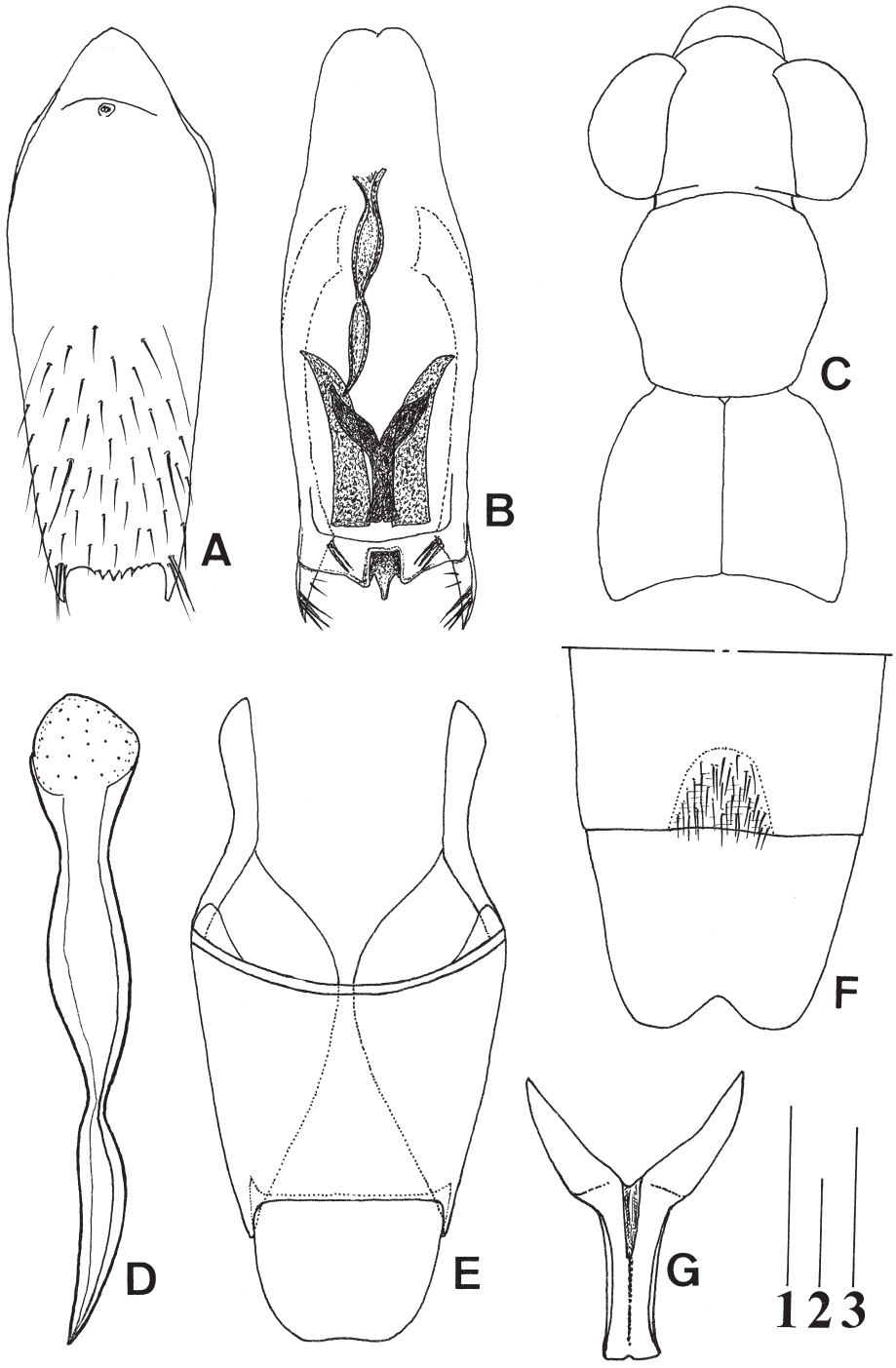

Fig. 44. *Stenus daikoku* Naomi (Nihondaira, Shizuoka). A, 9th ventrite of male; B, aedeagus; C, fore body; D, copulatory tube; E, 9th and 10th terga of male; F, 7th and 8th ventrites of male; G, expulsion hooks. Scale 1: 0.2 mm for A, B, E, 0.1 mm for D, G; Scale 2: 0.3 mm for C; Scale 3: 0.3 mm for F.

verse, with a square, deep concavity existing just above the median cusp, and with median cusp short, thin, pointed, lateral cusps each distinctly angulate. Endophallic median bands (Fig. 44B) each very broad at base, strongly narrowed anteriorly; expulsion hooks (Fig. 44G) Y-shaped due to the mesially fused posterior plates; copulatory tube (Fig. 44D) moderately long, with main tube strongly constricted between the basal and apical tubes. Parameres (Fig. 44B) each acutely pointed at apex; apical area moderately long, distinctly angulate and swollen mesially at base, narrowed apically, furnished with a tuft of 2 to 3 setae at base, a tuft of 3 to 4 setae near the apical-most part, and also with 2 very short setae at the middle of dorsal margin.

Female: Unknown.

Biology and ecology. *S. daikoku* is a rare species, which is only once collected from the plain of southern Chubu district, Honshu. The beetles inhabit leaf litter in the natural forest.

Remarks. *S. daikoku* is allied to *S. alesi*, but it is separable from the latter species by the aedeagal median lobe with its apicomedian area tricuspidate but characteristic in that a square, deep concavity exists just above the median cusp (Fig. 44B), and the endophallic copulatory tube with its main tube strongly constricted between the basal and apical tubes (Fig. 44D).

Etymology. The specific epithet of this species is derived from the name of one of the Seven Gods of Good Fortune "Daikoku", which appears in the Japanese ancient mythology.

The *oni*-subgroup

The "*oni*-group" was first proposed by Naomi (1988a), based solely on one species *S. oni*; and it was then characterized by the various characters including the modifications of the abdominal ventrites of male, the aedeagal median lobe with the bifurcate apex, etc. At present, the so-called "*oni*-group" comprises 8 species having the aedeagal median lobe with the bifurcate apex; and it is considered a monophyletic group because of the robust apomorphic characters of the aedeagus (e.g., with the bifurcate apex) and the spermatheca described below. Here, the "*oni*-group" is tentatively treated as a subgroup of the *asyura*-group (i.e., *oni*-subgroup). This is because the "*oni*-group" is similar in habitus to the *asyura*-group, whereas the phylogenetic position of the "*oni*-group" within the *asyura*-group is unclear at present.

In the list of the Japanese Steninae (Naomi & Puthz, 2013), the "*hannia*-subg." was recognized as a subgroup of the *asyura*-group, but both of the name *oni*-subg. and the name "*hannia*-subg." designate the same subclade in *Stenus* as characterized below. Thus, the name *oni*-subg. is adopted in this paper, because the name "*oni*-group" (= *oni*-subg. of this paper)" was more early used in Naomi (1988a) than the name "*hannia*-subg." was in Naomi & Puthz (2013).

Diagnostic characters of the *oni*-subgroup: Habitus (Fig. 105J) similar to some members of *asyura*-subg. (e.g., *S. hijiri*); antennae short to relatively short; abdomen with distinct tergoventrite sutures in 4th to 6th segments (*Hemistenus*-type). Male: Aedeagal median lobe with paired apical projections (Fig. 48C) or apically with a deep, V-shaped (Fig. 51B) or other-formed (e.g., Fig. 46E) emargination; endophallic copulatory tube asymmetrical, modified with pointed teeth (Fig. 53A), flaps (Figs. 47H, 51F, 53B), protrusions of unique shapes (Figs. 52A), etc. Female: Gonocoxite with apicolateral tooth pointed (Fig. 51G); spermatheca with RT-duct thick to very thick, sometimes narrowed apically, spermathecal duct short, usually with 2, 3 or 4 turns (Figs. 46D, 47A); spermathecal gland sometimes covered with very thin, long ciliae (Figs. 51E, 52B); bursa copulatrix conical, very large, membranous (Fig. 48D).

Key to the Japanese species of the *oni*-subgroup

1(4) Male: Aedeagal median lobe with apical projections very narrowly separated.

2(3) Male and female: Body entirely black. Male: Sixth ventrite of male without modification; endophallic copulatory tube longer, straight, simply attenulate (Fig. 45C). Female; Spermathecal duct longer, with 4 turns (Fig. 45H) ..... *S. praeclarus* Naomi

3(2) Male and female: Body reddish brown to dark brown. Male: Sixth ventrite of male posteromedially with a bell-shaped, flat area (Fig. 46C), endophallic copulatory tube shorter, curved, broadened toward apex in about posterior half (Fig. 46F); spermathecal duct shorter, with 2 turns (Fig. 46D)..... *S. hannia* Naomi

4(1) Male: Aedeagal median lobe with apical projections moderately or very widely separated.

5(10) Male: Aedeagal median lobe with apical projections very widely separated; paramere with apical area mesially with separated setal parts.

6(7) Male: Aedeagal median lobe with apical projection strongly curved dorsally at apex (Fig. 47C); endophallic copulatory tube with main tube having a lateral flap (Fig. 47H) .... *S. naturalis* Naomi & Watanabe

7(6) Male: Aedeagal median lobe with apical projection simply pointed at apex; endophallic copulatory tube with main tube having no lateral flap.

8(9) Male: Aedeagal median lobe with apical projections larger, thicker (Fig. 48C); endophallic copulatory tube with main tube narrowed behind the middle to the apex (Fig. 48G). Female: Spermathecal duct longer, irregularly coiled (Fig. 48D) ..... *S. zdenae* Hromádka

9(8) Male: Aedeagal median lobe with apical projections smaller, thinner (Fig. 49C); endophallic copulatory tube with main tube moderately constricted a little behind the middle, then broadened toward apex (Fig. 49F). Female: Spermathecal duct, shorter, with 2 distinct turns (Fig. 49E)..... *S. bunraku* Hromádka

10(5) Male: Aedeagal median lobe with apical projections moderately separated; paramere with apical area almost uniformly setous mesially.

11(12) Male: Aedeagal median lobe broader, with apical projection shorter (Fig. 50C); endophallic copulatory tube boot-shaped (Fig. 50F)..... *S. haginoi* Naomi

12(11) Male: Aedeagal median lobe narrower, with apical projection longer; endophallic copulatory tube not boot-shaped.

13(14) Male: Aedeagal median lobe with apical projections more widely separated (Fig. 51B); endophallic copulatory tube with a round apical flap (Fig. 51F); paramere with apical area longer (Fig. 51B)..... *S. oni* Naomi

14(13) Male: Aedeagal median lobe with apical projections more narrowly separated; endophallic copulatory tube with a lateral projection or a lateral flap; paramere with apical area shorter.

15(16) Male: Aedeagal median lobe with apical projection longer, having the narrower apex (Fig. 52A); endophallic copulatory tube with a lateral projection near the apex (Fig. 52A) ..... *S. triprotrudens* Naomi & Watanabe

16(15) Male: Aedeagal median lobe with apical projection shorter, having the broader apex (Fig. 53B); endophallic copulatory tube with a large lateral flap near the apex (Fig. 53A) ..... *S. protrudens* Naomi & Watanabe

Stenus praeclarus Naomi
(Fig. 45A–H)

Stenus praeclarus Naomi, 2015: 28.

Type material examined. Holotype: ♂ (CBM), Nishijima-Ichinomori, Mt. Tsurugi Tokushima Pref., 25. vii. 2004, O. Yamaji leg.

Other material examined. [SHIKOKU]: 2 ♂ 1 ♀, Ryotsurugi Valley, Mt. Tsurugi, Tokushima Pref., 11. ix. 1999, M. Yoshida leg.

Distribution. Japan: Shikoku (Tokushima Pref.).

Description. Male and female: Body 3.8–4.0 mm (fore body 1.9–2.1 mm) in length, weakly to moderately shining, with antennae relatively short, thin. Body black; labrum dark brown; antennae reddish brown to dark brown; legs yellowish brown to dark brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, sparse to moderately dense, small, irregular. Pronotum with surface uneven, with an indistinct median longitudinal furrow; punctures round to almost round, very dense, relatively small but a little larger than those on head, sometimes subrugose. Elytra with surface slightly uneven, punctures round, very dense, moderately large, Tarsi with 4th tarsomeres strongly bilobed. Abdomen with punctures round to elliptical, dense, very small to small, almost regular in anterior segments, while punctures in posterior segments very small, sparse. Lateroventrites existing or recognizable, each thin, punctate; tergoventrite sutures distinct.

Male: Seventh ventrite (Fig. 45D) posteromedially with a semicircular flat area; 8th ventrite (Fig. 45D) posteromedially with a triangular emargination; 9th tergum with antecostal apophyses long (Fig. 45A); 9th ventrite (Fig. 45B) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth moderately long, acutely pointed, apicolateral setae long. 10th tergum (Fig. 45A) entire or very weakly arcuately emarginate posteriorly. Aedeagal median lobe (Fig. 45C) elongate, almost rounded at apicolateral corners; apical sclerotized area (Fig. 45G) separated right and left to form a pair of pallet-like apical projections which are broadly connected by submembrane, each projection pointed at apex. Endophallic median bands (Fig. 45C) long, narrow; expulsion hooks (Fig. 45E) separated but combined only by a thin string near the middles of the mesial sides of posterior plates, each with anterior plate rounded at apex, demarcated from posterior plate by oblique suture, posterior plate angulate at posteromesial corner; copulatory tube (Fig. 45C) simple, basal chamber ovoidal, main tube slender, straight, weakly swollen at base then attenuate toward apex. Parameres (Fig. 45C) slender, very acutely pointed; apical part relatively short, hardly swollen mesially, furnished mesially with 8 to 9 setae.

Female: Eighth ventrite obtusely pointed posteromedially; gonocoxites (Fig. 45F) each toothed posteriorly, apicolateral tooth moderately long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 45H) with capsule missing; RT-duct long, very thick, with sclerotized transverse lines each often separated into 2 or 3 sclerites; duct moderately thick to thick, relatively short with 4 turns; gland opened at the lateral side of the duct between 3rd and 4th turns; basal valve indistinct; basal sclerotized duct long. Bursa copulatrix membranous.

Biology and ecology. *S. praeclarus* is a rare species; and it is presently distributed only in the Mt. Tsurugi, the eastern part of Shikoku. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. Given the common possessions of their almost similar habitus, aedeagal median lobe and parameres, *S. praeclarus* is allied to *S. hannia*, but it is separable from the latter by the body entirely black, the 6th ventrite of male without modification, the endophallic expulsion

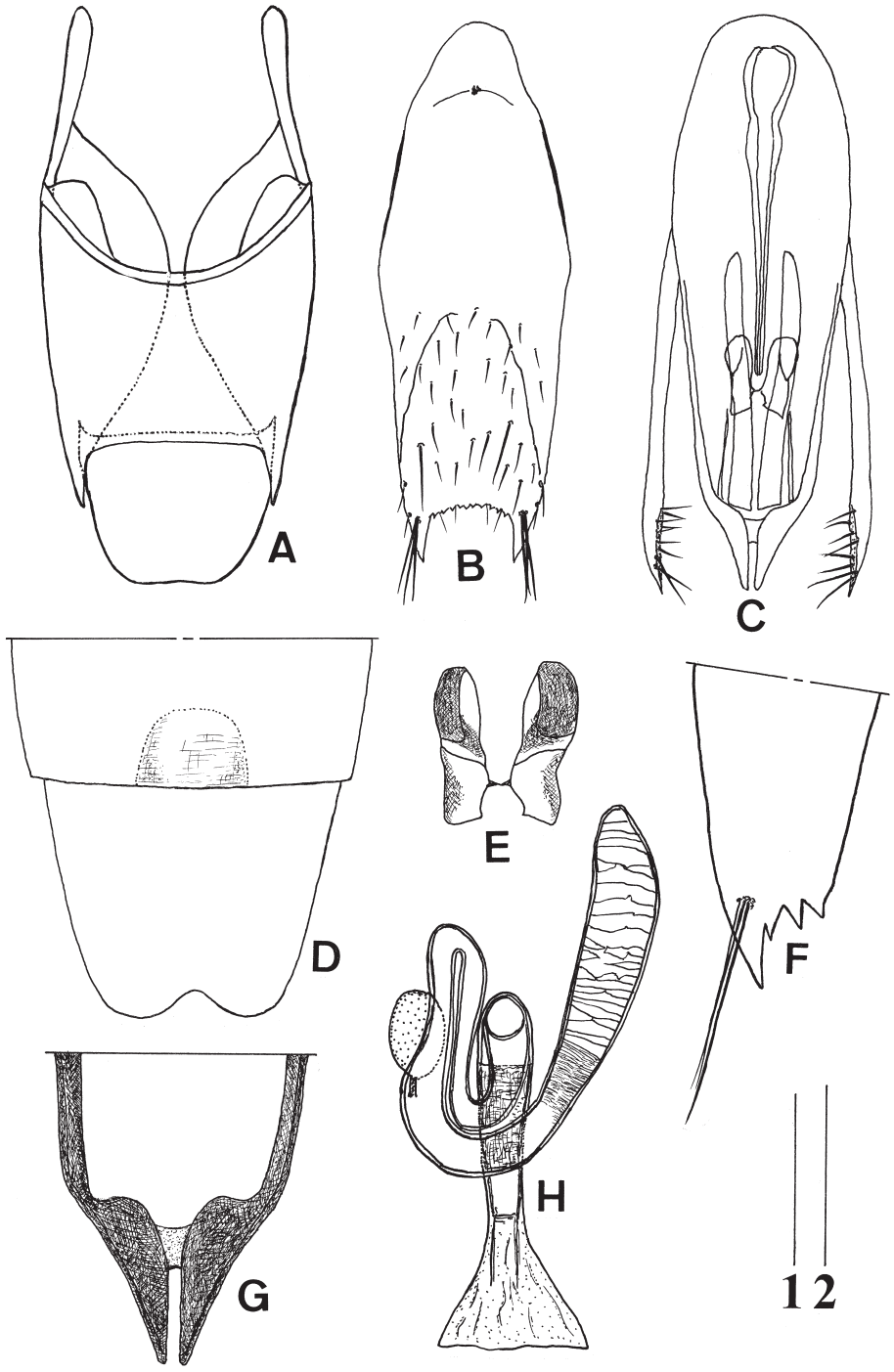

Fig. 45. *Stenus praeclarus* Naomi (Tsurugi, Tokushima). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, 7th to 8th ventrites of male; E, expulsion hooks; F, posterior part of gonocoxite, G, apical part of aedeagus; H, spermatheca. Scale 1: 0.2 mm for A–C, F, 0.1 mm for E, G, H; Scale 2: 0.3 mm for D.

hooks connected near the middles of the mesial sides of posterior plates (Fig. 45E), the copulatory tube longer, straight, simply attenulate (Fig. 45C), and the spermathecal duct longer, with 4 turns (Fig. 45H).

Stenus hannia Naomi
(Figs. 46A–H, 105E)

Stenus hannia Naomi, 1990a: 104; Herman, 2001: 2212; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Chuzenji, Nikko, Tochigi Pref., 24. vii. 1985, S. Nomura leg. Paratypes: 9 ♂ 9 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂ 4 ♀, Fujimi, Mt. Akagi, Gunma Pref., 20. vii. 1996, S. Nomura leg.

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

Redescription. Male and female: Body 3.3–3.5 mm (fore body 1.7–1.8 mm) in length, weakly shining, with antennae relatively short, thin. Head black, with central area dark brown; pronotum and elytra reddish brown; abdomen reddish brown but the posterior segments infuscate; labrum, antennae and legs reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical, very dense, moderately large to large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, moderately dense to dense, small, regular in anterior segments, while punctures in posterior segments very small, regular. Lateroventrites missing; tergoventrite sutures existing.

Male: Femora moderately thick; 6th ventrite (Fig. 46C) posteromedially with a large, bell-shaped, flat area, which is weakly emarginate; 7th ventrite (Fig. 46C) posteromedially with an elongate-ovoidal, shallow depression; 8th ventrite (Fig. 46C) posteromedially with a subtriangular emargination; 9th tergum (Fig. 46A) with antecostal apophyses long; 9th ventrite (Fig. 46B) irregularly serrate posteriorly, with macrosetae long, apicolateral teeth short, acutely pointed, apicolateral setae long; 10th tergum (Fig. 46A) entire. Aedeagal median lobe (Fig. 46E) moderately broad, with a pair of apical projections narrowly separated, each simply pointed. Endophallic median bands (Fig. 46E) broad, moderately long; expulsion hooks (Fig. 46G) separated but connected by a thin, C-shaped rod at the posteromesial corners of posterior plates, each hook with anterior plate rounded anteriorly, partially fused with posterior plate; copulatory tube (Fig. 46F) with main tube relatively short, distinctly curved near the middle, then weakly broadened apically. Parameres (Fig. 46E) each straight, acutely pointed; apical area short, weakly angulate mesially at base, narrowed apically, furnished mesially with 7 to 8 setae.

Female: Eighth ventrite gently rounded posteriorly; gonocoxites (Fig. 46H) each toothed posteriorly, apicolateral tooth moderately long, thin, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 46D) with capsule missing; RT-duct long, very thick, arranged with the dense, regular, transverse lines in its whole length; duct thick to very thick, short with 2 distinct turns; gland opened at the mesial side of the duct between 1st and 2nd turns; basal valve long; basal sclerotized duct short. Bursa copulatrix (Fig. 46D) very large, subconical, membranous.

Biology and ecology. *S. hannia* is distributed in the mountainous regions of Kanto district, central Honshu. The beetles inhabit leaf litter in the natural forests.

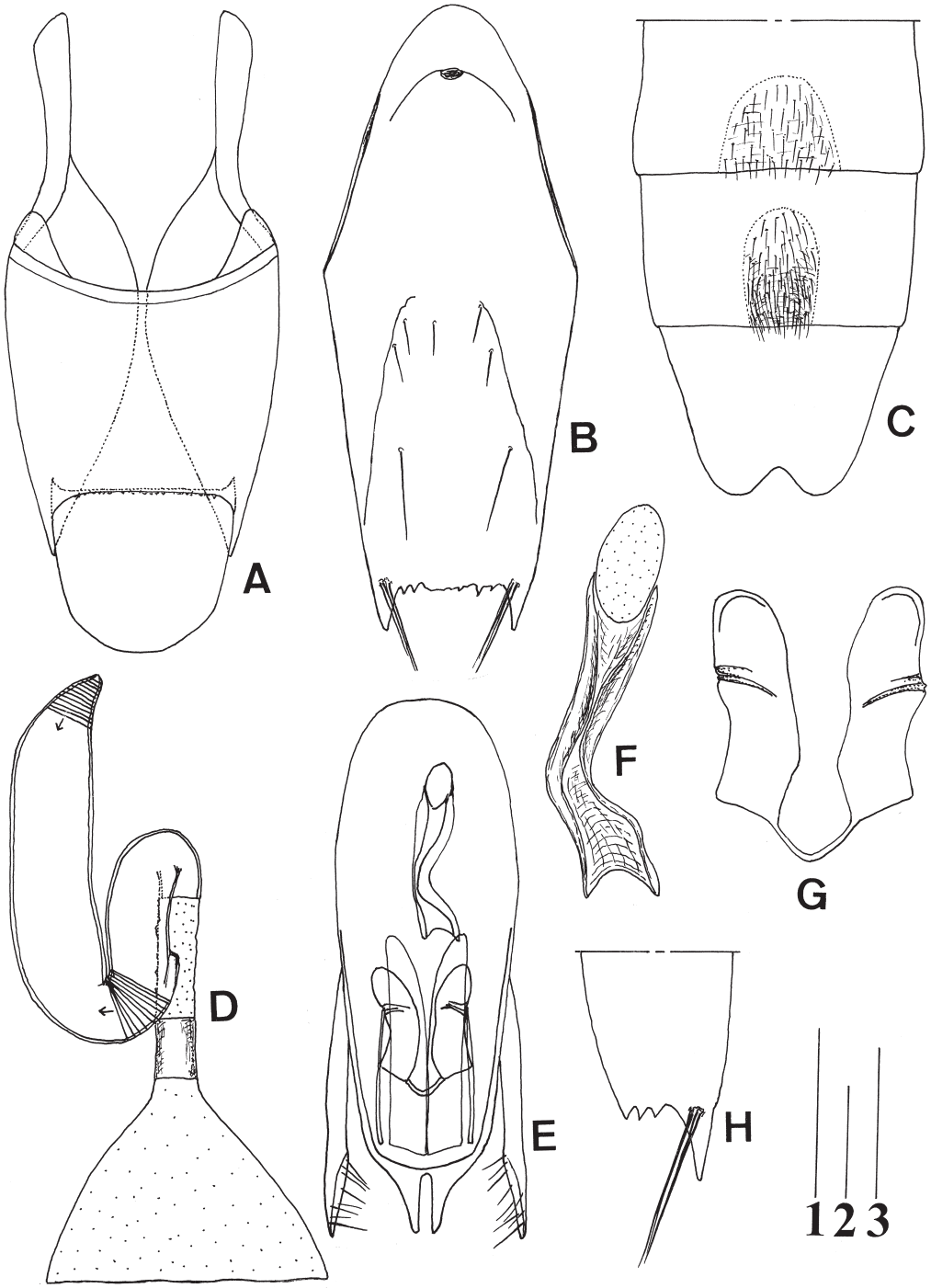

Fig. 46. *Stenus hannia* Naomi (Chuzenji, Tochigi). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 6th to 8th ventrites of male; D, spermatheca; E, aedeagus; F, copulatory tube; G, expulsion hooks; H, posterior part of gonocoxite. Scale 1: 0.2 mm for A, E, 0.1 mm for D, F, G; Scale 2: 0.1 mm for B; Scale 3: 0.3 mm for C.

Remarks. *S. hannia* is allied to *S. praeclarus*, but it is separable from the latter by the body basically reddish brown to dark brown, the 6th ventrite of male posteromedially with a bell-shaped, flat area (Fig. 46C), the endophallic expulsion hooks connected at the posteromesial corners of posterior plates (Fig. 46E), the copulatory tube shorter, curved, broadened toward apex in about posterior half (Fig. 46C), and the spermathecal duct shorter, with 2 turns (Fig. 46H).

Etymology. The specific epithet of this species is derived from the noun "Hannya", which means the "wisdom" in Buddhism.

Stenus naturalis Naomi & Watanabe
(Figs. 47A–H, 105F)

Stenus naturalis Naomi & Watanabe, 2015: 102.

Type material examined. Holotype: ♂ (TUAA), Kagami-daira (alt. 2,250 m), Gifu Pref., 26. ix. 1985, Y. Watanabe leg. Paratypes: 1 ♀ (TUAA) & 1 ♀ (cN), same data as holotype.

Distribution. Japan: Honshu (Gifu Pref.).

Redescription. Male and female: Body 4.0–4.5 mm (fore body 2.0–2.1 mm) in length, weakly shining, with antennae short, thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum dark red; antennae reddish brown but apical segments infuscate; legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, subrugose. Elytra with surface uneven, weakly depressed near suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense to very dense, small in anterior segments, while punctures in posterior segments very small, shallow, regular. Lateroventrites missing; tergoventrite sutures existing.

Male: Legs with femora moderately thick; 4th ventrite posteromedially with a small, semicircular flat area; 5th ventrite posteromedially with a semicircular, very shallow depression, which is shallowly emarginate; 6th ventrite modified as in the 5th, but the depression in the 6th a little deeper and larger than that in the 5th; 7th ventrite medially with an elongate-ovoidal, shallow depression, which is shallowly emarginate; 8th ventrite (Fig. 47F) posteromedially with a V-shaped emargination; 9th tergum (Fig. 47D) with antecostal apophyses relatively short; 9th ventrite (Fig. 47B) serrate posteriorly, with apicolateral teeth short, pointed, apicolateral setae short; 10th tergum (Fig. 47D) very weakly emarginate. Aedeagal median lobe (Fig. 47C) broad, weakly constricted behind the middle, with apical projections very widely separated, placed almost in parallel, each strongly curved dorsally at apex. Endophallic median bands (Fig. 47C) broad, moderately long; expulsion hooks (Fig. 47E) fused at the posteromesial parts of posterior plates to form a U-shaped structure, each submembranous along the mesial margin, with anterior plate almost rounded apically, demarcated by a suture from posterior plate; copulatory tube (Fig. 47H) small, pitcher-shaped, with basal chamber large, elongate-ovoidal, main tube short, baculiform, with a lateral flap. Parameres (Fig. 47C) each acutely pointed; apical area relatively long, weakly swollen mesially at base, furnished mesially with 7 to 8 setae at base, and with 5 to 6 setae at apex.

Female: Eighth ventrite gently rounded posteriorly; gonocoxites (Fig. 47G) each toothed posteriorly, apicolateral tooth relatively short, acutely pointed. Spermatheca (Fig. 47A) large,

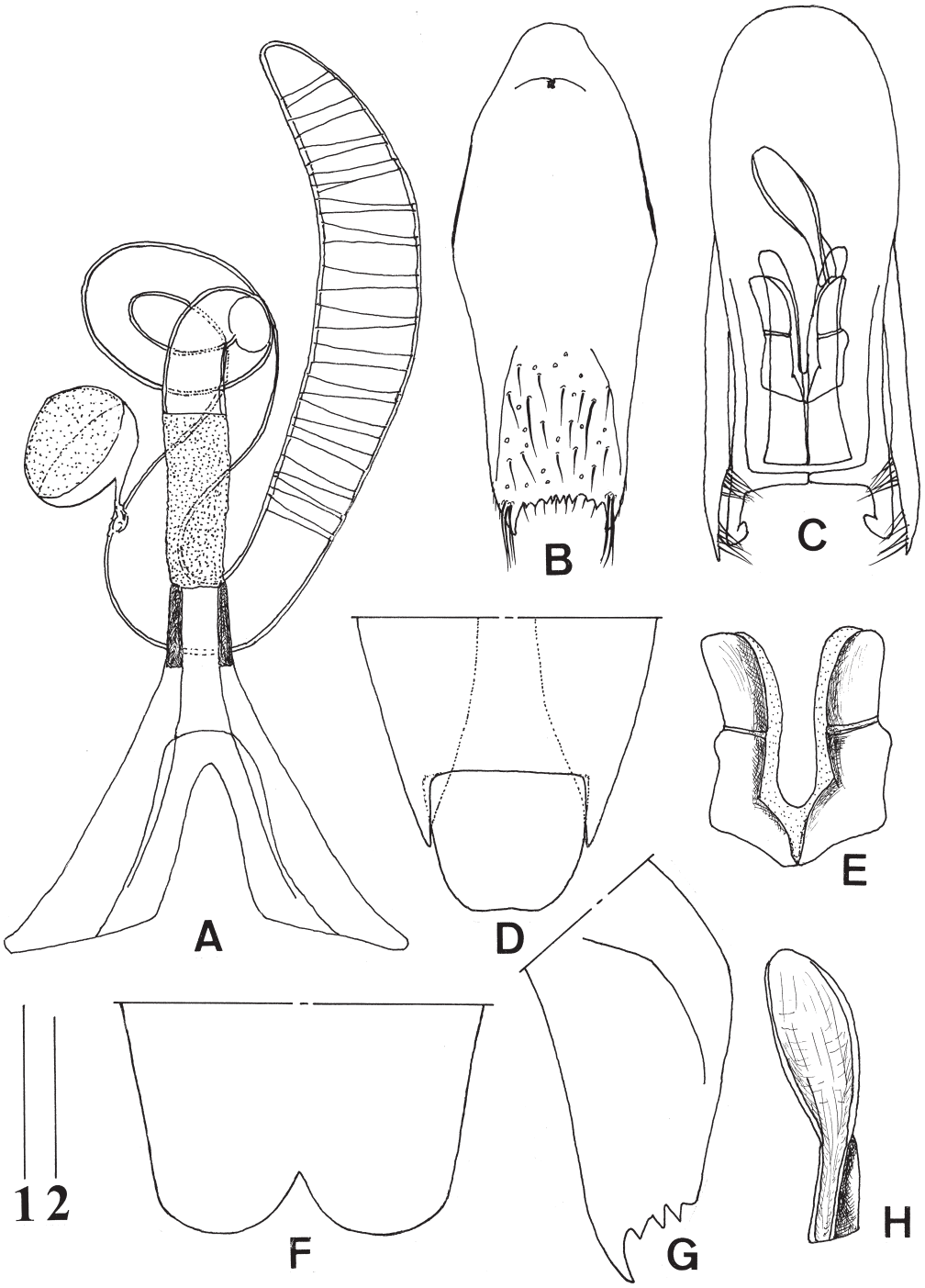

Fig. 47. *Stenus naturalis* Naomi (Kagami-daira, Gifu). A, spermatheca; B, 9th ventrite of male; C, aedeagus; D, 9th and 10th terga of male; E, expulsion hooks; F, posterior part of 8th ventrite of male; G, gonocoxite; H, copulatory tube. Scale 1: 0.2 mm for B–D, 0.1 mm for E, G, H, 0.05 mm for A; Scale 2: 0.2 mm for F.

with capsule very small, subconical; RT-duct long, very thick; duct thick, short with 3 turns; basal valve long; basal sclerotized duct short. Bursa copulatrix (Fig. 47A) large, conical, basally with a very deep, narrow emargination.

Biology and ecology. *S. naturalis* is a rare species; and it is once collected from the high mountainous regions of western Chubu district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their common possession of the following apomorphic characters (e.g., aedeagal median lobe with its apical projections very widely separated; parameral apical area with separated setal portions), the three species *S. naturalis*, *S. zdenae* and *S. bunraku* form a monophyletic group. *S. naturalis* is, however, separable from the other two species by the aedeagal median lobe with its apical projections placed almost in parallel and each curved dorsally at apex (Fig. 47C), and the endophallic copulatory tube with its main tube having a lateral flap (Fig. 47H).

Stenus zdenae Hromádka
(Figs. 48A–H, 105G)

Stenus zdenae Hromádka, 1990: 127; Herman, 2001: 2438; Naomi & Puthz, 2013: 143.

Type material. Holotype: ♂ (AACO), Mt. Kurofu (2100 m), Gunma Pref., 19. vii. 1980, A. & Z. Smetana.

Type material examined. Paratypes: 3 ♂ (cN), same data as holotype.

Other material examined. [HONSHU]: 1 ♀ (cN), same locality and date as holotype, I. Löbl leg.

Distribution. Japan: Honshu (Gunma Pref.).

Redescription. Male and female: Body 3.3–3.6 mm (fore body 1.5–1.7 mm) in length, weakly shining, with antennae short, thin. Head black; pronotum, elytra and abdomen clear yellowish brown to reddish brown; labrum reddish brown; antennae reddish brown but apical segments infuscate; legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round, very dense, relatively small but a little larger than those on head, subrugose. Elytra with surface uneven, weakly depressed near suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while punctures in posterior segments very small, shallow. Lateroventrites missing; tergoventrite sutures existing.

Male: Legs with femora moderately thick; 6th ventrite (Fig. 48E) posteromedially with a bell-shaped, flat area, which is very shallowly emarginate; 7th ventrite (Fig. 48E) posteromedially with an elongate, shallow depression, which is shallowly emarginate; 8th ventrite (Fig. 48E) posteromedially with a V-shaped emargination; 9th tergum (Fig. 48A) with antecostal apophyses moderately long; 9th ventrite (Fig. 48B) irregularly serrate posteriorly, with macrosetae relatively short, apicolateral teeth short, pointed, apicolateral setae moderately long; 10th tergum (Fig. 48A) trapedoidal. Aedeagal median lobe (Fig. 48C) broad, moderately constricted behind the middle, with apical projections very widely separated, weakly divergent posteriorly, each large, horn-like, pointed at apex. Endophallic median bands (Fig. 48C) broad, long; lateral bands (Fig. 48C) long, very thin; expulsion hooks (Fig. 48H) fused by a V-shaped, thin rod at the pos-

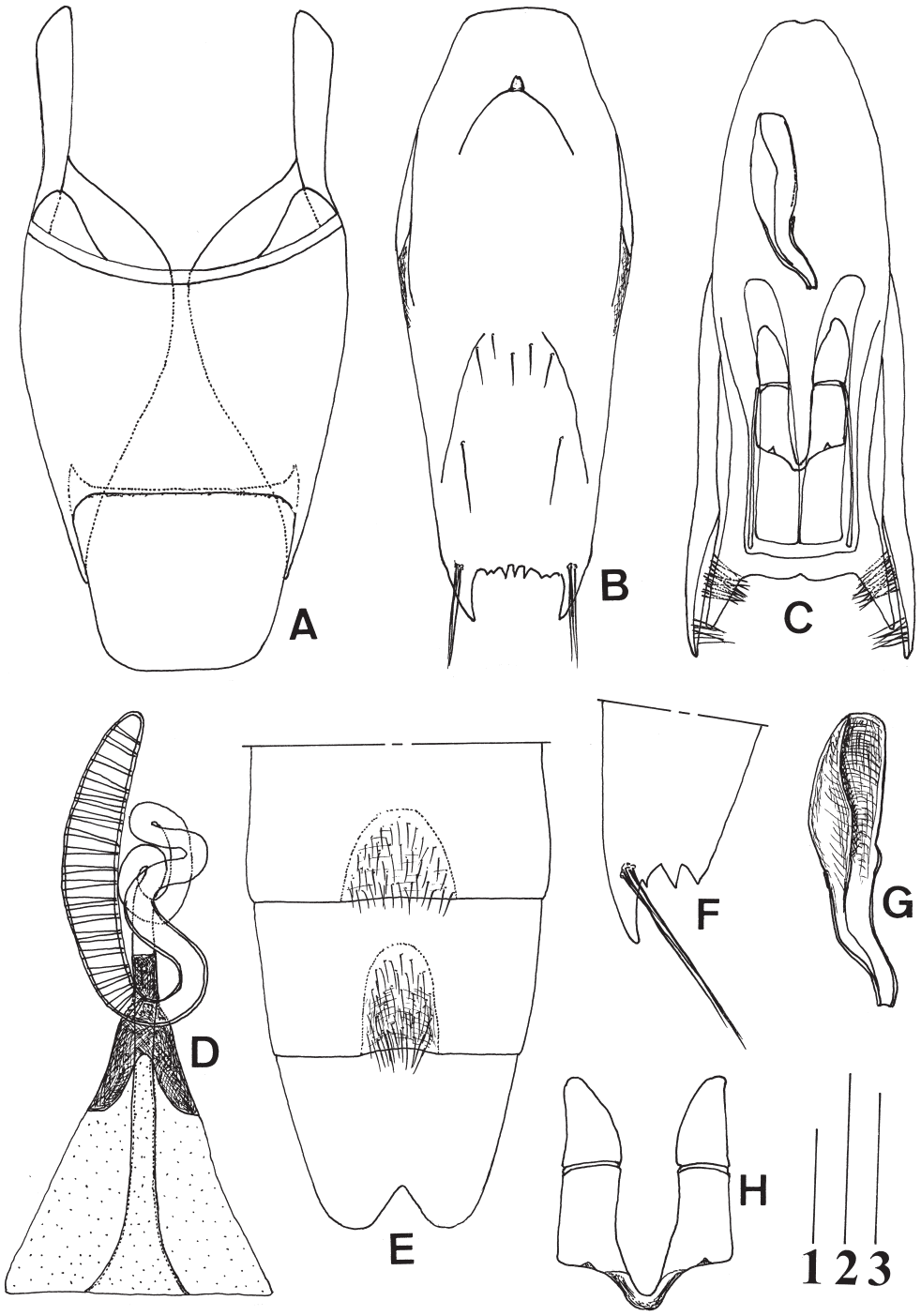

Fig. 48. *Stenus zdenae* Naomi (Kurofu, Gunma). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca and bursa copulatrix; E, 6th to 8th ventrites of male; F, posterior part of gonocoxite; G, copulatory tube; H, expulsion hooks. Scale 1: 0.1 mm for A–C; Scale 2: 0.1 mm for D, F–H; Scale 3: 0.3 mm for E.

teromesial corners of posterior plates, each hook with anterior plate smaller than, and demarcated by a sulcus from posterior plate; copulatory tube (Fig. 48G) small, moderately thick, with basal chamber large, elongate-ovoidal, main tube short, narrowed apically, weakly curved near apex. Parameres (Fig. 48C) each pointed at apex; apical area very long, weakly swollen at base, furnished mesially with 12 to 13 setae along the dorso-basal margin, and with 6 to 7 setae along the ventro-apical margin.

Female: Gonocoxites (Fig. 48F) each toothed posteriorly, apicolateral tooth moderately long, pointed, apicolateral setae very long. Spermatheca (Fig. 48D) small, with capsule very small; RT-duct long, thick, nearly fusiform; duct relatively thin and short, irregularly coiled; basal sclerotized duct short; basal pouch small, subconical. Bursa copulatrix (Fig. 48D) conical, membranous but distally with a sclerotization which is deeply emarginate at base.

Biology and ecology. *S. zdenae* is distributed in the high mountainous regions of northern Kanto district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. zdenae* is allied to *S. bunraku*, but it is separable from the latter species by the body smaller (Fig. 105G), the 9th ventrite of male broader at apex (Fig. 48A), the aedeagal median lobe with its apical projections thicker (Fig. 48C), the endophallic copulatory tube smaller, with its main tube narrowed toward apex behind the middle (Fig. 48G), and the spermathecal duct irregularly coiled (Fig. 48D).

Etymology. This species is named in honor of Mrs. Zdena Smetana, who collected the beetle which was designated as the holotype of this species.

Stenus bunraku Hromádka
(Figs. 49A–G, 105H)

Stenus bunraku Hromádka, 1990: 128; Puthz, 1993a: 166 (synonym of *S. zdenae*); Naomi, 2015: 30.

Type material. Holotype: ♂ (AACO), near Mt. Shirane (2000 m), Gunma Pref., 22. vii. 1980, A. & Z. Smetana leg.

Other material examined. [HONSHU]: 1 ♂ 1 ♀ (cN), Mt. Takenoko, Yuzawa-cho, Niigata Pref., 30. vi. 1996, K. Haga leg.

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

Redescription. Male and female: Body 4.0–4.5 mm (fore body 2.0–2.3 mm) in length, weakly shining, with antennae short, thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, dense, small, somewhat umbilicate. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface strongly uneven, depressed along the suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, shallow. Lateroventrites missing; tergoventrite sutures distinct.

Male: Fourth ventrite posteromedially with a semicircular flat area; 5th ventrite (Fig. 49A) posteromedially with a large, semicircular, very shallow depression, which is very shallowly emarginate; 6th ventrite (Fig. 49A) modified as in the 5th, but the depression in the 6th a little deeper than that in the 5th; 7th ventrite posteromedially with a large, elongate, bell-shaped

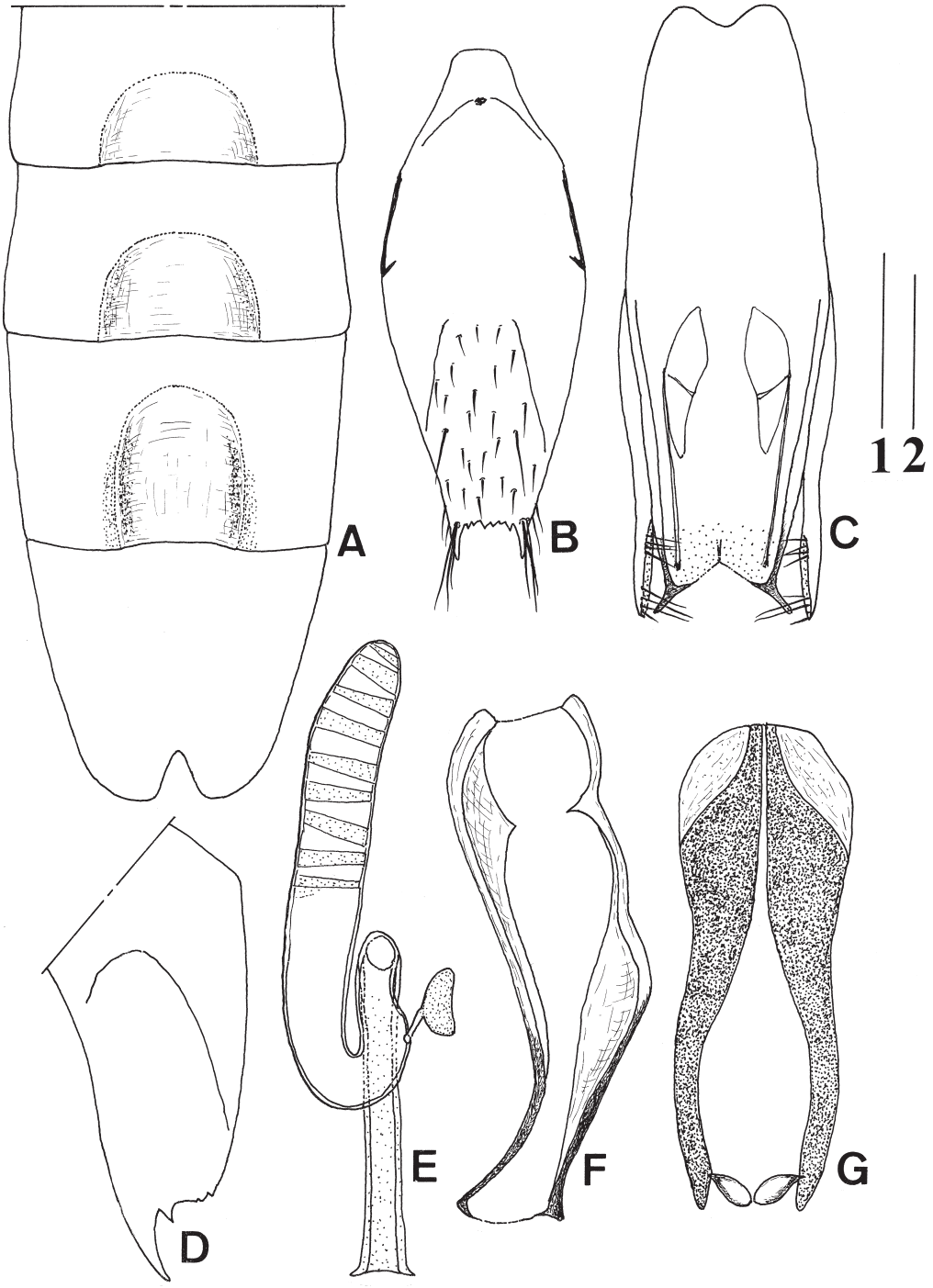

Fig. 49. *Stenus bunraku* Hromádka (Shirane, Gunma). A, 5th to 8th ventrites of male; B, 9th ventrite of male; C, aedeagus with expulsion hooks; D, gonocoxite of female; E, spermatheca; F, copulatory tube; G, median bands (of unfolded condition) and ventral sclerites. Scale 1: 0.2 mm for B, C, 0.1 mm for D–G; Scale 2: 0.3 mm for A.

depression, which is shallowly emarginate; 8th ventrite (Fig. 49A) posteromedially with a small, V-shaped emargination; 9th tergum with antecostal apophyses thin, moderately long; 9th ventrite (Fig. 49B) strongly narrowed posteriorly, minutely serrate posteriorly, with macrosetae short, apicolateral teeth very short, pointed, apicolateral setae moderately long; 10th tergum rounded posteriorly. Aedeagal median lobe (Fig. 49C) broad, broadly emarginate posteriorly to form a broad V-shaped notch between apical projections, the apical projections very widely separated, distinctly divergent posteriorly, each short, thin, pointed at apex. Endophallic median bands (Fig. 49G) very broad; expulsion hooks (Fig. 49C) separated, with anterior plate pointed anteriorly, separated by a suture from posterior plate; ventral sclerites (Fig.49G) paired, each subovoidal, very small; copulatory tube (Fig. 49F) large, with basal constriction indistinct, main tube thick at base, curved and moderately constricted a little behind the middle, then broadened toward apex. Parameres (Fig. 49C) each slender, pointed; apical area moderately long, hardly swollen at base, furnished mesially with 4 to 5 setae at the basi-ventral margin, and with 4 to 5 setae at the apico-ventral margin.

Female: Eighth ventrite gently rounded posteriorly; gonocoxites (Fig. 49D) each partially toothed posteriorly, with apicolateral tooth moderately long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 49E) with capsule missing; RT-duct moderately long, thick; duct moderately thick to thick, very short with 2 turns, membranous from the base to 1st turn; gland with its opening located at the middle of the duct between the 1st and 2nd turns.

Biology and ecology. *S. bunraku* is distributed in the high mountainous regions of Central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. bunraku* is allied to *S. zdenae*, but it is separable from the latter species by the body larger (Fig. 105H), the 9th ventrite of male narrower at apex (Fig. 49B), the aedeagal median lobe with its apical projections thinner (Fig. 49C), the endophallic copulatory tube larger, with its main tube moderately constricted a little behind the middle (Fig. 49F), and the spermathecal duct with 2 distinct turns (Fig. 49E).

Etymology. The specific epithet of this species is derived from the Japanese noun “Bunraku”, which means “puppet show” in the Japanese traditional performing art.

Stenus haginoi Naomi
(Figs. 50A–G, 105I)

Stenus haginoi Naomi, 1997a: 16; Herman, 2001: 2211; Naomi & Puthz, 2013: 143.

Type material examined. Holotype: ♂ (CBM), Mihira Pass, Oze Moor, Gunma Pref., 24. vii. 1995, H. Tamura et al. leg. Paratypes: 4 ♀ (cN), same locality and date as holotype, H. Tamura leg.; 4 ♂ 4 ♀ (cN), Oze Moor, Katashina Vil., Gunma Pref., 23. x. 1994, H. Sakayori leg.; 3 ♂ 5 ♀ (cN), same locality, 2. ix. 1995, H. Tamura leg.; 2 ♀ (cN), Ayame-daira, Oze Moor, Gunma Pref., 25. vii. 1995, H. Tamura leg; 2 ♂ 4 ♀ (cN), Mt. Shibutu, Oze Moor, Gunma Pref., 3. ix. 1995, H. Tamura leg.

Other material. [HONSHU]: 1 ♂ 4 ♀ (cN), Mt. Keizuru, Katashina Vil., Gunma Pref., 13. vii. 1996, K. Ishii et al. leg.; 3 ♂ 2 ♀ (cN), Mt. Shibutu, Oze Moor, Gunma Pref., 8. ix. 1996, Y. Hagino leg.; 6 ♂ 9 ♀ (cN), same data, S. Nomura leg.

Distribution. Japan: Honshu (Fukushima, Gunma and Niigata Prefs.).

Redescription. Male and female: Body 4.3–4.5 mm (fore body 2.0–2.2 mm) in length, weakly shining, with antennae relatively short, thin. Head black; pronotum, elytra and abdomen

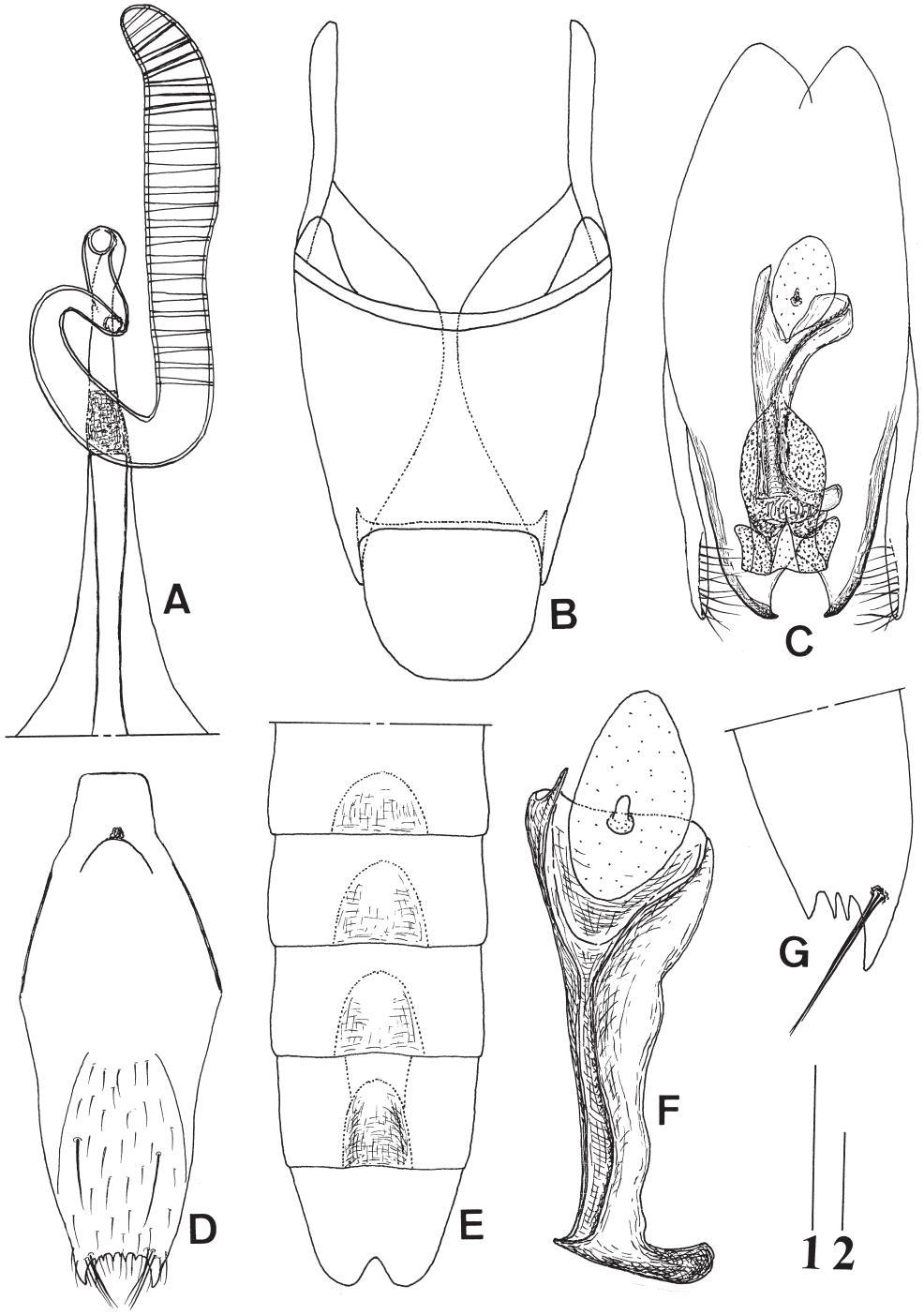

Fig. 50. *Stenus haginoi* Naomi (Shibitsu, Gunma). A, spermatheca; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male G, ; E, 4th to 8th ventrites of male; F, copulatory tube; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, F, G, 0.1 mm for B–D; Scale 2: 0.3 mm for E.

reddish brown to dark reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface uneven, with a moderately deep, median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface strongly uneven, weakly depressed along the suture; punctures round to elliptical, very dense, moderately large to large, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small and sparse or existing only as setal sockets. Lateroventrites missing; tergoventrite sutures distinct.

Male: Fourth ventrite (Fig. 50E) posteromedially with a semicircular flat area; 5th and 6th ventrites (Fig. 50E) each posteromedially with a bell-shaped, very shallow depression, which is very shallowly emarginate; 7th ventrite (Fig. 50E) anteromedially with a flat area, posteromedially with an elongate, bell-shaped, shallow depression, which is very shallowly emarginate; 8th ventrite (Fig. 50E) posteromedially with a small, V-shaped emargination; 9th tergum (Fig. 50B) with antecostal apophyses long; 9th ventrite (Fig. 50D) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth very short, pointed, apicolateral setae short; 10th tergum (Fig. 50B) entire. Aedeagal median lobe (Fig. 50C) broad, with apical projections each short, broad at base, pointed and incurved at apex. Endophallic median bands (Fig. 50C) with basal bands fused in the basal (anterior) 2/3 to form a large, subovoidal band, folded bands separated, each very short; expulsion hooks (Fig. 50C) invisible; copulatory tube (Fig. 50F) large, robust, with main tube boot-shaped. Parameres (Fig. 50C) each gently curved mesially; apical area moderately long, hardly swollen at base, furnished mesially with 13 to 15 moderately long setae.

Female: Eighth ventrite gently rounded posteriorly; gonocoxites (Fig. 50G) each toothed posteriorly, with apicolateral tooth long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 50A) with capsule missing; RT-duct long, very thick; duct thin in about proximal 1/2, moderately thick or thick in about distal 1/2, short with 4 turns; basal sclerotized duct short, moderately broad. Bursa copulatrix (Fig. 50A) very large, subconical, membranous.

Biology and ecology. *S. haginoi* is at present known only from the Oze Moor and its neighboring high mountainous areas, Central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. haginoi* is allied to *S. oni*, *S. triprotrudens* and *S. protrudens*, but it is separable from the latter three species by the aedeagal median lobe broader, with its apical projections a little shorter (Fig. 50C), and the endophallic copulatory tube boot-shaped (Fig. 50F).

Etymology. This species is named in honor of Mr. Yasunori Hagino (Natural History Museum and Institute, Chiba), who studies the Pauropoda.

Stenus oni Naomi
(Figs. 51A–G, 105J)

Stenus oni Naomi, 1988a: 81; Herman, 2001: 2313; Naomi & Puthz, 2013: 143.
Stenus basara Naomi, 1988a: 78 (*partim*).

Type material. Holotype: 1 ♀ (KUF), Mt. Maeshirane, Oku-Nikko, Tochigi Pref., 2. vii. 1982, S. Naomi leg.

Type material examined. Paratype of *S. oni*: ♂ (cP), same data as holotype. Paratypes of *S.*

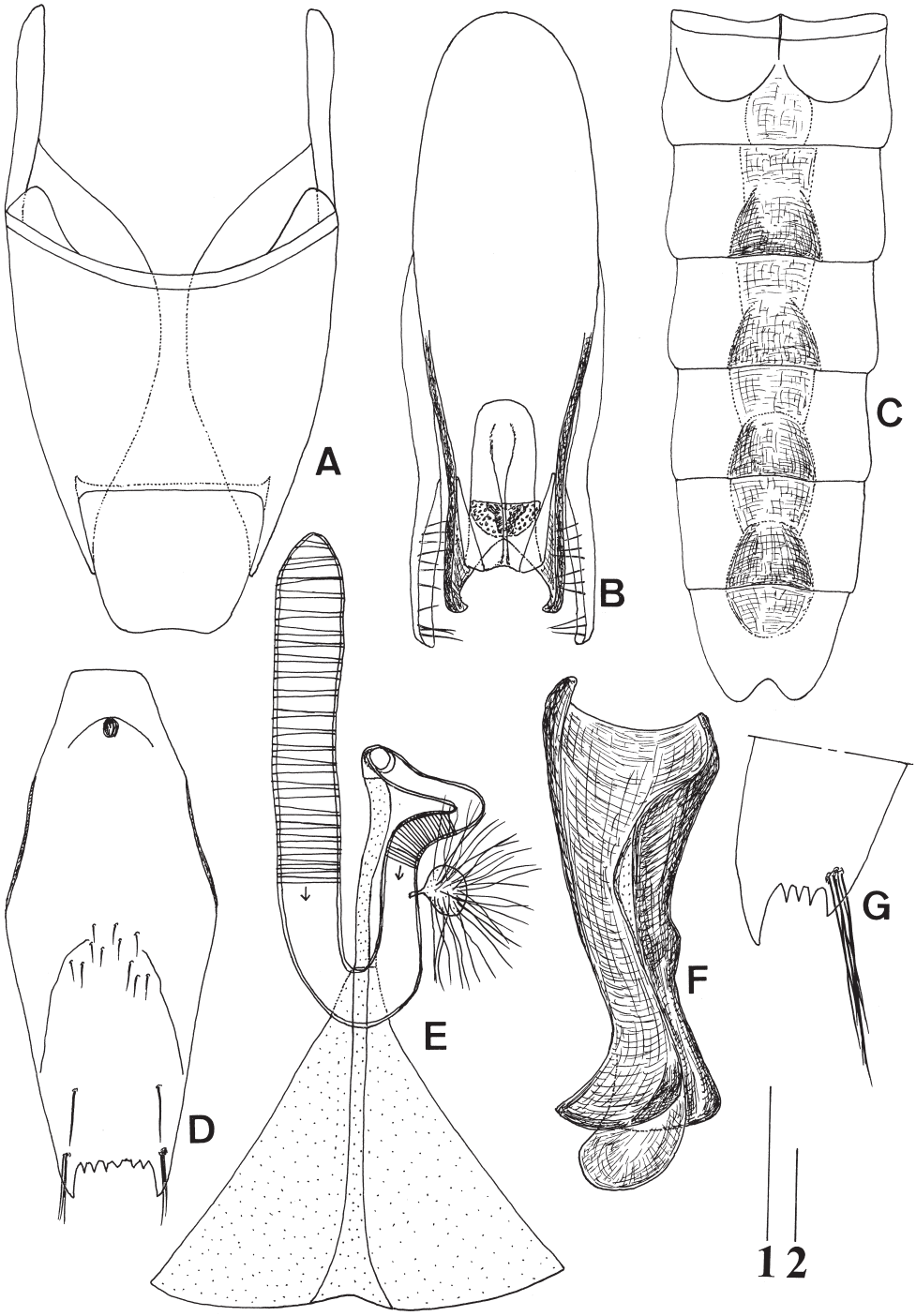

Fig. 51. *Stenus oni* Naomi (A–D, F, Maeshirane, Tochigi; E, G, Konsei, Tochigi). A, 9th and 10th terga of male; B, aedeagus; C, 3th to 8th ventrites of male; D, 9th ventrite of male; E, spermathecal and bursa copulatrix; F, copulatory tube; G, posterior part of gonocoxite. Scale 1: 0.2 mm for A, B, D, 0.1 mm for E–G; Scale 2: 0.3 mm for C.

basara (= *S. oni*): 2 ♀ (cN), Konsei Pass, Oku-Nikko, Tochigi Pref., 30. vi. 1982, S. Naomi leg.

Other material examined. [HONSHU]: 1 ♀ (cP), Nikkozawa-Kinunuma, Kuriyama Vil., Tochigi Pref., 3. ix. 1991, S. Naomi leg.

Distribution. Japan (Honshu: Tochigi Pref.).

Redescription. Male and female: Body 4.0–4.3 mm (fore body 1.9–2.1 mm) in length, weakly shining, with antennae relatively short, thin. Head black; pronotum, elytra and abdomen reddish brown; labrum, antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, small to moderately large, coarse, subrugose. Elytra with surface strongly uneven, weakly depressed along the suture; punctures round to elliptical, very dense, moderately large, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, shallow. Lateroventrites missing; tergoventrite sutures distinct.

Male: Third ventrite (Fig. 51C) medially with a flat area; 4th ventrite (Fig. 51C) flat anteromedially, posteromedially with a bell-shaped, moderately deep depression, which is shallowly emarginate; 5th to 7th (Fig. 51C) ventrites each anteromedially with a moderately deep depression, posteromedially with a similar depression as in the 4th; 8th ventrite (Fig. 51C) anteromedially with a bell-shaped, very shallow depression, posteromedially with a subtriangular emargination; 9th tergum (Fig. 51A) with antecostal apophyses long; 9th ventrite (Fig. 51D) serrate posteriorly, with macrosetae short, apicolateral teeth short, pointed, apicolateral setae short; 10th tergum (Fig. 51A) subtrapezoidal, weakly arcuately emarginate posteriorly. Aedeagal median lobe (Fig. 51B) moderately broad, distinctly bifurcated apically, with a moderately deep, almost V-shaped notch between apical projections, the apical projections each broad at base, turning dorsally at apex, with lateral rim strongly sclerotized. Endophallic dorsal membrane (Fig. 51B) semicircular, small; median bands (Fig. 51B) with basal bands partially fused, short, broad, folded bands widely separated, each narrowed anteriorly; expulsion hooks (Fig. 51B) fused, highly atrophied to be a small subtriangular sclerite; copulatory tube (Fig. 51F) stout, thick, main tube moderately constricted near apical 1/3, subspatulate at apex, with a round apical flap. Parameres (Fig. 51B) thick, weakly converging posteriorly from the bases to the bases of apical areas, then running in parallel to the apices; apical area very long, hardly swollen mesially, furnished mesially with 10 to 11 setae along ventral margin.

Female: Eighth ventrite weakly angulate apicomedially; gonocoxites (Fig. 51G) each toothed posteriorly, with apicolateral tooth moderately long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 51E) with capsule missing; RT-duct moderately thick to very thick, very long with 2 turns; duct very thin to thin, short with 2 turns, with the duct from the base to 1st turn membranous; gland wholly covered with very thin, long ciliae, with its opening located on the lateral side of RT-duct a little distal from the base of RT-duct. Bursa copulatrix (Fig. 51E) very large, conical, membranous, bi-arcuate basally.

Biology and ecology. *S. oni* is a rare species; and it is distributed in the mountainous regions of northern Kanto district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. When Naomi (1988a) described *S. basara* as a new species of *Stenus* from Honshu, Japan, he treated two females of *S. oni* as the paratypes of *S. basara*, due to his misidentification. These two females are, as described above, here treated as the specimens of *S. oni*. *S. oni* is allied to *S. triprotrudens* and *S. protrudens*, but it is separable from the latter two species by the aedea-

gal median lobe with its apical projections more widely separated (Fig. 51B), the endophallic copulatory tube with a round apical flap (Fig. 51F), and the paramere with its apical area longer (Fig. 51B).

Etymology. The specific epithet of this species is derived from the Japanese noun "Oni", namely, an "imaginary monster" which appears in the Japanese ancient folk tales.

Stenus triprotrudens Naomi & Watanabe
(Figs. 52A–F, 105K)

Stenus triprotrudens Naomi & Watanabe, 2015: 104.

Type material examined. Holotype: ♂ (TUAA), Ishikorobi-zawa, Mts. Iide, Yamagata Pref., 27. vii. 1964, Y. Watanabe leg. Paratypes: 7 ♀ (TUAA) & 1 ♂ 1 ♀ (cN), same data as holotype; 1 ♀ (TUAA), Nukumi-daira, Mts. Iide, Yamagata Pref., 28. vii. 1964, K. Takahashi leg.

Distribution. Japan: Honshu (Yamagata Pref.).

Redescription. Male and female: Body 3.8–4.7 mm (fore body 1.7–2.1 mm) in length, weakly shining, with antennae short, thin. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum dark reddish brown; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round, dense to very dense, small, somewhat umbilicate. Pronotum with surface uneven, with moderately deep median longitudinal depression; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface uneven, flat along the suture; punctures round to elliptical, very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, a little varied in size but basically small in anterior segments, while punctures in posterior segments very small and sparse, or existing simply as setal sockets. Lateroventrites missing; tergoventrite sutures existing.

Male: Legs with femora thick; 4th ventrite posteromedially with a semicircular flat area; 5th ventrite posteromedially with a semicircular, very shallow depression, which is shallowly emarginate; 6th ventrite modified as in the 5th, but the depression a little deeper than that in the 5th; 7th ventrite anteromedially with a flat area, posteromedially with an ovoidal, moderately deep depression, which is emarginate posteriorly; 8th ventrite (Fig. 52D) posteromedially with a V-shaped emargination; 9th tergum (Fig. 52F) with antecostal apophyses moderately long; 9th ventrite (Fig. 52E) serrate posteriorly, with macrosetae short, apicolateral teeth very short, pointed, apicolateral setae very short; 10th tergum (Fig. 52F) weakly emarginate posteriorly. Aedeagal median lobe (Fig. 52A) broad, distinctly bifurcate at apex, with a very deep, narrow-V-shaped notch between apical projections, the apical projections each stout, long, almost rounded at apex. Endophallic median bands (Fig. 52A) with basal bands each short, membranous, very broad, broadened anteriorly, folded bands widely separated, each thin, dotted; expulsion hooks (Fig. 52A) atrophied into a small, wide-V-shaped structure; copulatory tube (Fig. 52A) large, stout, basal chamber large, with indistinct basal constriction, main tube with a funnel-shaped apex and also with a pointed process at its left side near the apex, to form the triprotruded apex. Parameres (Fig. 52A) each short, rounded apically; apical area hardly swollen mesially, furnished mesially with 14 to 15 setae.

Female: Eighth ventrite gently rounded posteriorly; gonocoxites (Fig. 52C) each serrate posteriorly, apicolateral tooth moderately long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 52B) with capsule small, rounded apically, RT-duct moderately long, very

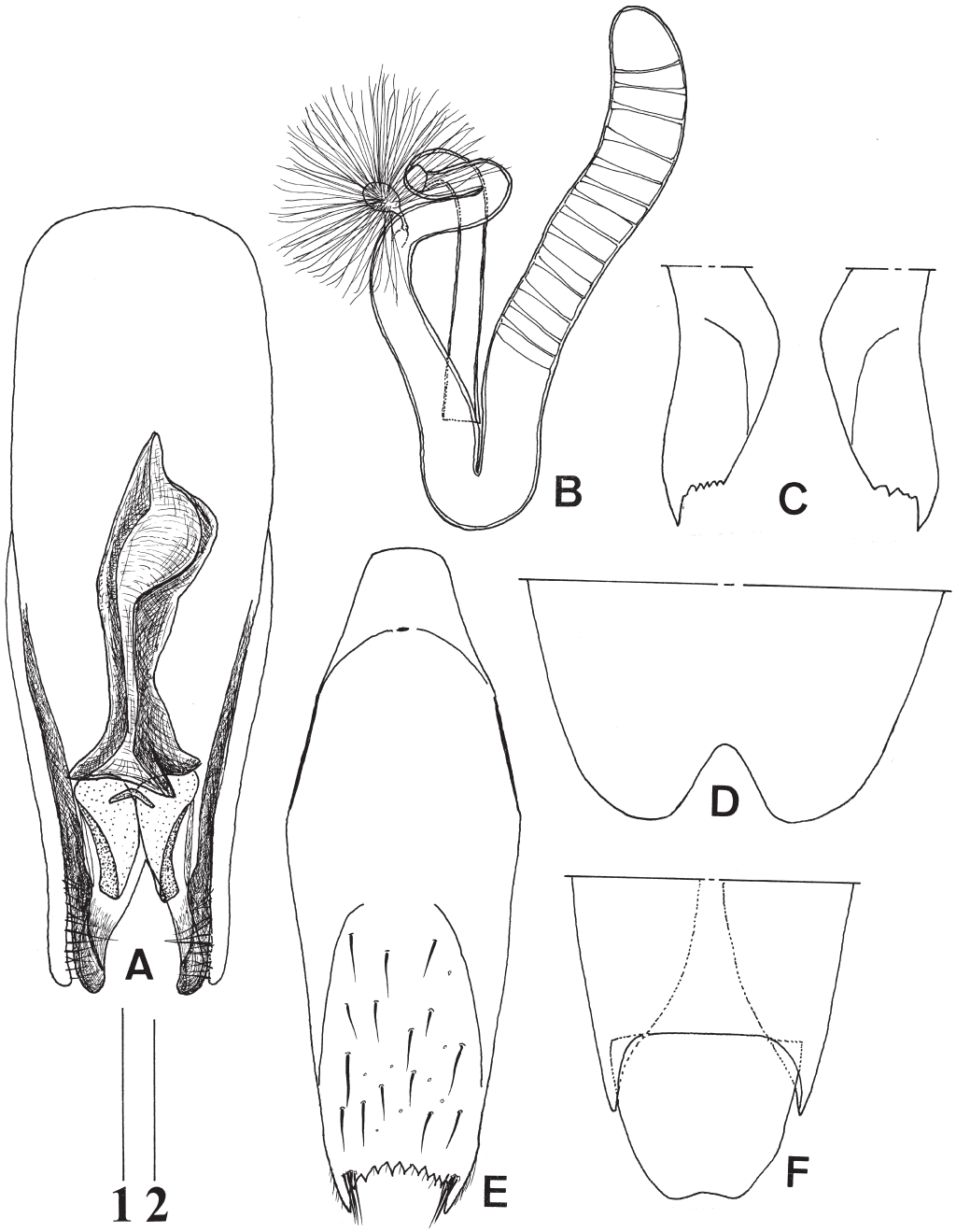

Fig. 52. *Stenus triprotrudens* Naomi & Watanabe (Iide, Yamagata). A, aedeagus; B, spermatheca; C, gonocoxites; D, posterior part of 8th ventrite of male; E, 9th ventrite of male; F, 9th and 10th terga of male. Scale 1: 0.2 mm for A, C–E, 0.1 mm for B; Scale 2: 0.2 mm for F.

thick; duct relatively thin at base, thick at the distal part, short with 4 turn; gland small, ovoidal, wholly covered with very thin, long ciliae, with its opening located on the 3rd turn of the duct.

Biology and ecology. *S. triprotrudens* is a rare species; and it is distributed in the mountain-

ous regions of Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. triprotrudens* is allied to *S. oni* and *S. protrudens*, but it is separable from the latter two species by the aedeagal median lobe with its apical projections each longer (Fig. 52A), and the endophallic copulatory tube triprotruded at apex (Fig. 52A).

As far as *S. triprotrudens* is concerned, it is difficult to homologize the parts of its endophallus, because the median bands and expulsion hooks do not exist as in the common condition. At first glance, the paired large, membranous plates seem to be expulsion hooks, given their position (Fig. 52A). However, these sclerites are here identified as the basal bands of median bands, mainly because the relative positions of the folded bands to these "membranous plates" are the same as in *S. oni* (which is one of the closely allied species), although the dots are not found on their surface.

Stenus protrudens Naomi & Watanabe
(Fig. 53A–F)

Stenus triprotrudens Naomi & Watanabe, 2015: 105.

Type material examined. Holotype: ♂ (TUAA), Komanoyu Spa, Niigata Pref., 4 vii. 1963, Y. Watanabe leg.

Distribution. Japan: Honshu (Niigata Pref.).

Redescription. Male: Body 4.6 mm (fore body 2.1 mm) in length, weakly shining. Head black; pronotum, elytra and abdomen reddish brown to dark reddish brown; labrum, antennae and legs also reddish brown to dark reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to elliptical, very dense, small, umbilicate. Pronotum with surface uneven, with indistinct median longitudinal depression; punctures very dense, moderately large, coarse. Elytra with surface uneven, weakly depressed along the suture; punctures very dense, moderately large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments very small, regular. Lateroventrites very thin only at the base of 4th segment, while missing in the 5th to 6th; tergoventrite sutures existing.

Legs with femora thick; 4th ventrite posteromedially with a semicircular flat area, which is very shallowly emarginate; 5th ventrite posteromedially with a semicircular, very shallow depression, which is very shallowly emarginate; 6th ventrite (Fig. 53D) modified as in the 5th, but the depression a little deeper than that in the 5th; 7th ventrite (Fig. 53D) anteromedially with a flat area, posteromedially with an ovoidal, moderately deep depression, which is shallowly emarginate; 8th ventrite (Fig. 53E) posteromedially with a large, nearly V-shaped emargination; 9th tergum (Fig. 53F) with antecostal apophyses moderately long; 9th ventrite (Fig. 53C) irregularly serrate posteriorly, with macrosetae long, apicolateral teeth short, acutely pointed, apicolateral setae short; 10th tergum (Fig. 53F) weakly emarginate posteriorly. Aedeagal median lobe (Fig. 53B) moderately broad, with a semicircular notch between apical projections, the apical projections each stout, relatively short, almost rounded apically. Endophallic median bands (Fig. 53B) moderately long, broad; expulsion hooks invisible; copulatory tube (Fig. 53A) robust, main tube very thick at base, narrowed apically, curved right at apex, with a pair of acutely pointed teeth of different size at the ventral side near the apex, and also with a large flap at the left side near the apex. Parameres (Fig. 53B) each short, rounded apically; apical area hardly or weakly swollen mesially, furnished mesially with 8 to 9 setae.

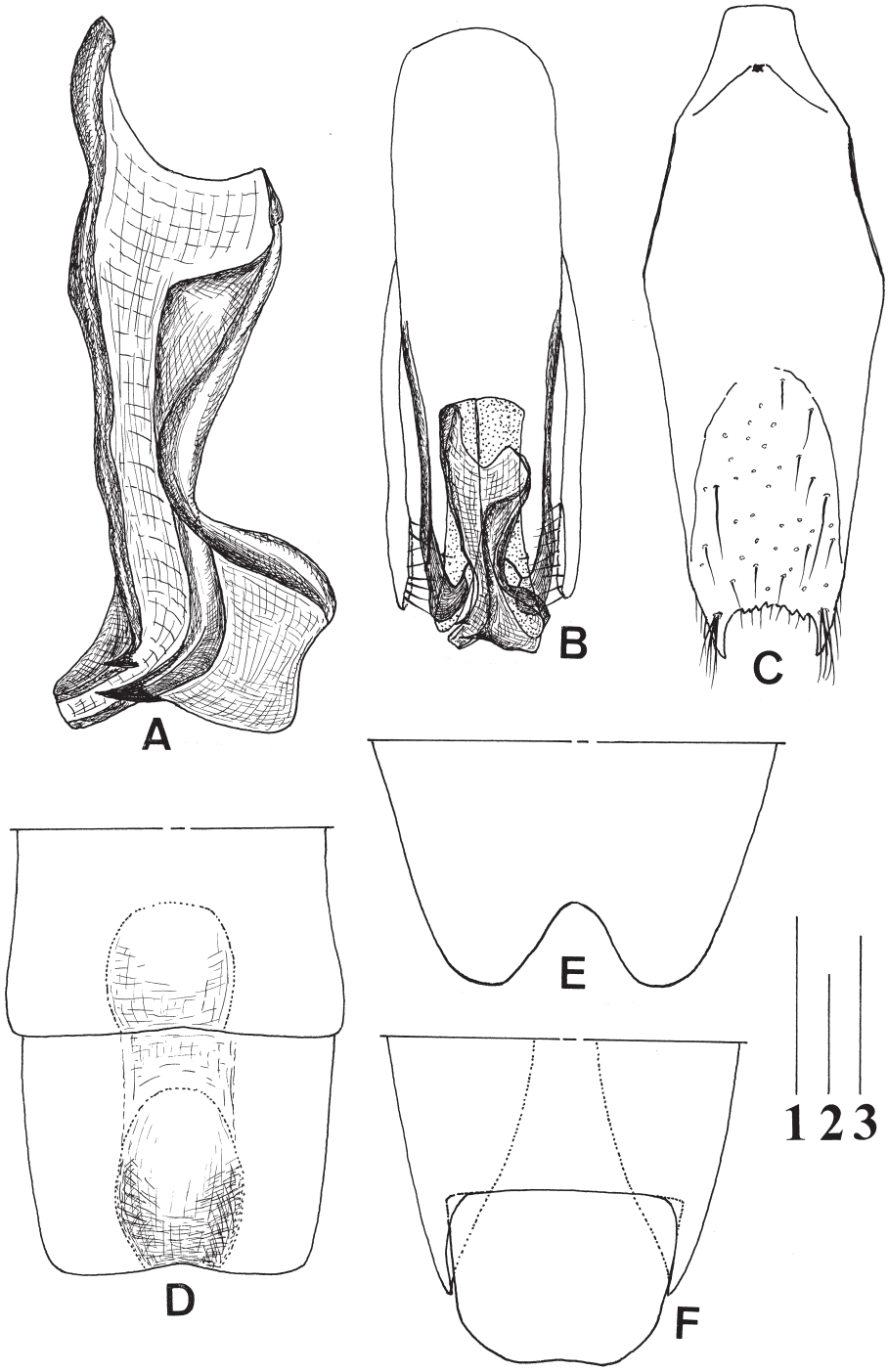

Fig. 53. *Stenus protrudens* Naomi & Y. Watanabe (Komanoyu, Niigata). A, copulatory tube; B, aedeagus; C, 9th ventrite of male; D, 6th and 7th ventrites of male; E, posterior part of 8th ventrite of male; F, 9th and 10th terga of male. Scale 1: 0.2 mm for C, E, F, 0.1 mm for A; Scale 2: 0.2 mm for B; cale 3: 0.3 mm for D.

Female: Unknown.

Biology and ecology. *S. protrudens* is a rare species; and it is only once collected from the mountainous region of northern Chubu district, Honshu. The beetle inhabits leaf litter in the natural forests.

Remarks. *S. protrudens* is allied to *S. oni* and *S. triprotrudens*, but it is separable from the latter two species by the aedeagal median lobe with its apical projections each shorter, broader at apex (Fig. 53B) and with a semicircular notch between the apical projections (Fig. 53B), and the endophallic copulatory tube with a large flap at the left side near the apex (Fig. 53A).

Insertae sedis

S. dubitativus was first described by Puthz (1993), based only on one female specimen from Amami Is., Nansei Isls. in Japan. When having described the characters of the male in detail, Puthz (2001) adequately commented that this species does not belong to the previously recognized *Stenus* groups in Japan when seen from the viewpoint of the male genital structures, and also that it just resembles them only superficially. When seeing it taxonomically, what is then, in actual fact, *S. dubitativus*? Let us here discuss it.

S. dubitativus is an elongate, chocolate brown to dark chocolate brown species (Fig. 105L). This species has the *Hypostenus*-typed abdomen; and it is similar in habitus and coloration to the members of the *asyura*-group (*kasumi*-subg.) and *indubius*-group. However, this species possesses the postabdomen (male and female) and aedeagus which are similar to those of some members of *tenuimargo*-group (see Puthz, 2011 and Lv *et al*., 2018), although the *tenuimargo*-group has the *Hemistenus*-typed abdomen. Namely, the 8th ventrite of male has the relatively deep, triangular emargination (Fig. 53C); the gonocoxite of female has more or less falciform apicolateral tooth (Fig. 53G); the aedeagal median lobe is simply narrowed apically and rounded at apex, with an elongate apical sclerotized area (Fig. 53D); the apical areas of parameres are weakly but characteristically divergent laterally; and the paramere has its dorsal and ventral flaps (Fig. 53I) as in *S. miwai* Bernhauer, 1943, *S. mithracifer* Puthz, 2011, and *S. perroti* Puthz, 1981.

To which species-group, *S. dubitativus* belongs? It is certain that this species does not belong to the *indubius*-group (having the gourd-shaped spermatheca in general; Fig. 81E), because the spermatheca of *S. dubitativus* is of the basic form (Fig. 53H). It seems that *S. dubitativus* does not belong also to the *asyura*-group (having the aedeagus moderately broad to broad even at the apicolateral corners, and angulate, pointed or tricuspidate at apex), because the aedeagus of *S. dubitativus* is relatively elongate, and becomes narrower apically, with its rounded apex (Fig. 53D). *S. dubitativus* may not belong also to the *tenuimargo*-group, because the body is smaller in size, with the *Hypostenus*-typed abdomen, and the antennae and legs are shorter. After all, *S. dubitativus* seems to be a chimeric species which possesses the habitus of *indubius*-group or *kasumi*-group and the aedeagus and postabdomen of *tenuimargo*-group. *S. dubitativus* is here tentatively classified into the *asyura*-group because it is very similar in habitus to the members of its *kasumi*-subg. However, since it does not possess key characters of the *asyura*-group, it is here taxonomically treated as *incertae cedis*.

Stenus dubitativus Puthz
(Figs. 54A–I, 105L)

Stenus dubitativus Puthz, 1993: 181; Herman, 2001: 2165; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Mt. Yuwan, Amami Is., Kagoshima Pref., 5. v. 1987, S. Nomura leg.

Other material examined. [KYUSHU]: 5 ♂ 1 ♀, Hatsuno, Amami Is., Kagoshima Pref., 1. iv. 1966, H. Nomura leg.; 2 ♂, same locality, 1. iv. 1966, T. Ito leg.; 1 ♀, Mt. Yuwan, Amami Is., Kagoshima Pref., 5. v. 1997, M. Yoshida leg.

Distribution. Japan: Kyushu (Amami Is.).

Redescription. Male and female: Body 4.7–5.4 mm (fore body 2.0–2.3 mm) in length, moderately shining, with antennae long, very thin, legs moderately long. Head black; pronotum, elytra and abdomen reddish or dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of indistinct (or thin) midlateral longitudinal furrows; punctures round to almost round, moderately dense to dense, moderately large. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, various in size, somewhat coarse. Elytra with surface weakly uneven; punctures round to elliptical, very dense, large, sometimes coarse. Tarsi each with 4th tarsomere strongly bilobed, about half the length of 5th tarsomere. Abdomen with punctures round, moderately dense to dense, small in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, irregular. Lateroventrites and tergoventrite sutures missing.

Male: Body a little more slender than in female; 7th ventrite (Fig. 54C) posteromedially with a subtriangular flat area, which is very shallowly emarginate; 8th ventrite (Fig. 54C) posteriorly with a V-shaped emargination; 9th tergum (Fig. 54A) with antecostal apophyses long; 9th ventrite (Fig. 54B) minutely serrate posteriorly, with macrosetae long, apicolateral teeth long, acutely pointed, apicolateral setae long; 10th tergum (Fig. 54A) very shallowly, minutely emarginate posteromedially. Aedeagal median lobe (Fig. 54D) elongate, uniformly narrowed apically from the parameral bases to the apex, narrow but almost rounded at apex; apical sclerotized area (Fig. 54D) developed, distinctly longer than broad. Endophallic median bands (Fig. 54D) relatively short; lateral bands (Fig. 54D) moderately long, thin; expulsion hooks (Fig. 54F) separated but connected by a C-shaped rod at the posteromesial corners of posterior plates, each hook slender, with anterior plate pointed apically, partially demarcated by an oblique ridge from posterior plate; copulatory tube (Fig. 54E) with basal chamber ovoidal, main tube moderately curved near the middle, with a pair of small dents at the mesial rims of ventral slit, and with basal tube thick, apical tube thin, having a low subtransparent lateral flat. Parameres (Fig. 54D) each slender but not reaching the apex of median lobe, rounded apically; apical area (Fig. 54I) relatively short, mesially with a dorsal and a ventral flap, and furnished mesially with 9 setae of various lengths.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 54G) toothed posteriorly, each with apicolateral tooth falciform, long, acutely pointed, apicolateral setae very long. Spermatheca (Fig. 54H) with capsule very small, elongate; RT-duct long, thick at base, weakly narrowed distally; duct long, almost tightly coiled, with the duct from the opening to 1st turn very long, almost straight; basal valve short. Basal structure (Fig. 54H) elongate-conical, membranous basally.

Biology and ecology. *S. dubitativus* is distributed in the mountainous regions of Amami Is. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. dubitativus* is probably the sister species of *S. sulcifer* Oh & Cho, 2016 from Korea, and it is separable from the latter species by the 8th ventrite of male posteromedially with a deeper emargination (Fig. 54C), the 9th ventrite of male with its posterior margin almost straight (Fig. 54B), and the endophallic copulatory tube longer and broader (Fig. 54E).

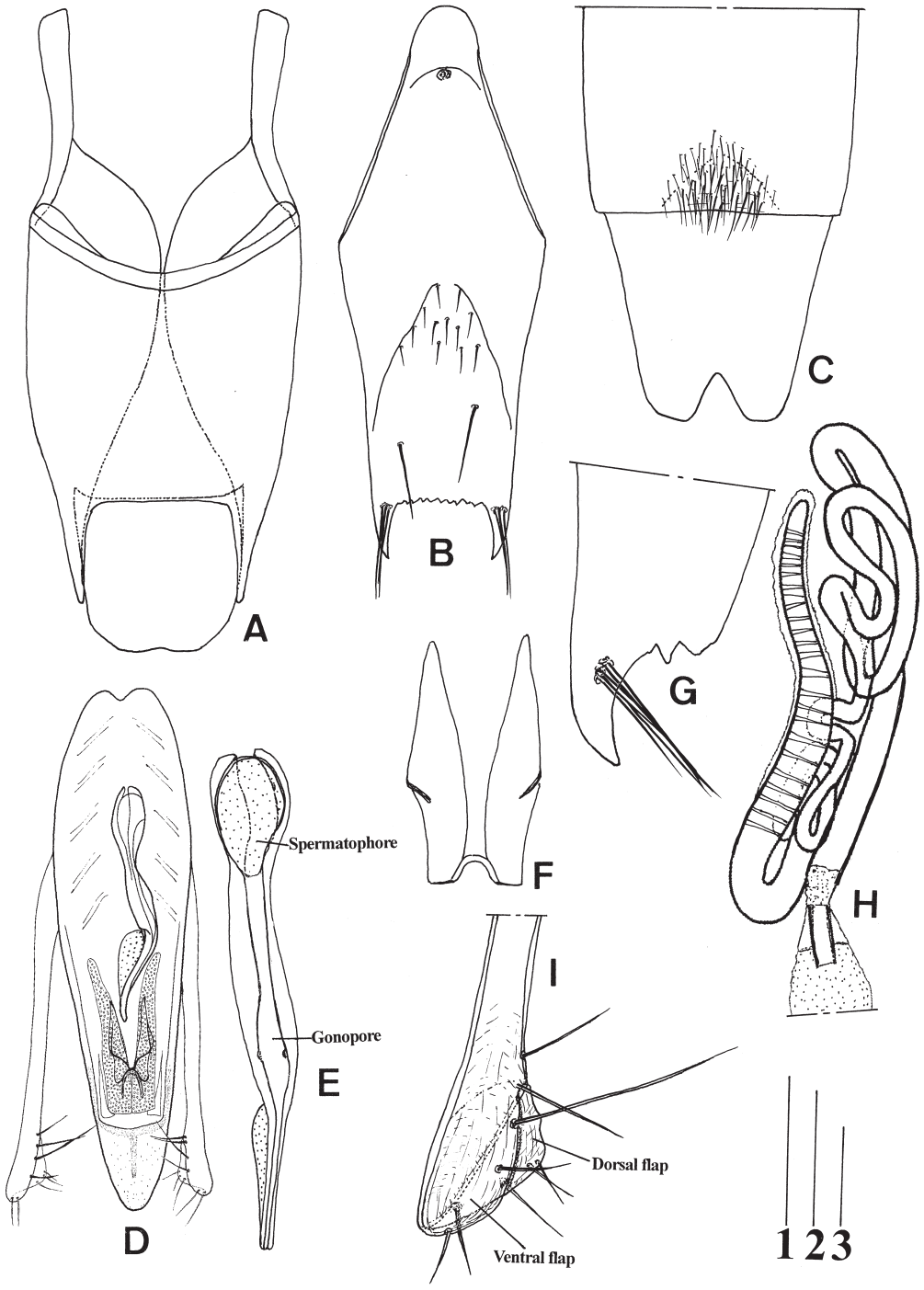

Fig. 54. *Stenus dubitativus* Puthz (Hatsuno, Amami Is.). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th and 8th ventrites of male; D, aedeagus; E, copulatory tube; F, expulsion hooks; G, posterior part of gonocoxite; H, spermatheca; I, apical part of paramere. Scale 1: 0.2 mm for A, B, D, H, 0.1 mm for E, G, Scale 2: 0.3 mm for C; Scale 3: 0.05 mm for F, I.

In the endophallic copulatory tube, there exist a pair of small dents at the mesial rims of its ventral walls (Fig. 54E), just as in the case of *Phanerota* (Aleocharinae; Ashe, 1986; see also Naomi, 2018). Thus, only the apical tube (i.e., apical thin part of the copulatory tube) will be inserted into the basal pouch of spermatheca, using the small dents as tools for fixing the copulatory tube to the opening of spermatheca during copulation.

Species-group of *S. indubius* Sharp

The *indubius*-group is an Asian species-group of *Stenus*, whose species are at present distributed in the wide range of Asian region (Vietnam, Thailand, Laos, China, Taiwan, Korea and Japan) (Puthz, 2013a). It comprises 79 species as listed below. The peculiar gourd-shaped spermatheca was once considered the autapomorphy for the *indubius*-group (Puthz, 2001; Naomi, 2006), but the recent studies (Tang & Zhao, 2008; Puthz, 2017) showed that there exist some exceptions in some species, in which the spermatheca is not gourd-shaped. For example, only the capsule is very weakly swollen in the spermatheca of *S. nibamontis* Puthz, 2017, while the capsule forms a small sphere and the spermathecal duct just proximal to the spherical capsule is almost simply thick (but not swollen laterally) in *S. pectorifossatus* Tang, 2008 (Tang & Zhao, 2008).

The *indubius*-group is similar in external structure and also closely related to the *tenuimargo*-group (Puthz, 2013a), which was first established by Puthz (2011) based on several Oriental *Stenus*-species. The *tenuimargo*-group has the following diagnostic characters: Head with postocular region oblique; antennae very long; paraglossae oval; legs very long, with tarsi bilobed; abdominal margination very narrow; 9th ventrite of male with long apicolateral teeth. It presently comprises 29 species (Lv, 2018, 2018a; Puthz, 2018); and it is widely distributed in the Oriental region from Nepal, India, Vietnam, Malaysia, Thailand, Myanmar, Laos to Taiwan and China (Puthz, 2013a). At present, the *indubius*-group is separable from the *tenuimargo*-group by the peculiar structure of spermatheca described below (Puthz, 2013a).

Subgrouping of the *indubius*-group: The subgrouping of the *indubius*-group is here taken up, together with brief descriptions on the research history related to it.

When Hromádka (1979) described several new *Stenus*-species from Japan, he used the name *indubius*-group there; and Puthz (2001) first characterized the *indubius*-group, and mentioned that the structure of spermatheca should be considered a character of the *indubius*-group. Naomi (2006) revised taxonomically the Japanese species of *indubius*-group. Following Puthz, he characterized the *indubius*-group by considering the large spherical capsule and the large apical chamber of spermatheca to be the major diagnostic characters of it. However, he excluded from the members of *indubius*-group, the *Stenus*-species with this diagnostic character in the cases where they have the lateroventrites or distinct tergoventrite sutures in the 4th to 6th abdominal segments. In other words, he did not regard the species of *inimitabilis*-subg. (see below) as the members of *indubius*-group.

When Tang & Zhao (2008) studied some Chinese species of *indubius*-group, they newly characterized the *indubius*-group, by recognizing the morphological diversities of abdomen in this group. That is, there are two different forms of abdominal structure: one is the *Hemistenus*-type, in which the tergoventrite sutures and / or lateroventrites exist in the 4th to 6th abdominal segments (e.g., *S. erlangshanus*; *S. hewenjiae* Fig. 108K); and the other is the *Hypostenus*-type, in which both the tergoventrite sutures and lateroventrites are missing there (e.g., *S. paradecens*). In this paper, we adopt the idea of *indubius*-group presented by Tang & Zhao (2008), who recog-

nized two different forms of abdominal structure. The species with the lateroventrites or tergoventrite sutures are here newly grouped into the *inimitabilis*-subgroup within the *indubius*-group, given their possession of the diagnostic characters mentioned at the beginning of the section *inimitabilis*-subg. Thus, at present the *indubius*-group consists of two subgroups: *inimitabilis*-subg. (37 species) and *indubius*-subg. (39 species), as listed below.

Diagnostic characters of the *indubius*-group: Body elongate, chocolate brown to dark chocolate brown or black (Fig. 108D), but elytra each without (Fig. 108D) or with an orange spot in some species (e.g., *S. shibatai*; Fig. 108L); brachypterous; tarsi each with 4th tarsomere strongly or weakly bifurcate; lateroventrites existing, or lateroventrites missing but tergoventrite sutures existing, or both lateroventrites and tergoventrite sutures missing in 4th to 6th abdominal segments. Male: Body often more or less smaller than in female; 9th ventrite with macrosetae and apicolateral teeth (Figs. 55C, 59A); endophallic copulatory tube simple (e.g., thin, slender, attenuate; Fig. 60B), but its main tube rarely modified with a division of basal and apical tubes (Fig. 73B), or to form an elongate S-shaped rod (Fig. 82B), etc. Female: Gonocoxite serrate posteriorly, with apicolateral tooth (Figs. 55G, 60E); spermatheca usually gourd-shaped (i.e., both capsule and apical chamber large, spherical or subspherical; Figs. 55E, 59F), but in some cases the capsule only developed, (sub)spherical (Fig. 56E), or both capsule and apical chamber small, not (sub)spherical nor swollen laterally (e.g., *S. nibamontis*).

A list of the species of *S. indubius* group

***inimitabilis*-subgroup**

explanipennis Rougemont, 1987 Distribution: Thailand (Chiang Mai)
sausai Hromádka, 2001 Distribution: Laos (Bolikhamsai)
vietnamensis Puthz, 1968 Distribution: Vietnam (Ninh-Bingh), China (Hainan), Taiwan (Kao-hsiung, Nantou, Chiai)
= *shibataianus* Puthz, 2011
electristigma Puthz, 2011 Distribution: Taiwan (Taichiung, Hualien)
shibatai Puthz, 2011 Distribution: Taiwan (Taoyuan, Nantou)
shibataiellus Puthz, 2011 Distribution: Taiwan (Nantou)
taiyangshanus Tang & Li, 2012 Distribution: China (Guangdong)
huapingensis Tang, Li & Huang, 2012 Distribution: China (Guangxi)
absconditus Hu & Tang, 2018 Distribution: China (Guizhou)
hui Tang & Puthz, 2009 Distribution: China (Shaanxi)
scabripunctus Puthz, 2017 Distribution: China (Shaanxi)
dabacola Puthz, 2017 Distribution: China (Shaanxi)
dabaensis Puthz, 2017 Distribution: China (Shaanxi)
pectorifossatus Tang, 2008 Distribution: China (Sichuan)
erlangshanus Tang, 2008 Distribution: China (Sichuan)
zhuxiaoyui Tang, 2008 Distribution: China (Sichuan)
hewenjiae Tang & Li, 2012 Distribution: China (Sichuan)
erlanganus Puthz, 2017 Distribution: China (Sichuan)
nibamontis Puthz, 2017 Distribution: China (Sichuan)
xilingshanus Puthz, 2017 Distribution: China (Sichuan)
luojiensis Puthz, 2017 Distribution: China (Sichuan)
trigaulti Puthz, 2018 Distribution: China (Sichuan)

lizipingus Hu & Tang, 2018 Distribution: China (Sichuan)
fuscus Hu & Tang, 2018 Distribution: China (Sichuan)
cangshanus Tang & Li, 2012 Distribution: China (Yunnan)
doryphorus Puthz, 2017 Distribution: China (Yunnan)
habashanus Puthz, 2017 Distribution: China (Yunnan)
aequabilifrons Puthz, 2017 Distribution: China (Yunnan)
hajeki Puthz, 2017 Distribution: China (Yunnan)
zhemoshanus Puthz, 2017 Distribution: China (Yunnan)
zhongdianus Puthz, 2017 Distribution: China (Yunnan)
insperabilis Puthz, 2017 Distribution: China (Yunnan)
xueshanus Puthz, 2017 Distribution: China (Yunnan)
tumoripennis Puthz, 2017 Distribution: China (Yunnan)
tumidulipennis Puthz, 2017 Distribution: China (Yunnan)
tonghanggangus Tang, Puthz & Yue, 2016 Distribution: China (Zhejiang)
tianmushanus Tang, Puthz & Yue, 2016 Distribution: China (Zhejiang)
autumnalis Naomi, 1997a Distribution: Japan (Shikoku)
unzenmontis Naomi & Puthz, 1996 Distribution: Japan (Kyushu)
inimitabilis Puthz, 1993a Distribution: Japan (Shikoku, Kyushu)
siphonifer Naomi, 2015b Distribution: Japan (Honshu)

***indubius*-subgroup**
guniujiangensis Tang, Li & Zhao, 2005 Distribution: China (Anhui)
paradecens Tang, Li & Zhao, 2005 Distribution: China (Anhui)
jaoluopingus Hu & Tang, 2018 Distribution: China (Anhui)
yinziweii Tang & Li, 2012 Distribution: China (Guizhou)
zhaiyanbini Tang & Li, 2012 Distribution: China (Guizhou)
micangmontium Puthz, 2017 Distribution: China (Shaanxi)
detestabilis Puthz, 2017 Distribution: China (Shaanxi)
detestatus Puthz, 2017 Distribution: China (Shaanxi)
impressicollis Puthz, 2017 Distribution: China (Sichuan)
luojimontis Puthz, 2017 Distribution: China (Sichuan)
zhujianqingi Tang, Li & Huang, 2012 Distribution: China (Zhejiang)
curvus Oh & Cho, 2016 Distribution: Korea (Gyeongnam, Jeonbuk, Jeonnam)
tenuiculus Oh & Cho, 2016 Distribution: Korea (Gyeongnam)
unciformis Oh & Cho, 2016 Distribution: Korea (Gyeongnam, Jeonnam)
obesus Oh & Cho, 2016 Distribution: Korea (Jeonbuk)
serratus Naomi, 2006 Distribution: Japan (Honshu)
sadoensis Naomi, 2006 Distribution: Japan (Honshu)
subserratus Naomi, 2006 Distribution: Japan (Honshu)
takane Naomi, 1987 Distribution: Japan (Honshu)
unicoloratus Naomi & Puthz, 2006 Distribution: Japan (Honshu)
tohokuensis Naomi & Puthz, 2006 Distribution: Japan (Honshu)
campaniformis Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu)
naomii Puthz, 2001 Distribution: Japan (Honshu)
tuberascens Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Honshu)
acerrimus Naomi, 2006 Distribution: Japan (Honshu)

cucumeroides Naomi & Puthz, 2006 Distribution: Japan (Honshu)
unagi Hromádka, 1979 Distribution: Japan (Honshu)
= *ookami* Hromádka, 1979
fugu Hromádka, 1979 Distribution: Japan (Honshu)
= *sakana* Hromádka, 1979
ukon Naomi & Puthz, 2006 Distribution: Japan (Honshu)
kyushuensis Naomi & Puthz, 2006 Distribution: Japan (Kyushu)
tanuki Hromádka, 1979 Distribution: Japan (Honshu)
= *wakayamanus* Puthz, 2001a
hypovelox Naomi & Puthz, 2006 Distribution: Japan (Shikoku)
sawadai Hromádka, 1979 Distribution: Japan (Honshu)
kishimotoi Naomi & Puthz, 2006 Distribution: Japan (Honshu)
yokozekii Naomi, 2006 Distribution: Japan (Honshu)
tateoi Naomi, 2006 Distribution: Japan (Honshu)
ohishii Naomi, 1987 Distribution: Japan (Honshu: Awaji Is., Shikoku, Kyushu)
fusciceps Naomi, 2006 Distribution: Japan (Shikoku)
indubius Sharp, 1889 Distribution: Japan (Honshu)
= *vernalis* Naomi, 1997
kiyosumiensis Naomi & Takeda, 1991 Distribution: Japan (Honshu)

Japanese fauna of the *indubius*-group

As far as the Japanese fauna is concerned, the *indubius*-group comprises 29 species, which are divided into 2 subgroups: *S. inimitabilis*-subg. (4 species) and *S. indubius*-subg. (25 species). All species are indigenous to the Japanese Archipelago.

Key to the subgroups of the *indubius*-group

1(2) Pronotum with a median longitudinal furrow on the surface; lateroventrites existing, or distinct tergoventrite sutures existing in 4th to 6th abdominal segments ..... *S. inimitabilis*-subgroup

2(1) Pronotum without median longitudinal furrow on the surface; both lateroventrites and tergoventrite sutures usually missing in 4th to 6th abdominal segments (but if the tergoventrite sutures exist they are very obsolete or very thin) ..... *S. indubius*-subgroup

The *inimitabilis*-subgroup

The *inimitabilis*-subg. presently comprises 4 species in Japan, which is characterized as follows:

Diagnostic characters of the *inimitabilis*-subgroup: Antennae relatively short to moderately long, thin (Fig. 106A); pronotum with a median longitudinal furrow on the surface; elytral surface usually strongly uneven, punctures subrugose; tarsi each with 4th tarsomere weakly bilobed, with its furcate ventral lobes short; lateroventrites existing, or lateroventrites missing but distinct tergoventrite sutures existing in 4th to 6th abdominal segments.

Key to the Japanese species of *the inimitabilis*-subgroup

1(4) Lateroventrites existing, very narrow in 4th to 6th abdominal segments.

2(3) Male: Aedeagal median lobe simply pointed apicomedially (Fig. 55B); endophallic expulsion hook almost ear-shaped (Fig. 55H). Female: Spermatheca with capsule almost spherical (Fig. 55E)..... *S. autumnalis* Naomi

3(2) Male: Aedeagal median lobe tricuspidate, with the short median cusp (Fig. 57C); endophallic expulsion hook subtriangular (Fig. 57G). Female: Spermatheca with capsule elongate-ovoidal (Fig. 57E) .....*S. inimitabilis* Puthz

4(1) Lateroventrites missing but tergoventrite sutures distinct in 4th to 6th abdominal segments.

5(6) Male: Aedeagal median lobe simply pointed apicomedially (Fig. 56F); copulatory tube apically with a flagellum (Fig. 56H); paramere with apical area longer (Fig. 56F) .....*S. unzenmontis* Naomi & Puthz

6(5) Male: Aedeagal median lobe obtusely angulate apicomedially (Fig. 58C); copulatory tube apically with a flagellum-like (elongate and membranous) tube (Fig. 58C); paramere with apical area shorter (Fig. 58C).....*S. siphonifer* Naomi

Stenus autumnalis Naomi
(Figs. 55A–H, 106A)

Stenus autumnalis Naomi, 1997a: 15; Herman, 2001: 2076; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Mt. Kotsu, Yamakawa-cho, Tokushima Pref., 31. x. 1965, M. Sakai leg.; 1♂1♀ (cN), same locality, 10. x. 1975, M. Yoshida leg.; 1♂ (cN), Mt. Maruzasa, Tokushima Pref., 11. vi. 1972, M. Yoshida leg.; 1♂ (cN), Mt. Takashiro, Tokushima Pref., 3. v. 1978, M. Yoshida leg.; 1♂ (cN), Mt. Tsurugi, Tokushima Pref., 3. v. 1969, M. Yoshida leg.; 1♂ (cN), same locality, 20. vii. 1972, M. Yoshida leg.

Other material examined. [SHIKOKU]: 1♀, Mt. Tsurugi, Tokushima Pref., 15–17. x. 1980, S. Naomi leg.; 1♀, Minokoshi, Tokushima Pref. (Awa), 1. viii. 1960, T. Shibata leg.

Distribution. Japan: Shikoku (Tokushima Pref.).

Redescription. Male and female: Body 4.1–4.8 mm (fore body 1.8–2.1 mm) in length, moderately shining, with antennae relatively short. Head and abdomen dark red to black; pronotum and elytra dark red; labrum dark red; antennae and legs yellowish brown to reddish brown. Head shallowly concave with a pair of midlateral longitudinal furrows; punctures round, sparse to moderately dense, various in size. Pronotum with surface uneven, with indistinct, median longitudinal furrow, centrally with a small impunctate area; punctures very dense, strongly rugose. Elytra with surface rather uneven; punctures very dense, strongly rugose. Tarsi each with 4th tarsomere not bilobed. Abdomen with punctures round to elliptical, moderately dense, small in anterior segments, while puncture in 7th and 8th segments elliptical, sparse, very small. Lateroventrites horizontal in position, very narrow, sparsely, finely punctate.

Male: Sixth and 7th ventrites (Fig. 55F) each posteromedially with a very shallow, subovoidal depression or flat area; 8th ventrite (Fig. 55F) posteromedially with a small, subtriangular emargination; 9th tergum (Fig. 55A) with antecostal apophyses moderately long, thin; 9th ventrite (Fig. 55C) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth short, pointed, apicolateral setae moderately long; 10th tergum (Fig. 55A) shallowly emarginate

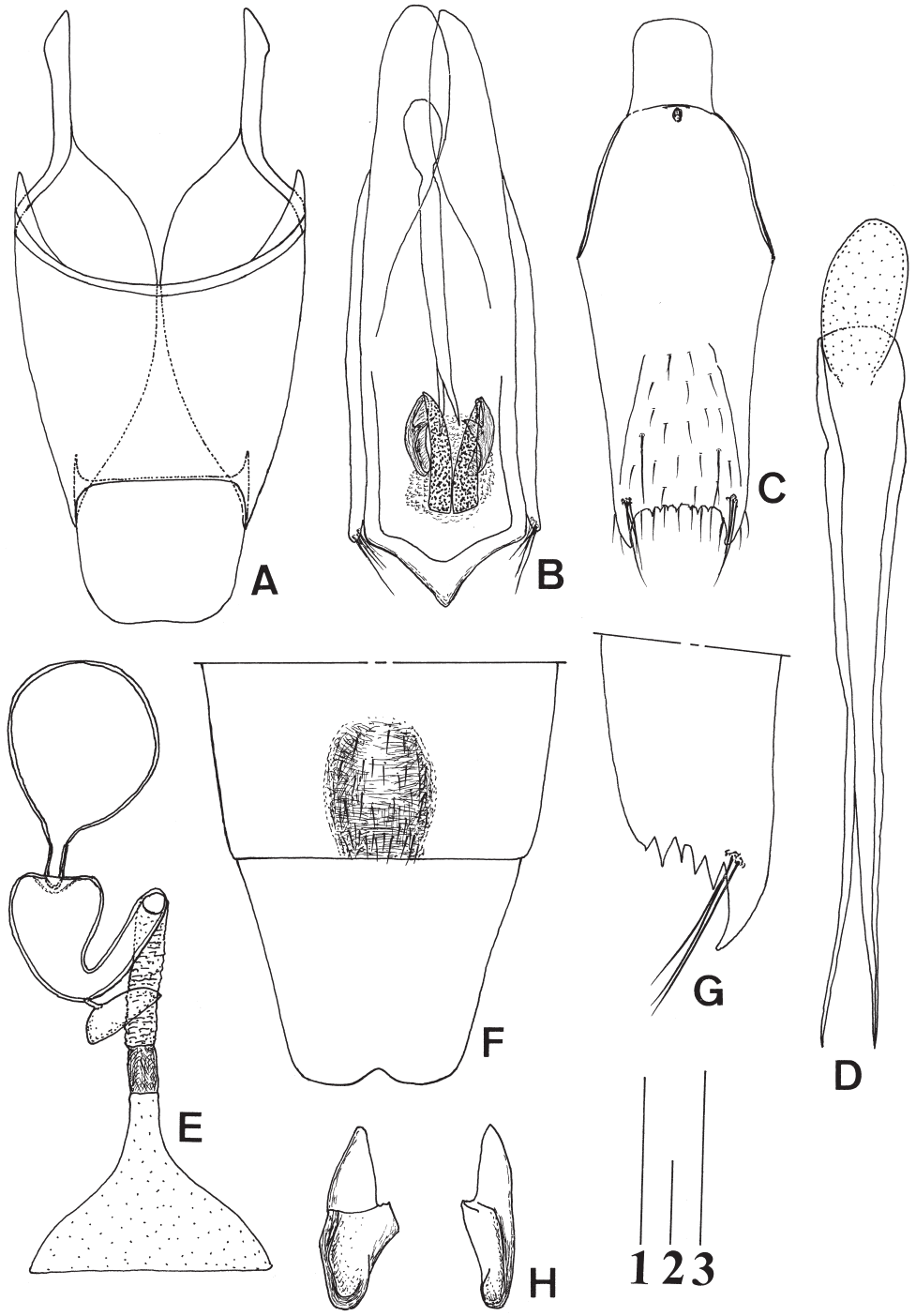

Fig. 55. *Stenus autumnalis* Naomi (A, D, F, H, Maruzasa, Tokushima; B, C, E, G, Tsurugi, Yokushima). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, copulatory tube; E, spermatheca; F, 7th and 8th ventrites of male; G, posterior part of gonocoxite; H, expulsion hooks. Scale 1: 0.2 mm for A, 0.1 mm for D, E, G, H; Scale 2: 0.1 mm for B, C; Scale 3: 0.3 mm for F.

posteriorly. Aedeagal median lobe (Fig. 55B) broad, broadest and angulate at apicolateral corner, simply pointed apically; apical sclerotized area (Fig. 55B) weakly developed, almost V-shaped. Endophallic dorsal membrane (Fig. 55B) subovoidal; median bands (Fig. 55B) very short; expulsion hooks (Fig. 55H) widely separated, each almost ear-shaped, with anterior plate pointed anteriorly, posterior plate rounded posteriorly; copulatory tube (Fig. 55D) very slender, with basal chamber small, main tube very thin, baculiform, bifurcate at apical part. Parameres (Fig. 55B) thin, each reaching the anterolateral corner of median lobe; apical area very short, hardly swollen mesially, furnished mesially with 5–6 setae of various length.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 55G) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral teeth long. Spermatheca (Fig. 55E) with capsule spherical, large; apical chamber pyriform, narrower than capsule; duct very short with two turns, the duct from the base to 1st turn membranous; gland large, with its opening near the base of apical chamber; basal sclerorized duct short. Basal structure (Fig. 55E) funnel-shaped, membranous.

Biology and Ecology. *S. autumnalis* is distributed in the mountainous regions of Shikoku. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. *S. autumnalis* is allied to *S. unzenmontis*, and *S. inimitabilis*, but it is separable from the latter two species by the endophallic expulsion hook almost ear-shaped (Fig. 55H).

Stenus unzenmontis Naomi & Puthz
(Figs. 56A–I, 106B)

Stenus unzenmontis Naomi & Puthz, 1996: 156; Herman, 2001: 2427; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♀ (CBM), Mt. Unzen, Shimabara, Nagasaki Pref., 10. vi. 1980, S. Imasaka leg. Paratype, 1 ♀ (CBM), same data as holotype.

Other material examined. [KYUSHU]: 1 ♂ (cN), Mt. Seira, Takeo City, Saga Pref., 5. iv. 1983, S. Nomura leg.; 1 ♀ (cN), Hiratani Spa., Mt. Keigadake, Kashima City, Saga Pref., 2. vi. 1981, S. Imasaka leg.

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

Redescription. Male and female: Body 3.7–4.3 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae relatively short. Body dark red to black; labrum dark brown to black; antennae and legs yellowish brown to reddish brown. Head shallowly concave with a pair of midlateral longitudinal furrows; punctures round, moderately dense to dense, various in size. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, strongly coarse, subrugose. Elytra with surface strongly uneven; punctures very dense, strongly coarse, subrugose. Tarsi each with 4th tarsomere bilobed, each ventral lobe short. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while puncture in posterior segments round to elliptical, sparse, very small. Lateroventrites missing; tergoventrite sutures distinct.

Male: Seventh ventrite (Fig. 56C) posteromedially with a subtriangular, very shallow depression; 8th ventrite (Fig. 56C) posteromedially with an arcuate, relatively broad emargination; 9th tergum (Fig. 56A) with antecostal apophyses moderately long, thin; 9th ventrite (Fig. 56B) serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 56A) very shallowly emarginate posteriorly. Aedeagal median lobe (Fig. 56F) moderately broad, broadest and angulate at apicolateral corner, pointed at apex;

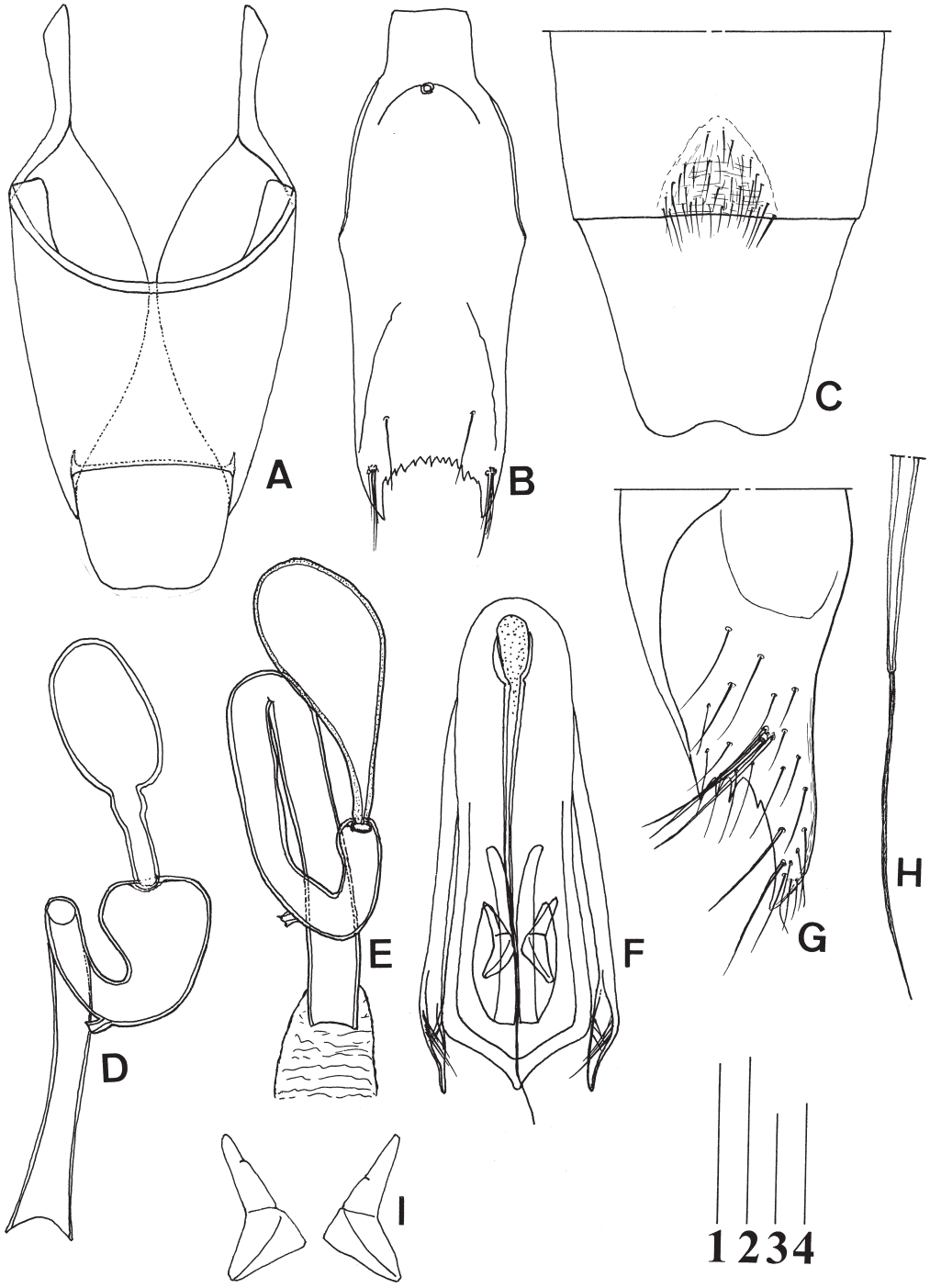

Fig. 56. *Stenus unzenmontis* Naomi & Puthz (A–C, F, H, I, Seira, Saga; D, Hiratani, Saga; E, G, Unzen, Nagasaki). A, 9th and 10th terga of male; B, 9th ventrite of male; C, 7th and 8th ventrites of male; D, E, spermatheca; F, aedeagus; G, posterior part of gonocoxite; H, apical part of copulatory tube; I, expulsion hooks. Scale 1: 0.2 mm for A, B, F, 0.1 mm for D, H, I; Scale 2: 0.3 mm for C; Scale 3: 0.1 mm for E; Scale 4: 0.1 mm for G.

apical sclerotized area (Fig. 56F) weakly developed, almost V-shaped. Endophallic median bands (Fig. 56F) each with basal band subfusiform, short, broad, folded band moderately long, narrow; explusion hooks (Fig. 56I) separated, each with anterior plate narrowed anteriorly, pointed at tip, posterior plate mesially angulate at the middle; copulatory tube (Fig. 56F, H) very slender, with basal chamber ovoidal, main tube very long, slender, attenuate, apically with a long, flagellum. Parameres (Fig. 56F) having stem straight, pointed at apex; apical area long, swollen laterally in the basal 1/2, then strongly narrowed toward apex, furnished mesially with 4–6 moderately long setae along ventral margin, and with 3 short setae along dorsal margin.

Female: Eighth ventrite posteromedially minutely pointed; gonocoxites (Fig. 56G) toothed posteriorly, each with apicolateral tooth very long, pointed, apicolateral teeth long. Spermatheca (Fig. 56D, E) with capsule ovoidal to subspherical, large; apical chamber pyriform (Fig. 56D) or missing (Fig. 56E); duct moderately thick to thick, short with two turns; gland with its opening near the base of (or a little proximal from) apical chamber.

Biology and Ecology. *S. unzenmontis* is distributed in the mountainous regions of the northwestern part of Kyushu. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. *S. unzenmontis* is allied to *S. inimitabilis*, but it is separable from the latter species by the abdomen with its lateroventrites missing (i.e., almost fused with the ventrite) and the aedeagal median lobe simply pointed apically (Fig. 56F).

The distributional range of this species is restricted in the northwestern part of Kyushu, but the spermatheca shows the infraspecific variations regarding the structures of capsule and duct. Namely, in a female of Hiratani (Fig. 56D), the capsule is distinctly constricted at base so that the capsule and collum are clearly demarcated by the constriction; and the apical chamber is large and pyriform. On the other hand, in a female of Unzen (Fig. 56E), the capsule is large but not constricted at base so that the capsule cannot be distinctly demarcated from the collum; and the apical chamber is missing.

Stenus inimitabilis Puthz
(Figs. 57A–G, 106C)

Stenus inimitabilis Puthz, 1993a: 162; Herman, 2001: 2231; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (AACO), Omogo Valley, Ehime Pref., 18–25. viii. 1980, S. Peck leg.

Other material examined. [SHIKOKU]: 1♂ (cN), Omogo Valley, Ehime Pref., 25. v. 1969, M. Sakai leg.; 1♂ (cN), same locality, 18–19. v. 1968, M. Sakai leg.; 2♀ (cN), same locality, 29. v. 1977, A. Oda leg.; 1♂ (cN), same locality, 9. x. 1953, T. Nakane leg.; 1♂ (cN), Mt. Odami, Ehime Pref., 15. vii. 1993, E. Yamamoto leg.; 1♀ (cN), Mt. Ishizuchi, 16. vi. 1981, S. Naomi leg.; 1♂ (cN), Ookawa Vil., Kochi Pref., 27. v. 2007, T. Miyata leg.; 1♀ (cN), Takaita, Monobe Vil., Tochi Pref., 23. vi. 2002, T. Miyata leg. [KYUSHU]: 1♂ (cN), Kokonoe-cho, Ooita Pref., 10. xi. 2007, S. Imasaka leg.

Distribution. Japan: Shikoku (Ehime and Kochi Prefs.) and Kyushu (Ohita Pref.).

Redescription. Male and female: Body 3.3–4.5 mm (fore body 1.9–2.1 mm) in length, moderately shining, with antennae relatively short to moderately long. Head black; pronotum, elytra and abdomen dark red; labrum dark brown to black; antennae and legs yellowish brown to reddish brown. Head shallowly concave with a pair of midlteral longitudinal furrows; punctures round, sparse to moderately dense, various in size. Pronotum with surface uneven, with indistinct

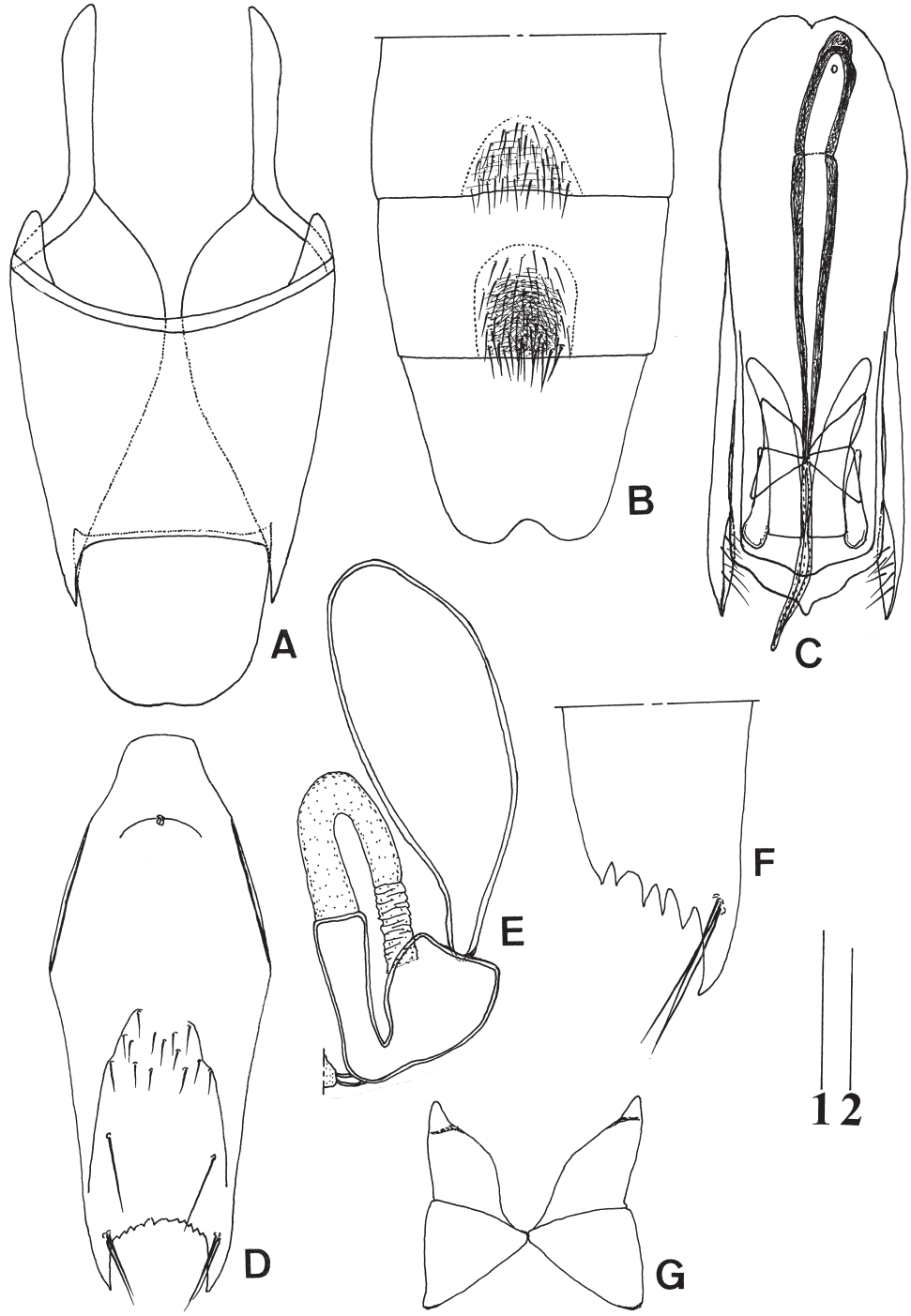

Fig. 57. *Stenus inimitabilis* Puthz (Omogo, Ehime). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, aedeagus; D, 9th ventrite of male; E, spermatheca; F, posterior part of gonocoxite; G, expulsion hooks. Scale 1: 0.2 mm for A, C, D, 0.1 mm for E–G; Scale 2: 0.3 mm for B.

median longitudinal furrow; punctures very dense, coarse, subrugose. Elytra with surface strongly uneven; punctures very dense, strongly coarse, subrugose. Tarsi each with 4th tarsomere weakly bilobed, each ventral lobe short. Abdomen with punctures round to elliptical, moderately dense to dense, small in anterior segments, while puncture in posterior segments elliptical, moderately dense, small, regular. Lateroventrites each narrow, vaguely furrowed posteriorly.

Male: Fourth and 5th ventrites each posteromedially with a small flat area, which is very weakly emarginate posteriorly; 6th ventrite (Fig. 57B) posteromedially with a bell-shaped, flat area, which is weakly emarginate posteriorly; 7th ventrite (Fig. 57B) posteromedially with a large, very shallow depression; 8th ventrite (Fig. 57B) posteromedially with a medium-sized emargination; 9th tergum (Fig. 57A) with antecostal apophyses long, thin; 9th ventrite (Fig. 57D) weakly serrate posteriorly, with macrosetae long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 57A) very shallowly emarginate posteromedially. Aedeagal median lobe (Fig. 57C) broad, angulate apicolaterally, vaguely tricuspidate at apex; apical sclerotized area (Fig. 57C) weakly developed, with median cusp short, pointed, lateral cusps each existing only as an obtuse angulation. Endophallic median bands (Fig. 57C) relatively short, broad; lateral bands (Fig. 57C) short, moderately broad; explusion hooks (Fig. 57G) connected at the mesial corners of posterior plates (or narrowly separated), each with anterior plate pointed anteriorly, demarcated by a suture from posterior plate, the posterior plate subtriangular; copulatory tube (Fig. 57C) very long, with basal chamber elongate, main tube very long, attenuate, thick basely, apically with a long, whip-like, submembranous tube. Parameres (Fig. 57C) each straight, acutely pointed at apex; apical area long, furnished mesially with 7–8 short setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 57F) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral teeth long. Spermatheca (Fig. 57E) with capsule elongate-ovoidal, large to very large; apical chamber pyriform, large; duct membranous proximally, short with two turns; gland with its opening a little proximal from apical chamber.

Biology and Ecology. *S. inimitabilis* is distributed in the mountainous regions of the western Shikoku and the northeastern Kyushu. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. *S. inimitabilis* is allied to *S. unzenmontis*, but it is separable from the latter species by the lateroventrites narrow but distinctly existing, and the aedeagal median lobe with its apical sclerotized area vaguely tricuspidate at apex (Fig. 57C).

Stenus siphonifer Naomi
(Figs. 58A–G, 106D)

Stenus siphonifer Naomi, 2015b: 39.

Type material examined. Holotype: ♂ (CBM), Mt. Minamimata, Ohuchiyama, Mie Pref., 4. xi. 1996, K. Kanno leg. Paratype: 1♂ (cN), Ohdaigahara, Yoshino-gun, Nara Pref., 31. vii. 1958, T. Shibata leg.

Other material examined. [HONSHU]: 1♀, Ohdaigahara, Yoshino-gun, Nara Pref., 5. viii. 2006, Y. Matsuda leg.

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

Redescription. Male and female: Body 4.8–4.9 mm (fore body 2.3–2.4 mm) in length, weakly shining, with antennae moderately long. Head black; pronotum, elytra and abdomen dark brown; labrum black; antennae and legs reddish brown. Head shallowly concave, with a pair of longitu-

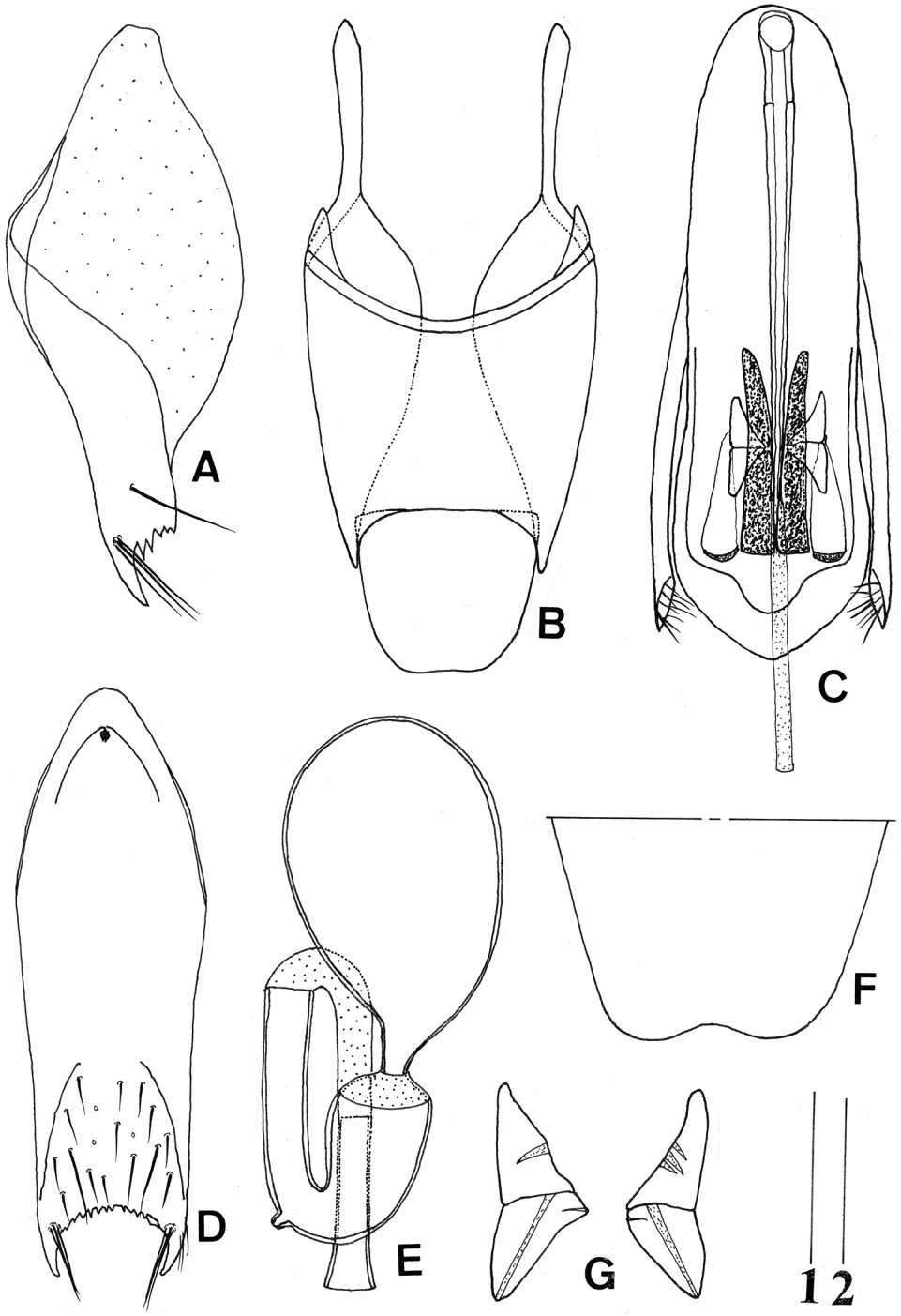

Fig. 58. *Stenus siphonifer* Naomi (A, B, D–F: Ohdaigahara, Nara; C, G: Ouchiyama, Mie). A, gonocoxite; B, 9th and 10th terga of male; C, aedeagus; D, 9th ventrite of male; E, spermatheca; F, posterior part of 8th ventrite of male; G, expulsion hooks. Scale 1: 0.2 mm for A, C, 0.1 mm for E, G; Scale 2: 0.2 mm for B, D, F.

dinal furrows; punctures round, dense. Pronotum with surface slightly uneven, centrally with an indistinct, elongate fovea; punctures very dense, coarse. Elytra with surface rather uneven, more or less elevated along suture; punctures very dense, coarse. Tarsi each with 4th tarsomere moderately bilobed. Abdomen with punctures round to elliptical, dense, small in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites missing; tergoventrite sutures distinct.

Male: Sixth ventrite posteromedially with a semicircular flat area; 7th ventrite medially with a very shallow, elongate-ovoidal depression, which is very shallowly emarginate; 8th ventrite posteromedially with an arcuate (Fig. 58F) or nearly V-shaped emargination; 9th tergum (Fig. 58B) with antecostal apophyses very long, thin; 9th ventrite (Fig. 58D) elongate, minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 58B) very shallowly emarginate. Aedeagal median lobe (Fig. 58C) broad, broadest and gently rounded apicolaterally, nearly rounded posteriorly (or obtusely angulate apicomedially); apical sclerotized area (Fig. 58C) broad, anteromedially with a deep, semicircular emargination. Endophallic median bands (Fig. 58C) moderately long and broad; lateral bands (Fig. 58C) very broad, each without small dots on the surface; expulsion hooks (Fig. 58G) each almost elongate-triangular, with the anterior plate pointed anteriorly, demarcated by a transverse suture from posterior plate, the posterior plate pointed posteriorly; copulatory tube (Fig. 58C) very long, with basal chamber narrow, main tube very long, slender, attenuate, straight, apically with an elongate membranous tube. Parameres (Fig. 58C) thin, each weakly incurved, acutely pointed at apex; apical area very short, hardly swollen mesially, furnished mesially with 8–9 short setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 58A) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral teeth moderately long. Spermatheca (Fig. 58E) with capsule ovoidal, very large; apical chamber almost pyriform; duct short with two turns, membranous on its way; basal duct not sclerotized; gland with its opening a little proximal from apical chamber.

Biology and Ecology. *S. siphonifer* is a rare species; and it is distributed in the mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. siphonifer* is allied to *S. inimitabilis* and *S. unzenmontis*, but it is separable from the latter two species by the aedeagal median lobe nearly rounded posteriorly (Fig. 58C).

The *indubius*-subgroup

The *indubius*-subg. presently comprises the 25 species in Japan, which is characterized as follows:

Diagnostic characters of the *indubius*-subgroup: Antennae usually moderately long (but rarely relatively short), thin to very thin (Fig. 106E); pronotum without any median longitudinal furrow on the surface; elytral surface usually almost even to weakly uneven, punctures more or less distinct, sometimes coarse (but not subrugose); tarsi each with 4th tarsomere distinctly bilobed, each lobe about 2/3 the length of 5th tarsomere; both lateroventrites and tergo-ventrite sutures completely missing or tergoventrite sutures only existing (very thin or obsolete) in 4th to 6th abdominal segments.

Key to the Japanese species of the *indubius*-subgroup

1(6) Male: Eighth ventrite posteriorly with a larger and broader emargination.

2(5) Male: Aedeagal median lobe uniformly rounded laterally, with apicolateral corners angulate; endophallic copulatory tube with anterior plate not rounded apically.

3(4) Male: Aedeagal median lobe with apical sclerotized area smaller (Fig. 70B); endophallic expulsion hook with anterior plate simply pointed anteriorly, fused with posterior plate (Fig. 69I). Female: Spermathecal duct with the most anterior part usually extending anteriorly beyond the apical margin of apical chamber (Fig. 70G)..... *S. unagi* Hromádka

4(3) Male: Aedeagal median lobe with apical sclerotized area larger (Fig. 71B); endophallic expulsion hook with anterior plate minutely hooked anteromsially, demarcated by suture from posterior plate (Fig. 71I). Female: Spermathecal duct with the most anterior part not extending anteriorly beyond the apical margin of apical chamber (Fig. 71G) .... *S. fugu* Hromádka

5(2) Male: Aedeagal median lobe weakly swollen mediolaterally, with apicolateral corners rounded (Fig. 72B); endophallic copulatory tube with anterior plate rounded apically (Fig. 72H)..... *S. ukon* Naomi & Puthz

6(1) Male: Eighth ventrite posteromedially with a smaller and narrower emargination.

7(12) Male & female: Tenth tergum with a distinct apicomedian tooth or projection.

8(9) Male: Aedeagal median lobe uniformly rounded apically, with apical sclerotized area uniformly sclerotized (Fig. 65C); paramere thicker (Fig. 65C)..... ..... *S. campaniformis* Naomi, Nomura & Puthz sp. nov.

9(8) Male: Aedeagal median lobe with an apicomedian projection; paramere thinner.

10(11) Male: Aedeagal median lobe with apical sclerotized area distinctly longer, having a median-longitudinal subtransparent area, and an acute, small median cusp (Fig. 66B)..... ..... *S. naomi* Puthz

11(10) Male: Aedeagal median lobe with apical sclerotized area distinctly shorter, solid medially, having a relatively broad, rounded hump at apex (Fig. 67B) .... *S. tuberascens* Naomi, Nomura & Puthz sp. nov.

12(7) Male & female: Tenth tergum more or less rounded (entire), or only bluntly angulate, or only weakly emarginate posteriorly.

13(34) Male: Aedeagal median lobe of narrow form, usually more or less narrowed apically behind the middle.

14(29) Male: Aedeagal median lobe more or less pointed apicomedially.

15(16) Male: Aedeagal paramere shorter, not reaching posteriorly the apex of median lobe, with apical area much shorter (Fig. 61B)..... *S. subserratus* Naomi

16(15) Male: Aedeagal paramere longer, usually a little extending posteriorly beyond the apex of median lobe, with apical area much longer.

17(20) Male: Aedeagal median lobe more strongly narrowed toward apex in about apical 1/2, with apical sclerotized area weakly rounded at anterior margin.

18(19) Male: Endophallic copulatory tube weakly swollen at apex (Fig. 59H). Female: Spermatheca with capsule larger, spherical; apical chamber much smaller (Fig. 59F) .... *S. serratus* Naomi

19(18) Male: Endophallic copulatory tube attenuate, simply aciculate at apex (Fig. 59B). Female: Spermatheca with capsule smaller, ovoidal; apical chamber much larger (Fig. 60G) ..... *S. sadoensis* Naomi

20(17) Male: Aedeagal median lobe less strongly narrowed toward apex in about apical 1/2, with apical sclerotized area bisinuate or arcuate at anterior margin.

21(24) Male: Eighth ventrite posteromedially with a deeper emargination; aedeagal median lobe with apicolateral corner uniformly rounded. Female: Spermathecal duct more strongly stiff and sclerotized.

22(23) Male: Aedeagal median lobe with apical sclerotized area shorter (Fig. 68B). Female: Spermathecal duct without any strong constriction on its way (Fig. 68G)..... ..... *S. acerrimus* Naomi

23(22) Male: Aedeagal median lobe with apical sclerotized area longer (Fig. 69B). Female: Spermathecal duct with a very strong constriction on its way (Fig. 69F)..... ..... *S. cucumeroides* Naomi & Puthz

24(21) Male: Eighth ventrite posteromedially with a shallower emargination; aedeagal median lobe with apicolateral corner more or less obtusely angulate. Female: Spermathecal duct less strongly stiff and sclerotized.

25(28) Male: Aedeagal median lobe with apicolateral corners more distinctly angulate. Female: Spermathecal tube very short to short, thicker, with 2 distinct turns.

26(27) Male: Aedeagal median lobe narrower (Fig. 73B); endophallic copulatory tube comprising the basal (very thick) tube and the apical (apically curved) tube (Fig. 73B). Female: Spermatheca with capsule larger; duct longer (Fig. 73F) .... *S. kyushuensis* Naomi & Puthz

27(26) Male: Aedeagal median lobe broader (Fig. 74B); endophallic copulatory tube not divided into the basal and apical tubes (entirely very thin, simply attenuate) (Fig. 74B). Female: spermatheca with capsule smaller; duct shorter (Fig. 74E) ..... *S. tanuki* Hromádka

28(25) Male: Aedeagal median lobe with its apicolateral corners less distinctly angulate (Fig. 75B). Female: Spermathecal tube very long, thinner and almost tightly coiled (Fig. 75F).. ..... *S. hypovelox* Naomi & Puthz

29(14) Male: Aedeagal median lobe more or less rounded apically.

30(33) Male: Eighth ventrite with a shallower emargination; aedeagal median lobe narrower; endophallic expulsion hook with anterior plate about as long as or a little longer than posterior plate; copulatory tube with main tube longer.

31(32) Male: Aedeagal median lobe narrower at apicolateral corners (Fig. 62B); endophallic expulsion hook with anterior plate turning anterolaterally, simply pointed at apex, about as long as posterior plate (Fig. 62H)..... *S. takane* Naomi

32(31) Male: Aedeagal median lobe broader at apicolateral corners (Fig. 63B); endophallic expulsion hook with anterior plate turning anteriorly, hooked apicomesially, a little longer than posterior plate (Fig. 63H)..... *S. unicoloratus* Naomi & Puthz

33(30) Male: Eighth ventrite with a deeper emargination (Fig. 64F); aedeagal median lobe broader (Fig. 64B); endophallic median hook with anterior plate shorter than posterior plate (Fig. 64G); copulatory tube with main tube shorter (Fig. 64B)..... ..... *S. tohokuensis* Naomi & Puthz

34(13) Male: Aedeagal median lobe of broad form, usually uniformly broad from the base to apicolateral corners.

35(42) Male: Aedeagal median lobe with apicolateral corners more or less angulate.

36(37) Male: Aedeagal median lobe tricuspidate at apex, with apical sclerotized area subtrapezoidal (Fig. 76A); endophallic lateral bands each narrower at base (Fig. 76A)..... ..... *S. sawadai* Hromádka

37(36) Male: Aedeagal median lobe simply pointed or obtusely angulate at apex, with apical

sclerotized area almost broad-triangular; endophallic lateral bands each broader at base.

38(41) Male: Aedeagal median lobe with apical sclerotized area longer, simply pointed apically; endophallic expulsion hook almost cucumber-shaped. Female: Spermathecal duct with more than 7 turns.

39(40) Male: Aedeagal median lobe broadest at about basal 2/5 (Fig. 77B). Female: Spermathecal duct not extending anteriorly beyond the anterior margin of capsule (Fig. 77F)..... ..... *S. kishimotoi* Naomi & Puthz

40(39) Male: Aedeagal median lobe broadest at apicolateral corners (Fig. 78B). Female: Spermathecal duct extending anteriorly beyond the anterior margin of capsule (Fig. 78F)..... ..... *S. yokozekii* Naomi

41(38) Male: Aedeagal median lobe with apical sclerotized area shorter, obtusely angulate apically (Fig. 79B); endophallic expulsion hook nearly boot-shaped (Fig. 79H). Female: Spermathecal duct with 2 turns (Fig. 79F)..... *S. tateoi* Naomi

42(35) Male: Aedeagal median lobe with apicolateral corners rounded.

43(46) Male: Endophallic median bands longer, narrower; copulatory tube shorter, thicker.

44(45) Male: Endophallic expulsion hook with anterior plate partially fused with posterior plate (Fig. 80D); copulatory tube with apical tube weakly curved (Fig. 80E). Female: Spermathecal duct much shorter, thicker, with 1 or 2 turns (Fig. 80F)..... *S. ohishii* Naomi

45(44) Male: Endophallic expulsion hook with anterior plate demarcated by suture from posterior plate (Fig. 81G); copulatory tube with apical tube almost straight (Fig. 81H). Female: Spermathecal duct much longer, thinner, with more than 6 turns (Fig. 81E)..... ..... *S. fusciceps* Naomi

46(43) Male: Endophallic median bands shorter, broader; copulatory tube longer, thinner.

47(48) Male: Aedeagal median lobe with apical sclerotized area broader (Fig. 82B); endophallic copulatory tube almost elongate-S-shaped, with lateral flap (Fig. 82B). Female: Spermatheca with capsule smaller; duct coiled without any abrupt bends on its way (Fig. 82E).... ..... *S. indubius* Sharp

48(47) Male: Aedeagal median lobe with apical sclerotized area narrower (Fig. 83B); endophallic copulatory tube weakly bisinuous, without lateral flap (Fig. 83B). Female: Spermatheca with capsule larger; duct coiled, partially with abrupt bends on its way (Fig. 83E)... ..... *S. kiyosumiensis* Naomi & Takeda

Stenus serratus Naomi
(Figs. 59A–H, 106E)

Stenus serratus Naomi, 2006: 103; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Mikuni Pass, Yuzawa-machi, Niigata Pref., 28. v. 1995, K. Haga leg. Paratypes: 2♀ (cN), Mukoyama, Yuzawa-machi, Niigata Pref., 3. vi. 1995, K. Haga leg.; 1♂ (cN), Otari, Nagano Pref., 5. vi. 1994, T. Ito leg.

Other material examined. [HONSHU]: 1♂, Doai Valley, Marumori-machi, Miyagi Pref., 30. xi. 1995, S. Nomura leg.; 1♂, Setogaro Valley, Iwaki City, Fukushima Pref., 19. vii. 1995, S. Nomura leg.; 2♂1♀, Hanazono Valley, Kita-ibaraki City, Ibaraki Pref., 1. xii. 1995, S. Nomura leg.; 1♂, Machigasawa, Mt. Tanigawa, Gunma Pref., 27. vii. 1996, S. Nomura leg.

Distribution. Japan: Honshu (Tohoku, Chubu and Kanto districts.)

Redescription. Male and female: Body 4.9–5.8 mm (fore-body 2.1–2.3 mm) in length, with

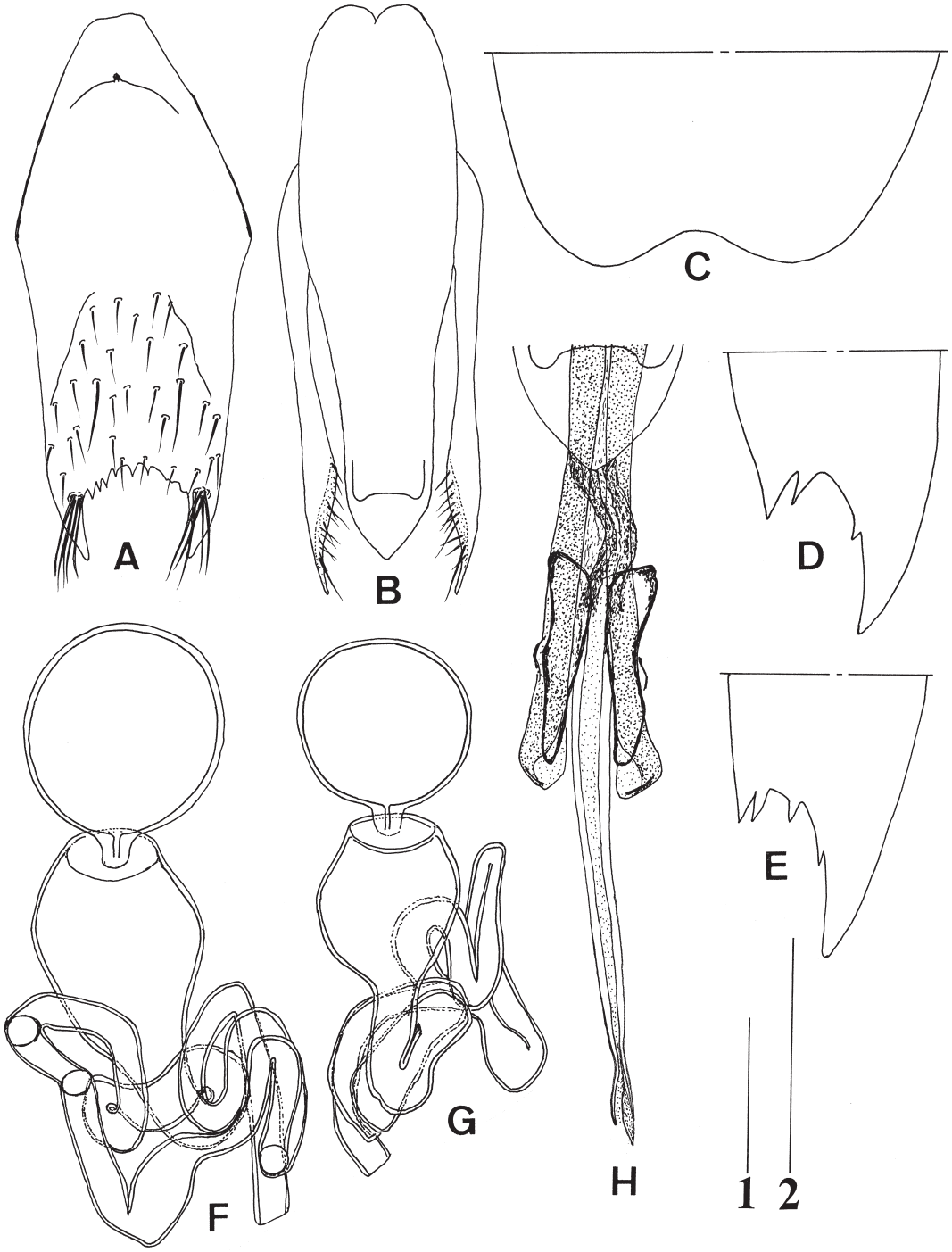

Fig. 59. *Stenus serratus* Naomi (Yuzawa, Niigata). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, apex of median lobe with the outthrusted endophallic components. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

antennae moderately long, very thin. Head, pronotum and abdomen dark chocolate brown to black; elytra reddish brown to dark reddish brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round to almost round, dense to very dense, somewhat umbilicate near inner margins of eyes, while punctures round, dense, regular on the median part. Pronotum with surface almost smooth to weakly uneven; punctures round, very dense, moderately large, regular. Elytra with surface almost even to weakly uneven; punctures very dense, large. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, dense to moderately dense, small in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, regular. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteriorly with a small, semicircular flat area, which is very shallowly emarginate; 8th ventrite (Fig. 59C) posteriorly with a broad, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 59A) broad, irregularly serrate posteriorly, with macrosetae moderately long, apicolateral teeth long, pointed, apicolateral setae moderately long; 10th tergum rounded posteriorly. Aedeagal median lobe (Fig. 59B) elongate, relatively narrow in apical half, gently rounded apicolaterally, pointed at apex; apical sclerotized area (Fig. 59B) subtriangular. Endophallic median bands (Fig. 59H) long, relatively narrow; expulsion hooks (Fig. 59H) each elongate, with posterior plate weakly projecting posterolaterally; copulatory tube (Fig. 59H) very long, attenuate, with a weak constriction near apex. Parameres (Fig. 59H) each having stem weakly constricted near the middle, acicular at apex; apical area long, moderately swollen mesially, furnished mesially with 12 to 13 short setae.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 59D, E) irregularly toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 59F, G) with capsule spherical, large, a little broader than apical chamber; apical chamber pyriform to fusiform, large; duct irregularly bent, moderately coiled, mostly located behind the middle of apical chamber.

Biology and ecology. *S. serratus* is distributed in the mountainous regions of central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. serratus* is allied to *S. sadoensis*, but it is separable from the latter species by the endophallic expulsion hooks uniformly sclerotized (Fig. 59H), and the spermatheca with its capsule larger and spherical and its apical chamber much smaller (Fig. 59F).

Stenus sadoensis Naomi
(Figs. 60A–H, 106F)

Stenus sadoensis Naomi, 2006: 105; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Mt. Ootaki, Sado Is., Niigata Pref., 5. viii. 1998, S. Naomi leg. Paratype: ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 1♂, Aikawa-machi, Sado Is., Niigata Pref., 9. vi. 2004, H. Yokozeki leg.

Distribution. Japan: Honshu (Sado Is.).

Redescription. Male and female: Body 4.3–5.6 mm (fore body 2.4–2.6 mm) in length, with antennae long, very thin. Head, pronotum and abdomen dark chocolate brown to black; elytra dark red; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, dense to very dense, umbili-

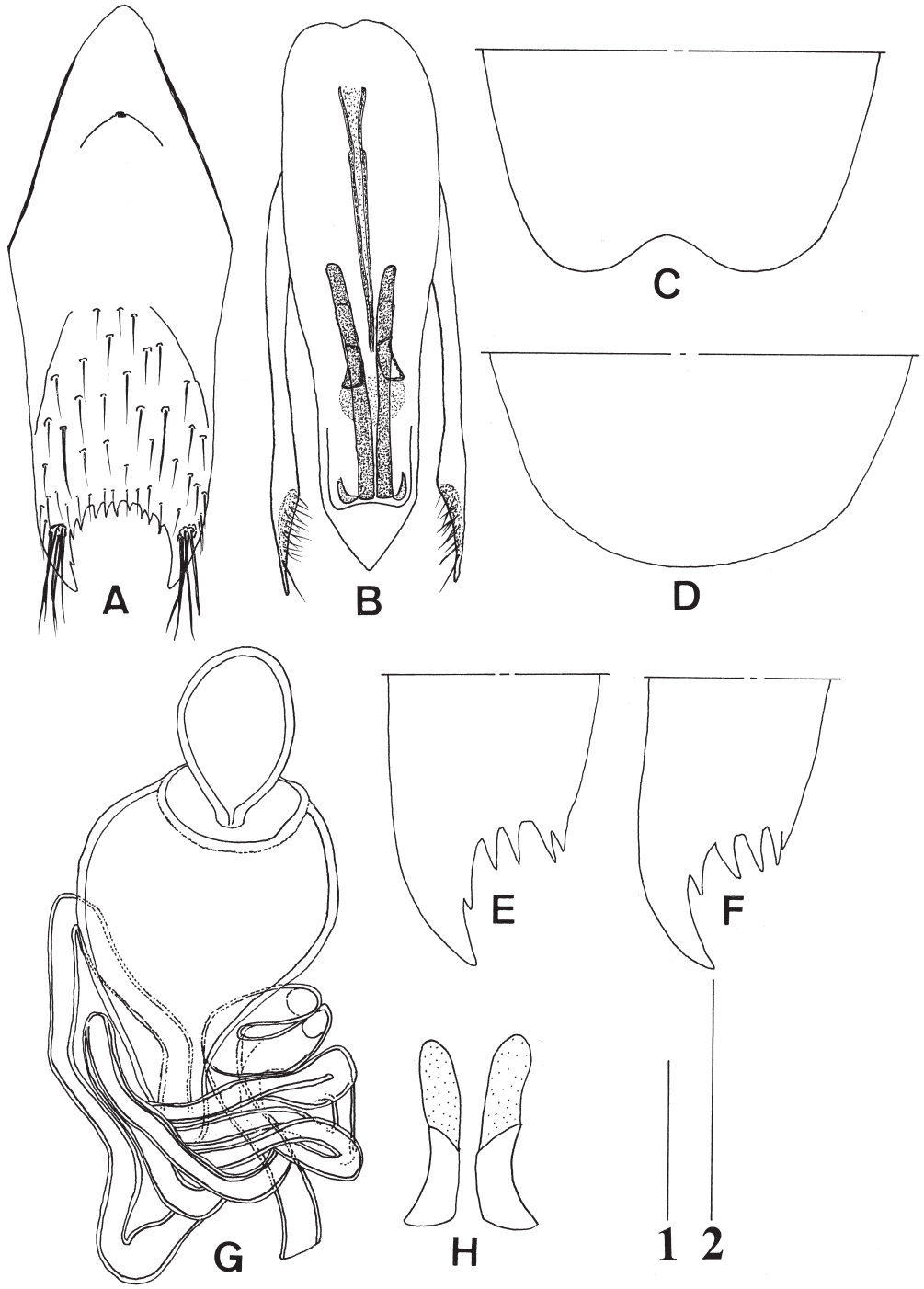

Fig. 60. *Stenus sadoensis* Naomi (Sado, Niigata). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, posterior part of 8th ventrite of female; E, F, posterior part of gonocoxite; G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for E–H; Scale 2: 0.25 mm for C, D.

cate. Pronotum with surface almost even; punctures round, very dense, moderately large, almost regular. Elytra with surface uneven, weakly depressed near sutures; punctures round to almost round, very dense, large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, moderately dense to dense, various in size in anterior segments, while punctures in posterior segments sparse, very small. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteromedially with an elongate-elliptical flat area; 8th ventrite (Fig. 60C) posteromedially with a semicircular emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 60A) broad, regularly serrate posteriorly, with macrosetae moderately long, apicolateral teeth pointed, apicolateral setae moderately long; 10th tergum very shallowly emarginate posteromedially. Aedeagal median lobe (Fig. 60B) elongate, relatively narrow in apical half, obtusely angulate apicolaterally, pointed at apex; apical sclerotized area (Fig. 60B) almost triangular. Endophallic dorsal membrane subovoidal (Fig. 60B); median bands (Fig. 59B) long, rather thin; expulsion hooks (Fig. 60H) separated, each with anterior plate menbranous, rounded anteriorly, posterior plate weakly projecting and pointed posterolaterally; copulatory tube (Fig. 60B) with basal chamber comprising two thin rods, main tube long, attenuate, thin, straight. Parameres (Fig. 60B) almost straight; apical area moderately long, swollen mesially at base, acicular at apex, furnished mesially with 12 to 17 short setae.

Female: Eighth ventrite (Fig. 60D) rounded posteriorly; gonocoxites (Fig. 60E, F) distinctly toothed posteriorly, each with apicolateral tooth long, stout, acutely pointed, apicolateral setae short. Spermatheca (Fig. 60G) with capsule ovoidal, moderately large; apical chamber pyriform, very large, shallowly concave on apical surface; duct long, relatively thin, almost tightly coiled.

Biology and ecology. *S. sadoensis* is distributed only in the mountainous regions of Sado Is., Central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sadoensis* is closely allied to *S. serratus*, but it is separable from the latter species by the endophallic expulsion hook with its anterior plate membranous (Fig. 60H), and the spermatheca with its capsule smaller and ovoidal, and its apical chamber much larger (Fig. 60G).

Stenus subserratus Naomi
(Figs. 61A–H, 106G)

Stenus subserratus Naomi, 2006: 107; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Mt. Shibitsu, Katashina Vil., Gunma Pref., 8. ix. 1996, Y. Hagino et al. leg. Paratypes: 2♂ (cN), same data as holotype; 2♀ (cN), Mt. Keizuru, Katashina Vil., Gunma Pref., 13. vii. 1996, K. Ishii et al. leg.

Distribution. Japan: Honshu (Gunma Pref.).

Redescription. Male and female: Body 4.3–4.8 mm (fore body 2.0–2.2 mm) in length, with antennae relatively short, thin. Head black; pronotum, elytra and abdomen reddish chocolate brown to dark brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; surface with punctures round, very dense, small near inner margins of eyes while punctures on the middle round, moderately dense, small. Pronotum with surface weakly uneven; punctures round to almost round, very dense, moderately large, sometimes two or more punctures partially fused. Elytra with surface uneven, weakly depressed near suture; punctures round, very dense, various in size, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, sparse to moderately

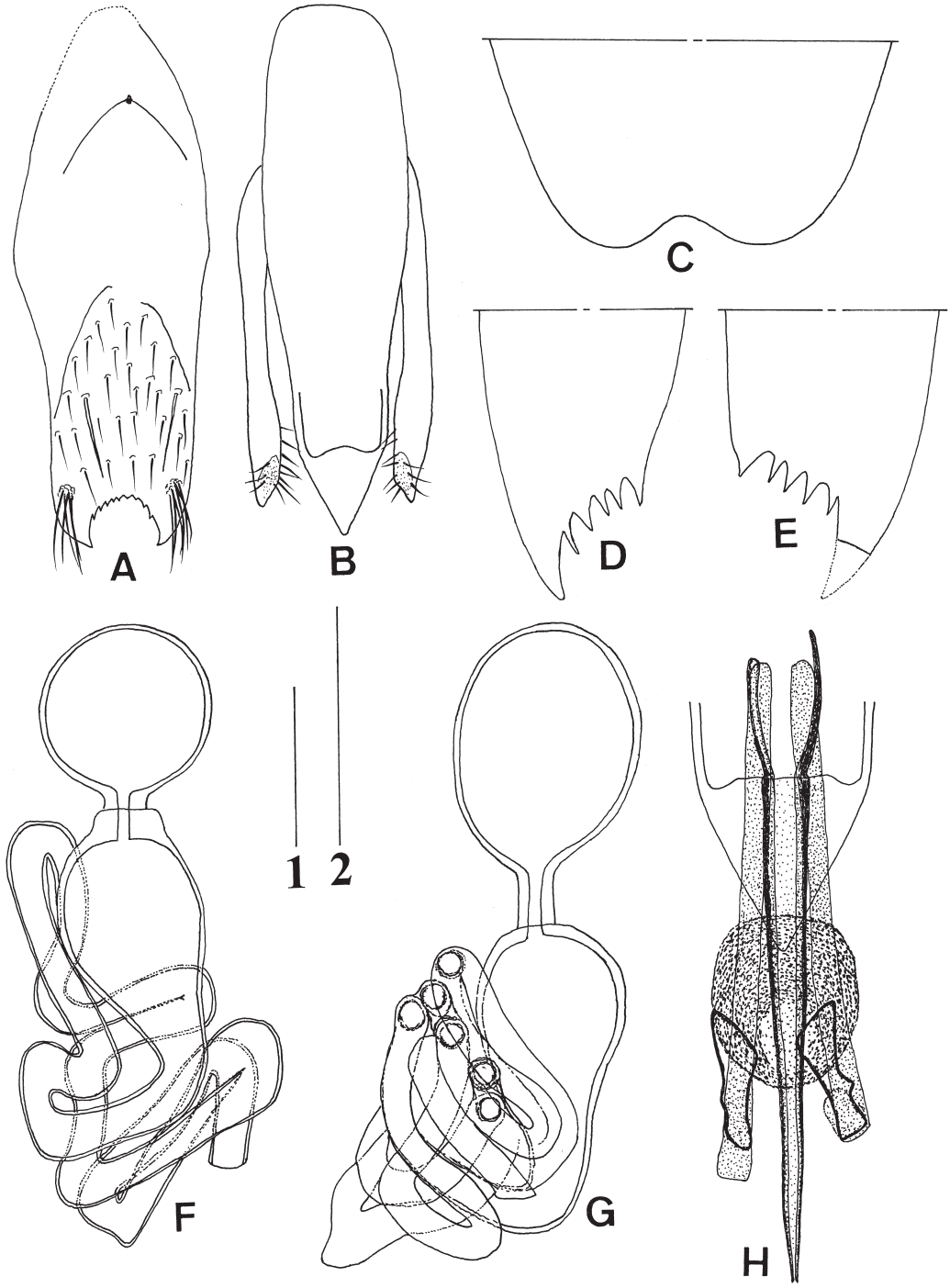

Fig. 61. *Stenus subserratus* Naomi (A–C, F, H, Shibitsu, Gunma; D, E, G, Keizuru, Gunma). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, apex of median lobe, with the outthrusted endophallic components. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

dense, small in anterior segments, while punctures in posterior segments sparse to moderately dense, very small to small. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteromedially with a shallow, bell-shaped depression, which is very shallowly emarginate; 8th ventrite (Fig. 61C) posteromedially with a semicircular emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 61A) minutely serrate posteriorly, arcuate and narrow between apicolateral teeth, with macrosetae long, apicolateral teeth short, stout, pointed, apicolateral setae short; 10th tergum very shallowly emarginate. Aedeagal median lobe (Fig. 61B) elongate, acutely pointed at apex; apical sclerotized area (Fig. 61B) subtriangular. Endophallic dorsal membrane (Fig. 61H) elliptical, large; median bands (Fig. 61H) very long, thin; expulsion hooks (Fig. 61H) separated, each with anterior plate fused with posterior plate, the posterior plate projecting and pointed posterolaterally; copulatory tube (Fig. 61H) very long, with basal chamber elongate-ovoidal, main tube very long, slender, attenuate. Parameres (Fig. 61B) rather thick, each weakly broadened in apical 1/3, pointed apically, mesially with 2 or 3 short setae before the apical area; apical area very short, furnished with 8 short setae along mesial margin.

Female: Eighth ventrite obtuse posteromedially; gonocoxites (Fig. 61D, E) each with apicolateral tooth pointed, apicolateral setae moderately long. Spermatheca (Fig. 61F, G) with capsule spherical to ovoidal, large to very large; apical chamber pyriform, about as large as or a little smaller than capsule; duct long, moderately or very tightly coiled.

Biology and ecology. *S. subserratus* seems to be a rare species; and at present it is distributed only in the highland Oze moor, central Honshu. The beetles inhabit leaf litter in the natural forests near the moor.

Remarks. *S. subserratus* is allied to *S. serratus* and *S. sadoensis*, but it is separable from the latter two species by the male 9th ventrite with its apicolateral tooth broader and shorter (Fig. 61A), and the aedeagal paramere shorter, with its apical area much shorter (Fig. 61B).

Stenus takane Naomi
(Figs. 62A–H, 106H)

Stenus takane Naomi, 1987: 8; Herman, 2001: 2412; Naomi & Puthz, 2013: 142.

Type material. Holotype: ♂ (KUF), Mayogatai, Aomori Pref., 26–28. vi. 1980, S. Naomi leg.

Type material examined. Paratypes: 1♂1♀ (cN), Mayogatai, Aomori Pref., 26–28. vi. 1980, S. Naomi leg.

Other material examined. [HONSHU]: 2♂1♀, Towada, Aomori Pref., 4. viii. 1987, S. Nomura leg.

Distribution. Japan: Honshu (Aomori Pref.).

Redescription. Male and female: Body 4.4–5.0 mm (fore body 2.2–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head hardly or only weakly concave, with a pair of distinct longitudinal furrows; punctures round to almost round, very dense, small, somewhat umbilicate. Pronotum with surface uneven; punctures round to almost round, very dense, moderately large, coarse, sometimes two or more punctures partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round, very dense, various in size, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments, while punctures in pos-

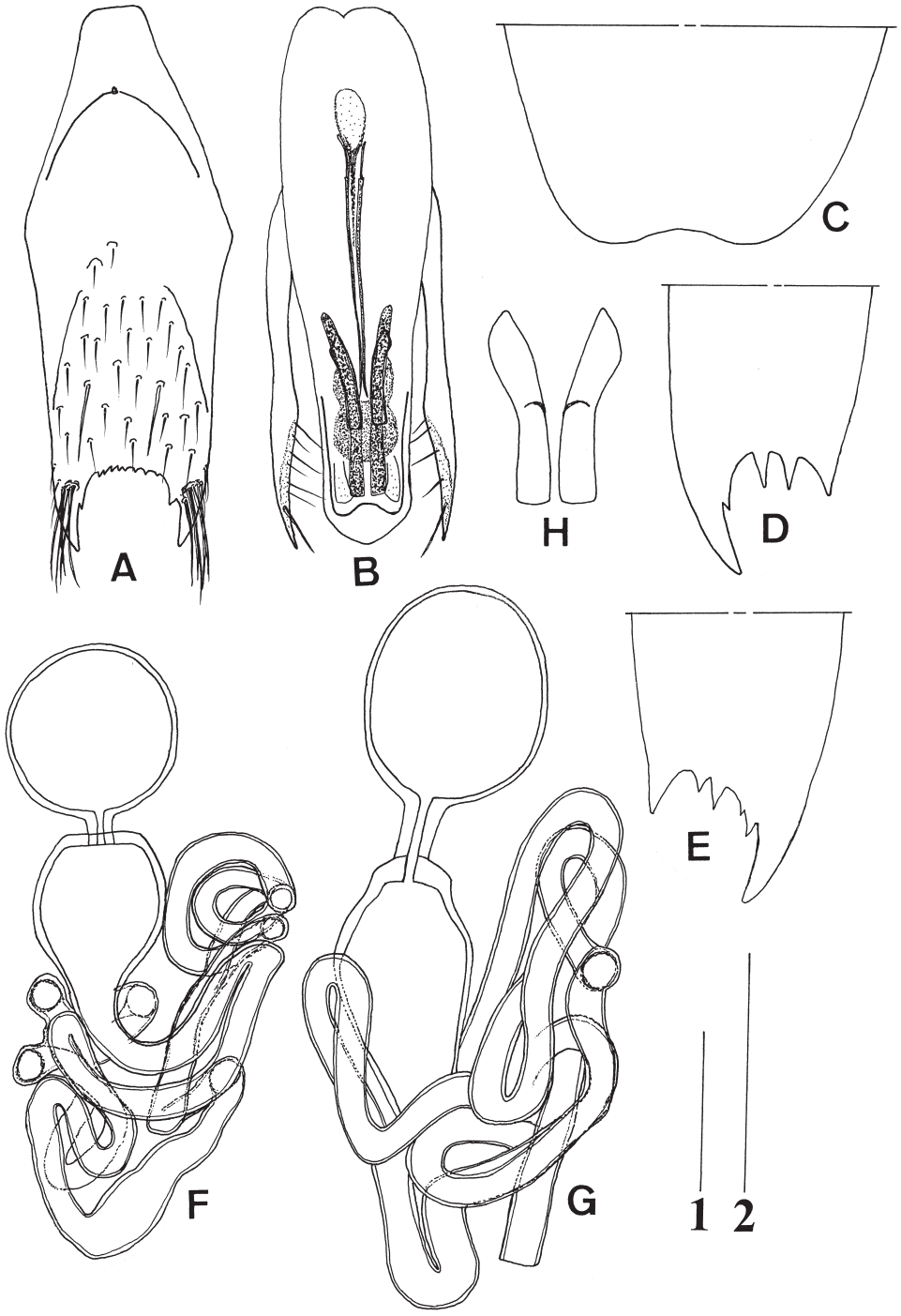

Fig. 62. *Stenus takane* Naomi (A–C, F, H; Mayogatai, Aomori; D, E, G, Towada, Aomori). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

terior segments sparse, very small, regular. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 62C) posteromedially with an arcuate, broad emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 62A) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth stout, pointed, apicolateral setae moderately long; 10th tergum obtusely angulate. Aedeagal median lobe (Fig. 62B) elongate, rounded apicolaterally, almost round at apex; apical sclerotized area (Fig. 62B) almost fusiform, rounded anteriorly. Endophallic dorsal membrane (Fig. 62B) almost round; median bands (Fig. 62B) moderately long, very thin; expulsion hooks (Fig. 62H) separated, diverging anteriorly in the anterior 1/2, each with anterior plate a little broader than posterior plate, posterior plate truncate posteriorly; copulatory tube (Fig. 62B) very slender with basal chamber elongate-ovoidal, main tube long, very thin, attenuate. Parameres (Fig. 62B) each weakly narrowed on its way, acutely pointed at apex; apical area very long, moderately swollen mesially at base, furnished mesially with 5 to 7 setae of various length.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 62D, E) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 62F, G) with capsule spherical, large to very large; apical chamber pyriform or elongate-pyriform, large; duct very long, thin to moderately broad, almost tightly, irregularly coiled.

Biology and ecology. *S. takane* is distributed in the mountainous regions of northern Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. takane* is allied to *S. unicoloratus* and *S. tohokuensis*, but it is separable from the latter two species by the aedeagal median lobe narrower in apical half (Fig. 62B) and the endophallic expulsion hook with its anterior plate a little broader than posterior plate (Fig. 62H).

Etymology. The specific epithet of this species is derived from the Japanese noun "Takane", which means "high mountains".

Stenus unicoloratus Naomi & Puthz
(Figs. 63A–H, 106I)

Stenus unicoloratus Naomi, 2006: 114; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Iidate-mura, Fukushima Pref., 21. vii. 1985, S. Nomura leg. Paratypes: 3 ♀ (cN), Dakedai, Fujisato-machi, Akita Pref., 27–28. viii. 1994, Ishii & Yorii leg.; 1 ♀ (CBM), Odake, Fujisato–machi, Akita Pref., 28. viii. 1994, O. Nakamura & Y. Hagino leg; 4 ♂2 ♀ (cN), same data as above; 1 ♀ (cN), Tanashiro-kami, Fujisato–machi, Akita Pref., 27. viii. 1994, O. Nakamura & Y. Hagino leg.; 1 ♀ (cN), same data as holotype. [Note: One female paratype of *S. unicoloratus* (1 ♀, Tanashiro-kami, Fujisato–machi, Akita Pref., 27. viii. 1994, Naka leg.) does not belong to this species. Since it is an un-identified species of the *asyura*-group, it is here excluded from the paratype of this species.]

Other material examined. [HONSHU]: 1 ♂1 ♀, Mt. Higashi-ozana, Fukushima City, Fukushima Pref., 10. vi. 2014, H. Yokozeki leg.; 1 ♂, Mt. Nagare-ishi, Shimogo-machi, Fukushima Pref., 30. vi. 2008, K. Haga leg.; 1 ♂1 ♀, Urushino-sawa, Kuriyama Vil., Tochigi Pref., 12. x. 1997, S. Nomura leg.

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

Redescription. Male and female: Body 3.7–5.0 mm (fore body 2.0–2.3 mm) in length, with

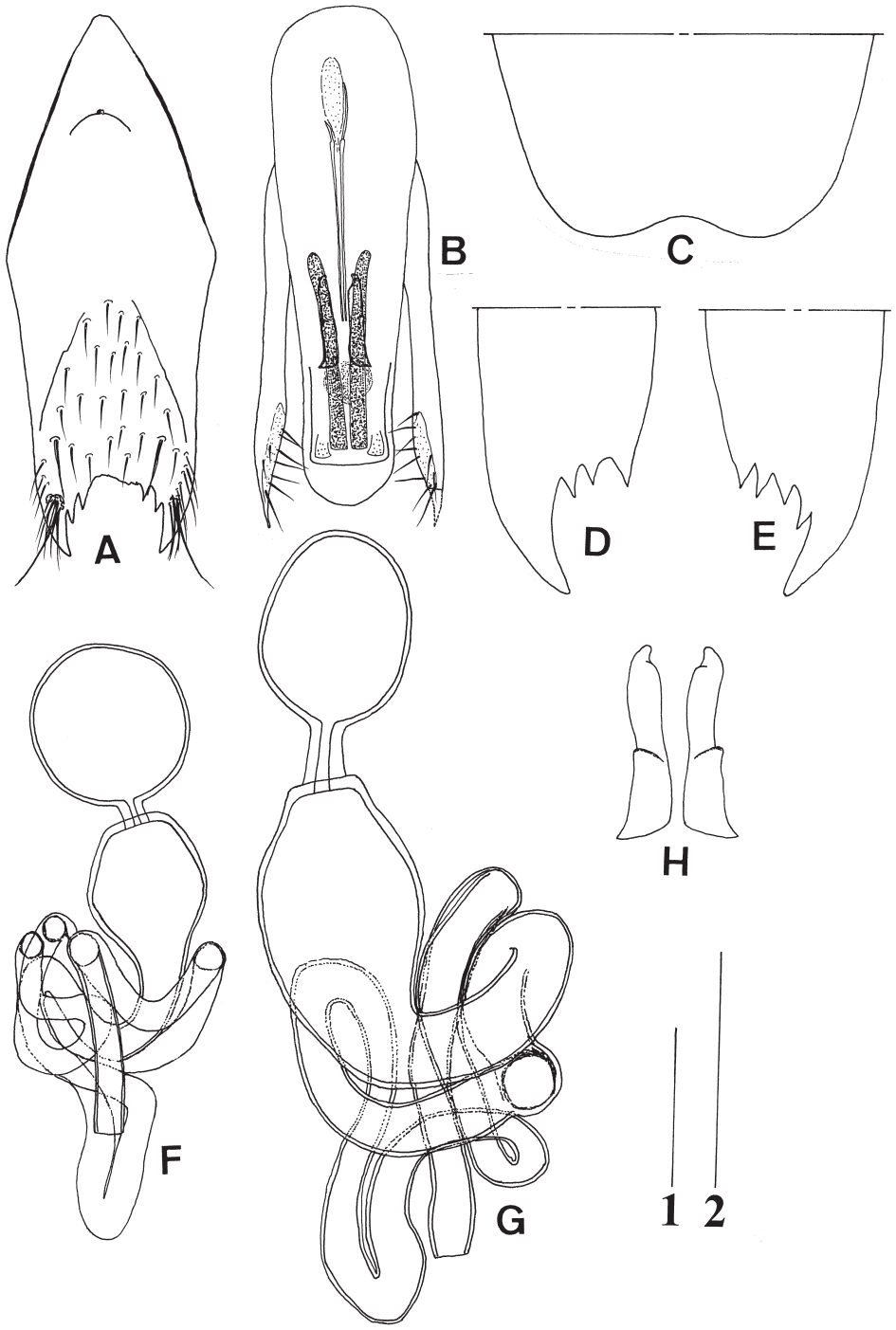

Fig. 63. *Stenus unicoloratus* Naomi & Puthz (A–E, G, H, Iidate, Fukushima; F, Fujisato, Akita). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

antennae moderately long, thin. Body black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round to almost round, very dense, small. Pronotum with surface almost even; punctures round, very dense, moderately large, somewhat coarse, sometimes two punctures partially fused. Elytra with surface uneven, flat or weakly depressed near suture; punctures round to elliptical, very dense, various in size, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, various in size, regular, while punctures in posterior segments very small, sparse to moderately dense, very small. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 63C) posteromedially with an arcuate, shallow emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 63A) incompletely dentate posteriorly, with macrosetae short, apicolateral teeth acutely pointed, apicolateral setae short to moderately long; 10th tergum obtusely angulate posteriorly. Aedeagal median lobe (Fig. 63B) elongate, rounded apicolaterally, round at apex; apical sclerotized area (Fig. 63B) semicircular, almost straight anteriorly. Endophallic dorsal membrane (Fig. 63B) subovoidal, small; median bands (Fig. 63B) long, very thin; expulsion hooks (Fig. 63H) separated, each elongate, with the anterior plate weakly incurved or hooked at apex, partially demarcated by a suture from, and a little narrower than posterior plate, the posterior plate pointed posterolaterally; copulatory tube (Fig. 63B) very slender, with basal chamber elongate-ovoidal, main tube very thin, long, attenuate. Parameres (Fig. 63B) thick, each very acutely pointed; apical area long, weakly swollen at base, furnished mesially with 9 to 11 short setae.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 63D, E) distinctly toothed posteriorly, each with apicolateral tooth long, pointed, apicolateral setae moderately long. Spermatheca (Fig. 63F, G) with capsule spherical to ovoidal, large; apical chamber almost pyriform or fusiform, large to very large; duct moderately long, thin to moderately thick, almost tightly coiled.

Biology and ecology. *S. unicoloratus* is distributed in the mountainous regions of Tohoku district, Honshu. The beetles usually inhabit leaf litter in the natural forests, but one male beetle was collected by sweeping the shrubs at the summit of Mt. Nagare-ishi, Fukushima.

Remarks. *S. unicoloratus* is allied to *S. takane* and *S. tohokuensis*, but it is separable from the latter two species by the aedeagal median lobe with its apical sclerotized area almost straight anteriorly (Fig. 63B) and the endophallic expulsion hook with its posterior plate projecting and pointed posterolaterally (Fig. 63H).

Stenus tohokuensis Naomi & Puthz
(Figs. 64A–H, 106J)

Stenus tohokuensis Naomi & Puthz, 2006: 116; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♂ (CBM), Jyuniko, Iwasaki Vil., Aomori Pref., 6–7. x. 1992, T. Kishimoto leg. Paratype: 1 ♀ (cN), same locality, 9. viii. 1987, S. Nomura leg.

Distribution. Japan: Honshu (Aomori Pref.).

Redescription. Male and female: Body 5.1–5.3 mm (fore body 2.0–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head hardly or

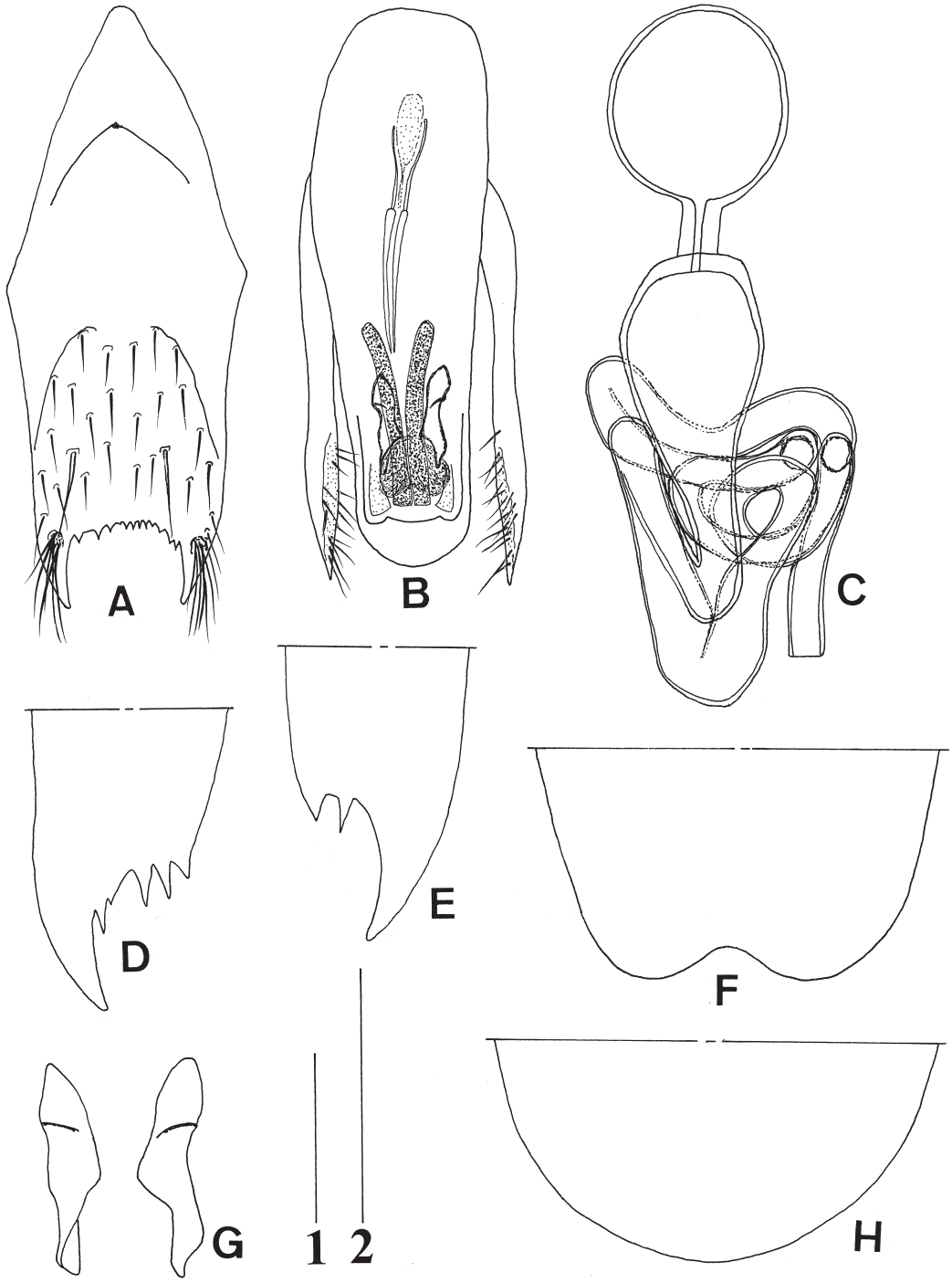

Fig. 64. *Stenus tohokuensis* Naomi & Puthz (Jyuniko, Aomori). A, 9th ventrite of male; B, aedeagus; C, spermatheca; D, E, posterior part of gonocoxite; F, posterior part of 8th ventrite of male; G, expulsion hooks; H, posterior part of 8th ventrite of female. Scale 1: 0.2 mm for A, B, 0.1 mm for C–E, G; Scale 2: 0.25 mm for F, H.

only weakly concave, with a pair of longitudinal furrows; punctures round to almost round, very dense, various in size. Pronotum with surface almost even; punctures round, very dense, various in size, somewhat coarse, two punctures sometimes partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round, very dense, small near suture, large at lateral parts. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments, while punctures in posterior segments sparse, very small. Lateroventrites missing; tergoventrite sutures existing, very thin.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 64F) posteromedially with a moderately deep emargination; 9th tergum with antecostal apophyses short; 9th ventrite (Fig. 64A) broad, irregularly serrate posteriorly, with macrosetae moderately long, apicolateral teeth pointed, apicolateral setae moderately long; 10th tergum almost rounded posteriorly. Aedeagal median lobe (Fig. 64B) moderately broad, rounded apicolaterally, round at apex; apical sclerotized area (Fig. 64B) almost semicircular, bidentate at anterior margin. Endophallic dorsal membrane (Fig. 64B) subovoidal, small; median bands (Fig. 64B) moderately long, very thin; expulsion hooks (Fig. 64G) slightly asymmetrical, each with the anterior plate partially demarcated by a ridge from, and also much smaller than posterior plate, the posterior plate angulate mesially before the middle; copulatory tube (Fig. 64B) with basal chamber long, thin, elongate-ovoidal at base, main tube short, thin, attenuate. Parameres (Fig. 64B) thick, each acutely pointed at apex; apical area very long, weakly swollen laterally, furnished mesially, irregularly with 15 to 17 short setae.

Female: Eighth ventrite (Fig. 64H) rounded posteriorly; gonocoxites (Fig. 64D, E) toothed posteriorly, each with apicolateral tooth very long, acutely pointed. Spermatheca (Fig. 64C) with capsule spherical, large; apical chamber elongate-pyriform, large; duct moderately long, moderately thick to thick, tightly coiled.

Biology and ecology. *S. tohokuensis* is distributed in the mountainous regions of northern Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. tohokuensis* is allied to *S. takane* and *S. unicoloratus*, but it is separable from the latter two species by the aedeagal median lobe broader (Fig. 64B), the endophallic expulsion hook with its posterior plate angulate mesially before the middle (Fig. 64G), and the copulatory tube with its main tube shorter (Fig. 64B).

Stenus campaniformis Naomi, Nomura & Puthz sp. nov.
(Figs. 65A–E, 106K)

Type series. Holotype: ♂ (NSMT-I-C-200328 in NMNST), Oguni-cho, Yamagata Pref., 5. vi. 2010, I. Matoba leg.

Distribution. Japan: Honshu (Yamagata Pref.).

Description. Male: Body 5.1 mm (fore body: 2.2 mm) in length, moderately shining, with antennae moderately long. Body black but weakly, reddishly tinged; labrum black; antennae and legs reddish brown. Head weakly concave, with a pair of distinct, broad longitudinal furrows; punctures round, dense to very dense, various in size, umbilicate. Pronotum with surface slightly uneven; punctures round, very dense, various in size, somewhat irregular. Elytra with surface weakly uneven; punctures round, very dense, medium-sized to large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, sparse to moderately dense, small, somewhat irregular in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, almost regular. Lateroventrites missing; tergoventrite

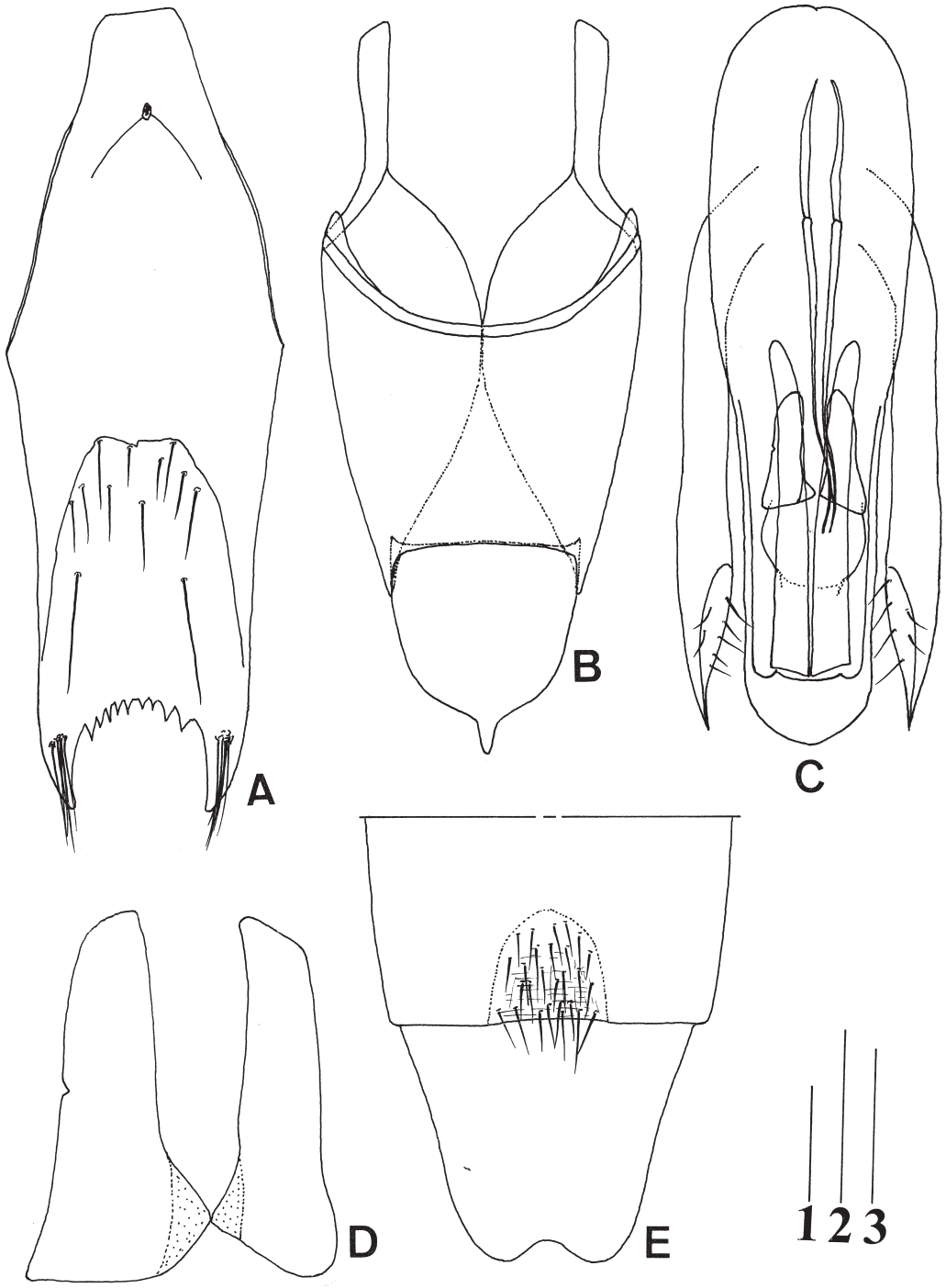

Fig. 65. *Stenus campaniformis* Naomi, Nomura & Puthz sp. nov. (Oguni, Yamagata). A, 9th ventrite of male; B, 9th and 10th terga of male; C, aedeagus; D, expulsion hooks; E, 7th and 8th ventrites of male. Scale 1: 0.1 mm for A, C; Scale 2: 0.2 mm for B, 0.05 mm for D; Scale 3: 0.3 mm for E.

sutures existing but almost obsolete.

Seventh ventrite (Fig. 65E) posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 65E) posteriorly with a medium-sized emargination; 9th tergum (Fig. 65B) with antecostal apophyses long; 9th ventrite (Fig. 65A) distinctly serrate posteriorly, with macrosetae very long, apicolateral teeth stout, pointed, apicolateral setae moderately long; 10th tergum (Fig. 65B) apicomedially with a long projection. Aedeagal median lobe (Fig. 65C) elongate, rounded apicolaterally, round at apex; apical sclerotized area (Fig. 65C) almost semicircular, bidentate at anterior margin. Endophallic dorsal membrane (Fig. 65C) moderately large, almost round; median bands (Fig. 65C) long; expulsion hooks (Fig. 65D) almost connected at the posteromesial corners, anterior plate fused with posterior plate; copulatory tube (Fig. 65C) very long, with basal chamber long, hardly swollen laterally, main tube long, slender but weakly curved at apical part. Parameres (Fig. 65C) very thick, each very acutely pointed at apex; apical area long, weakly swollen mesially, furnished mesially with 2 short setae along ventral margin, and with 4 to 5 short setae along dorsal margin.

Female: Unknown.

Biology and ecology. *S. campaniformis* is distributed in the mountainous regions of central Tohoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. When considering their common possession of such characters as the bell-shaped apical part of aedeagal median lobe, the very acutely pointed apex of aedeagal parameres, etc., *S. campaniformis* is probably allied to *S. takane*, *S. unicoloratus* and *S. tohokuensis*, but it is separable from the latter three species by the 10th tergum with an apicomedian projection (Fig. 65B), the aedeagal paramere distinctly thicker (Fig. 65C), and the endophallic expulsion hook with its anterior plate fused with posterior plate (Fig. 65D). However, *S. campaniformis* is certainly similar also to *S. naomi*, and *S. tuberascens* in that these 3 species share a very characteristic, cuspidate condition of 10th tergum, but it is separable from the latter two species by the aedeagal median lobe uniformly rounded apically (Fig. 65C), the paramere much thicker (Fig. 65C), and the endophallic copulatory tube shorter (Fig. 65C).

Etymology. The specific epithet of this new species is derived from the Latin adjective "*campaniformis*", which means "bell-shaped"; and the apical part of aedeagal median lobe is bell-shaped.

Stenus naomii Puthz
(Figs. 66A–J, 106L)

Stenus indubius Sharp, 1889: Hromádka, 1979: 103.
Stenus naomii Puthz, 2001: 38; Naomi & Puthz, 2013: 142.

Type material examined. Holotype: ♀ (NHML), Kobe, Japan, 25. vii. 1927, Ueno. Paratypes: 1♂1♀ (cN), Mt. Mimuro, Hyogo Pref., 15. ix. 1992, T. Ito leg.; 1♂ (cN), Mt. Mayasan, Kobe City, Hyogo Pref., 12. v. 1980; 1♂, Mt. Sanjyo, Nakawa Vil., Okayama Pref., 11. vii. 1993, K. Watanabe leg.; 1♂ (cN), Misasa Spa. Tottori Pref., 28. ix. 1986, T. Ito leg.

Other material examined. [HONSHU]: 2♂3♀, Mt. Mimuro, Hyogo Pref., 15. ix. 1992, T. Ito leg.; 1♀, Mt. Mimuro, Hyogo Pref., 7. vi. 1997, H. Hoshina leg.; 1♀, Wakasugi, Okayama Pref., 22. x. 2009, T. Ito leg.

Distribution. Japan: Honshu (Chugoku district).

Redescription. Male and female: Body 4.7–5.3 mm (fore body 2.0–2.3 mm) in length, with

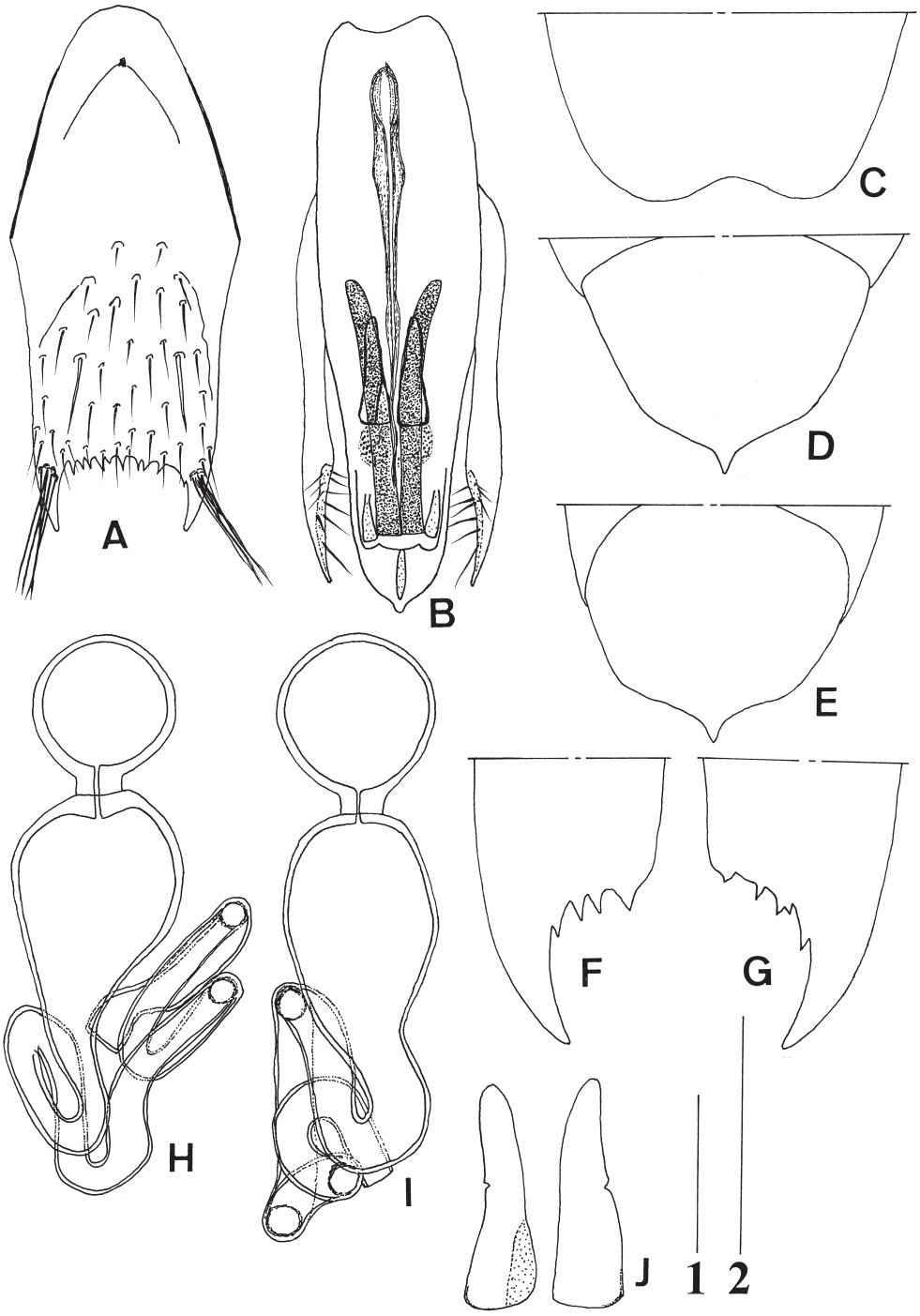

Fig. 66. *Stenus naomii* Puthz (A, C–I, Mimuro, Hyogo; B, J, Mayasan, Hyogo). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, 10th tergum of female; E, 10th tergum of male; F, G, posterior part of gonocoxite; H, I, spermatheca; J, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for F to J; Scale 2: 0.25 mm for C–E.

antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, dense to very dense, small. Pronotum with surface weakly uneven; punctures round to almost round, very dense, moderately large, somewhat coarse, two or more punctures sometimes partially fused. Elytra with surface almost even, flat near suture; punctures round, very dense, large, sometimes coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with 10th tergum (Fig. 66D, E) apicomedially with an acute, small projection, which turns posteroventrally; punctures round, sparse to moderately dense, small in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites missing; tergoventrite sutures almost obsolete.

Male: Seventh ventrite posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 66C) posteromedially with an arcuate emargination; 9th tergum with antecostal apophyses long; 9th ventrite (Fig. 66A) broad, serrate posteriorly, with macrosetae moderately long, apicolateral teeth thin, acutely pointed, apicolateral setae very long. Aedeagal median lobe elongate, rounded apicolaterally, pointed with a small median cusp at apex; apical sclerotized area (Fig. 66B) almost bell-shaped, bidentate at anterior margin, with a median-longitudinal transparent area. Endophallic dorsal membrane (Fig. 66B) subovoidal; median bands (Fig. 66B) very long, thin; expulsion hooks (Fig. 66J) separated, each elongate, lateromedially with a small notch, anterior plate almost fused with posterior plate; copulatory tube (Fig. 66B) very long, with basal chamber small, main tube slender but moderately swollen at base, weakly swollen near the middle, and weakly sinuous at apex. Parameres (Fig. 66B) short, each relatively thick, very acutely pointed; apical area long, moderately swollen mesially at base, furnished mesially with 3 to 4 short setae along ventral margin, and with 6 moderately long setae along dorsal margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 66F, G) toothed posteriorly, each with apicolateral tooth long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 66H, I) with capsule spherical, moderately large to large; apical chamber pyriform, very large; duct moderately long and thick, almost tightly coiled.

Biology and ecology. *S. naomi* is distributed in the plains and low mountainous regions of eastern Chugoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. naomii* is closely allied to *S. tuberascens*, but it is separable from the latter species by the aedeagal median lobe distinctly narrower at apex (Fig. 66B), the aedeagal apical sclerotized area with a median-longitudinal subtransparent area and also with a small apicomedian cusp (Fig. 66B), and the endophallic expulsion hook only weakly broadened posteriorly at the posterior part (Fig. 66J).

Etymology. The specific epithet of this species is named after S.-I. Naomi, an author of this paper.

Stenus tuberascens Naomi, Nomura & Puthz sp. nov.
(Figs. 67A–E, 107A)

Type series. Holotype: ♂ (NSMT-I-C-200329 in NMNST), Takahama, Fukui Pref., 19. v. 1991, M. Saito leg. Paratype: 1♂ (cN), Mefu, Maizuru City, Kyoto Pref., 2. iv. 2004, T. Murao leg.

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

Description. Male: Body 4.8 mm (fore body: 2.2 mm) in length, moderately shining, with

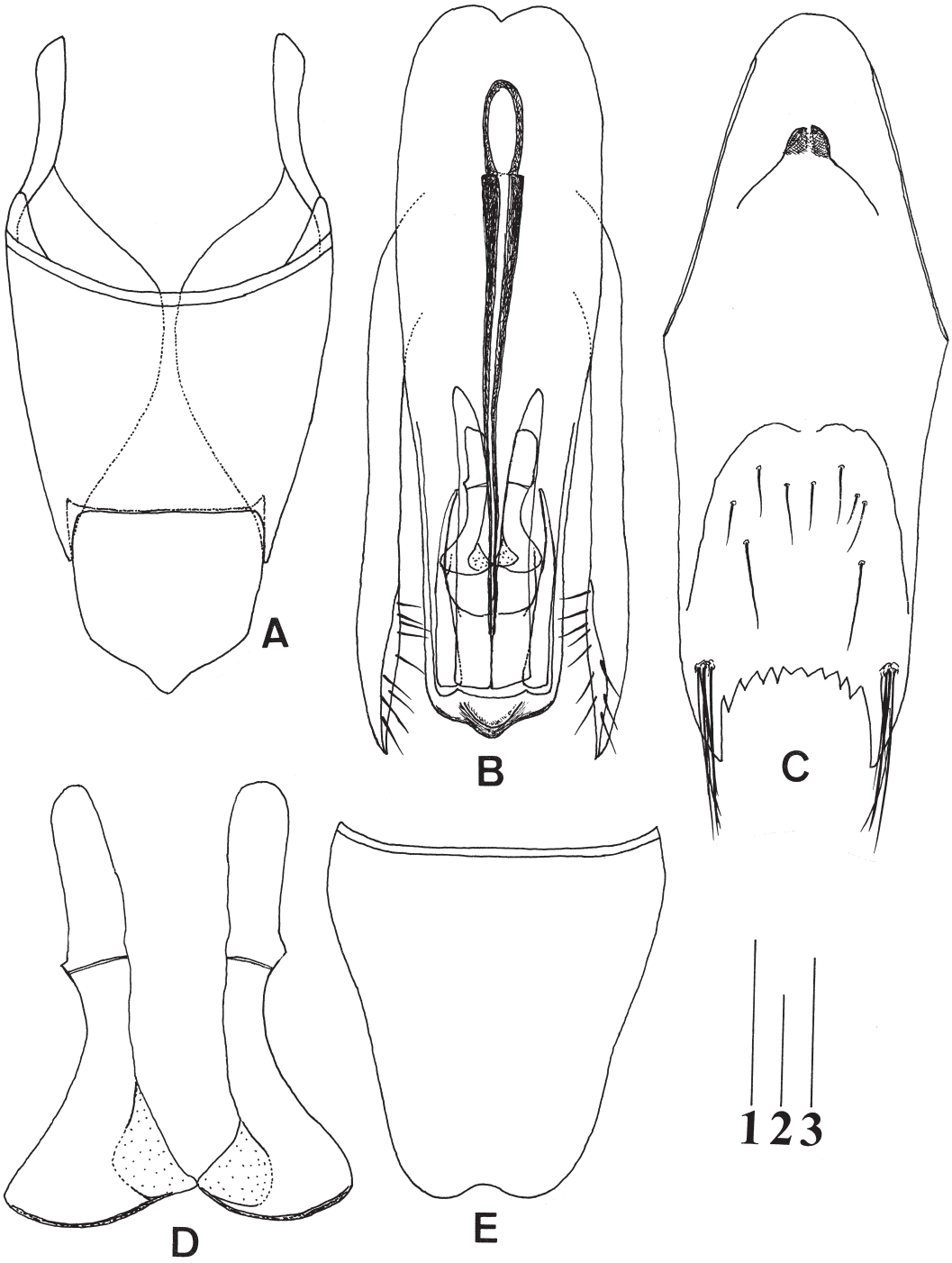

Fig. 67. *Stenus tuberascens* Naomi, Nomura & Puthz sp. nov. (Takahama, Fukui). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, expulsion hooks; 8th ventrite of male. Scale 1: 0.2 mm for A, 0.05 mm for D; Scale 2: 0.1 mm for B, C; Scale 3: 0.3 mm for E.

antennae moderately long, thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, various in size, irregular. Pronotum with surface uneven; punctures round, very dense, moderately large, somewhat irregular. Elytra with surface weakly uneven; punctures round, very dense, moderately large to large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense, small, somewhat irregular in anterior segments, while punctures in posterior segments sparse to moderately dense, very small to small, regular. Lateroventrites missing; tergoventrite sutures almost obsolete.

Eighth ventrite (Fig. 67E) posteromedially with a small, arcuate emargination; 9th tergum (Fig. 67A) with antecostal apophyses long; 9th ventrite (Fig. 67C) moderately broad, distinctly serrate posteriorly, with macrosetae long, apicolateral teeth long, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 67A) apicomedially with an obtuse, moderately broad projection. Aedeagal median lobe (Fig. 67B) elongate, obtusely angulate or weakly rounded apicolaterally; apical sclerotized area (Fig. 67B) short, transverse, bidentate anteriorly, apicomedially with a relatively broad, rounded hump. Endophallic dorsal membrane (Fig. 67B) semicircular; median bands (Fig. 67B) long, moderately broad; lateral bands (Fig. 67B) long, thick; expulsion hooks (Fig. 67D) connected at the posteromesial corners, each almost boot-shaped, with the anterior plate thin, rounded apically, toothed at posterolateral corner, much smaller than and demarcated by a suture from posterior plate, the posterior plate large, strongly broadened posteriorly, membranous at posteromesial area; copulatory tube (Fig. 67B) very slender, basal chamber elongate-elliptical, main tube very long, attenuate. Parameres (Fig. 67B) rather thick, each acutely pointed at apex; apical area very long, weakly swollen mesially, furnished mesially with 9–10 short setae.

Female: Unknown.

Biology and ecology. *S. tuberascens* is distributed in the plains of the northern part of Kansai district and the northwestern part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. tuberascens* is closely allied to *S. naomii*, but it is separable from the latter species by the aedeagal median lobe broader and angulate at the apicolateral corner (Fig. 67B), the aedeagal apical sclerotized area shorter, and apicomedially with a relatively broad, rounded hump (Fig. 67B), and the endophallic expulsion hook with its posterior plate strongly broadened posteriorly (Fig. 67D).

Etymology. The specific epithet of this new species is derived from the Latin adjective "*tuberascens*", which means "tuberous" or "tuberculate; and the apical sclerotized area of aedeagal median lobe is weakly tuberculate ventromedially.

Stenus acerrimus Naomi
(Figs. 68A–G, 107B)

Stenus acerrimus Naomi, 2006: 81; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Mt. Hira, Shiga Pref., 16. viii. 1986, T. Ito leg. Paratype: 1 ♀ (cN), same data as holotype.

Distribution. Japan: Honshu (Shiga Pref.)

Redescription. Male and female: Body 4.3–5.0 mm (fore body 2.1–2.3 mm) in length, with antennae moderately long, thin. Head black; pronotum, elytra and abdomen dark chocolate

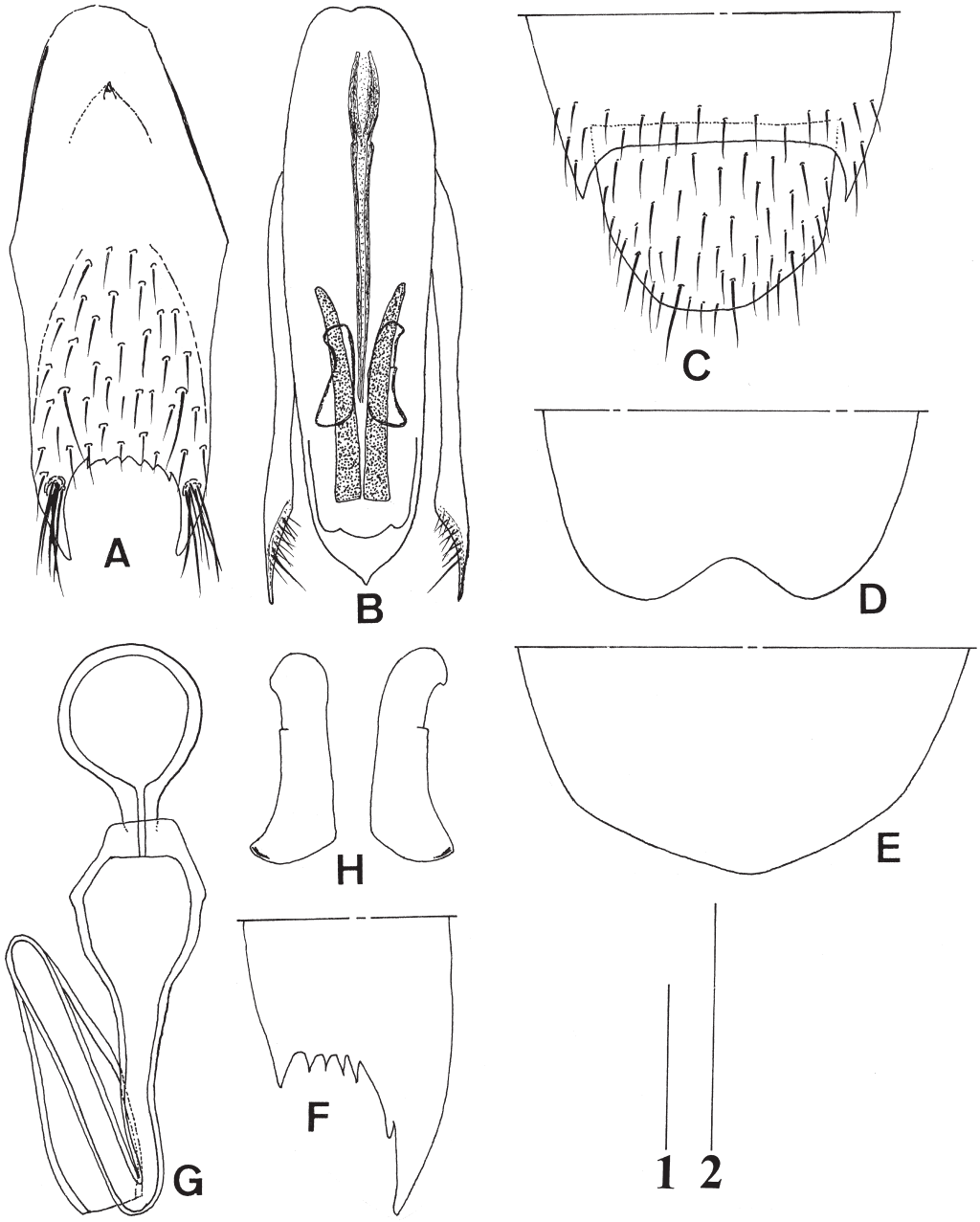

Fig. 68. *Stenus acerrimus* Naomi (Hira, Shiga). A, 9th ventrite of male; B, aedeagus; C, 9th and 10th terga of female; D, posterior part of 8th ventrite of male; E, posterior part of 8th ventrite of female; F, posterior part of gonocoxite; G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A to C, 0.1 mm for F–H; Scale 2: 0.25 mm for D, E.

brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, dense, small, almost regular. Pronotum with surface weakly uneven; punctures round, very dense, various in size, somewhat coarse. Elytra with surface weakly uneven, almost flat near suture; punctures round to elliptical,

very dense, large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, sparse to moderately dense, small, somewhat irregular in anterior segments, while punctures in posterior segments moderately very dense, small, almost regular. Lateroventrites missing; tergoventrite sutures almost obsolete.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 68D) posteromedially with a large, subtriangular emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 68A) serrate posteriorly, with macrosetae moderately long, apicolateral teeth very long, sharply pointed, apicolateral setae moderaetely long; 10th tergum entire or very shallowly emarginate. Aedeagal median lobe (Fig. 68B) elongate, rounded apicolaterally, with a small median cusp at apex; apical sclerotized area (Fig. 68B) subtriangular, bidentate at anterior margin. Endophallic median bands (Fig. 68B) moderately long; expulsion hooks (Fig. 68H) separated, each elongate, boot-shaped, angulate or hooked apicolaterally, with anterior plate fused with posterior plate; copulatory tube (Fig. 68B) very slender, with basal chamber elongate-elliptical, main tube very long, straight. Parameres (Fig. 68B) each very acutely pointed at apex; apical area moderately long, swollen mesially at base, strongly narrowed toward apex, furnished mesially with 10 to 11 short and 1 to 2 long setae.

Female: Eighth ventrite (Fig. 68E) obtusely angulate posteromedially; 9th tergum (Fig. 68C) moderately protruded posterolaterally; gonocoxites (Fig. 68F) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long; 10th tergum (Fig. 68C) entire. Spermatheca (Fig. 68G) stout, with capsule spherical, moderately large; apical chamber moderately large; duct short with 2 distinct turns, the duct from the opening to 1st turn thickened proximally.

Biology and ecology. *S. acerrimus* is distributed in the mountainous regions of Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. acerrimus* is allied to *S. cucumeroides*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area shorter (Fig. 68B), and the spermatheca with its duct longer and simply twice bent (Fig. 68G). *S. acerrimus* seems to be also allied to *S. tenuiculus* from Korean, but it is separable from the latter species by the 8th ventrite of male more deeply emarginate posteriorly (Fig. 68D), the endophallic expulsion hook longer (Fig. 68H), and the spermathecal duct longer, with the duct from the opening to 1st turn thickened proximally (Fig. 68G).

Stenus cucumeroides Naomi & Puthz
(Figs. 69A–H, 107C)

Stenus cucumeroides Naomi & Puthz, 2006: 83; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♀ (CBM), Mt. Kyogatake, Fukui Pref., 26. vii. 1978, H. Sasaji leg. Paratypes: 1 ♂ (cN), Shimouchinami, Fukui Pref., 9. vi. 1974, H. Sasaji leg.; 5 ♂3 ♀ (cN), Mt. Utatsu, Kanazawa City, Ishikawa Pref., 11. v. 1958, S. Takaba leg.; 1 ♀ (cN), Kuroisawa, Mt. Ena, Gifu Pref., 2. viii. 1994, I. Kiriyama leg.; 1 ♀ (cN), Midoridani, Gifu Pref., 5. v. 1955, I. Bito leg.

Other material examined. [HONSHU]: 2 ♂, Togohara, Sakai City, Fukui Pref., 12. iv. 1998.

Distribution. Japan: Honshu (Fukui, Ishikawa and Gifu Prefs.).

Redescription. Male and female: Body 5.2–5.6 mm (fore body 2.3–2.6 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate

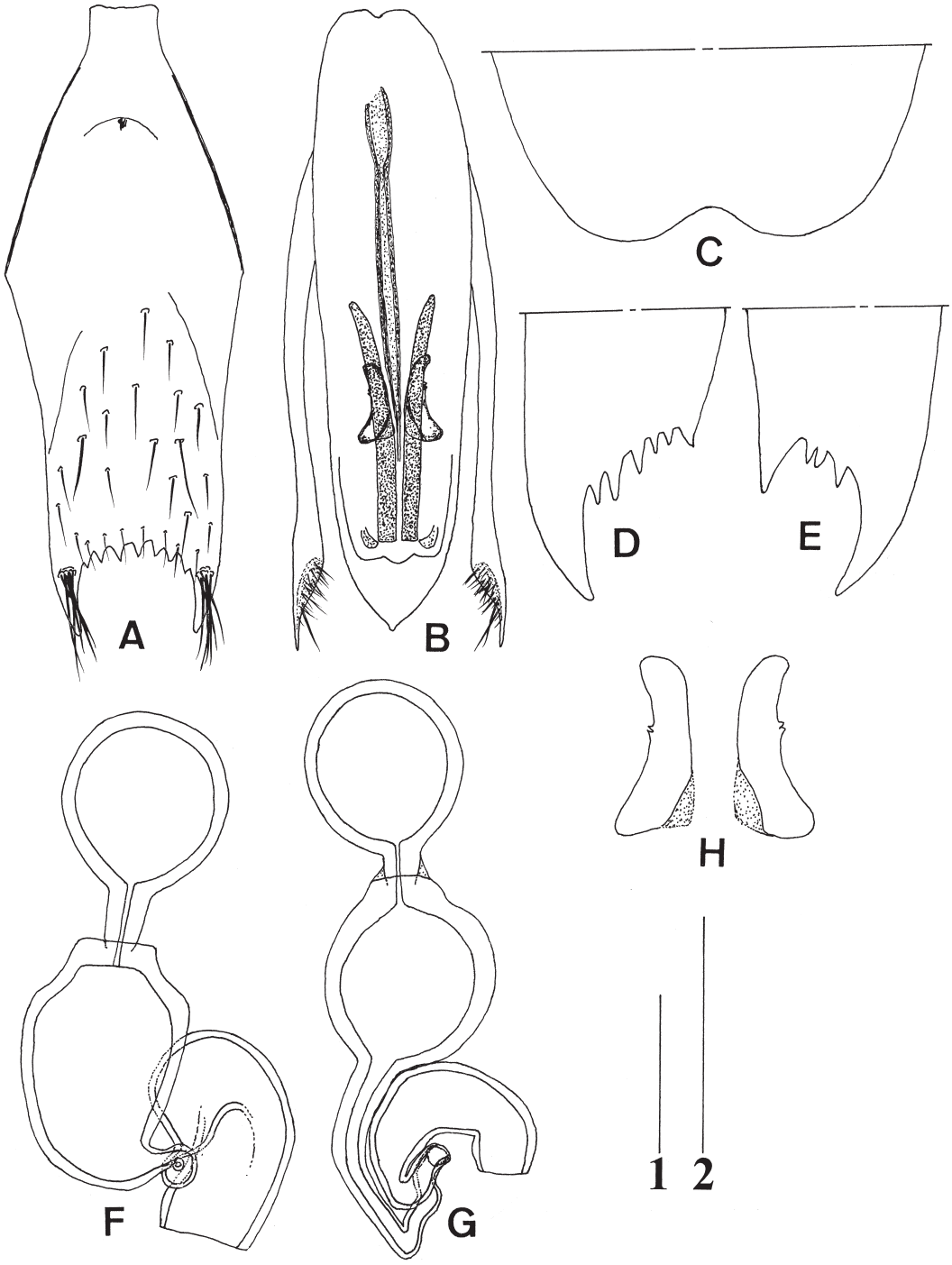

Fig. 69. *Stenus cucumeroides* Naomi & Puthz (A–C, H, Shimouchinami, Fukui; D, F, Ena, Gifu; E, G, Kyogatake, Fukui). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of 9th gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head hardly or very weakly concave, with a pair of distinct longitudinal furrows; punctures round, very dense, small, almost regular. Pronotum with surface uneven; punctures round, very dense, moderately large, somewhat coarse. Elytra with surface almost even, flat near suture; punctures round to elliptical, very dense, large, sometimes two punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments, while punctures in posterior segments sparse to moderately dense, very small to small, almost regular. Lateroventrites missing; tergoventrite sutures very thin.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 69C) posteromedially with a moderately deep emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 69A) distinctly serrate posteriorly, with macrosetae relatively short, apicolateral teeth long, acutely pointed, apicolateral setae moderately long; 10th tergum entire. Aedeagal median lobe (Fig. 69B) elongate, gently rounded apicolaterally, with a very small median cusp at apex; apical sclerotized area (Fig. 69B) subtriangular, bidentate anteriorly. Endophallic median bands (Fig. 69B) long, thin; expulsion hooks (Fig. 69H) separated, each nearly ear-shaped, with anterior plate fused with posterior plate; copulatory tube (Fig. 69B) slender, with basal chamber elongate-elliptical, main tube very long, thin, straight. Parameres (Fig. 69B) thin, slender, very acutely pointed at apex; apical area relatively short, distinctly swollen mesially at base, each strongly narrowed at apex, furnished mesially with 17 to 19 short and 1 to 2 long setae.

Female: Eighth ventrite obtusely angulate posteriorly; 9th gonocoxites (Fig. 69D, E) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 69F, G) stout, with capsule spherical, moderately large; apical chamber spherical to pyriform, a little larger than capsule; duct short, thick to very thick but once strongly constricted on its way.

Biology and ecology. *S. cucumeroides* is distributed in the mountainous regions of the northwestern part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. cucumeroides* is closely allied to *S. acerrimus*, but it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area longer (Fig. 69B), and the spermatheca with its duct shorter, having a strong constriction on its way (Fig. 69F).

Stenus unagi Hromádka
(Figs. 70A–I, 107D)

Stenus unagi Hromádka, 1979: 105; Herman, 2001: 2426; Naomi & Puthz, 2013, 141.
Stenus ookami Hromádka:1979: 106: Puthz, 1993a: 145 (synonym of *S. unagi*).

Type material examined. Holotype of *S. unagi* Hromádka: ♂ (NMP), Mt. Iwawaki, Osaka, 21. xii. 1953, Col. K. Sawada.

Holotype of *S. ookami* Hromádka: ♂ (NMP), Mt. Iwawaki, Osaka, 25. vi. 1954, Col. K. Sawada.

Other material examined. [HONSHU]: 1 ♀, Sekigahara, Gifu Pref., 15. ix. 1988, T. Ito leg.; 1 ♀, Mt. Iwawaki, Osaka Pref., 17. iv. 1966, T. Ito leg.; 1 ♀, same locality, 30. iv. 1986, T. Ito leg.; 1 ♂, same locality, 12–17. ix. 1991, T. Kishimoto leg.; 1 ♂1 ♀, Mt. Kasuga, Nara Pref., 15. i. 1988, T. Ito leg.; 1 ♀, same locality, 16. vi. 1984, T. Ito leg.; 2 ♂, Mt. Katsuragi, Wakayama

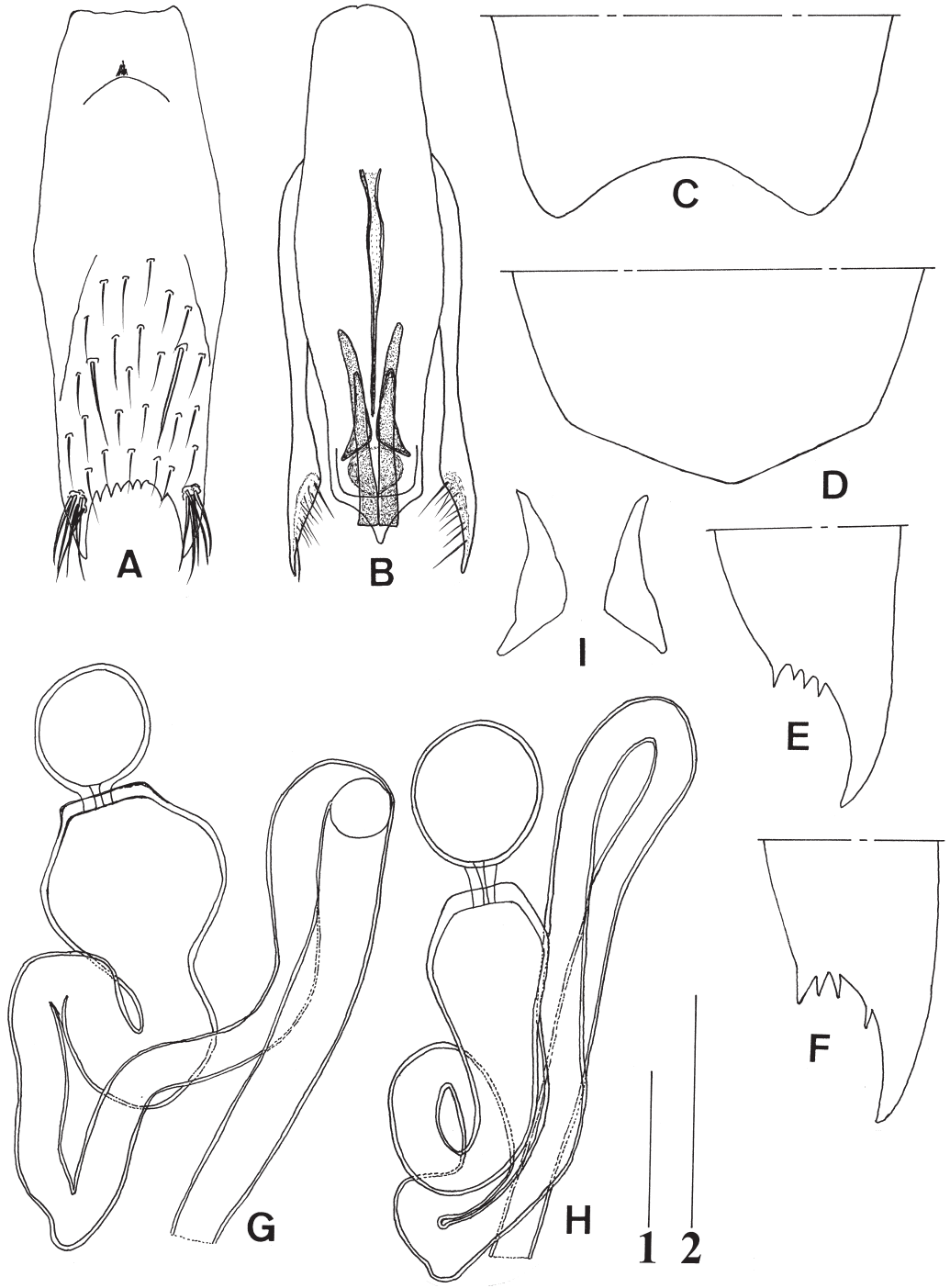

Fig. 70. *Stenus unagi* Hromádka (A, I, Katsuragi, Wakayama; B, C, F, H, Iwawaki, Osaka; D, E, G, Kasuga, Nara). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, posterior part of 8th ventrite of female; E, F, posterior part of gonocoxite; G, H, spermatheca; I, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for E–I; Scale 2: 0.25 mm for C, D.

Pref., 13. v. 1993, I. Matoba leg.; 1 ♂, Hashimoto City, Wakayama Pref., 6. i. 1993, I. Matoba leg.; 1 ♀, Mt. Ryugadake, Daian-cho, Mie Pref., 23. x. 1993, H. Yokozeki leg.; 1 ♂, Nunobiki Fall, Kiwa, Mie Pref., 25. v. 1996, H. Yokozeki leg.

Distribution. Japan: Honshu (Kinki district and its neighboring regions).

Redescription. Male and female: Body 4.0–5.2 mm (fore body 2.1–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, almost regular. Pronotum with surface almost even; punctures round, very dense, moderately large, sometimes two or more punctures partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round to almost round, very dense, somewhat coarse, regular. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense to dense, various in size in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites missing; tergoventrite sutures very thin.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 70C) posteriorly with a large, broad, deep, arcuate emargination; 9th tergum with antecostal apophyses long; 9th ventrite (Fig. 70A) serrate posteriorly, with macrosetae long, apicolateral teeth long, acutely pointed, apicolateral setae relatively short; 10th tergum entire. Aedeagal median lobe (Fig. 70B) elongate, angulate apicolaterally, distinctly pointed at apex; apical sclerotized area (Fig. 70B) subtriangular, with the posterolateral margin arcuate between the apicolateral corner and the apex. Endophallic dorsal membrane (Fig. 70B) small, subovoidal; median bands (Fig. 70B) long, rather thin; expulsion hooks (Fig. 70I) separated, each nearly elongate-triangular, very acutely pointed both at anterior and posterior tips, with anterior plate fused with posterior plate; copulatory tube (Fig. 70B) very slender, basal chamber with two thin rods, main tube long, thin, attenuate, almost straight. Parameres (Fig. 70B) each moderately narrowed near the middle, very acutely pointed at apex; apical area long, distinctly swollen mesially at base, strongly narrowed toward apex furnished mesially with 10 to 12 setae of various length.

Female: Eighth ventrite (Fig. 70D) angulate posteromedially; gonocoxites (Fig. 70E, F) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 70G, H) with capsule spherical, moderately large to large; apical chamber subspherical to pyriform, more or less larger than capsule; duct moderately thick and long with 3 or 4 distinct turns, the duct from the opening to 1st turn very long, almost straight.

Biology and ecology. *S. unagi* is widely distributed in the plains and low mountainous regions of Kinki district and its neighboring regions, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. unagi* is the sister species of *S. fugu*, and it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area subtriangular and shorter (Fig. 70B), the endophallic expulsion hook acutely pointed anteriorly, with its anterior plate fused with posterior plate (Fig. 70I), and the spermatheca with its duct longer (Fig. 70G).

Etymology. The specific epithet of this species is derived from the "unagi", which is the Japanese name of "eel".

Stenus fugu Hromádka
(Figs. 71A–I, 107E)

Stenus fugu Hromádka, 1979: 104; Herman, 2001: 2188; Naomi & Puthz, 2013: 141.

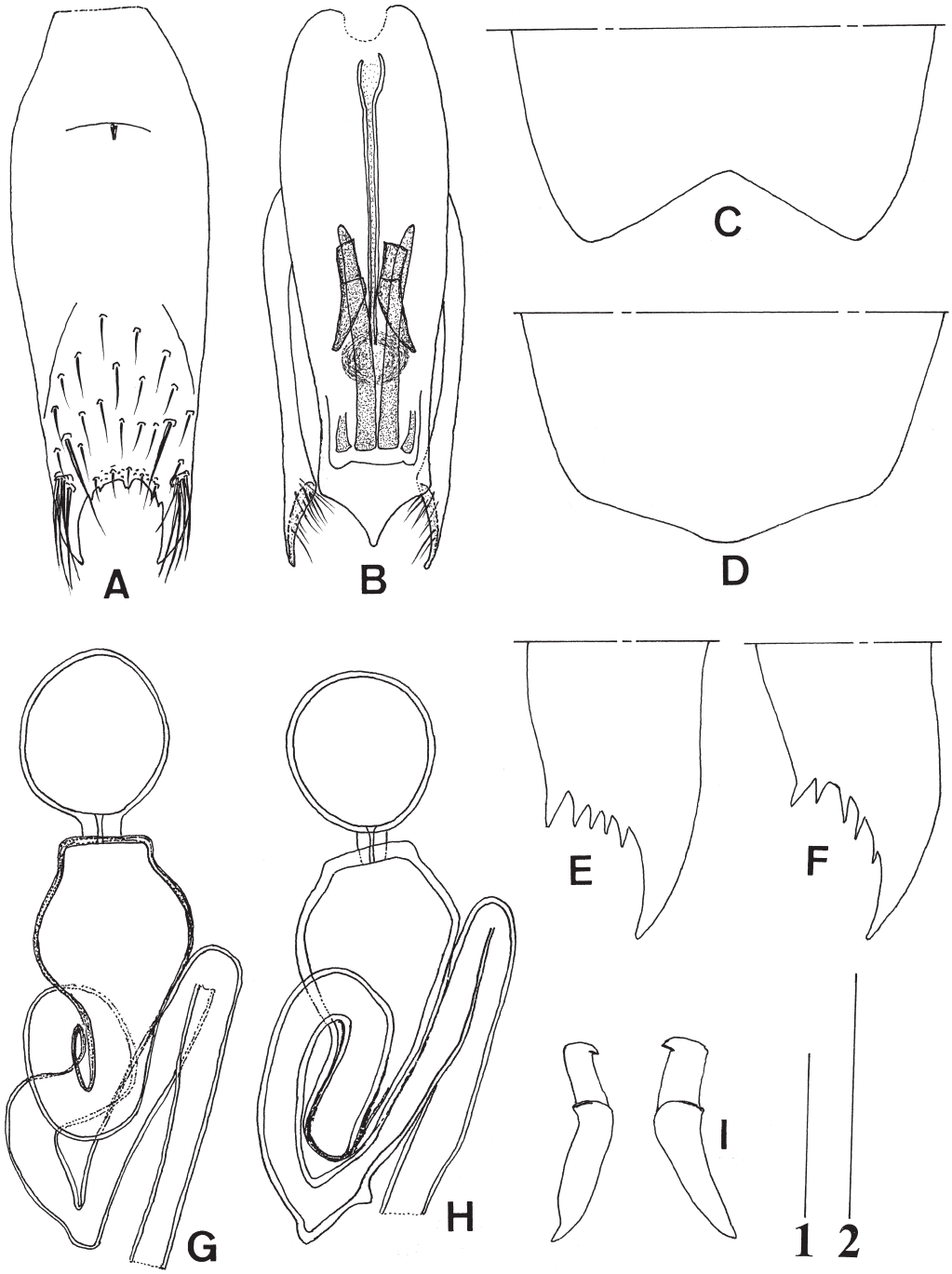

Fig. 71. *Stenus fugu* Hromádka (A, Inamura, Nara; B, Asuka, Nara; C, E–H, Dorogawa, Nara; D, Nachi, Wakayama; I, Fujiwara, Mie). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, posterior part of 8th ventrite of female; E, F, posterior part of gonocoxite; G, H, spermatheca; I, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for E–I; Scale 2: 0.25 mm for C, D.

Stenus sakana Hromádka, 1979: 107; Naomi, 2006: 88 (synonym of *S. fugu*).

Type material examined. Holotype of *S. fugu*: ♀ (NMP), Mt. Nachi, Wakayama Pref., 29. iii. 1952, K. Sawada leg.

Holotype of *S. sakana*: ♂ (NMP), Asuka, Nara Pref., 1. ix. 1963, K. Sawada leg. Paratype of *S. sakana*: ♀ (cP), 1. ix. 1963, Asuka, Nara Pref., Japan, K. Sawada leg.

Other material examined. [HONSHU]: 1 ♀, Sekigahara, Gifu Pref., 15. ix. 1988, T. Ito leg.; 1 ♂, Nishihotaka-guchi, Gifu Pref., 11. vi. 1980, S. Naomi leg.; 1 ♂2 ♀, Dorogawa, Nara Pref., 2. vi. 1985, T. Ito leg.; 1 ♂, 24. viii. 1991, same locality, T. Ito leg.; 2 ♀, same locality, 17. vi. 1995, T. Ito leg.; 1 ♂, Mt. Sanjyo, Tenkawa Vil., Nara Pref., 28. vi. 1998, S. Nomura leg.; 1 ♀, Mt. Inamura, Oomine, Nara Pref., 23. vii. 1994, T. Ito leg.; 2 ♂, same locality, 16. vi. 1995, T. Ito leg.; 1 ♀, Oomine, Nara Pref., 1. vi. 1985, T. Ito leg.; 1 ♂1 ♀, Toonomine, Nara Pref., 11. xi. 1993, T. Ito leg.; 1 ♂, Mt. Fujiwara, Mie Pref., 11. viii. 1957, T. Hozumi leg.; 1 ♂, same locality, 21. iv. 1957, T. Hozumi leg.

Distribution. Japan: Honshu (Kinki district and its neighboring regions).

Redescription. Male and female: Body 4.0–5.6 mm (fore body 1.8–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, irregular, somewhat umbilicate. Pronotum with surface almost even; punctures round, very dense, variable in size, somewhat coarse, sometimes two or more punctures partially fused. Elytra with surface almost even, flat near suture; punctures round, very dense, various in size. Femora relatively thick; tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small in anterior segments; punctures dense to very dense, small in the anterior area of each posterior segment, while punctures sparse, very small in the posterior area of each posterior segment. Lateroventrites and tergoventrite sutures missing.

Male: Sixth and 7th ventrites each posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 71C) posteriorly with a large, broad, triangular emargination; 9th tergum with antecostal apophyses long; 9th ventrite (Fig. 71A) sparsely or hardly serrate posteriorly, with macrosetae long, apicolateral teeth stout, very long, acutely pointed, apicolateral setae moderately long; 10th tergum entire. Aedeagal median lobe (Fig. 71B) moderately broad, distinctly angulate apicolaterally, acutely pointed at apex; apical sclerotized area (Fig. 71B) almost pentagonal, minutely bidentate anteriorly, with the posterolateral margin arcuate between the apicolateral corner and the apex. Endophallic dorsal membrane (Fig. 71B) subovoidal; median bands (Fig. 71B) long, thin; expulsion hooks (Fig. 71I) separated, each slender, with the anterior plate hooked anteromesially, demarcated by a suture from posterior plate, the posterior plate narrowed posteriorly, acutely pointed at apex; copulatory tube (Fig. 71B) very slender, with basal chamber subovoidal, main tube very long and thin, straight. Parameres (Fig. 71B) each very acutely pointed at apex; apical area relatively short, distinctly swollen and angulate mesially at base, furnished mesially with 9 to 10 setae.

Female: Eighth ventrite (Fig. 71D) obtusely angulate posteromedially; gonocoxites (Fig. 71E, F) toothed posteriorly, each with apicolateral tooth very long, very sharply pointed, apicolateral setae moderately long. Spermatheca (Fig. 71G, H) with capsule spherical, large; apical chamber almost pyriform or fusiform, large; duct moderately long and thick, with 4 to 5 turns.

Biology and ecology. *S. fugu* is widely distributed in the mountainous regions of Kinki District and its neighboring regions, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. fugu* is the sister species of *S. unagi*, and it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area almost pentagonal and longer (Fig. 71B), the endophallic expulsion hook distinctly hooked anteromesially (Fig. 71I), with its anterior plate distinctly demarcated by a suture from posterior plate (Fig. 71I), and the spermatheca with its duct shorter (Fig. 71G, H).

Etymology. The specific epithet of this species is derived from the "fugu", which is the Japanese name of "blowfish".

Stenus ukon Naomi & Puthz
(Figs. 72A–H, 107F)

Stenus ukon Naomi & Puthz, 2006: 91; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Nabetani, Tatsunokuchi-cho, Ishikawa Pref., 30. vi. 1995, Y. Sugie leg. Paratypes: 1 ♀ (cN), same locality, 8. iv. 1995, Y. Sugie leg.; 1 ♀ (cN), same locality, 6. v. 1995, Y. Sugie leg.; 1 ♀ (cN), same locality, 27. v. 1995, Y. Sugie leg.; 1 ♂ (cN), same locality, 2. ix. 1995, Y. Sugie leg.; 1 ♀ (cN), Mt. Rokuman, Kaga-Hakusan, Ishikawa Pref., 16. vi. 2002, Y. Hayashi leg.; 1 ♂ (cN), Hidari, Ishikawa Pref., 14. v. 1961, Y. Hayashi leg.; 1 ♂ (cN), Mt. Horyu, 6. v. 1961, Y. Hayashi leg.; 1 ♀ (cN), Mt. Saiho, Fukui Pref., 29–31. v. 1976, H. Sasaji leg.; 1 ♂ (cN), Kami-jyoho Temple, Eiheiji-cho, Fukui Pref., 9. v. 2010, M. Saito leg.; 1 ♂1 ♀ (cN), Sekigahara, Gifu Pref., 15. ix. 1988, T. Ito leg.; 1 ♂ (cN), Kawakami, Sakauchi-mura, Gifu Pref., 17. vii. 1988, I. Kiriyama leg.; 1 ♀, Kosaka, Kuze, Gifu Pref., 20. v. 1996, I. Kiriyama leg.; 1 ♂ (cN), Midoridani, Neo, Gifu Pref., 3. v. 1957, I. Kiriyama leg.; 1 ♀ (cN), Nishihotaka-guchi, Gifu Pref., 11. vi. 1980, S. Naomi leg.

Distribution. Japan: Honshu (Ishikawa, Fukui and Gifu Prefs.).

Redescription. Male and female: Body 4.2–5.6 mm (fore body 2.1–2.6 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven; punctures round to almost round, very dense, moderately large, partially coarse, sometimes two or more punctures partially fused. Elytra almost even, gently rounded dorsally; punctures round, very dense, large. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense to dense, small, almost regular in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite medially with a narrow, longitudinal, very shallow depression; 8th ventrite (Fig. 72C) posteriorly with a large, broad, subtriangular emargination; 9th tergum with antecostal apophyses long; 9th ventrite (Fig. 72A) serrate posteriorly, with apicolateral teeth acutely pointed, apicolateral setae short; 10th tergum entire. Aedeagal median lobe (Fig. 72B) elongate, weakly swollen laterally near the middle, uniformly rounded apicolaterally, with a long median cusp at apex; apical sclerotized area (Fig. 72B) nearly semicircular but weakly rounded anteriorly. Endophallic dorsal membrane (Fig. 72B) subovoidal; median bands (Fig. 72B) very long, thin; expulsion hooks (Fig. 72H) separated, each with the anterior plate spatulate, distinctly narrowed at base, demarcated by a suture from posterior plate, the posterior plate turning posterolaterally behind the middle, pointed at tip; copulatory tube very slender, with basal chamber small, main tube long, attenuate but weakly curved at basal half. Parameres (Fig. 72B) each very

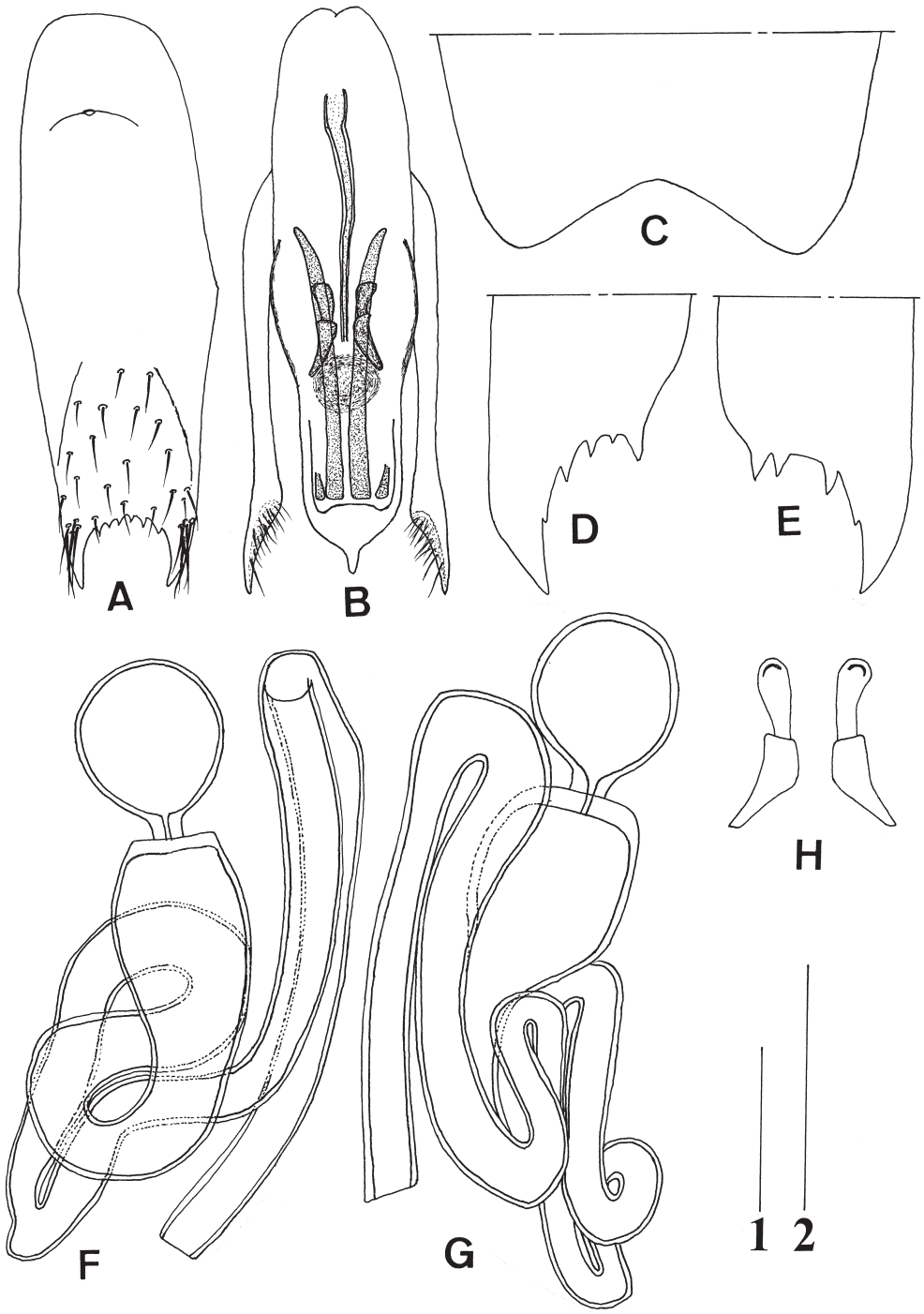

Fig. 72. *Stenus ukon* Naomi & Puthz (Nabetani, Ishikawa). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

acutely pointed at apex; apical area moderately long, distinctly swollen mesially at base, furnished mesially with 15 to 16 short setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 72D, E) irregularly toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 72F, G) with capsule spherical, large; apical chamber pyriform to fusiform, large to very large; duct thick, moderately loosely or moderately tightly coiled, moderately long with 4 to 8 turns.

Biology and ecology. *S. ukon* is distributed in the plains and mountainous regions of the northwestern part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. ukon* is allied to *S. unagi* and *S. fugu*, but it is separable from the latter two species by the aedeagal median lobe weakly swollen laterally near the middle and gently rounded apicolaterally (Fig. 72B), and the endophallic expulsion hook with its anterior plate spatulate and distinctly narrowed at base (Fig. 72H).

Etymology. The specific epithet of this new species is derived from the "ukon", which is the Japanese name of "turmeric".

Stenus kyushuensis Naomi & Puthz
(Figs. 73A–H, 107G)

Stenus kyushuensis Naomi & Puthz, 2006: 74; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Hakozaki, Fukuoka City, Fukuoka Pref., 12. v. 1979, K. Yamagishi leg. Paratypes: 2 ♂3 ♀ (cN), Mt. Fukuchi, Kitakyushu City, Fukuoka Pref., H. Hoshina leg.; 1 ♂1 ♀ (cN), Chikushi-yabakei, Nakagawa-cho, Fukuoka Pref., 27. xi. 1994, S. Nomura leg.; 1 ♀ (cN), Yunoharu, Saga Pref., 20. v. 1979, C. Ohkuma leg.; 1 ♂ (cN), same locality, 23. v. 1979, C. Ohkuma leg.; 1 ♀ (cN), Ikenoharu Marsh, Saga Pref., 9. ix. 1976, H. Ohishi leg.; 1 ♂1 ♀ (cN), Mt. Tsubaki, Saga Pref., 2. x. 1977, H. Ohishi leg.; 1 ♀ (cN), Mt. Seburi, Saga Pref., 3. x. 1976, H. Ohishi leg.

Other material examined. [KYUSHU]: 2 ♂, Mizunashi, Maebaru City, Fukuoka Pref., 24. x. 1994, S. Nomura leg.; 1 ♂1 ♀, Mt. Sefuri, Sefuri Vil., Saga Pref., 9. x. 1994, S. Nomura leg.

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

Redescription. Male and female: Body 4.8–5.8 mm (fore body 2.1–2.7 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, usually moderately dense to dense but sometimes very dense, small. Pronotum with surface weakly uneven; punctures round to almost round, very dense, moderately large, somewhat coarse. Elytra with surface weakly depressed at humeri, almost flat near suture; punctures round to almost round, very dense, moderately large to large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, dense, small, regular in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites and tergoventrite sutures almost missing.

Male: Seventh ventrite posteromedially with a subtriangular flat area, which is very shallowly emarginate; 8th ventrite (Fig. 73C) posteriorly with a shallow, arcuate emargination; 9th tergum with antecostal apophyses relatively short; 9th ventrite (Fig. 73A) broad but strongly nar-

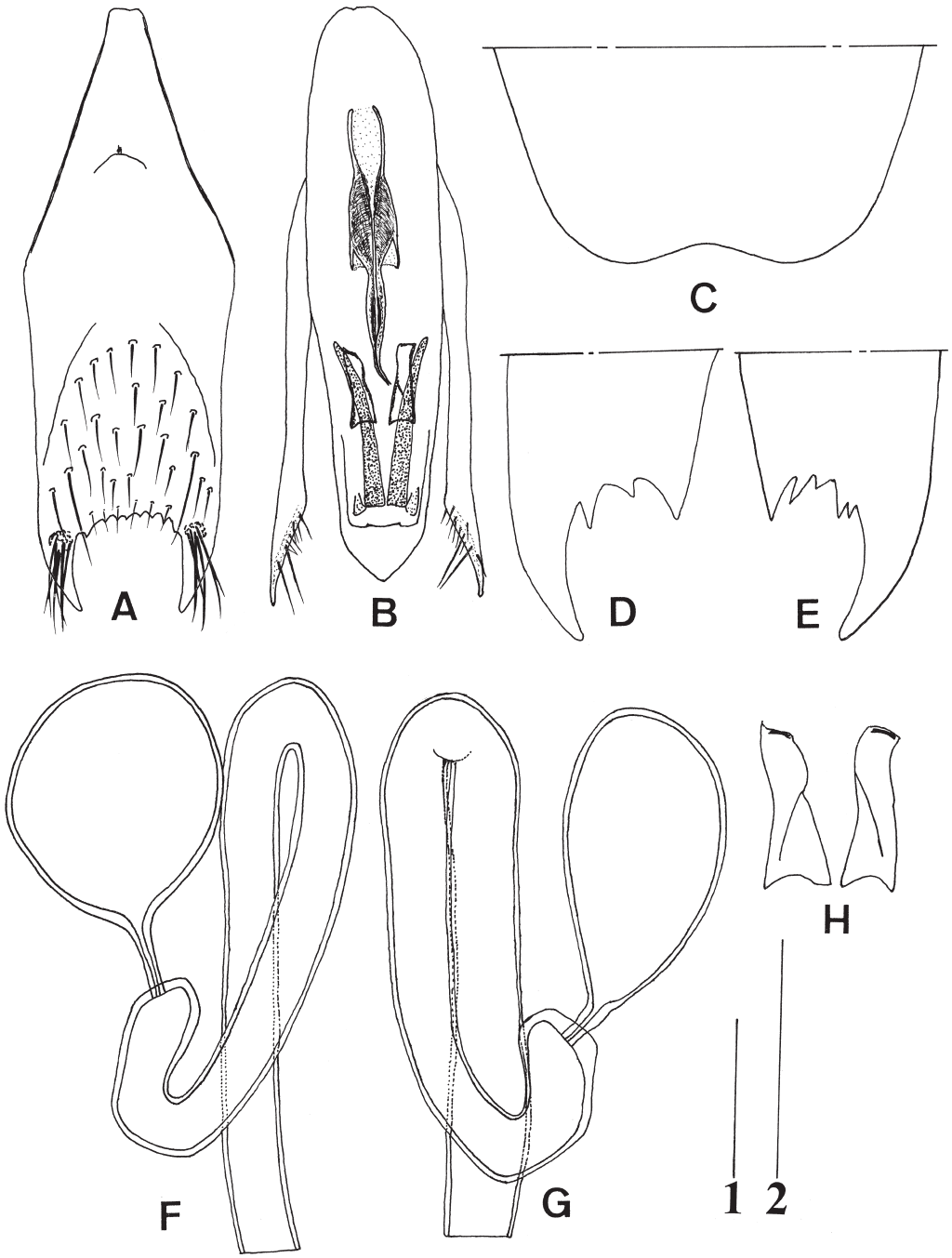

Fig. 73. *Stenus kyushuensis* Naomi & Puthz (A, B, H, Hakozaki, Fukuoka; C, Fukuchi, Fukuoka; D, E, G, Ikenoharu, Saga; F, Seburi, Fukuoka). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

rowed anteriorly in about basal 2/5, weakly serrate posteriorly, with macrosetae long, apicolateral teeth long, acutely pointed, apicolateral setae moderately long; 10th tergum weakly emarginate

posteriorly. Aedeagal median lobe (Fig. 73B) slender, obtusely angulate apicolaterally, pointed at apex; apical sclerotized area (Fig. 73B) subtriangular, bidentate anteriorly. Endophallic median bands (Fig. 73B) relatively short, thin; expulsion hooks (Fig. 73H) separated, each almost elongate-quadrangular, shallowly emarginate posteriorly; copulatory tube (Fig. 73B) with basal chamber elongate-ovoidal, main tube with the basal tube stout, thick, broad, distinctly angulate posterolaterally, and the apical tube thin and baculiform but weakly constricted at base and beak-shaped at apex. Parameres (Fig. 73B) almost straight, each very acutely pointed at apex; apical area long, moderately swollen and angulate mesially at base, furnished mesially with 6 to 8 short and 1 to 2 long setae.

Female: Eighth ventrite obtusely angulate posteromedially; gonocoxites (Fig. 73D, E) irregularly toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 73F, G) with capsule spherical (Fig. 73F) or ovoidal (Fig. 73G), very large; apical chamber almost missing; duct thick, short with two distinct turns.

Biology and ecology. *S. kyushuensis* is distributed in the plains and mountainous regions of northern Kyushu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. kyushuensis* is allied to *S. tanuki*, but it is separable from the latter species by the aedeagal median lobe narrower especially at the apical part, with its apical sclerotized area longer (Fig. 73B), the endophallic copulatory tube with its main tube much thicker in about basal half to form the basal tube (Fig. 73B), and the spermatheca with its duct longer and thicker, but its apical chamber almost missing (Fig. 73F).

Stenus tanuki Hromádka
(Figs. 74A–H, 107H)

Stenus tanuki Hromádka, 1979: 107: Naomi, 2006: 64 (synonym of *S. indubius*); Naomi & Ito, 2015: 213 (revalidated as good species).

Stenus wakayamanus Puthz, 2001a: 44; Puthz & Naomi, 2013: 141; Naomi & Ito, 2015: 213 (synonym of *S. tanuki*).

Type material examined. Holotype of *S. tanuki*: ♂ (NMP), Hiraoka, Osaka, Kinki Distr., 1. v. 1954, K. Sawada leg.

Holotype of *S. wakayamanus*: ♀ (cP), Hirai, Wakayama Pref., 14. vii. 1999, V. Puthz leg. Paratypes of *S. wakayamanus*: 1 ♂1 ♀ (cN), same data as holotype; 1 ♂ (cN), Mt. Nachi (350 m), Wakayama Pref., 13. vii. 1999, V. Puthz leg.

Other material examined. [HONSHU]: 1 ♀, Tategasaki, Kumano City, Mie Pref., 28. i. 1995, H. Yokozeki leg.; 2 ♂, Mt. Gomanodan, Wakayama Pref., 11. vi. 1996, I. Matoba leg.; 1 ♂, same locality, 14. vi. 1994, I. Matoba leg.; 1 ♀, Yunomine, Hongu-cho, Wakayama Pref., 27. xii. 1992, I. Matoba leg.; 1 ♂, Tanago, Kumanogawa-cho, Wakayama Pref., 18. iv. 1985, I. Matoba leg.; 1 ♂, Mizukami, Nakahechi-cho, Wakayama Pref., 2. vi. 1995, I. Matoba leg.; 2 ♂, Mt. Ohto, Wakayama Pref., 28–29. vi. 1981, S. Naomi leg.; 1 ♂2 ♀, Hoihoi Valley, Mt. Ohto, Wakayama Pref., 6. v. 1994, S. Nomura leg.; 1 ♀, Mt. Katsuragi, Wakayama Pref., 13. v. 1993, I. Matoba leg.; 1 ♂, Mt. Kongo, Gose City, Nara Pref., 4. vii. 1998, T. Kishimoto leg.; 1 ♂1 ♀, Mt. Kojin, Nara Pref., 30. vii. 1995, T. Ito leg.; 1 ♂1 ♀, Mt. Wasamata, Kami-kitayama, Nara Pref., 11. vii. 1999, M. Maruyama leg.; 1 ♂, Mt. Obako, Nosegawa Vil., Nara Pref., 7. v. 1994, S. Nomura leg.; 1 ♂1 ♀, Mt. Kongo, Osaka, 21. v. 1989, K. Yamazaki leg.; 1 ♀, Hyogo Pref., 19. v. 1982.

Distribution. Japan: Honshu (Kinki district).

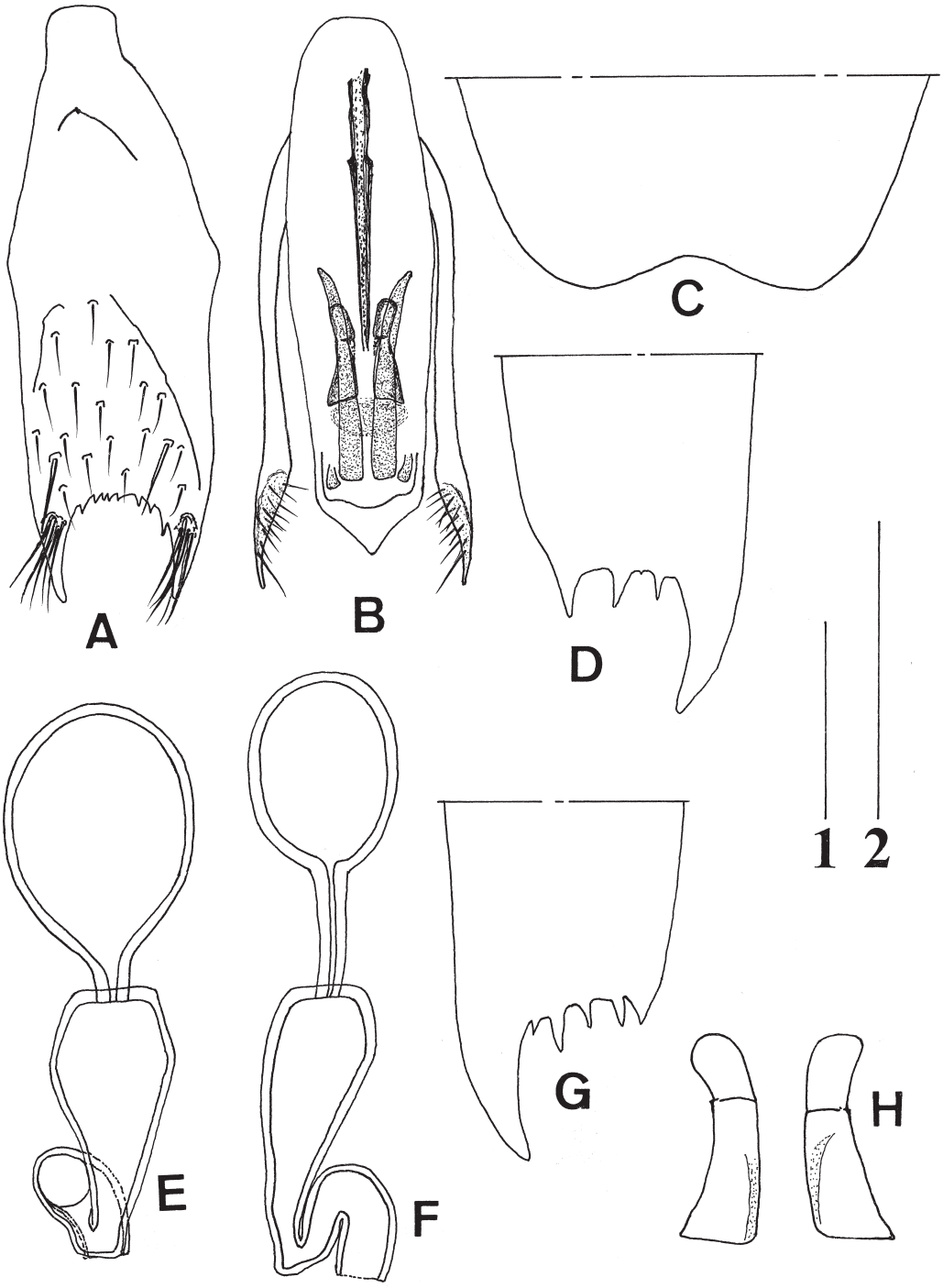

Fig. 74. *Stenus tanuki* Hromádka (A, B, H, Gomanodan, Wakayama; C, Hirai, Wakayama; D, F, G, Yunomine, Wakayama; E, Katuragi, Wakayama). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, G, posterior part of gonocoxite; E, F, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

Redescription. Male and female: Body 3.9–5.4 mm (fore body 2.0–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven; punctures round, very dense, moderately large, somewhat coarse. Elytra with surface almost even or weakly uneven; punctures round, very dense, large. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to elliptical, moderately dense, various in size in anterior segments, while punctures in posterior segments sparse, very small, almost regular. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrite (Fig. 74C) posteriorly with a broad, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 74A) irregularly serrate posteriorly, with macrosetae relatively short, apicolateral teeth long, acutely pointed, apicolateral setae moderately long; 10th tergum weakly emarginate posteriorly. Aedeagal median lobe (Fig. 74B) moderately broad, angulate apicolaterally, pointed at apex; apical sclerotized area (Fig. 74B) broad-triangular, arcuately emarginate anteriorly. Endophallic dorsal membrane (Fig. 74B) transverse, elliptical to fusiform; median bands (Fig. 74B) long, thin; expulsion hooks (Fig. 74H) separated, each with the anterior plate rounded apically, demarcated by a transverse suture from, and much smaller than posterior plate, the posterior plate projecting posterolaterally, truncate posteriorly; copulatory tube (Fig. 74B) very slender, with basal chamber thin, main tube very thin, attenuate, straight. Parameres (Fig. 74B) each very acutely pointed at apex; apical area long, moderately swollen mesially at base, furnished mesially with 12 to 13 setae of various length.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 74C, G) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 74E, F) with capsule ovoidal or elliptical, large to very large; apical chamber pyriform, large; duct thick, very short with two distinct turns.

Biology and ecology. *S. tanuki* is distributed in the mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. tanuki* is allied to *S. kyushuensis*, but it is separable from the latter species by the aedeagal median lobe broader especially at the apical part, with its apical sclerotized area shorter (Fig. 74B), the endophallic copulatory tube with its main tube simply attenuate (Fig. 74B), and the spermatheca with its duct much shorter, and its apical chamber pyriform (Fig. 74E).

Etymology. The specific epithet of this new species is derived from the “tanuki”, which is the Japanese name of “raccoon dog”.

Stenus hypovelox Naomi & Puthz
(Figs. 75A–H, 107I)

Stenus hypovelox Naomi & Puthz, 2006: 76; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Oku-dogo, Ehime Pref., 2. vi. 1989, T. Ito leg. Paratypes: 2 ♀ (cN), same data as holotype; 1 ♀ (MHNG), Mt. Ishizuchi, Ehime Pref., Japon, 13–14. viii. 1980, Cl. Besuchet leg.; 1 ♂1 ♀ (cN), same locality, 16. vi. 1981, S. Naomi leg.; 1 ♀ (cN), Komenono, Ehime Pref., 18. vi. 1978, A. Oda leg; 1 ♂1 ♀, Mt. Kamegamori, Saijyo City, Ehime Pref., 1650 m, 11–18. viii. 1980, S. & J. Peck leg.; 1 ♀, Mt. Tsutsujo, Omogo Vil., Ehime Pref., 1600 m, 11–18. viii. 1980, S. & J. Peck leg.; 1 ♀ (cP), Ehime, M. Sakai leg.; 1 ♂ (cP),

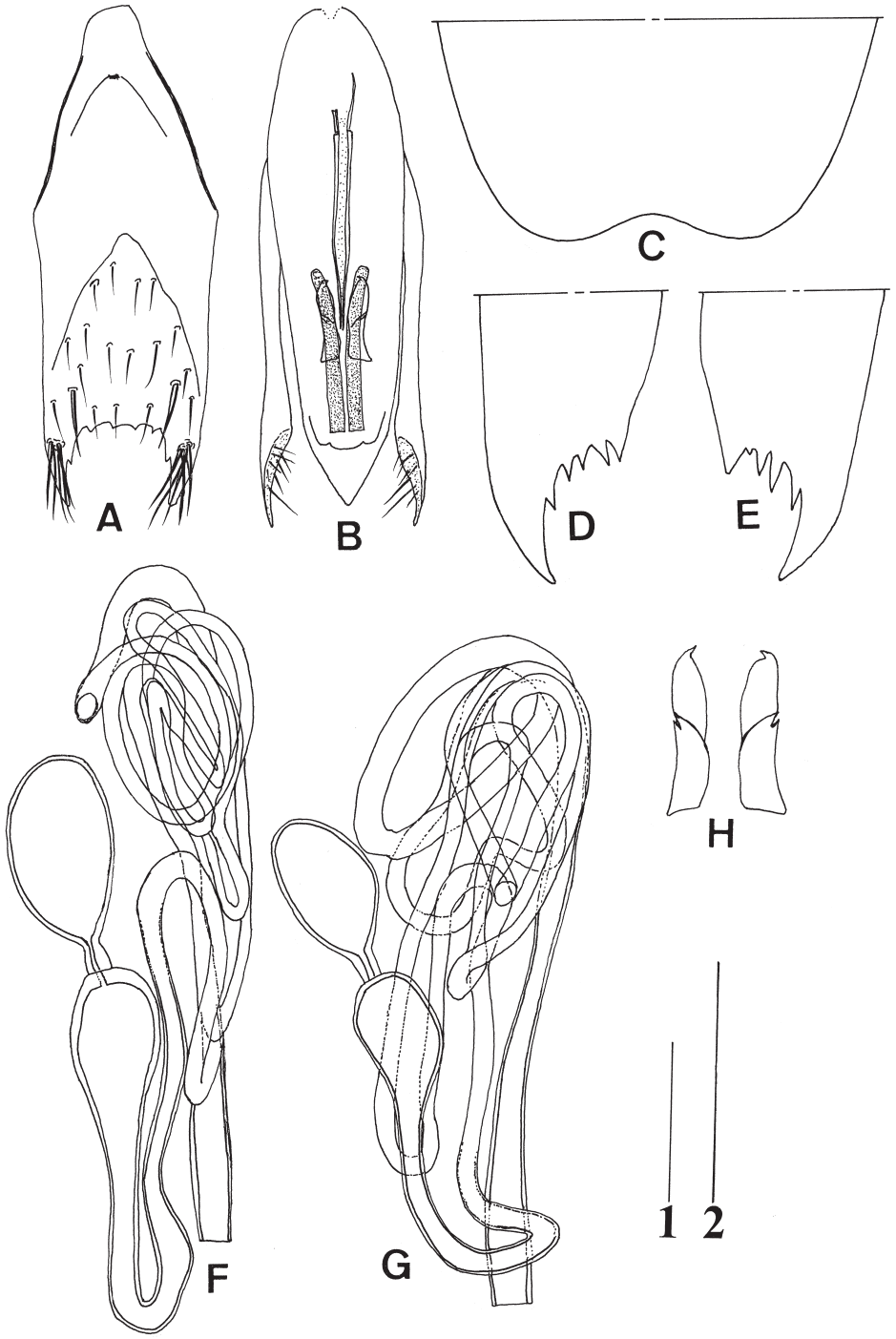

Fig. 75. *Stenus hypovelox* Naomi & Puthz (A, B, D, E, G, H, Ishizuchi, Ehime; C, Okudogo, Ehime; F, Omogokei, Ehime). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

Ehime, Peck leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Redescription. Male and female: Body 4.5–5.2 mm (fore body 2.1–2.6 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures moderately dense to dense, irregular, somewhat umbilicate. Pronotum with surface weakly uneven; punctures round to almost round, very dense, various in size, sometimes two or more punctures partially fused. Elytra with surface weakly uneven to uneven, almost flat near suture; punctures round, very dense, moderately large to large, sometimes coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small to moderately large in anterior segments, while puncture in posterior segments very small, moderately dense, regular. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrite (Fig. 75C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses relatively short; 9th ventrite (Fig. 75A) serrate posteriorly, with macrosetae short, apicolateral teeth long, pointed, apicolateral setae short; 10th tergum almost entire. Aedeagal median lobe (Fig. 75B) elongate, slender, gently rounded or very weakly angulate at apicolateral corners, distinctly pointed at apex; apical sclerotized area (Fig. 75B) triangular, bidentate anteriorly; median bands (Fig. 75B) relatively short, very thin; expulsion hooks (Fig. 75H) separated, each with the anterior plate sharply hooked at anterior tip, demarcated by an oblique suture from posterior plate, the posterior plate almost truncate posteriorly, pointed posterolaterally; copulatory tube (Fig. 75B) slender with basal chamber with two thin rods of different length, main tube long, baculiform, straight. Parameres (Fig. 75B) each very acutely pointed at apex; apical area long, moderately swollen mesially at base, furnished mesially with 8 to 9 setae of various length.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 75D, E) distinctly toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 75F, G) with capsule ovoidal to subovoidal, moderately large; apical chamber nearly pyriform, moderately large; duct very long, moderately tightly or tightly coiled, usually thin but the duct from the opening to 1st turn moderately thick.

Biology and ecology. *S. hypovelox* is distributed in the mountainous regions of the northwestern part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. hypovelox* seems to be allied to *S. kyushuensis* and *S. tanuki*, but it is separable from the latter two species by the aedeagal median lobe with its apicolateral corners only indistinctly recognizable (Fig. 75B), the endophallic expulsion hook with its anterior plate sharply hooked (Fig. 75H), and the spermatheca with its duct much longer and thinner (Fig. 75F).

Stenus sawadai Hromádka
(Figs. 76A–L, 107J)

Stenus sawadai Hromádka, 1979: 108; Herman, 2001: 2379; Naomi, 2006: 93; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (NMP), Sasayama, Hyogo Pref., Japan, 18. vii. 1956, Y. Icho leg. Paratypes: 1 ♂ (cP), Mt. Hiei, Kyoto, 10. iii. 1968, K. Sawada leg.; 1 ♂ (cP), Katuoji, Minoo, Osaka, 13. iv. 1954, K. Sawada leg.

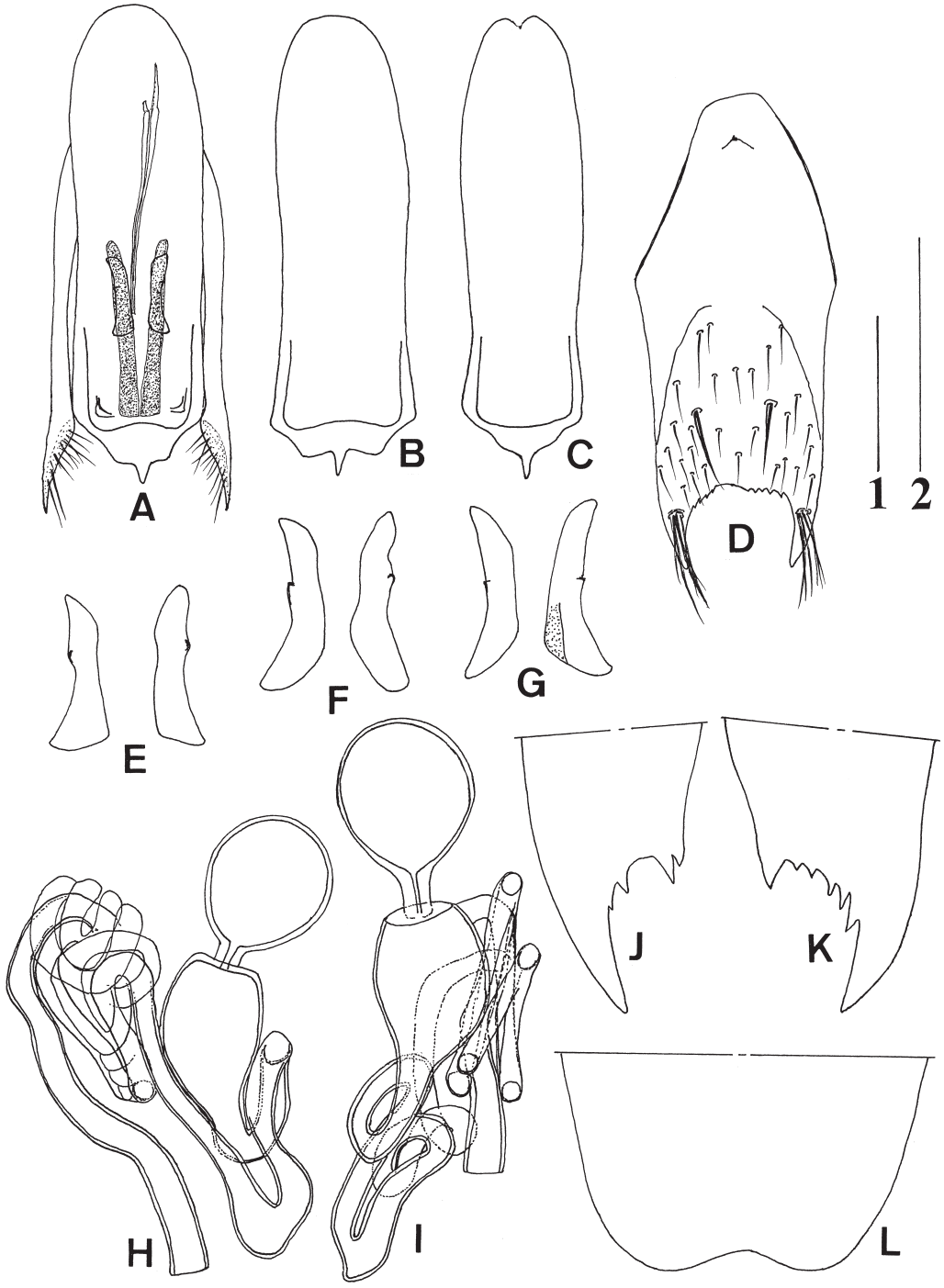

Fig. 76. *Stenus sawadai* Hromádka (A, Myoken, Osaka; B, F, Koraibiro, Mie; C, G, Minamimata, Mie; D, L, Iwakura, Kyoto; E, Ashiu, Kyoto; H, Daihi, Kyoto; I, Mizuho, Kyoto; J, K, Uji, Kyoto). A, aedeagus; B, C, median lobe; D, 9th ventrite of male; E–G, expulsion hooks; H, I, spermatheca; J, K, posterior part of gonocoxite; L, posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A–D, 0.1 mm for E–K; Scale 2: 0.25 mm for L.

Other material examined. [HONSHU]: 1 ♂1 ♀, Koraibiro, Ise City, Mie Pref., 10. i. 1998, H. Ichihashi leg.; 2 ♀, Nishikikisei, Watarai, Mie Pref., 1. ii. 1997, A. Amagasu leg.; 1 ♂1 ♀, Mt. Minamimata, Ohuchiyama, Mie Pref., 12. x. 1997, K. Kanno leg.; 2 ♂, Watari, Mie Pref., 18. xii. 1986, A. Amagasu leg.; 1 ♂1 ♀, Mt. Hiei, Shiga Pref., 9. xii. 1984, T. Ito leg.; 1 ex. (cP), Higashiyama, Pref. Kyoto, 23. iii. 1968, K. Sawada; 1 ♂1 ♀, Ashiu, Kyoto., 5. ix. 1992, T. Ito leg.; 2 ♂, Iwakura, Kyoto.,10–11. iv. 1981, T. Ogata leg.; 1 ♂1 ♀, Gounho, Uji City, Kyoto., 8. ii. 1997, S. Takahashi leg.; 1 ♀, Yawata, Kyoto, 7. xii. 1986, T. Ito leg.; 1 ♀, Hanase, Kyoto., 20. x. 1987, T. Ito leg.; 1 ♀, same locality, 2. x. 1987, T. Ito leg.; 2 ♂, same locality, 26. x. 1991, T. Ito leg.; 1 ♀, Mizuho, Kyoto., 2. vii. 1989, T. Ito leg.; 1 ♂, same locality, 23. xi. 1989, T. Ito leg.; 1 ♂1 ♀, Mt. Daihi, Kyoto., 2. xi. 1965, T. Ito leg.; 1 ♂, Oomi-Ogose, Ashibidani, Kyoto., 21. vi. 1967, M. Tomokuni leg.; 1 ex. (cZ), Mt. Myoken, Osaka, Japan, 25. vi. 1993, N. Ito leg; 1 ex. (cZ), same locality, 19. ix. 1994, N. Ito leg.; 1 ♂1 ♀, same locality, 5. v. 1986, T. Ito leg.; 1 ♂, Sasayama, Hyogo Pref., 18. ix. 1983, T. Ito leg.;

Distribution. Japan: Honshu (Kinki district).

Redescription. Male and female: Body 3.9–4.8 mm (fore body 2.0–2.6 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven or almost even; punctures round, very dense, moderately large, somewhat coarse. Elytra with surface weakly uneven; punctures round to almost round, very dense, various in size, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, sparse to moderately dense, small in anterior segments, while punctures in posterior segments sparse, very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped or subtriangular, flat area; 8th ventrite (Fig. 76L) posteromedially with a shallow, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 76D) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth very long, acutely pointed, apicolateral setae moderately long; 10th tergum almost entire. Aedeagal median lobe (Fig. 76A–C) moderately broad, angulate apicolaterally, tricuspidate at apex; apical sclerotized area (Fig. 76A–C) transverse, basically trapezoidal but various in shape, with median cusp long, thin, pointed, lateral cusp existing as angulation. Endophallic median bands (Fig. 76A) each moderately long, thin; expulsion hooks (Fig. 76E–G) separated, each elongate, almost cucumber-shaped, more or less pointed at anterior tip, with anterior plate fused with posterior plate; copulatory tube (Fig. 76A) very slender, with basal chamber having two rods of different length, main tube very thin, long, attenuate. Parameres (Fig. 76A) each very acutely pointed at apex; apical area long, moderately swollen mesially at base, furnished mesially with 11 to 12 setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 76J, K) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 76H, I) with capsule spherical, large; apical chamber almost pyriform, large; duct long, relatively thin, tightly, irregularly coiled.

Biology and ecology. *S. sawadai* is a common species; and it is widely distributed in the plains and low mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sawadai* is allied to *S. kishimotoi* and *S. yokozekii*, but it is separable from the latter species by the aedeagal median lobe tricuspidate and narrower (Fig. 76A–C), and the endo-

phallic expulsion hook a little broader, with its anterior part only weakly curved laterally (Fig. 76E–G). This species shows the slight variations regarding the apical part of aedeagal median lobe among the local populations (Fig. 76A–C; see also Naomi, 2006).

Etymology. This species is named in honor of Dr. Kohei Sawada (Takatsuki, Osaka).

Stenus kishimotoi Naomi & Puthz
(Figs. 77A–H, 107K)

Stenus kishimotoi Naomi & Puthz, 2006: 97; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♀ (CBM), Mt. Takao, Haibara-cho, Shizuoka Pref., 11. iv. 1994, T. Kishimoto leg. Paratypes: 1 ♂ (cN), same data as holotype; 1 ♀ (cN), Mt. Sobatsubu, Nakakawane T., Shizuoka Pref., 9. ix. 2004, T. Watanabe leg.; 1 ♀ (cN), Mt. Sanage, Toyota City, Aichi Pref., 21. iv. 1991, T. Hozumi leg.; 2 ♂1 ♀ (cN), Togashima, Yukinoura, Owase City, Mie Pref., 4. v. 1996, H. Yokozeki leg.; 1 ♂1 ♀ (cN), Nasazaki, Kuki-cho, Owase City, Mie Pref., 4. iv. 1998, F. Ichikawa & H. Yokozeki leg.; 2 ♀ (cN), Sugari-cho, Owase City, Mie Pref., 19. i. 1997, A. Amagasu & F. Ichikawa leg.

Other material examined. [HONSHU]: 1 ♂, Kukizaki, Owase City, Mie Pref., 5. i. 1993, H. Yokozeki leg.

Distribution. Japan: Honshu (Shizuoka, Aichi and Mie Prefs.).

Redescription. Male and female: Body 4.6–5.0 mm (fore body 2.1–2.5 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven to almost even; punctures round, very dense, various in size. Elytra with surface almost even, flat near suture; punctures round to almost round, very dense, various in size, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, sparse to moderately dense, small, almost regular in anterior segments, while punctures in posterior segments very sparse to sparse, very small, shallow, almost regular. Lateroventrites missing; tergoventrite sutures very thin or almost missing.

Male: Sixth ventrite posteromedially with a small, bell-shaped flat area; 7th ventrite posteromedially with a large, bell-shaped flat area; 8th ventrite (Fig. 77C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 77A) minutely serrate posteriorly, with macrosetae very long, apicolateral teeth stout, long, acutely pointed, apicolateral setae moderately long; 10th tergum almost entire. Aedeagal median lobe (Fig. 77B) broad, broadest at about basal 2/5, weakly constricted before apicolateral corners, obtusely angulate or rounded at apicolateral corners, simply pointed at apex; apical sclerotized area (Fig. 77B) almost broad-triangular, arcuately emarginte anteriorly. Endophallic median bands (Fig. 77B) each long, moderately broad; lateral bands (Fig. 77B) each broad at base; expulsion hooks (Fig. 77H) separated, each thin, cucumber-shaped, pointed posterolaterally, with anterior plate almost fused with posterior plate; copulatory tube (Fig. 77B) very slender, basal chamber with two rods of different length, main tube long, thin, attenuate. Parameres (Fig. 77B) thick, each very acutely pointed at apex; apical area long, moderately swollen mesially at base, strongly narrowed toward apex, furnished basally with 6 to 9 short, thin setae, and apically with 2 moderately long setae.

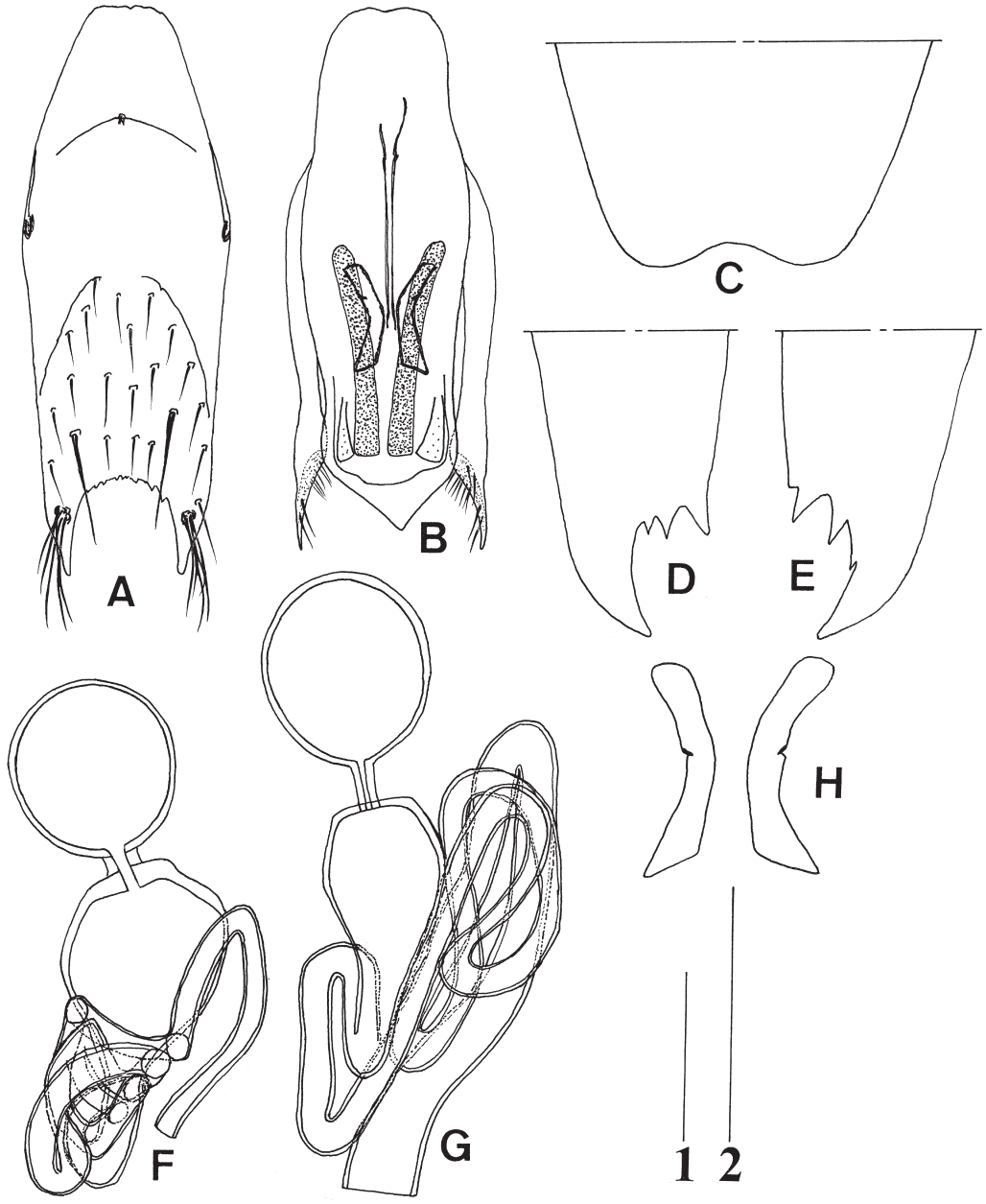

Fig. 77. *Stenus kishimotoi* Naomi & Puthz (A–C, F–H, Owase, Mie; D, E, Toyota, Aichi). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 77D, E) toothed posteriorly, each with apicolateral tooth very long, stout, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 77F, G) with capsule spherical, large; apical chamber pyriform to elongate-pyriform, large; duct extending anteriorly a little before or behind the apical margin of apical chamber, moderately long, almost tightly coiled, usually thin but the duct from the open-

ing to 1st turn varying in thickness (thin to thick or very thick).

Biology and ecology. *S. kishimotoi* is distributed in the plains and mountainous regions of the southern part of Chubu district and the eastern part of Kansai district, central Honshu. *S. kishimotoi* and *S. yokozekii* seem to be almost sympatrically distributed in the eastern part of Kinki district (e.g., Owase City). The beetles of this species inhabit the leaf litter in the natural forests.

Remarks. *S. kishimotoi* is the sister species of *S. yokozekii*, and it is separable from the latter species by the aedeagal median lobe broadest at about basal 2/5 (Fig. 77B), the endophallic expulsion hook sharply pointed posterolaterally (Fig. 77H), and the spermatheca with its duct extending anteriorly a little before or behind the apical margin of apical chamber (Fig. 77F).

Etymology. This species is named in honor of Dr. Toshio Kishimoto (Museum of Natural and Environmental History, Shizuoka), who studies the Staphylinidae.

Stenus yokozekii Naomi
(Figs. 78A–H, 107L)

Stenus yokozekii Naomi, 2006: 99; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Sugari, Owase, Mie Pref., 19. i. 1997, F. Ichikawa leg. Paratypes: 1 ♂4 ♀ (cN), same data as holotype, A. Amagasu & F. Ichikawa leg.; 1 ♀ (cN), same locality, 13. i. 1996, H. Yokozeki leg.; 1 ♀, Sengokugoe, Ohuchiyama Vil., Mie Pref., 10. iv. 1994, H. Yokozeki leg.; 1 ♀ (cN), Kyoto, Japan, 23. v. 1988.

Other material examined. [HONSHU]: 1 ♂, same locality as holotype, 19. i. 1997, H. Yokozeki leg.

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

Redescription. Male and female: Body 4.6–5.1 mm (fore body 2.1–2.3 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of longitudinal furrows; punctures round to almost round, moderately dense to dense, small, somewhat umbilicate. Pronotum with surface weakly uneven to almost even; punctures round, very dense, various in size. Elytra with surface almost even, flat near suture; punctures round to almost round, very dense, various in size, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, almost regular in anterior segments, while punctures in posterior segments sparse, very small, almost regular. Lateroventrites missing; tergoventrite sutures indistinct or almost missing.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 78C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 78A) minutely serrate posteriorly with an almost U-shaped emargination between apicolateral teeth, and with macrosetae relatively short, apicolateral teeth stout, long, acutely pointed, apicolateral setae relatively long; 10th tergum shallowly emarginate posteriorly. Aedeagal median lobe (Fig. 78B) broad, broadest and obtusely angulate at apicolateral corner, pointed at apex; apical sclerotized area (Fig. 78B) almost broad-triangular. Endophallic median bands (Fig. 78B) moderately long, thin; lateral bands (Fig. 78B) each broad at base; expulsion hooks (Fig. 78H) separated, each thin, cucumber-shaped, weakly pointed posterolaterally, with anterior plate almost fused with posterior plate; copulatory tube (Fig. 78B) very slender, with basal chamber having two rods of different length, main tube long, thin but very weakly broadened at apex. Parameres (Fig. 78B) each very acutely pointed at apex; apical area long,

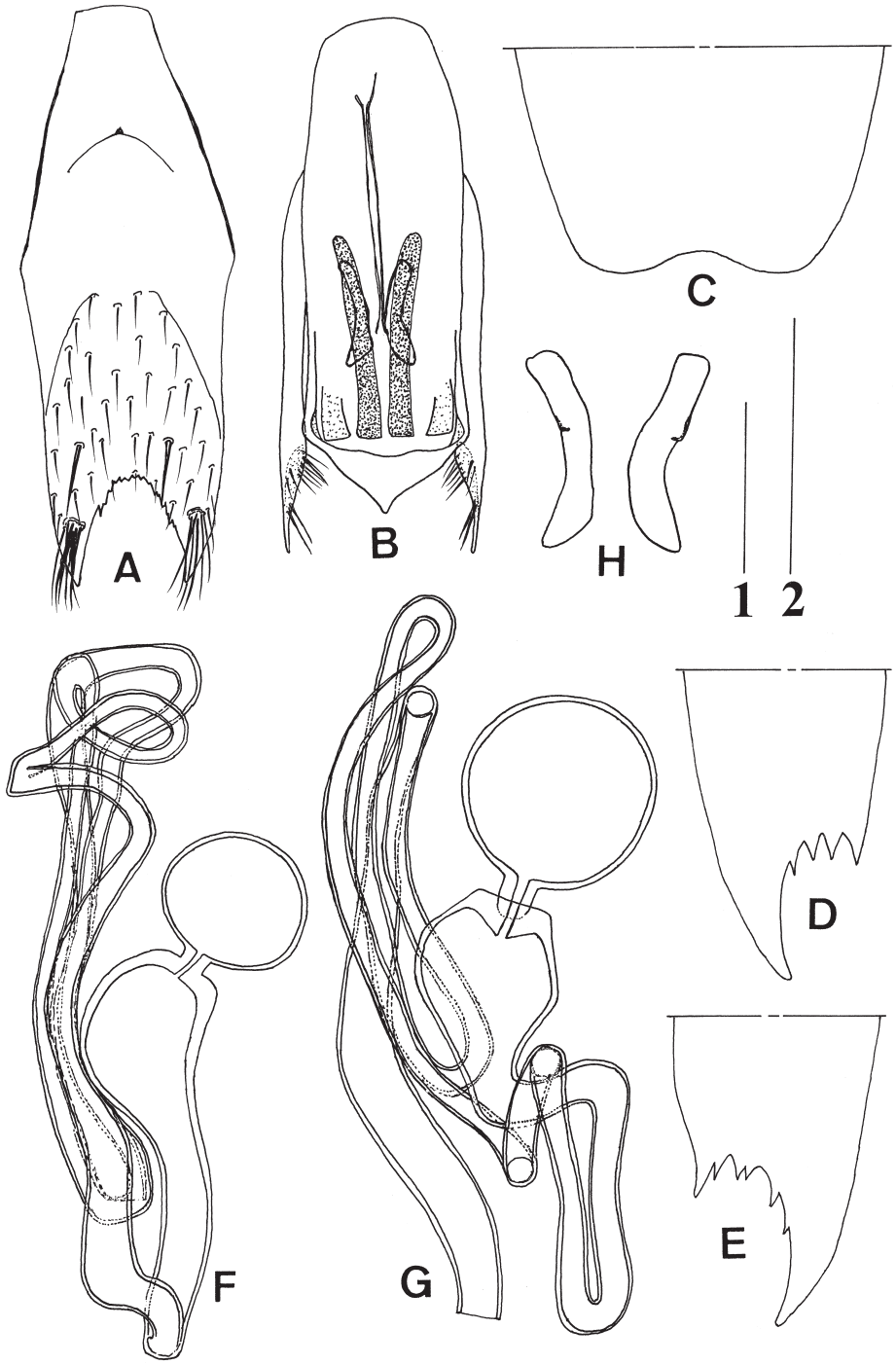

Fig. 78. *Stenus yokozekii* Naomi (Owase, Mie). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

weakly swollen mesially at base, strongly narrowed toward apex, furnished basally with 8 to 9 short, thin setae, and apically with 2 moderately long setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 78D, E) toothed posteriorly, each with apicolateral tooth very long, acutely pointed, apicolateral setae moderately long. Spermatheca (Fig. 78F, G) with capsule spherical, moderately large to large; apical chamber pyriform to almost pyriform, moderate large; duct extending anteriorly beyond the anterior margin of capsule, long, moderately or tightly coiled, usually thin but the duct from the opening to 1st turn sometimes moderately thick to thick.

Biology and ecology. *S. yokozekii* is distributed in the plains and low mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. yokozekii* is the sister species of *S. kishimotoi*, and it is separable from the latter species by the aedeagal median lobe broadest at apicolateral corner (Fig. 78B), the endophallic expulsion hook weakly pointed posterolaterally (Fig. 78H), and the spermatheca with its duct extending anteriorly beyond the anterior margin of capsule (Fig. 78F).

Etymology. This species is named in honor of Mr. Hideyuki Yokozeki (Yokkaichi, Mie), who collected the beetles of this species.

Stenus tateoi Naomi
(Figs. 79A–H, 108A)

Stenus tateoi Naomi & Puthz, 2006: 101; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Nomura, Mie Pref., 23. xi. 1986, A. Amagasu leg. Paratypes: 3 ♀ (cN), Kirihata, Komono, Mie Pref., 30. iv. 1998, F. Ichikawa leg.; 1 ♂3 ♀ (cN), Geinou-cho, Agei-gun, Mie Pref., 23. xii. 1995, H. Ichikawa & A. Amagasu leg.; 1 ♀ (cN), Igagoe, Anou-cho, Ayama-gun, Mie Pref., 23. xii. 1995, H. Yokozeki leg.; 1 ♀ (cN), Suwa, Ueno City, Mie Pref., 2. v. 1997, H. Yokozeki leg.; 4 ♂3 ♀ (cN), Mt. Jubusen, Kyoto, 15. ix. 1989, T. Ito leg.; 1 ♂ (cN), Mt. Watamuki, Shiga Pref., 5. vi. 1988, N. Ito leg.

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

Redescription. Male and female: Body 3.8–5.0 mm (fore body 1.8–2.3 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to dense, small. Pronotum with surface weakly uneven to almost even; punctures round to elliptical, very dense, moderately large, somewhat coarse, sometimes two or more punctures partially fused. Elytra with surface weakly uneven, almost flat near suture; punctures round, very dense, various in size. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense to dense, small in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, almost regular. Lateroventrites missing; tergo-ventrite sutures very thin or almost missing.

Male: Eighth ventrite (Fig. 79C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses relatively short; 9th ventrite (Fig. 78A) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth long, acutely pointed, apicolateral setae relatively short; 10th tergum shallowly emarginate posteriorly. Aedeagal median lobe (Fig. 79B) broad, rounded or obtusely angulate apicolaterally, obtusely angulate at apex; apical sclerotized area (Fig. 79B) rather transverse, almost broad-triangular. Endophallic median bands (Fig. 79B)

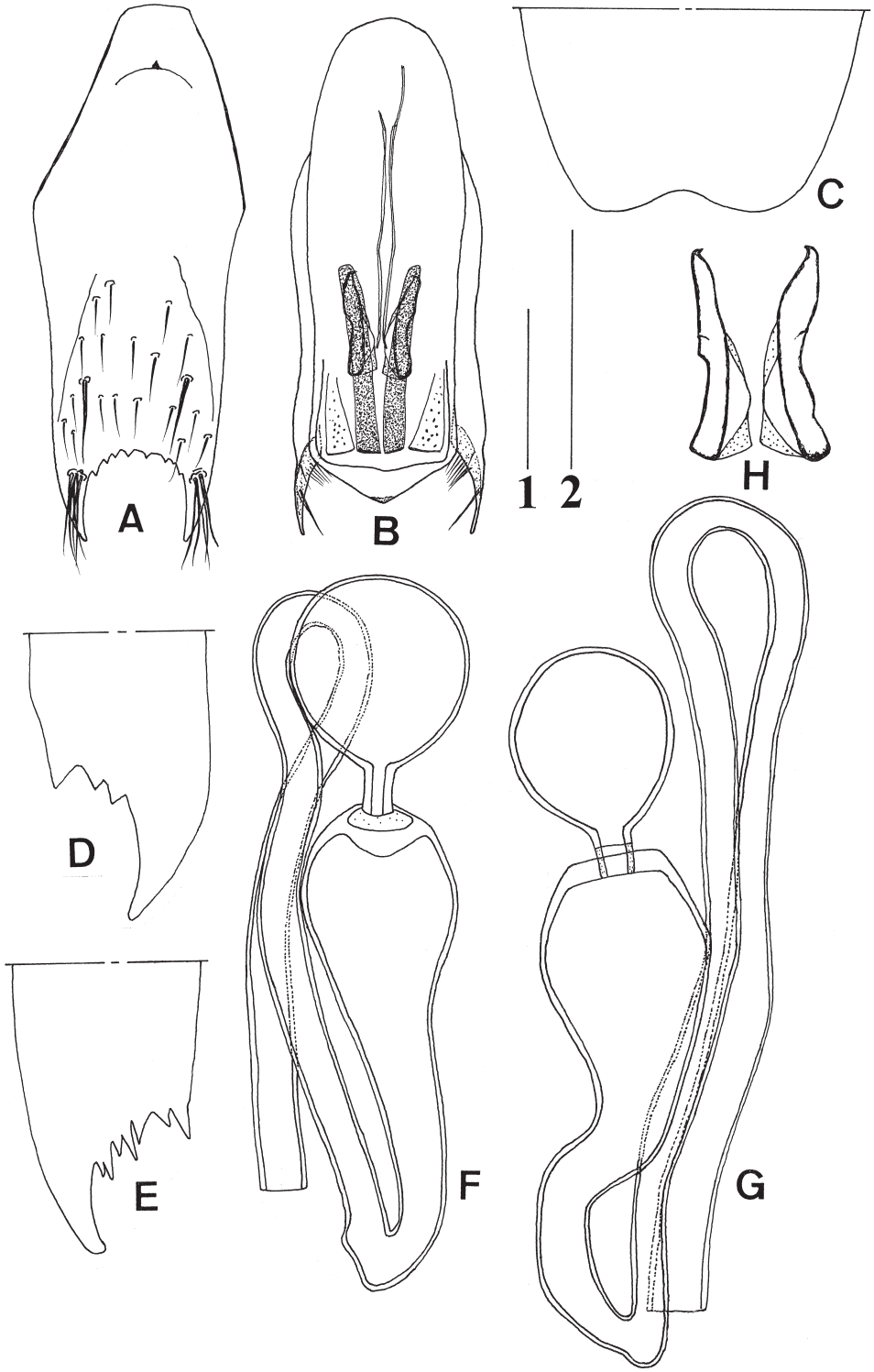

Fig. 79. *Stenus tateoi* Naomi (A, B, D, G, H, Nomura, Mie; C, Geinou, Mie; E, Kirihata, Mie; F, Ueno, Mie). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, E, posterior part of gonocoxite; F, G, spermatheca; H, expulsion hooks. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

moderately long, thin; lateral bands (Fig. 79B) each broad at base; expulsion hooks (Fig. 79H) separated, each elongate, nearly boot-shaped, sharply hooked anteriorly, with anterior plate fused with posterior plate; copulatory tube (Fig. 79B) slender, with basal chamber having two rods of different length, main tube long, thin, basically fusiform, very weakly broadened at apex. Parameres (Fig. 79B) each very acutely pointed at apex; apical area long, weakly swollen mesially at base, strongly narrowed toward apex, furnished basally with 7 to 8 short, thin setae, and apically with 1 or 2 moderately long setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 79D, E) (sometimes irregularly) toothed posteriorly, each with macrosetae moderately long, apicolateral tooth long, pointed, apicolateral setae moderately long. Spermatheca (Fig. 79F, G) with capsule spherical, large; apical chamber pyriform, large to very large; duct with 2 distinct turns, the duct from the opening to 1st turn almost straight.

Biology and ecology. *S. tateoi* is distributed in the plains and low mountainous regions of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. tateoi* is allied to *S. kishimotoi* and *S. yokozekii*, but it is separable from the latter two species by the aedeagal median lobe obtusely angulate at apex (Fig. 79B), the endophallic expulsion hook sharply hooked anteriorly (Fig. 79H), and the spermatheca with its duct with 2 distinct turns (Fig. 79F).

Etymology. This species is named in honor of Mr. Tateo Ito (Yahata, Kyoto), who studies the Staphylinidae, and also greatly contributed to our monographic studies of the Japanese Steninae, by loaning a large number of rare *Stenus* beetles to us for studies.

Stenus ohishii Naomi
(Figs. 80A–H, 108B)

Stenus ohishii Naomi, 1987: 5; Herman, 2001: 2313; Naomi, 2006: 70; Naomi & Puthz, 2013: 141.

Type material. Holotype: ♂ (KUF), Shin-yabakei, Oita Pref., 30. iii. 1985, S. Nomura leg.

Type material examined. Paratypes: 1 ♂ (cN), Mt. Tsurugi, Tokushima Pref., 19–20. vi. 1981, S. Naomi leg.; 1 ♂ (cN), same locality, 15–17. x. 1980, S. Naomi leg.; 1 ♀ (cN), Ochiai Pass, Tokushima Pref., 18. vi. 1981, S. Naomi leg.; 1 ♂ (cN), Shin-yabakei, Ohita Pref., 30. iii. 1985, S. Nomura leg.; 1 ♂1 ♀ (cN), Mt. Hiko, Fukuoka Pref., 4. ix. 1977, H. Ohishi leg.

Other material examined. [HONSHU]: 1 ♂, Koda-Hachiman Shrine, Awaji Is., Hyogo Pref., 16. xi. 1998, S. Nomura leg. [SHIKOKU]: 1 ♂, Mt. Odami, Ehime Pref., 25. ix. 1993, I. Okamoto leg.; 1 ♀, same locality, 21. vii. 1993, M. Sakai leg.; 1 ♂, Sakagawa, Tosayamada-cho, Kochi Pref., 8. x. 1990, S. Nomura leg.; 1 ♂, Ohira, Mino-cho, Tokushima Pref., 2. xii. 1992, M. Sakai leg. [KYUSHU]: 1 ♀, Mt. Kurodake, Kujyu, Ohita Pref., 28. v. 1986, S. Nomura leg.; 1 ♂, Buzenbo, Mt. Hiko, Fukuoka Pref., 30. iv. 1983, S. Nomura leg.; 1 ♂, same locality, 13. x. 1992, S. Nomura leg.; 1 ♀, Kinsenji, Mt. Tara, Nagasaki Pref., 7. v. 1983, S. Imasaka leg.; 1 ♀, Mt. Ichifusa, Kumamoto Pref., 13. v. 1985, S. Nomura leg.

Distribution. Japan (Honshu: Awaji Is., Shikoku, Kyushu).

Redescription. Male and female: Body 4.2–6.0 mm (fore body 2.0–2.6 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round to elliptical, moder-

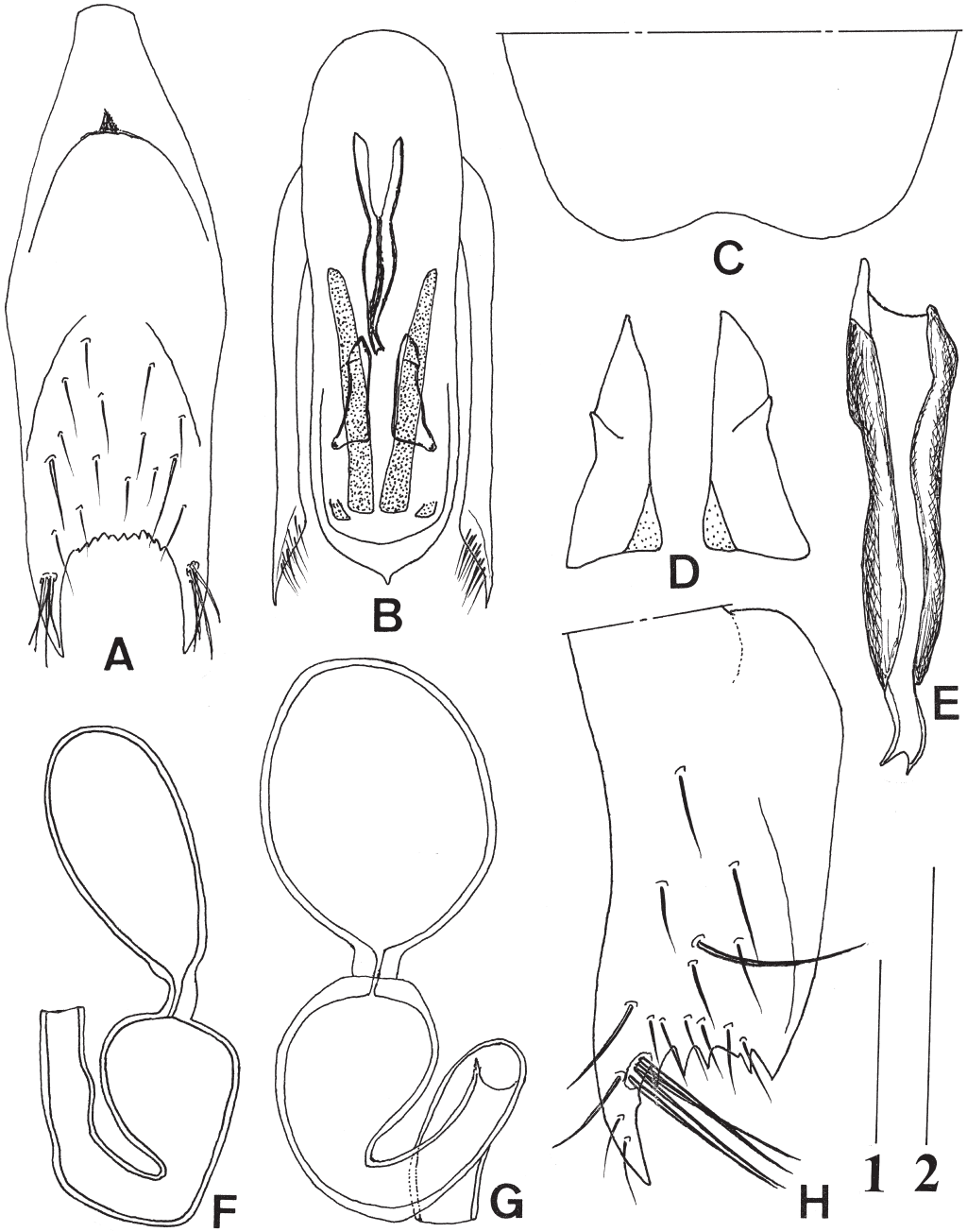

Fig. 80. *Stenus ohishii* Naomi (A–F, Buzenbo, Fukuoka; G, H, Hiko, Fukuoka). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, expulsion hooks; E, copulatory tube; F, G, spermatheca; H, gonocoxite. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

ately dense to very dense, various in size, somewhat coarse. Pronotum with surface weakly uneven to uneven; punctures round to almost round, very dense, various in size, coarse. Elytra with surface uneven, flat near suture; punctures round to elliptical, very dense, moderately large

to large, coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, almost regular in anterior segments; punctures in anterior parts of posterior segments round, dense, very small, while punctures in posterior parts of posterior segments round, sparse, very small, almost regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrrite (Fig. 80C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses relatively short; 9th ventrite (Fig. 80A) minutely serrate posteriorly, with macrosetae moderately long, apicolateral teeth very long, acutely pointed, apicolateral setae short; 10th tergum almost entire. Aedeagal median lobe (Fig. 80B) broad, gently rounded apicolaterally, apically with a very minute, pointed median cusp; apical sclerotized area (Fig. 80B) weakly developed, nearly arched. Endophallic median bands (Fig. 80B) very long, moderately broad; expulsion hooks (Fig. 80B, D) separated, each almost elongate-triangular, broadest at or near the most-posterior part, almost truncate posteriorly, with anterior plate partially demarcated by an oblique suture from posterior plate; copulatory tube (Fig. 80E) moderately long and thick, with basal chamber well-developed with two thick rods, basal constriction distinct (Fig. 80B) or indistinct (Fig. 80E), main tube double-structured by the inner and outer tubes, with the apically exposed inner tube weakly curved, minutely emarginate at apex. Parameres (Fig. 80B) each slender, straight, very acutely pointed apically; apical area relatively short to moderately long, swollen mesially at base, furnished mesially with 10 to 12 thin setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 80H) each distinctly toothed posteriorly, with apicolateral tooth long, sharply pointed, apicolateral setae long. Spermatheca (Fig. 80F, G) with capsule elongate-ovoidal to almost spherical, large to very large; apical chamber almost ovoidal to pyriform, large; duct very short to short with 1 or 2 turns.

Biology and ecology. *S. ohishii* is widely distributed in the plains and mountainous regions. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. ohishii* is the sister species of *S. fusciceps*, and it is separable from the latter species by the endophallic expulsion hook broadest at or near the most-posterior part (Fig. 80B, D), the copulatory tube with its exposed inner tube weakly curved (Fig. 80E), and the spermatheca with its duct much shorter, having 1 or 2 turns (Fig. 80F). *S. ohishii* seems to be also allied to *S. guniujiangensis* from east China, but it is separable from the latter species by the aedeagal median lobe a little broader apically (Fig. 80B), the paramere with its apical area a little narrower (Fig. 80B), and the spermatheca with its capsule larger and its duct thicker (Fig. 80F, G).

No variations are basically found among the local populations of Shikoku and Kyushu in *S. ohishii*, but the male of Awaji Is. (Hyogo) seems to show some variations as follows: The aedeagal median lobe is a little more strongly constricted near the middle, with its apical sclerotized area a little longer; and the endophallic copulatory tube has a little thicker apical tube.

Etymology. This species is named in honor of Mr. Hisashi Ohishi (Kyoto), who collected the *Stenus* beetles of this species.

Stenus fusciceps Naomi
(Figs. 81A–H, 108C)

Stenus fusciceps Naomi, 2006: 72; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Muroto Cape, Kochi Pref., 4. vi. 1988, T. Ito leg. Paratypes: 2 ♂3 ♀ (cN), same data as holotype.

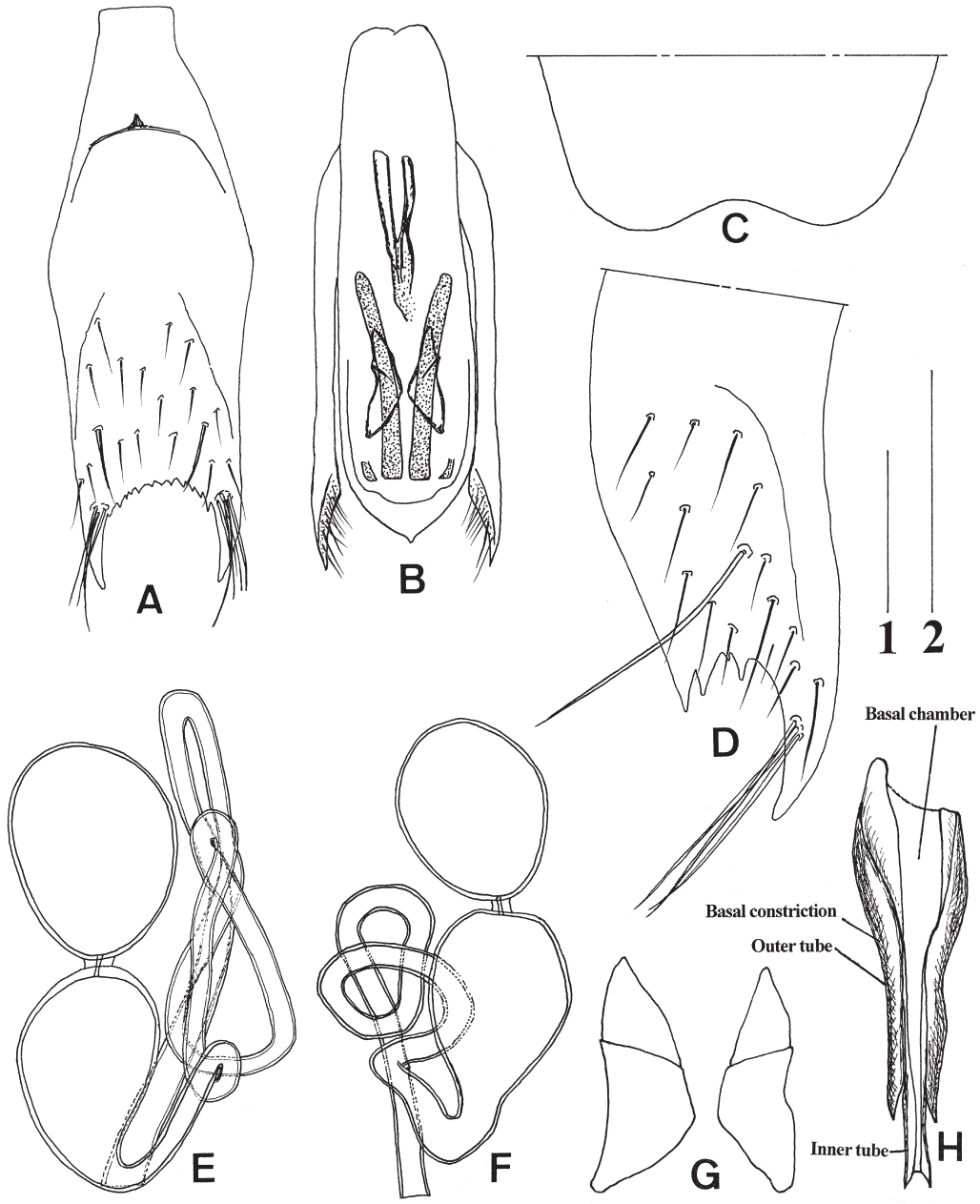

Fig. 81. *Stenus fusciceps* Naomi (Muroto, Kochi). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, gonocoxite; E, F, spermatheca; G, expulsion hooks; H, copulatory tube. Scale 1: 0.2 mm for A, B, 0.1 mm for D–H; Scale 2: 0.25 mm for C.

Distribution. Japan: Shikoku (Kochi Pref.).

Redescription. Male and female: Body 4.6–6.0 mm (fore body 2.2–2.5 mm) in length, with antennae moderately long, very thin. Head black; pronotum, elytra and abdomen dark chocolate brown; labrum dark red; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round to almost round, moderately

dense to dense, small. Pronotum with surface weakly uneven; punctures round to almost round, very dense, various in size, somewhat coarse. Elytra with surface weakly uneven, flat near suture; punctures round to almost round, very dense, moderately large to large, somewhat coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round to almost round, moderately dense, small to moderately large in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, almost regular. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrrite (Fig. 81C) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses relatively short; 9th ventrite (Fig. 81A) minutely serrate posteriorly, with macrosetae relatively short, apicolateral teeth very long, acutely pointed, apicolateral setae moderately long to long; 10th tergum almost entire. Aedeagal median lobe (Fig. 81B) relatively broad, gently rounded apicolaterally, apically with a very minute, pointed median cusp; apical sclerotized area (Fig. 81B) nearly arched, arcuately emarginate anteriorly. Endophallic median bands (Fig. 81B) long, relatively narrow; expulsion hooks (Fig. 81G) separated, each nearly elongate-subtriangular, broadest at the mesial corner of posterior plate, with anterior plate demarcated by a suture from posterior plate; copulatory tube (Fig. 81B, H) relatively short, with basal chamber well-developed, about as long as main tube, the main tube double-structured by the inner and outer tubes, with the apically exposed inner tube straight, minutely emarginate at apex. Parameres (Fig. 81B) each slender, straight, very acutely pointed at apex; apical area moderately long, swollen mesially at base, furnished mesially with 10 to 12 thin setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 81D) toothed posteriorly, each with apicolateral tooth very long, sharply pointed, apicolateral setae very long. Spermatheca (Fig. 81E, F) with capsule ovoidal, large to very large; apical chamber ovoidal to pyriform, large to very large; duct moderately long, thin, loosely coiled, with more than 6 turns.

Biology and ecology. *S. fusciceps* is presently distributed only in the plains of southeastern part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. fusciceps* is the sister species of *S. ohishii*, and it is separable from the latter species by the endophallic expulsion hook broadest at the mesial corner of posterior plate (Fig. 81B), the copulatory tube with its exposed inner tube straight (Fig. 81H), and the spermatheca with its duct much longer, having more than 6 turns (Fig. 81E).

Stenus indubius Sharp
(Figs. 82A–H, 108D)

Stenus indubius Sharp, 1889: 330; Herman, 2001: 2231; Naomi, 2006: 64.
Stenus vernalis Naomi, 1997: 750; Herman, 2001: 2430; Puthz, 2001: 36 (synonym of *S. indubius*).

Type material examined. Lectotype of *S. indubius*: ♂ (NHML), Japan, Lewis, Sharp coll. 1905–313 [examined by Puthz, 1994]. Paralectotype of *S. indubius*: 1 ♀ (FMC), Japan. G. Lewis. 1910–320 / Chicago Nat. Hist. Mus. [examined by Puthz, 1994].

Holotype of *S. vernalis*: ♂ (CBM), Shimogamo, Minamiizu-cho, Shizuoka Pref., 15. iii. 1996, S. Naomi leg. Paratypes: 1 ♂2 ♀ (cN), same data as holotype.

Other material examined. [HONSHU]: 2 ♂, Kintoki, Hakone, Kanagawa Pref., 23. ix. 1992, Y. Hirano leg.; 1 ♂, Near Ohkura, Tanzawa, Kanagawa Pref., 2, v. 1971, Y. Shibata leg.; 1 ♀, Mt. Daisen, Tanzawa, Isehara City, Kanagawa Pref., 6. v. 2000, S. Naomi leg.; 1 ♂1 ♀, same locality,

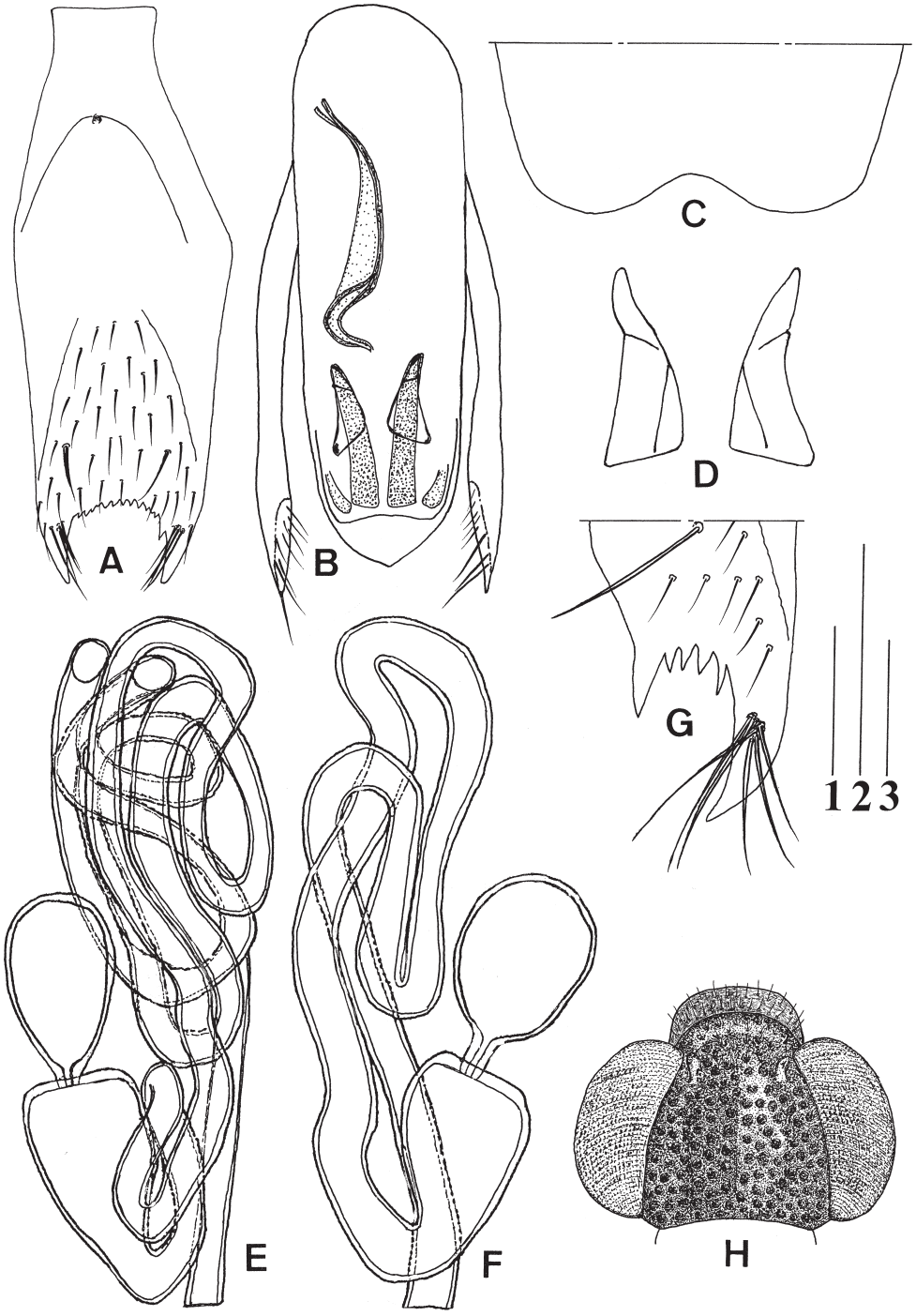

Fig. 82. *Stenus indubius* Sharp (A–D, F–H, Tanzawa, Kanagawa; E, Shimogamo, Shizuoka). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, expulsion hooks; E, F, spermatheca; G, posterior part of gonocoxite; H, head. Scale 1: 0.2 mm for A, B, 0.1 mm for D–G; Scale 2: 0.25 mm for C; Scale 3: 0.3 mm for H.

25. iv. 2001, S. Arai leg.; 1 ♀, Tanzawa, Kanagawa Pref., 21. iv. 1985, K. Haga leg.; 1 ♀, Sanpoku-machi, Kanagawa Pref., 2. vii. 1993, K. Haga leg.; 1 ♂, Udosan, Shimizu, Shizuoka Pref., 12. x. 1999, Y. Hirano leg.; 2 ♂1 ♀, Bunzawa (600 m), Nakakawane-cho, Shizuoka Pref., 3. v. 2001, S. Arai leg.

Distribution. Japan: Honshu (Kanagawa and Shizuoka Prefs.). Among the old specimens of the Japanese *Stenus* species identified as *S. indubius* in the late 19th and early 20th centuries, there are found the *Stenus* beetles collected not only from Chubu district but also from Kinki or Chugoku districts (e.g., Puthz, 2001; Naomi, 2006). The old records of this species from the western part of Honshu may be, however, based on the misidentification of species (e.g., Puthz, 2001: 36). In fact, the true *S. indubius* beetles are collected only from Chubu district in our days (about last 5 decades). Given this, the available information shows that the true distributional range of *S. indubius* seems to be restricted to the southern part of Chubu district, central Honshu.

Redescription. Male and female: Body 4.3–5.5 mm (fore body 2.3–2.6 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown to black; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head (Fig. 82H) weakly concave, with a pair of broad longitudinal furrows; punctures round to almost round, moderately dense to dense, small to moderately large, somewhat umbilicate. Pronotum with surface weakly uneven to almost even: punctures round to almost round, very dense, various in size. Elytra with surface weakly uneven to uneven, flat near suture; punctures round to almost round, very dense, moderately large to large, sometimes coarse. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense to dense, small to moderately large in anterior segments, while punctures in posterior segments sparse to moderately dense, very small, shallow. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped flat area, which is very shallowly emarginate; 8th ventrite (Fig. 82C) posteromedially with an arcuate, moderately deep emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 82A) minutely serrate posteriorly, with macrosetae short, apicolateral teeth long, pointed, apicolateral setae short to moderately long; 10th tergum almost rounded posteriorly. Aedeagal median lobe (Fig. 82B) broad, gently rounded apicolaterally, almost simply pointed at apex; apical sclerotized area (Fig. 82B) broad-subtriangular, weakly rounded anteriorly. Endophallic median bands (Fig. 82B) short, relatively broad; expulsion hooks (Fig. 82B, D) separated, each nearly elongate-triangular, weakly projecting and pointed posterolaterally, with anterior plate almost demarcated by an oblique suture from posterior plate; copulatory tube (Fig. 82B) with basal tube membranous, main tube almost elongate-S-shaped, thin to very thin, with a subtransparent, broad, lateral flap along the right side. Parameres (Fig. 82B) each very acutely pointed at apex; apical area long, weakly swollen around the base, furnished basally with 5 to 7 short, thin setae, apically with 2 or 3 long setae.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 82G) distinctly toothed posteriorly, each with apicomesial tooth long, acutely pointed, apicolateral tooth very long, acutely pointed, apicolateral setae long. Spermatheca (Fig. 82E, F) with capsule ovoidal to elliptical, large; apical chamber pyriform, large; duct moderately long to very long, moderately thick, moderately or strongly coiled.

Biology and ecology. *S. indubius* is distributed in the plains and mountainous regions of the southeastern part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. indubius* is the sister species of *S. kiyosumiensis*, and it is separable from the lat-

ter species by the aedeagal median lobe with its apical sclerotized area broader (Fig. 82B), the endophallic copulatory tube almost elongate-S-shaped (Fig. 82B), and the spermatheca with its duct simply moderately or strongly coiled, without any abrupt bends on its way (Fig. 82E, F).

Stenus kiyosumiensis Naomi & Takeda
(Figs. 83A–F, 108E)

Stenus kiyosumiensis Naomi & Takeda, 1991: 10; Herman, 2001: 2247; Naomi, 2006: 67; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: 1 ♂ (CBM), Fudago, Kimitsu City, Chiba Pref., 20. iv. 1989, S. Naomi leg.

Other material examined. [HONSHU]: 1 ♂, Mt. Tadeshina, Nagano Pref., 1. vii. 201, I. Matoba leg.; 1 ♀, Tobira Spa, Nagano Pref., 13. ix. 1995, T. Ito leg.; 1 ♂, Daibosatu, Yamanashi Pref., 6. vii. 1988, T. Ito leg.; 1 ♂, Yanagisawa Pass, Enzan City, Yamanashi Pref., 17. xi. 1999, S. Nomura leg.; 1 ♂, Mitumine, Ohtaki Vil., Saitama Pref., 28. v. 1997, S. Naomi leg.; 1 ♀, Kiyotaki, Mt. Ryogami, Saitama Pref., 10. v. 1997, T. Kishimoto leg.; 2 ♀, Same locality, 10. v. 1997, M. Maruyama leg.; 1 ♂, Mizunezawa, Okutama, Tokyo, 6. v. 1980, T. Kishimoto leg.; 1 ♀, Hikagezawa, Mt. Takao, Tokyo, 20. iv. 1997, S. Nomura leg.; 1 ♂1 ♀, Mt. Mitake, Tokyo, 1. v. 1991, T. Ito leg.; 1 ♂, Minamiasai, Chikura-machi, Chiba Pref., 31. iii. 1996, S. Naomi leg.; 1 ♀, Mt. Takago, Kimitsu City., Chiba Pref., 7. ii. 1999, S. Arai et al. leg.; 1 ♂1 ♀, same locality, 25. x. 1998, S. Naomi leg.

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

Redescription. Male and female: Body 3.8–5.8 mm (fore body 2.0–2.6 mm) in length, with antennae moderately long, very thin. Head and abdomen black; pronotum and elytra dark chocolate brown; labrum dark red to black; antennae and legs yellowish brown to reddish brown. Head weakly concave, with a pair of broad longitudinal furrows; punctures round, moderately dense to very dense, small, umbilicate. Pronotum with surface weakly uneven; punctures round, very dense, moderately large, almost regular, sometimes two punctures partially fused. Elytra with surface weakly uneven, flat near suture; punctures round, very dense, moderately large, regular. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with punctures round, moderately dense, small, almost regular in anterior segments, while punctures in posterior segments moderately dense, very small, regular. Lateroventrites and tergoventrite sutures missing.

Male: Seventh ventrite posteromedially with a bell-shaped flat area; 8th ventrite (Fig. 83C) posteriorly with a shallow, arcuate emargination; 9th tergum with antecostal apophyses moderately long; 9th ventrite (Fig. 83A) irregularly serrate and moderately deeply emarginate posteriorly, with macrosetae moderately long, apicolateral teeth stout, long, acutely pointed, apicolateral setae moderately long; 10th tergum almost rounded posteriorly. Aedeagal median lobe (Fig. 83B) broad, gently rounded apicolaterally, almost rounded or obtusely angulate at apex; apical sclerotized area (Fig. 83B) narrow, subtriangular, weakly rounded anteriorly. Endophallic median bands (Fig. 83B) short, relatively broad; expulsion hooks (Fig. 83B) separated, each elongate-subtriangular, with anterior plate almost demarcated by an oblique ridge from posterior plate, the posterior plate distinctly projecting and pointed posterolaterally; copulatory tube (Fig. 83B) with basal chamber membranous, main tube long, thin, bisinuous. Parameres (Fig. 83B) each very acutely pointed at apex; apical area long, moderately swollen around the base, furnished basally with 13 to 15 thin, short setae, apically with 2 or 3 moderately long setae.

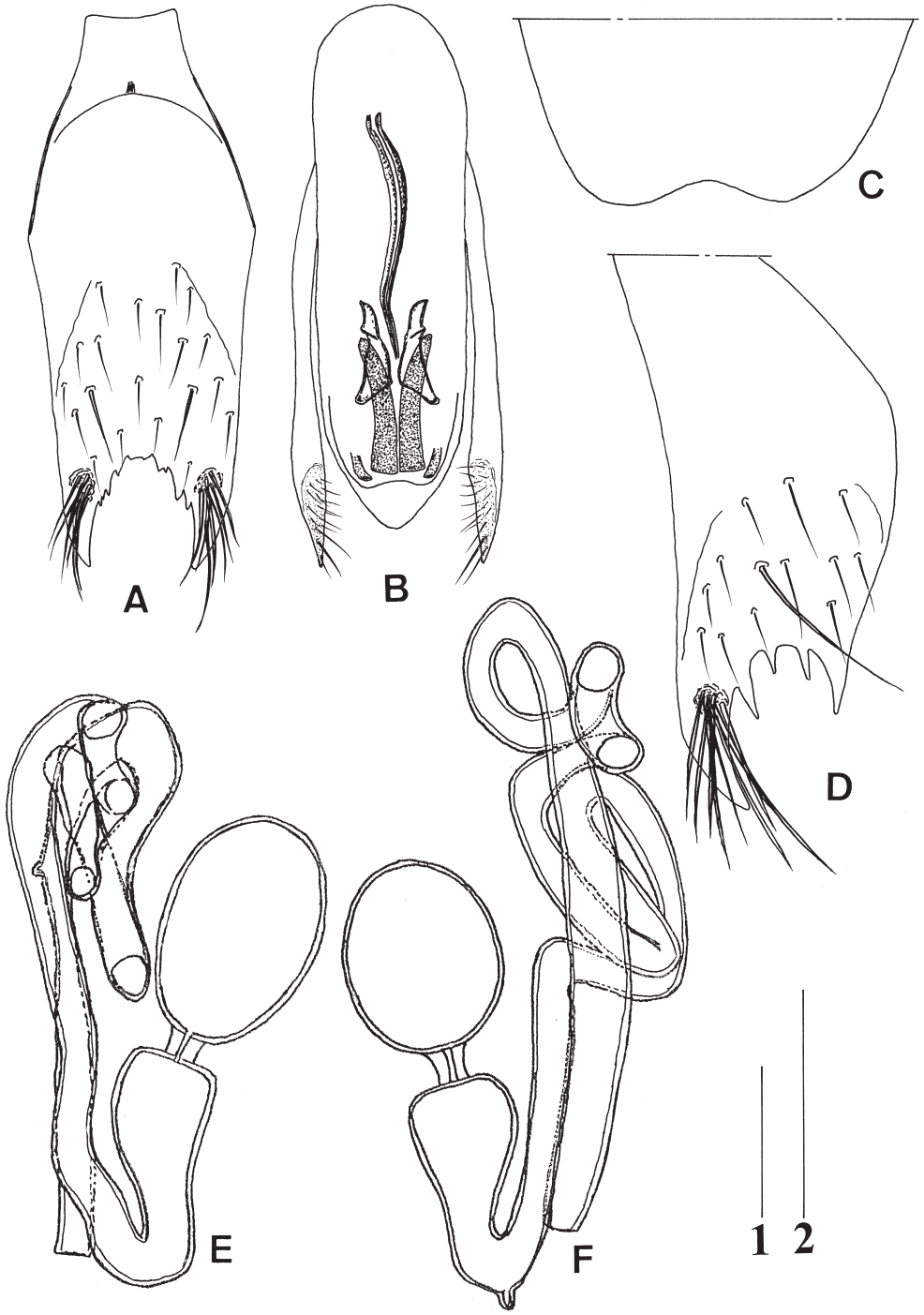

Fig. 83. *Stenus kiyosumiensis* Naomi & Takeda (A–C, Chikura, Chiba; D, E, Takago, Chiba; F, Mitake, Tokyo). A, 9th ventrite of male; B, aedeagus; C, posterior part of 8th ventrite of male; D, gonocoxite; E, F, spermatheca. Scale 1: 0.2 mm for A, B, 0.1 mm for D–F; Scale 2: 0.25 mm for C.

Female: Eighth ventrite almost rounded posteriorly; gonocoxites (Fig. 83D) distinctly toothed posteriorly, each with apicomesial tooth long, acutely pointed, apicolateral tooth very long, acutely pointed, apicolateral setae moderately long to long. Spermatheca (Fig. 83E, F) with capsule ovoidal to elliptical, large to very large; apical chamber pyriform, moderately large; duct moderately long, moderately thick to thick, usually moderately coiled but partially with abrupt bends on its way; gland with its opening located on the posterior side of duct a little proximal from the base of apical chamber.

Biology and ecology. *S. kiyosumiensis* is distributed in the plains and mountainous regions of Chubu and Kanto districts, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. kiyosumiensis* is the sister species of *S. indubius*, and it is separable from the latter species by the aedeagal median lobe with its apical sclerotized area narrower (Fig. 83B), the endophallic copulatory tube only weakly bisinuous (Fig. 83B), and the spermatheca with its duct coiled, partially with abrupt bends on its way (Fig. 83E).

Species-group of *S. flammeus* Tang & Puthz

The *flammeus*-group is a small East Asian species-group of *Stenus*, which was first recognized as a "species-complex" within the *cirrus*-group by Tang *et al*. (2008); and the species-complex was established as a separate species-group of *Stenus* by Tang *et al*. (2016). At present, the *flammeus*-group comprises 17 species; and their species are distributed only in China (Sichuan; Shaanxi) and Japan (Nansei Isls.). This species-group is well-characterized by an apomorphic combination of the conical or subconical paraglossae and the abdomen with its surface highly glittering and sparsely covered with suberect setae (Tang *et al*. 2016).

The *sharpi*-group, *flammeus*-group (Fig. 108F–H) and *cirrus*-group (Fig. 109A–L) are certainly similar to one another in their habitus. Furthermore, these groups have some morphological similarities as follows: The *sharpi*-group and *flammeus*-group share an apomorphic conical or subconical (Fig. 86J) condition of paraglossae, while the *flammeus*-group and *cirrus*-group share an apomorphic condition of abdomen (the surface sparsely covered with suberect setae). Although the distribution of these apomorphic characters is incongruent among the 3 groups, it seems certainly to show that these groups are closely related phylogenetically to one another. The *flammeus*-group is separable from the *sharpi*-group and *cirrus*-group by the combination of the 2 apomorphic characters mentioned above.

Diagnostic characters of the *flammeus*-group: Body medium to large in size, cylindrical, elongate, strongly glittering especially on the abdomen (Fig. 108F–H); antennae relatively short to moderately long; paraglossa conical or subconical (Fig. 86I, J); tarsus with 4th tarsomere strongly bilobed; abdomen with surface sparsely covered with suberect setae (Fig. 108F); tergoventrite sutures missing or scarcely existing only at the anterior parts of 4th and 5th segments. Male: Ninth ventrite with apicolateral tooth usually long (Tang *et al.* 2016, fig. 14) but sometimes very short (Fig. 84B) to short, acutely pointed, and with the median projection at the posterior margin (Fig. 86E). Female: Gonocoxite with apicolateral tooth (Fig. 84D); spermathecal duct membranous or weakly sclerotized (Fig. 84H).

In the Japanese species of the *flammeus*-group, there exist a single median sclerite or paired sclerites as endophallic component(s); and these sclerite(s) are *in situ* located near the apex of copulatory tube (Figs 85H, 86A), or at the lateral sides of the apex of copulatory tube (Fig. 84C). When it exists as a single plate (Fig. 86A) or a rod (Fig. 85H), it is similar to the apicolateral plate of the *pallitarsis*-group (Naomi *et al*., 2017, fig. 88A) in that it has a thin, longitudinal slit which

is open posteriorly. When they otherwise exist as paired plates (Fig. 84C), it is similar in structure to the apicolateral plates of the *bispinus*-group (Naomi *et al*., 2017, e.g., fig. 113C). Thus, we here tentatively identify these endophallic sclerites as "apicolateral plate(s)" (Naomi *et al*., 2017, p. 17). Further studies are needed for the precise homologization of these endophallic sclerites.

A list of the species of *S. flammeus*-group

dabashanus Tang, Liu & Niu, 2016 Distribution: China (Shaanxi)
flammeus Tang & Puthz, 2008 Distribution: China (Sichuan)
bostrychus Tang & Puthz, 2008 Distribution: China (Sichuan)
corniculus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
daicongchaoi Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
jiajinshanus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
jindingianus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
paraflammeus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
pengzhongi Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
pseudoflammeus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
punctidorsus Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
tuyueyei Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
xilingmontis Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
zhoudeyaoi Tang, Liu & Niu, 2016 Distribution: China (Sichuan)
punctifer Naomi, 1988b Distribution: Japan (Kyushu: Okinawa Is.)
= *jambar* Naomi, 1990b
tokunis Naomi, 1998a Distribution: Japan (Kyushu: Toku Is.)
amamiensis Naomi, 1988b Distribution: Japan (Kyushu: Amami Is.)

Japanese fauna of the *flammeus*-group

The *flammeus*-group consists of 3 species in Japan. All of these species are indigenous to Nansei Islands in Japan.

Key to the Japanese species of *S. flammeus* group

1(2) Male & female: Elytra with punctures smaller. Male: Eighth ventrite with a larger, semicircular emargination (Fig. 84G); 9th tergum with antecostal apophysis shorter (Fig. 84A); endophallic expulsion hook with posterior plate acutely pointed (or very minutely bi-pointed) posteriorly (Fig. 84F) .....*S. punctifer* Naomi

2(1) Male & female: Elytra with punctures larger. Male: Eighth ventrite with a smaller, triangular emargination; 9th tergum with antecostal apophysis longer; endophallic expulsion hook with posterior plate angulate posteriorly.

3(4) Male: Aedeagal median lobe more strongly pointed at apex (Fig. 85H); endophallic copulatory tube with main tube thinner, broadest near the middle, then attenuate apically (Fig. 85E). Female: Spermathecal duct longer, with 6 turns (Fig. 85D) .....*S. tokunis* Naomi

4(3) Male: Aedeagal median lobe less strongly pointed at apex (Fig. 86A); endophallic copulatory tube with main tube thicker, broadest a little before the apex (Fig. 86B). Female: Spermathecal duct shorter, with 4 turns (Fig. 86D)..... *S. amamiensis* Naomi

Stenus punctifer Naomi
(Figs. 84A–H, 108F)

Stenus punctifer Naomi, 1988b: 35; Herman, 2001: 2361; Naomi & Puthz, 2013: 141.
Stenus jambar Naomi, 1990b: 52.

Type material. Holotype of *S. punctifer*: ♂ (KUF), Yona, Okinawa Is., Okinawa Pref., 15. iii. 1985, S. Nomura leg.

Holotype of *S. jambar*: ♀ (KUF), Ie Mountain-road, Kunigami, Okinawa Is., Okinawa Pref., 14. iii. 1985, S. Nomura leg.

Type material examined. Paratypes of *S. punctifer*: 1 ♂ (cN), Mt. Nago, Okinawa Is., Okinawa Pref., 11. iii. 1985, S. Nomura leg.; 1 ♀ (cN), Yona, Okinawa Is., Okinawa Pref., 15. iii. 1985, S. Nomura leg.; 1 ♀ (cN), Ie mountain-road, Kunigami, Okinawa Is., Okinawa Pref., 22. iv. 1986, S. Nomura leg.

Other material examined. [KYUSHU]: 1 ♀ (cN), Mt. Nishime, Okinawa Is., Okinawa Pref., 12. ii. 1991, K. Ogata leg.; 1 ♀ (cN), Ie Mountain-road, Kunigami, Okinawa Is., Okinawa Pref., 11. x. 1988, S. Nomura leg.; 1 ♀ (cN), same data as above, 14. iii. 1991, S. Nomura leg.

Distribution. Japan: Kyushu (Okinawa Is.).

Redescription. Male and female: Body 4.3–4.5 mm (fore body 2.0–2.1 mm) in length, slender, strongly shining to glittering, with antennae moderately long, very thin. Body black with dark red tinge; labrum dark red; antennae and legs yellowish brown to dark yellowish brown. Head shallowly or moderately concave, with a pair of longitudinal furrows; punctures round, dense, moderately large to large, setiferous. Pronotum with surface slightly uneven, without median longitudinal furrow; punctures round, very dense, moderately large. Elytra with surface almost even; punctures round to elliptical, very dense, various in size (small to moderately large or large). Tarsi each with 4th tarsomere strongly bilobed. Abdomen with anterior segments covered sparsely with thin, suberect long setae, posterior segments (Fig. 84A) sparsely with thin, suberect, very long setae; punctures round, very sparse to sparse, very small to small, irregular. Lateroventrites missing; tergoventrite sutures almost missing but scarcely existing only at the anterior parts of 4th and 5th segments.

Male: Seventh ventrite posteromedially with an elongate-bell-shaped depression or flat area; 8th ventrite (Fig. 84G) posteromedially with a semicircular emargination; 9th tergum (Fig. 84A) with antecostal apophyses moderately long, thin; 9th ventrite (Fig. 84B) rounded at posteromedian part, with apicolateral tooth very short, pointed, turning posteromesially, apicolateral setae long; 10th tergum (Fig. 84A) subtrapezoidal, shallowly emarginate posteriorly. Aedeagal median lobe (Fig. 84C) elongate, gently rounded at apicolateral corners, apically with a small, pointed median cusp; apical sclerotized area (Fig. 84C) subtriangular, shallowly emarginate at anteromedian part. Endophallic apicolateral plates (Fig. 84C) paired, sclerotized, large, located anterior to the expulsion hooks; median bands (Fig. 84C) with basal bands long, relatively thin; lateral bands (Fig. 84C) moderately long; explusion hooks (Fig. 84F) separated, each with anterior plate acutely pointed or very minutely bifurcate at anterior apex, partially demarcated by a suture from posterior plate, the posterior plate posterolaterally with the longitudinal folded rim, which turns ventrally; copulatory tube (Fig. 84E) distinctly bent at the basal constriction, with basal chamber long, large, narrowed apically, main tube baculiform, straight, attenuate. Parameres (Fig. 84C) thin; apical area short, hardly swollen mesially, furnished mesially with 8 to 9 short setae.

Female: Seventh ventrite posteromedially with a very shallow emargination; 8th ventrite

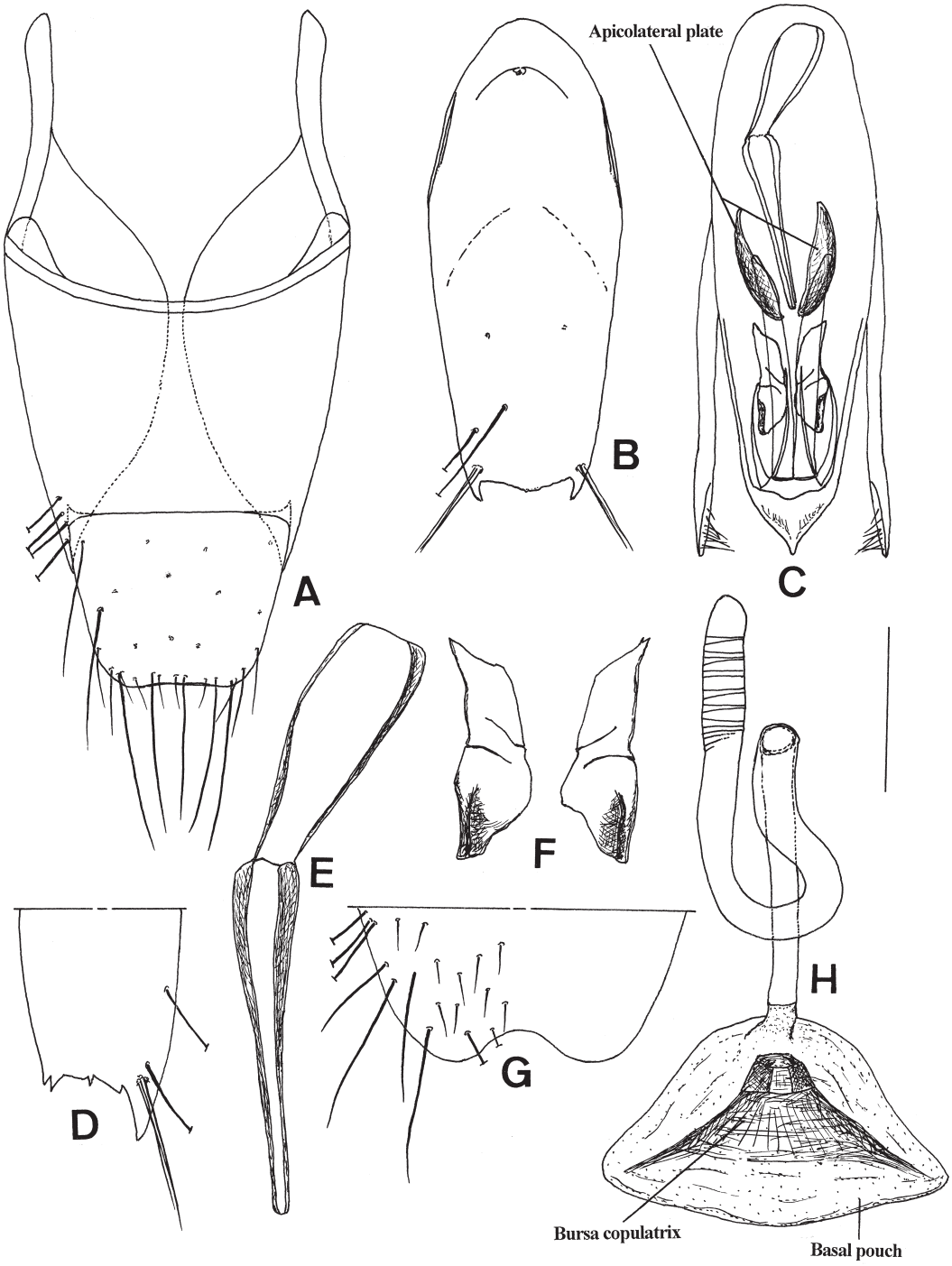

Fig. 84. *Stenus punctifer* Naomi (A–C, E–G, Nagodake, Okinawa Is.; D, H, Ie, Okinawa Is.). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, *posterior* part of gonocoxite; E, copulatory tube; F, expulsion hooks; G, *posterior* part of 8th ventrite of male; H, spermatheca and bursa copulatorix. Scale 1: 0.2 mm for A–C, G, 0.1 mm for D–F, H.

rounded posteriorly; gonocoxites (Fig. 84D) each posteriorly with several small, irregular, thin teeth, and with apicolateral tooth short, pointed, apicolateral setae long. Spermatheca (Fig. 84H) with capsule rounded at apex; RT-duct short, thick; duct moderately thick, short with 2 turns; basal valve short; basal pouch large, bowl-shaped, membranous. Bursa copulatrix (Fig. 84H) well-sclerotized, broad-subconical.

Biology and Ecology. *S. punctifer* is distributed in the mountainous regions of Okinawa Is. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. *S. punctifer* is allied to *S. tokunis* and *S. amamiensis*, but it is separable from the latter two species by the elytra with punctures smaller, the 8th ventrite of male posteromedially with a larger, semicircular emargination (Fig. 84G), the endophallic expulsion hook with its posterior plate having a longitudinal folded rim (Fig. 84F), and the spermathecal duct shorter, with 2 turns (Fig. 84H).

Stenus tokunis Naomi
(Fig. 85A–H, 108G)

Stenus tokunis Naomi, 1998a: 389; Herman, 2001: 2418; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Yonama, Toku Is., Kagoshima Pref., 4. v. 1988, S. Nomura leg. Paratypes: 2 ♂1 ♀ (cN), same data as holotypes; 1 ♀ (cN), Mt. Inutabu, Toku Is., Kagoshima Pref., 3. v. 1988, S. Nomura leg.; 1 ♀ (cN), Tete, Toku Is., Kagoshima Pref., 3. 4. 1988, S. Nomura leg.

Distribution. Japan: Kyushu (Toku Is.).

Redescription. Male and female: Body 4.3–4.5 mm (fore body 1.9–2.0 mm) in length, slender, well-cylindrical, strongly shining to glittering, with antennae moderately long, very thin. Body black, but pronotum, elytra and abdomen slightly having a dark red tinge; labrum dark red; antennae and legs yellowish brown to dark yellowish brown. Head shallowly concave, with a pair of relatively deep, distinct longitudinal furrows; punctures round, sparse to moderately dense, moderately large. Pronotum with surface almost even to slightly uneven, without median longitudinal furrow; punctures round, very dense, small to moderately large. Elytra with surface almost even, flat along suture; punctures almost round to round, very dense, moderately large to large. Tarsi each with 4th tarsomere strongly bilobed. Abdomen with anterior segments covered very sparsely with thin, suberect long setae, posterior segments sparsely with thin, very long setae; punctures round, very sparse to sparse, small, irregular. Lateroventrites and tergoventrite sutures missing.

Male: Sixth ventrite (Fig. 85B) posteromedially with a small, bell-shaped flat area, which is very shallowly emarginate; 7th ventrite (Fig. 85B) anteromedially with a small, bell-shaped, shallow depression, posteromedially with an elongate-bell-shaped, shallow depression, which is shallowly emarginate; 8th ventrite (Fig. 85B) posteromedially with a triangular emargination; 9th tergum (Fig. 85A) with antecostal apophyses long, thin; 9th ventrite (Fig. 85C) posteromedially with a pointed, small projection, apicolateral tooth short, pointed, apicolateral setae very long; 10th tergum (Fig. 85C) subtrapezoidal. Aedeagal median lobe (Fig. 85H) elongate-ovoidal, angulate at apicolateral corners, very acutely pointed apically; apical sclerotized area (Fig. 85H) narrow, arcuately emarginate anteriorly, strongly narrowed apically behind the apicolateral corners. Endophallic apicolateral plates (Fig. 85H) baculiform, sclerotized, located posterior to the copulatory tube; median bands (Fig. 85H) with basal bands very long, divergent anteriorly; lateral

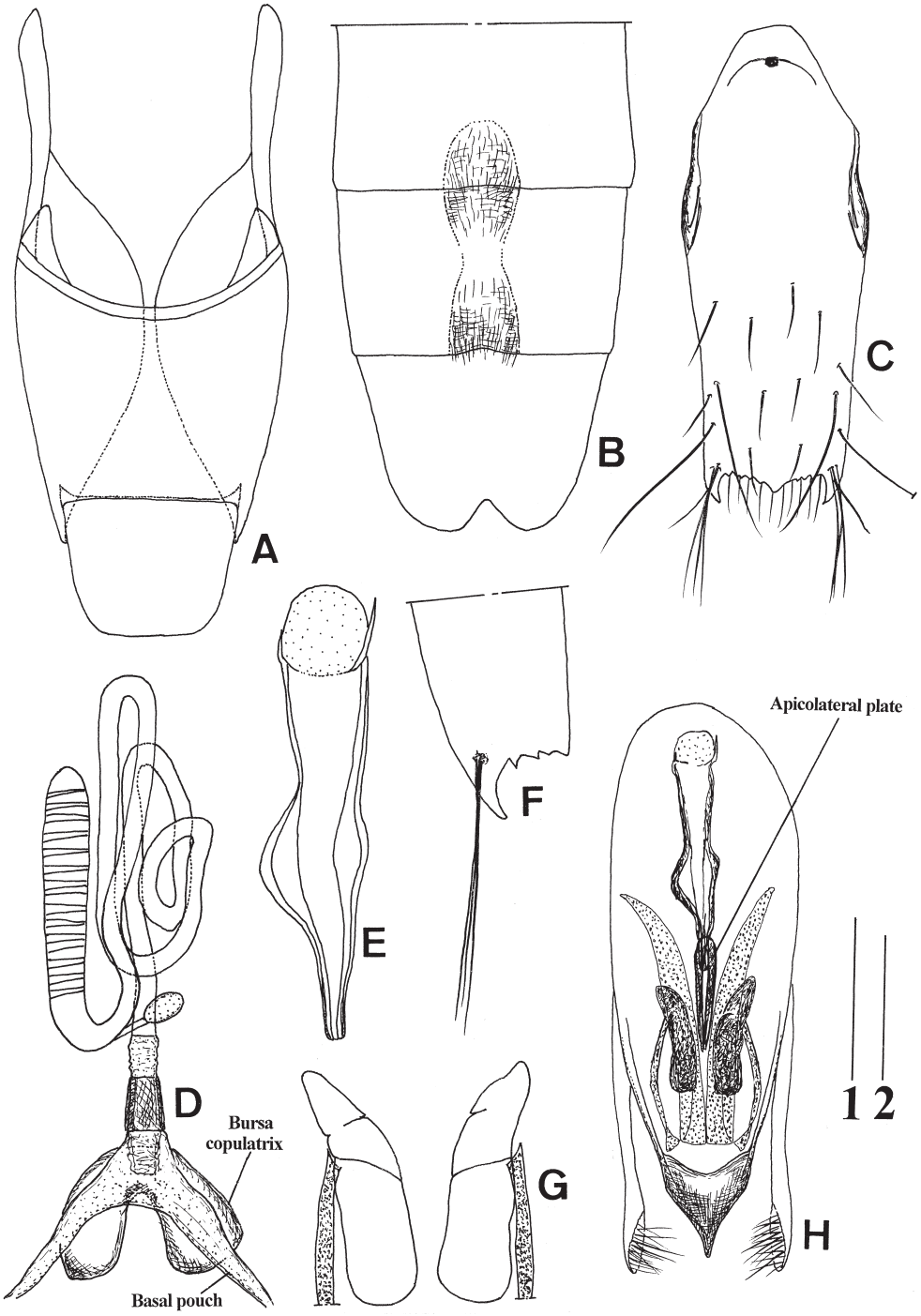

Fig. 85. *Stenus tokunis* Naomi (Yonama, Toku Is.). A, 9th and 10th terga of male; B, 6th to 8th ventrites of male; C, 9th ventrite of male; D, spermatheca and bursa copulatorix; E, copulatory tube; F, *posterior* part of gonocoxite; G, expulsion hooks with anterior parts of lateral bands; H, aedeagus. Scale 1: 0.2 mm for A, C, H, 0.1 mm for D–G; Scale 2: 0.3 mm for B.

bands (Fig. 85H,G) long, thin; explusion hooks (Fig. 85G) separated, each with anterior plate demarcated by a suture from posterior plate, the posterior plate rounded posteriorly; copulatory tube (Fig. 85E) with basal chamber almost spherical, main tube asymmetrical, broadest near the middle, then attenuate apically. Parameres (Fig. 85H) thin; apical area short, weakly swollen mesially, furnished mesially with 15 to 17 thin, moderately long setae.

Female: Eighth ventrite obtusely angulate posteriorly; gonocoxites (Fig. 85F) irregularly toothed posteriorly, each with apicolateral tooth short, weakly incurved, pointed, apicolateral teeth very long. Spermatheca (Fig. 85D) with capsule very small or hardly developed; RT-duct moderately long, thick; duct thin to moderately thick, moderately long with 6 turns; basal valve short; basal sclerorized duct short; basal pouch subconical, membranous. Bursa copulatrix (Fig. 85D) well-sclerotized, bowl-shaped, with a deep emargination at base.

Biology and Ecology. *S. tokunis* is distributed in the plains and mountainous regions of Toku Is. The beetles inhabit leaf litter heaped in the natural forests.

Remarks. *S. tokunis* is allied to *S. amamiensis*, but it is separable from the latter species by the aedeagal median lobe more strongly pointed at apex (Fig. 85H), the endophallic copulatory tube with its main tube thinner, asymmetrical, broadest near the middle (Fig. 85E), the apicolateral plate baculiform (Fig. 85H), and the spermathecal duct longer, with 6 turns (Fig. 85D).

Stenus amamiensis Naomi
(Figs. 86A–J, 108H)

Stenus amamiensis Naomi, 1988b: 36; Herman, 2001: 2053; Naomi & Puthz, 2013: 141.

Type material. Holotype: ♂ (KUF), Hatsuno, Amami Is., Kagoshima Pref., 27. iii. 1978, S. Naomi leg.

Type material examined. Paratypes: 2 ♂2 ♀ (cN), same data as holotype.

Other material examined. [KYUSHU]: 1 ♂, Mt. Yui, Amami Is., Kagoshima Pref., 4. v. 1987, S. Nomura leg.; 1 ♀, Asato Pass, Naze City, Amami Is., Kagoshima Pref., 7. iv. 1991, T. Ueno leg.; 1 ♂, Materia Fall, Yamato Vil., Amami Is., Kagoshima Pref., 19. iii. 1999, T. Ito & A. Ohkawa leg.

Distribution. Japan: Kyushu (Amami Is.).

Redescription. Male and female: Body 4.0–4.3 mm (fore body 1.6–1.7 mm) in length, slender, well-cylindrical, strongly shining to glittering, with antennae relatively short, very thin. Body black, but pronotum and elytra slightly having a dark red tinge; labrum dark red; antennae and legs yellowish brown to dark yellowish brown. Head shallowly concave, with a pair of relatively deep, midlateral longitudinal furrows; punctures round, sparse to moderately dense, moderately large. Pronotum with surface almost even to slightly uneven, with or without median longitudinal furrow; punctures round, very dense, small to moderately large, somewhat umbilicate. Elytra with surface almost even; punctures round to elliptical, very dense, large to very large. Tarsi each with 4th tarsomere strongly bilobed, each lobe relatively thick. Abdomen with anterior segments covered sparsely with thin, suberect long setae, posterior segments (Fig. 86C) sparsely with thin, very long setae; punctures round, very sparse to sparse, small to moderately large, irregular. Lateroventrites missing; tergoventrite sutures almost missing but scarcely existing at the anterior parts of 4th and 5th segments.

Male: Seventh ventrite (Fig. 86F) posteromedially with an elongate-bell-shaped depression (Fig. 86F) or flat area, which is very shallowly emarginate; 8th ventrite (Fig. 86F) posteromedi-

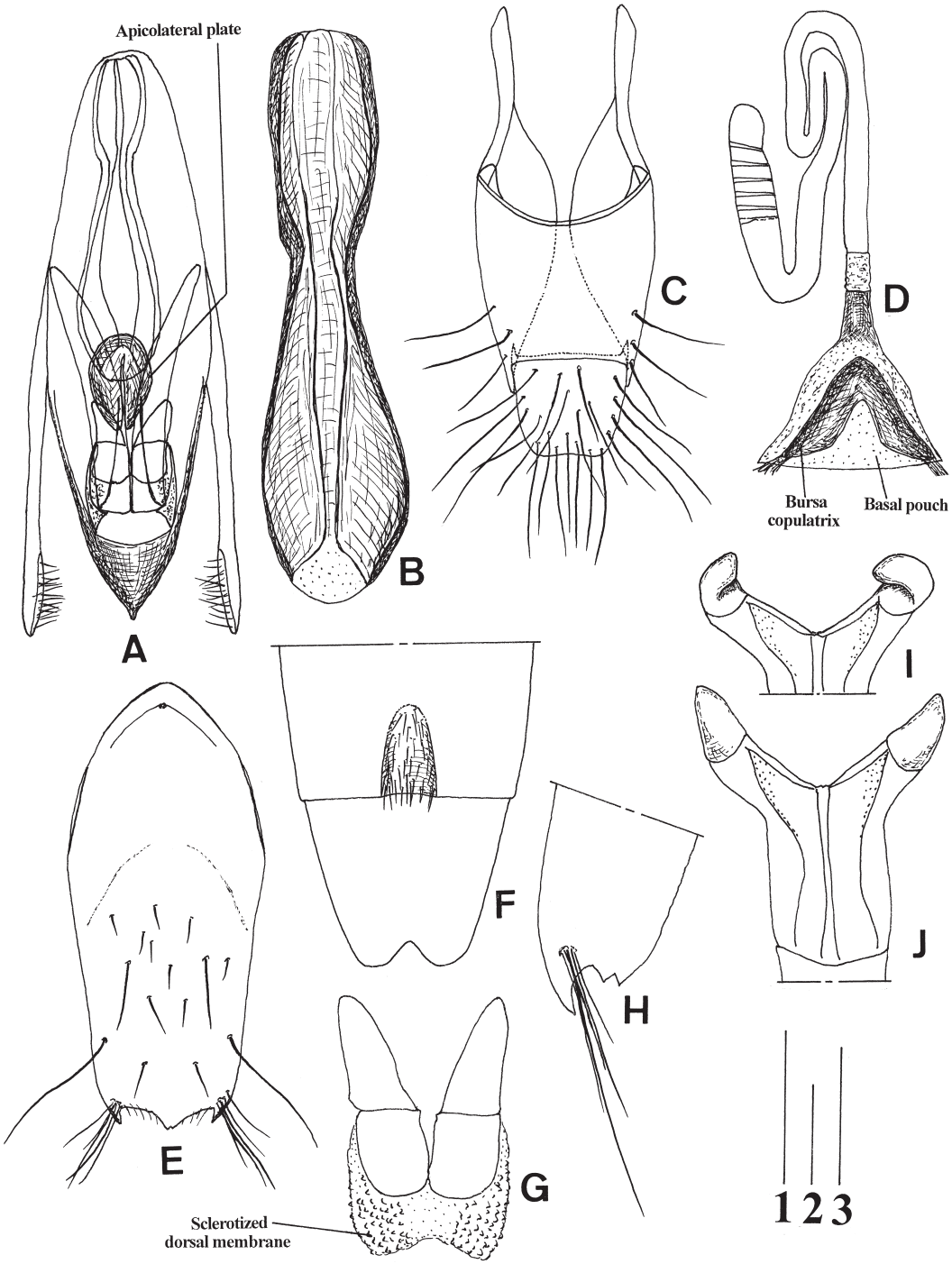

Fig. 86. *Stenus amamiensis* Naomi (A, Yui, Amami Is.; B, C, E–G, I, J, Hatsuno, Amami Is.; D, H, Akabo, Amami Is.). A, aedeagus; B, copulatory tube; C, 9th and 10th terga of male; D, spermatheca and bursa copulatorix; E, 9th ventrite of male; F, 7th and 8th ventrites of male; G, expulsion hooks; H, *posterior* part of gonocoxite; I, paraglossae. Scale 1: 0.2 mm for A, E, 0.1 mm for B, G, H; Scale 2: 0.2 mm for C, 0.1 mm for D; Scale 3: 0.3 mm for F.

ally with a triangular emargination; 9th tergum (Fig. 86C) with antecostal apophyses moderately long, thin; 9th ventrite (Fig. 86E) posteromedially with a short, subtriangular projection, macrosetae moderately long, apicolateral tooth very short, pointed, turning posteromesially, apicolateral setae long; 10th tergum (Fig. 86C) subtrapezoidal, shallowly emarginate posteriorly. Aedeagal median lobe (Fig. 86A) almost fusiform, hardly forming apicolateral corners, apically with a small, pointed median cusp; apical sclerotized area (Fig. 86A) subtriangular, arcuate at anterior margin. Endophallic dorsal membrane (Fig. 86G) sclerotized, covered with very small tubercles; apicolateral plates (Fig. 86C) ovoidal, sclerotized, located near the apex of copulatory tube; median bands (Fig. 86A) with basal bands long, broad, divergent anteriorly; lateral bands (Fig. 86A) relatively short, each narrowed anteriorly; explusion hooks (Fig. 86G) contiguous at the posteromesial parts of posterior plates, each with anterior plate demarcated by a suture from posterior plate, the posterior plate rounded posteriorly; copulatory tube (Fig. 86B) very large, with basal chamber subovoidal, main tube very thick, broadest at about apical 1/3, rounded apically. Parameres (Fig. 86A) thin; apical area relatively short to moderately long, weakly swollen mesially, furnished mesially with 15 to 16 short setae.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 86H) toothed posteriorly, each with apicolateral tooth short, weakly incurved, acutely pointed, apicolateral teeth long to very long. Spermatheca (Fig. 86D) with capsule rounded at apex; RT-duct short, thick; duct moderately thick to thick, relatively short with 4 turns; basal valve short; basal sclerorized duct short; basal pouch funnel-shaped, membranous. Bursa copulatrix (Fig. 86D) well-sclerotized, subconical, with a deep, subtriangular emargination at base.

Biology and Ecology. *S. amamiensis* is distributed in the mountainous regions of Amami Is. The beetles inhabit leaf litter heaped in the natural forests and also near the mountain streams.

Remarks. *S. amamiensis* is allied to *S. tokunis*, but it is separable from the latter species by the aedeagal median lobe less strongly pointed at apex (Fig. 86A), the endophallic copulatory tube with its main tube thicker, symmetrical, broadest at about apical 1/3 (Fig. 86B), the apicolateral plate subovoidal (Fig. 86A), and the spermathecal duct shorter, with 4 turns (Fig. 86D).

Species-group of *S. cirrus* Benick

The *cirrus*-group is an Asian species-group of *Stenus*, which was first characterized by Puthz (2003a), and then revised by Tang *et al*. (2008). At present, it comprises 89 species; and their species are distributed in India, Vietnam, China, Taiwan and Japan. This species-group is well-characterized by a combination of the subovoidal paraglossa (Fig. 96G), the tarsus with its 4th tarsomere simple or weakly bilobed, and the abdomen with the surface highly glittering and sparsely covered with suberect setae (Puthz, 2003a). The *cirrus*-group is closely allied to the *flammeus*-group (and also *sharpi*-group), but it is separable from the latter groups by the subovoidal paraglossae (Fig. 96G), the tarsus with its 4th tarsomere simple or weakly bilobed, the 9th ventrite of male almost hardly serrate posteriorly (Fig. 87C), and the spermathecal duct strongly sclerotized and also well-pigmented (Figs. 87F, 93B).

Diagnostic characters of the *cirrus*-group: Body small to medium or large in size, elongate, strongly glittering (Fig. 109A–L); antennae short to relatively short (but sometimes moderately long); paraglossa subovoidal (Fig. 96G); elytra each with (e.g., *S. cactiventris*) or without a yellowish spot; tarsus with 4th tarsomere simple (e.g., *S. sakaii*) or weakly bilobed; abdomen with surface sparsely covered with suberect setae (Fig. 109A), and usually with punctures setiferous, elliptical (and round), large to very large on the anterior parts of 3rd (and 4th) segment(s),

while punctures setiferous, sparse to very sparse, very small to small on the other posterior segments; lateroventrites and tergoventrite sutures existing or missing. Male: Ninth ventrite with apicolateral tooth very short (Fig. 89B) to short (Fig. 87C) or moderately long (Liu *et al*., 2018: fig. 23), pointed, or 9th ventrite rarely only serrate apicolaterally (e.g., *S. panthera*); 9th ventrite also usually without (Fig. 87C) but rarely with (*S. lacrimulus*) a posteromedian projection between the apicolateral teeth. Female: Gonocoxite with apicolateral tooth (Fig. 87B); spermathecal duct stiff, strongly sclerotized (Figs. 87F, 93B), sometimes with a part of the duct forming a tightly coiled ductal mass (Fig. 96E).

A list of the species of *S. cirrus*-group

panthera Hromádka, 2001 Distribution: India (Uttar Pradesh)
echiniventris Puthz, 1981a Distribution: Vietnam (O-quy-ho)
deliculus Ryvkin, 1992 Distribution: Vietnam (Tam Dao)
aeneofulgens Puthz, 1998 Distribution: Vietnam (Tam Dao)
cirripraestans Puthz, 2009 Distribution: Taiwan (Hsinchu)
cirricinctus Puthz, 2009 Distribution: Taiwan (Hsinchu)
cirrativestitus Puthz, 2009 Distribution: Taiwan (Ilan)
cirritunicatus Puthz, 2009 Distribution: Taiwan (Ilan, Chiai)
cirratitogatus Puthz, 2009 Distribution: Taiwan (Kaohsiung)
cirritogatus Puthz, 2009 Distribution: Taiwan (Kaohsiung, Pingtung, Chiai)
cirratus Puthz, 2009 Distribution: Taiwan (Nantou)
cirriger Puthz, 2009 Distribution: Taiwan (Nantou)
cirrimicans Puthz, 2009 Distribution: Taiwan (Nantou)
cirrimirificus Puthz, 2009 Distribution: Taiwan (Nantou)
cirriornatus Puthz, 2009 Distribution: Taiwan (Nantou)
cirrivestitus Puthz, 2009 Distribution: Taiwan (Nantou)
cirriostentans Puthz, 2012a Distribution: Taiwan (Nantou)
cirratitunicatus Puthz, 2009 Distribution: Taiwan (Pingtung)
cirrivestis Puthz, 2009 Distribution: Taiwan (Taichung)
cirrativestis Puthz, 2009 Distribution: Taiwan (Taoyuan)
cirrivarians Puthz, 2009 Distribution: Taiwan (Tauchung)
lacrimulus Benick, 1942 Distribution: China (Fujian)
wuyiensis Puthz, 2003a Distribution: China (Fujian)
cooterianus Puthz, 2003a Distribution: China (Fujian)
mangdangshanus Liu, Tang & Luo, 2018 Distribution: China (Fujian)
fujianensis Liu, Tang & Luo, 2018 Distribution: China (Fujian)
cactiventris Puthz, 2003a Distribution: China (Guangdong)
xuwangi Tang & Li, 2008 Distribution: China (Guangdong)
nanlingmontis Tang & Li, 2008 Distribution: China (Guangdong)
huanghaoi Tang & Li, 2008 Distribution: China (Guangdong)
luoleeorum de Rougemont, 2017 Distribution: China (Hong Kong)
guangxiensis Rougemont, 1983 Distribution: China (Guanxi, Zhejiang)
splendidulus Puthz, 1983 Distribution: China (Guangxi)
zhangdinghengi Pan, Tang & Li, 2012 Distribution: China (Guangxi)
maoershanus Pan, Tang & Li, 2012 Distribution: China (Guangxi)

hujiayaoi Liu & Tang, 2017 Distribution: China (Guangxi)
bullatus Liu & Tang, 2017 Distribution: China (Guangxi)
exesus Liu & Tang, 2017 Distribution: China (Guangxi)
damingshanus Liu & Tang, 2017 Distribution: China (Guangxi)
jinxiuensis Liu & Tang, 2017 Distribution: China (Guangxi)
lianhuashanus Liu & Tang, 2017 Distribution: China (Guangxi)
hechiensis Liu & Tang, 2017 Distribution: China (Guangxi)
dashaheensis Liu, Tang & Luo, 2017 Distribution: China (Guizhou)
zhangyuqingi Liu, Tang & Luo, 2017 Distribution: China (Guizhou)
liuyixiaoi Liu, Tang & Luo, 2017 Distribution: China (Guizhou)
fellowesi Puthz, 2003a Distribution: China (Hainan)
hainanensis Puthz, 2003a Distribution: China (Hainan)
andoi Tang, Li & Zhao, 2005 Distribution: China (Hubei)
parvus Puthz, 2012b Distribution: China (Hubei)
falsus Benick, 1940 Distribution: China (Jiangsu)
huangganmontium Puthz, 2003a Distribution: China (Jiangxi)
lijinweni Tang & Puthz, 2008 Distribution: China (Jianxi, Zhejiang)
wugongshanus Yu, Tang & Yu, 2014 Distribution: China (Jiangxi)
mingyuueshanus Yu, Tang & Yu, 2014 Distribution: China (Jiangxi)
songxiaobini Yu, Tang & Yu, 2014 Distribution: China (Jiangxi)
nigritus Tang, Li & Zhao, 2005 Distribution: China (Shaanxi)
parviformis Puthz, 2012b Distribution: China (Shaanxi)
beckeri Benick, 1941 Distribution: China (Sichuan)
aeneonitens Puthz, 1998 Distribution: China (Sichuan)
erlangmontium Puthz, 2012b Distribution: China (Sichuan)
cariniventris Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
jiangrixini Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
lineatus Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
emeishanus Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
jiudingshanus Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
xichangensis Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
brevilineatus Tang, Liu & Dong, 2018 Distribution: China (Sichuan)
cirrus Benick, 1940 Distribution: China (Zhejiang)
ovalis Tang, Li & Zhao, 2005 Distribution: China (Zhejiang)
zhulilongi Tang & Puthz, 2008 Distribution: China (Zhejiang)
jiulongshanus Tang & Puthz, 2008 Distribution: China (Zhejiang)
shenshanjiai Tang & Puthz, 2008 Distribution: China (Zhejiang)
wuyanlingus Liu, Tang & Luo, 2017a Distribution: China (Zhejiang)
yuyimingi Liu, Tang & Luo, 2017a Distribution: China (Zhejiang)
yamabusi Naomi & Ito, 2015 Distribution: Japan (Shikoku)
nachiensis Puthz, 2001a Distribution: Japan (Honshu)
uedai Naomi, 2015b Distribution: Japan (Shikoku)
cirriformis Naomi, 1988b Distribution: Japan (Honshu)
angusticulus Naomi, Nomura & Puthz sp. nov. Distribution: Japan (Shikoku)
yashiro Naomi, 1994a Distribution: Japan (Kyushu)
domburi Hromádka, 1979a Distribution: Japan (Shikoku)

＝*longisetosus* Puthz, 1993a
sakaii Naomi & Puthz, 1996 Distribution: Japan (Shikoku)
rasilis Naomi & Ito, 2015 Distribution: Japan (Shikoku)
sugiei Naomi, 1997b Distribution: Japan (Honshu)
caesariatus Naomi & Ito, 2015 Distribution: Japan (Honshu)
kanzeon Naomi, 2004 Distribution: Japan (Honshu)
sawadaianus Hromádka, 1979a Distribution: Japan (Honshu)
vernicosus Naomi & Nomura, 2015a Distribution: Japan (Honshu)
nyoirin Naomi, 2004 Distribution: Japan (Honshu)

Japanese fauna of the *cirrus*-group

The *cirrus*-group consists of 15 species in Japan. All of these species are indigenous to the Japanese Archipelago; and all are rare species. The Japanese species (excepting *S. uedai*) have the abdomen of *Hemistenus*-type. The lateroventrites if present exist only in the 4th segment; and each lateroventrite is both dorsally and ventrally demarcated by suture. The tergoventrite sutures are distinct in the 5th to 6th segments. On the other hand, *S. uedai* has the abdomen of *Hypostenus*-type; and the lateroventrites and tergoventrite are missing in the 4th to 6th segments. In the most Japanese species (excepting *S. nachiensis* and *S. rasilis*), the endophallic expulsion hooks show a unique structure. Namely, they are connected by a thin, arcuate or V-shaped string, so that they are almost or nearly M-shaped (e.g., Fig. 101F). Since they are diverse in structure in the Chinese species (e.g., see Liu & Tang, 2017; Tang *et al*., 2018), the M-shaped condition is considered apomorphic.

Key to the Japanese species of *S. cirrus*-group

1(2) Male & female: Fourth to 6th abdominal segments not margined (*Hypostenus*-typed abdomen; Fig. 109B) ..... *S. uedai* Naomi
2(1) Male & female: Fourth to 6th abdominal segments margined (*Hemistenus*-typed abdomen).
3(6) Male: Aedeagal median lobe broadened apically from the middle to the apicolateral corners (or median lobe broadest at apicolateral corners in apical 1/2).
4(5) Male: Aedeagal median lobe narrower (Fig. 87E); endophallic copulatory tube thicker, curved behind the middle (Fig. 87E). Female: Spermathecal duct thicker, with two distinct turns (Fig. 87F) ..... *S. yamabushi* Naomi & Ito
5(4) Male: Aedeagal median lobe broader (Fig. 88B); endophallic copulatory tube thinner, flagellar, straight (Fig. 88B). Female: Spermathecal duct thinner, with coiled ductal mass at 1st turn (Fig. 88C)..... *S. nachiensis* Puthz
6(3) Male: Aedeagal median lobe not broadened apically from the middle to the apicolateral corners.
7(12) Male: Aedeagal median lobe distinctly broader in basal 1/2.
8(11) Male: Aedeagal median lobe narrower in apical 1/2; paramere shorter.
9(10) Male: Eighth ventrite with deeper emargination (Fig. 90G); endophallic copulatory tube comprising the basal chamber and main tube (Fig. 90B); paramere thicker (Fig. 90B) ..... *S. cirriformis* Naomi
10(9) Male: Eighth ventrite with shallower emargination (Fig. 91E); endophallic copulatory

tube double-structured (the basal Y-shaped structure and the flagellum) (Fig. 91C); paramere thinner (Fig. 91C)..... *S. angusticulus* Naomi, Puthz & Nomura sp. nov.

11(8) Male: Aedeagal median lobe broader in apical 1/2 (Fig. 100B); paramere longer (Fig. 100B).....*S. vernicosus* Naomi & Nomura

12(7) Male: Aedeagal median lobe distinctly narrower in basal 1/2.

13(22) Male: Aedeagal median lobe more or less narrowed apically in apical 1/2.

14(17) Male: Aedeagal paramere not or only weakly spatulate.

15(16) Male: Aedeagal median lobe narrower (Fig. 92F); paramere not spatulate (Fig. 92F). Female: Spermathecal duct with coiled ductal mass located at 1st turn (Fig. 92A) .....*S. yashiro* Naomi & Puthz

16(15) Male: Aedeagal median lobe broader (Fig. 93A); paramere weakly spatulate (Fig. 93A). Female: Spermathecal duct strongly, irregularly coiled at 1st and 2nd turns (Fig. 93B) ....*S. domburi* Hromádka

17(14) Male: Aedeagal paramere strongly spatulate.

18(19) Male: Aedeagal median lobe with apical sclerotized area broader (Fig. 95B); endophallic copulatory tube shorter, thicker (Fig. 95E).....*S. rasilis* Naomi & Ito

19(18) Male: Aedeagal median lobe with apical sclerotized area narrower; endophallic copulatory tube longer, thinner.

20(21) Male: Aedeagal median lobe narrower behind the middle (Fig. 94E). Female: Spermathecal duct moderately coiled at 1st turn (Fig. 94F)..... *S. sakaii* Naomi & Puthz

21(20) Male: Aedeagal median lobe broader behind the middle (Fig. 96D). Female: Spermathecal duct with a coiled ductal mass at 1st turn (Fig. 96E).....*S. sugiei* Naomi

22(13) Male: Aedeagal median lobe parallel-sided from near the middle (or apical 1/3) to the apicolateral corners.

23(28) Male: Aedeagal median lobe narrower; endophallic expulsion hook thicker and shorter.

24(27) Male: Aedeagal median lobe with apical area longer; endophallic copulatory tube longer. Female: Spermatheca with basal sclerotized duct usually longer.

25(26) Male: Endophallic expulsion hooks shorter, each anteriorly more or less rounded (Fig. 97A); copulatory tube thicker, longer, and not surrounded by the nock-like structure (Fig. 97B).....*S. caesariatus* Naomi & Ito

26(25) Male: Endophallic expulsion hooks longer, each anteriorly pointed (Fig. 98B); copulatory tube thinner, shorter, and surrounded by the nock-like structure (Fig. 98B)..... .....*S. kanzeon* Naomi

27(24) Male: Aedeagal median lobe with apical area shorter (Fig. 98D); endophallic copulatory tube shorter (Fig. 99D). Female: Spermatheca with basal sclerotized duct usually short (Fig. 99B)..... *S. sawadaianus* Hromádka

28(23) Male: Aedeagal median lobe broader (Fig. 101C); endophallic expulsion hook thinner and longer (Fig. 101F) .....*S. nyoirin* Naomi

Stenus yamabusi Naomi & Ito
(Figs. 87A–F, 109A)

Stenus yamabusi Naomi & Ito, 2015: 207.
Stenus domburi Hromádka: Naomi, 1997: 3 (Fig. 1D), 6 (key).

Type material examined. Holotype : ♂ (EUMM), Yokono (680 m), Yanadani Vil., Ehime

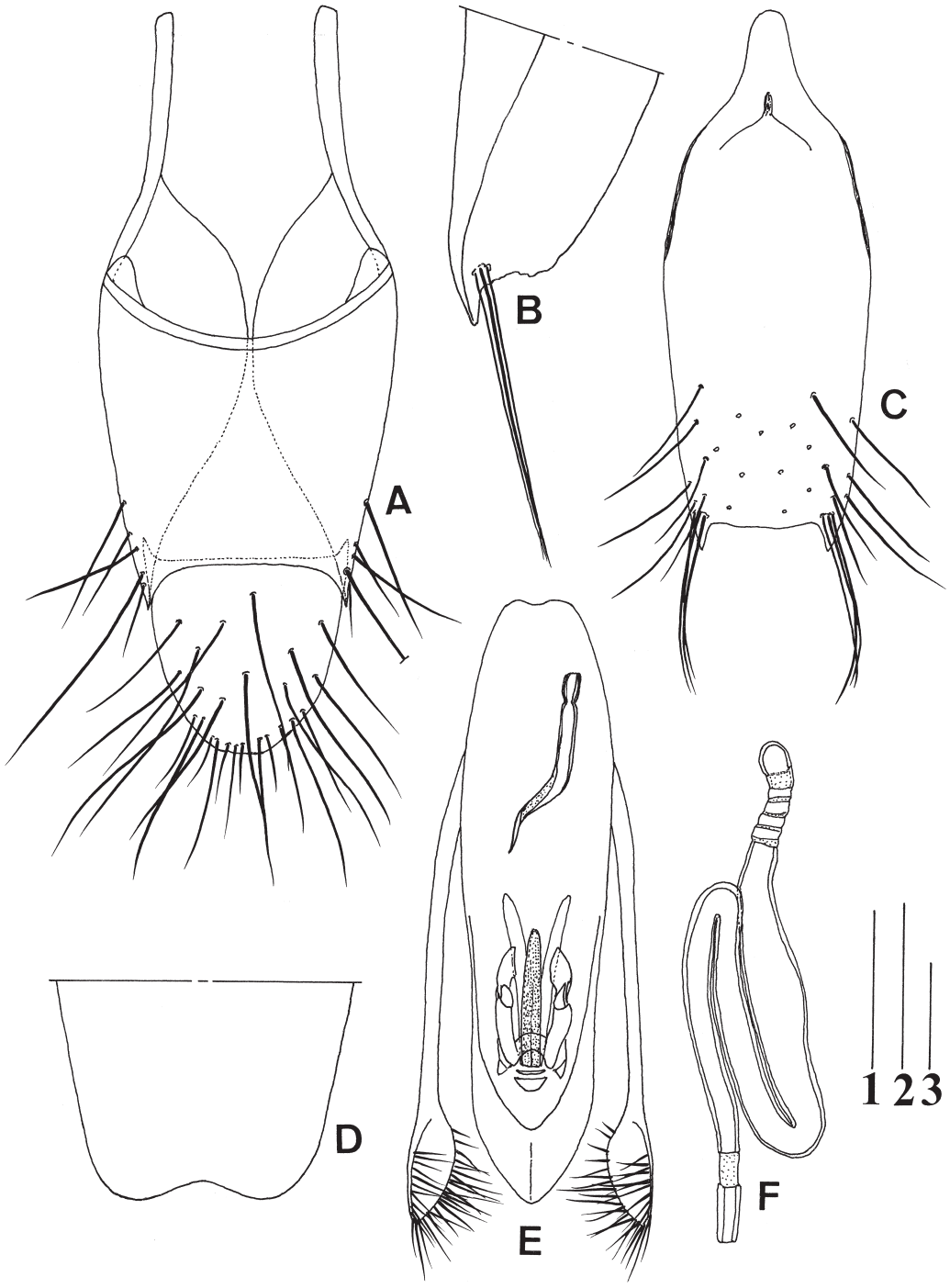

Fig. 87. *Stenus yamabushi* Naomi & Ito (A, C–E, Yokono, Ehime; B, F, Funat, Kochi). A, 9th and 10th terga of male; B, *posterior* part of gonocoxite; C, 9th ventrite of male; D, *posterior* part of 8th ventrite of male; E, aedeagus; F, spermatheca. Scale 1: 0.2 mm for A, C, E, 0.1 mm for B; Scale 2: 0.3 mm for D; Scale 3: 0.1 mm for F.

Pref., 1–2. x. 1994, M. Sakai leg. Paratype: 1 ♀ (cN), Funato, Higashitsuno Vil., Takaoka, Kochi Pref., 1. v. 1977, M. Yoshida leg.

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

Redescription. Male and female: Body 5.0–7.1 mm (fore body 2.1–2.3 mm) in length, glossy with head and abdomen strongly glittering; antennae thin, slender. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures round, sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, small to moderately large, strongly coarse. Elytra with surface even; punctures round to elliptical, very dense, various in size, strongly coarse. Tarsi each with 4th tarsomere very weakly bilobed. Abdomen with punctures elliptical, very dense, large to very large on anterior parts of 3rd and 4th segments; punctures round, moderately dense, moderately large on posterior parts of 3rd and 4th segments; punctures round to elliptical, very sparse, very small to small on the other posterior segments. Lateroventrites missing; tergoventrite sutures existing, thin.

Male: Eighth ventrite (Fig. 87D) posteromedially with a broad, arcuate emargination; 9th tergum (Fig. 87A) with antecostal apophyses very long, thin; 9th ventrite (Fig. 87C) not serrate posteriorly, with apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 87A) rounded posteriorly. Aedeagal median lobe (Fig. 87E) elongate, gently rounded apicolaterally, obtusely angulate at apex; apical sclerotized area (Fig. 87E) well-developed, extending anteriorly beyond the apicolateral corners along the lateral rims of median lobe. Endophallic median bands (Fig. 87E) with the basal bands fused, short, thin, and the folded bands weakly diverging anteriorly, longer than the fused basal bands, each thin; expulsion hooks (Fig. 87E) almost M-shaped, each hook weakly incurved; copulatory tube (Fig. 87E) with basal chamber small, main tube attenuate but weakly curved and spiral behind the middle. Parameres (Fig. 87E) each distinctly spatulate, with pedicel rather thin; apical area furnished with 30 to 33 setae of various lengths along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 87B) each hardly serrate posteriorly, with apicolateral tooth short, pointed, apicolateral setae very long. Spermatheca (Fig. 87F) with capsule well-rounded at apex, small; RT-duct short, thin; duct moderately thick to thick, short with 2 turns; basal valve short; basal duct short.

Biology and ecology. *S. yamabushi* is distributed in the mountainous regions of the western part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. yamabusi* is allied to *S. nachiensis*, but it is separable from the latter species by the aedeagal median lobe narrower, obtusely angulate at apex (Fig. 87E), the endophallic copulatory tube with its main tube thicker, weakly curved and spiral behind the middle (Fig. 87E), and the spermathecal tube simple at the 1st turn (Fig. 87F).

Etymology. The specific epithet of this species is derived from the Japanese noun “yamabushi” which means “mountain ascetic”.

Stenus nachiensis Puthz
(Fig. 88A–G)

Stenus nachiensis Puthz, 2001: 53; Naomi & Puthz, 2013: 141.

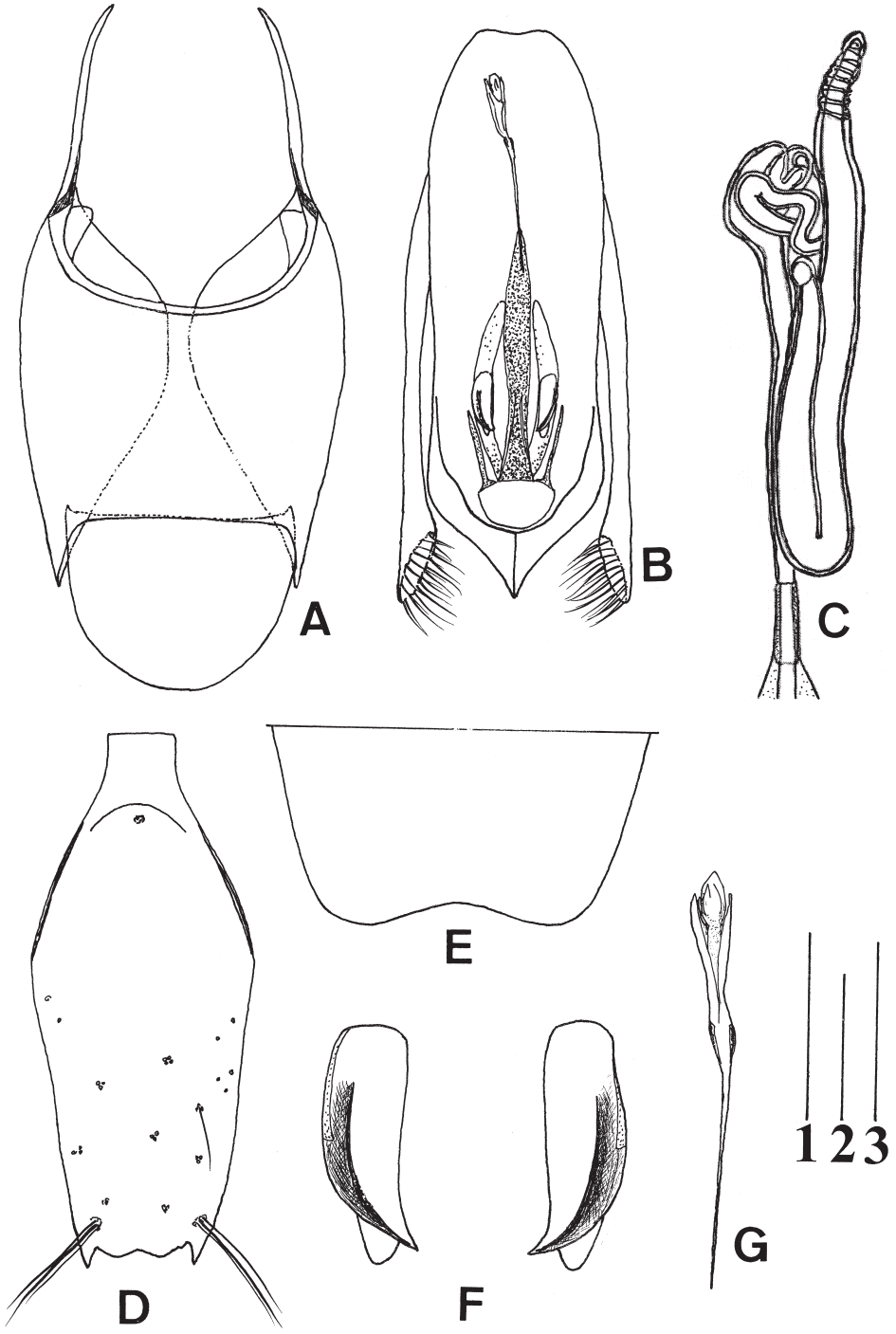

Fig. 88. *Stenus nachiensis* Puthz (A, B, D–G, Tsutsumi, Wakayama; C, Nachi, Wakayama). A, 9th and 10th terga of male; B, aedeagus; C, spermatheca; D, 9th ventrite of male; E, *posterior* part of 8th ventrite of male; F, expulsion hooks; G, copulatory tube. Scale 1: 0.2 mm for A, B, D, 0.1 mm for G, 0.05 mm for F; Scale 2: 0.1 mm for C; Scale 3: 0.2 mm for E.

Type materal examined. Holotype: ♂ (MHNG), Mt. Nachi, Wakayama Pref., 13. vii. 1999, V. Puthz leg.

Specimen examined. 1 ♂ (TUAA), Tsutsumi Valley, Shogun-gawa, Hiki-gawa, Wakayama Pref., 31. x. 2001, S. Tanaka leg.

Distribution. Japan: Honshu (Wakayama Pref.).

Male and female. Body 3.2–4.1 mm (fore body 1.7–1.8 mm) in length, glossy with head and abdomen strongly glittering, antennae very thin. Body black; labrum black; antennae with basal segments clear yellowish brown, apical segments reddish brown; legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round, dense, setiferous on the lateral parts of vertex, while punctures sparse, setiferous on the median longitudinal swollen area. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round, very dense, moderately large, coarse. Elytra with surface almost even; punctures round to elliptical, very dense, large. Legs each with 4th tarsomere weakly bilobed. Abdomen with punctures elliptical, very dense, very large on anterior parts of 3rd and 4th segments; punctures round, dense, moderately large on posterior parts of 3rd and 4th segments; punctures very fine, very sparse on other posterior segments. Lateroventrites missing; tergoventrite sutures thin.

Male: Eighth ventrite (Fig. 88E) posteromedially with a very broad, arcuate, arcuate emargination; 9th tergum (Fig. 88A) with antecostal apophyses very long; 9th ventrite (Fig. 88D) bisinuate at posterior margin, with apicolateral teeth very short, acutely pointed, apicolateral setae long; 10th tergum (Fig. 88A) rounded posteriorly. Aedeagal median lobe (Fig. 88B) broad, broadest and gently rounded at apicolateral corners, acutely pointed at apex; apical sclerotized area (Fig. 88B) well-developed, extending anteriorly beyond the apicolateral corners along the lateral rims of median lobe, with a median longitudinal line. Endophallic median bands (Fig. 88B) with the basal bands long, fused, and the folded bands separated, each incurved, shorter than the fused basal band; lateral bands (Fig. 88B) short, thin; expulsion hooks (Fig. 88F) widely separated, each incurved posteriorly, acutely pointed, with a rounded posterior process; copulatory tube (Fig. 88G) with basal chamber elongate-conical, main tube weakly swollen basally, then flagellar and very thin. Parameres (Fig. 88B) each rounded at apex; apical area short, moderately swollen mesially at base, furnished with 21–22 setae of moderate length along mesial margin.

Female: Eighth ventrite rounded posteriorly. Spermatheca (Fig. 88C) with capsule very small, rounded; RT-duct short, thin; duct thin to moderately thick, basically having two turns but with a coiled ductal mass at the 1st turn; basal sclerotized duct moderately long. Basal structure conical (Fig. 88C).

Biology and ecology. *S. nachiensis* is distributed in the mountainous regions of the eastern part of Kansai district, Honshu. At Mt. Nachi, the beetles inhabit leaf litter in the natural deciduous forests near the mountain streams (Puthz, 2001).

Remarks. *S. nachiensis* is allied to *S. yamabushi*, but it is separable from the latter species by the aedeagal median lobe thicker and acutely pointed at apex (Fig. 88B), the endophallic copulatory tube with its main tube thinner, simply flagellar (Fig. 88B), and the spermathecal duct with a coiled ductal mass at the 1st turn (Fig. 88G).

Stenus uedai Naomi
(Figs. 89A–G, 109B)

Stenus uedai Naomi, 2015: 37.

Type material examined. Holotype: ♂ (CBM), Mt. Unpenji, Ohnohara-chô, Kagawa Pref., 7. viii. 2004, M. Yoshida leg. Paratypes: 1 ♂ (cN), same data as holotype; 1 ♂1 ♀ (cN), Mt. Keisoku, Nishi-iyayama, Tokushima Pref., 13. x. 2002, K. Tanaka leg.

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

Redescription. Male and female: Body 6.0–6.3 mm (fore body 2.5–2.7 mm) in length, glossy with head and abdomen strongly glittering, antennae relatively short, very thin. Body black; labrum black; antennae with basal segments clear yellowish brown, apical segments brown to dark brown; legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round to elliptical, dense, small, setiferous on the lateral parts of vertex, while punctures very sparse, very small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, very coarse. Elytra with surface weakly uneven; punctures round, very dense, moderately large to large, coarse. Tarsi each with 4th tarsomere not bilobed. Abdomen with punctures ovoidal to elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures very sparse, very small, setiferous on posterior parts of 3rd and 4th segments and also on other posterior segments. Lateroventrites and tergoventrite sutures missing.

Male: Eighth ventrite (Fig. 89E) posteromedially with a broad, arcuate emargination; 9th tergum with antecostal apophyses long, thin; 9th ventrite (Fig. 89B) weakly rounded posteriorly, with apicolateral teeth very short, pointed, apicolateral setae very long; 10th tergum (Fig. 89G) entire. Aedeagal median lobe (Fig. 89C) moderately broad, distinctly angulate apicolaterally, acutely pointed at apex; apical sclerotized area (Fig. 89C) well-developed, triangular, with a thin median longitudinal suture. Endophallic median bands (Fig. 89C) with basal bands fused, long; lateral bands (Fig. 89C) thin; expulsion hooks (Fig. 89C) M-shaped, each almost cucumber-shaped, weakly incurved; copulatory tube (Fig. 89D) with basal chamber having two rods of different length, main tube baculiform, with apical part slightly asymmetrically swollen left and right. Parameres (Fig. 89C) weakly divergent posteriorly at apical areas, each rather long, rounded at apex, with stem mesially having one short seta behind the middle; apical area very long, furnished with 24–25 long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 89F) each with apicolateral tooth short, pointed, apicolateral setae very long. Spermatheca (Fig. 89A) without capsule; RT-duct relatively short, thin; duct robust with 2 characteristic turns, usually very thick but relatively thin at the most basal part; basal valve very short; basal duct very short, broadened proximally; gland spherical, densely covered with thin, long cilia, with its opening located on the caudal side of duct near 2nd turn.

Biology and ecology. *S. uedai* is distributed in the low mountainous regions of the eastern part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their common possession of the well-angulated apicolateral corners of aedeagal median lobe, the long parameres, the baculiform copulatory tube of endophallus, etc., *S. uedai* seems to be allied to *S. bullatus* from China, but it is separable from the latter species by the elytron unicolorate without macula, the median lobe with its apical sclerotized area larger

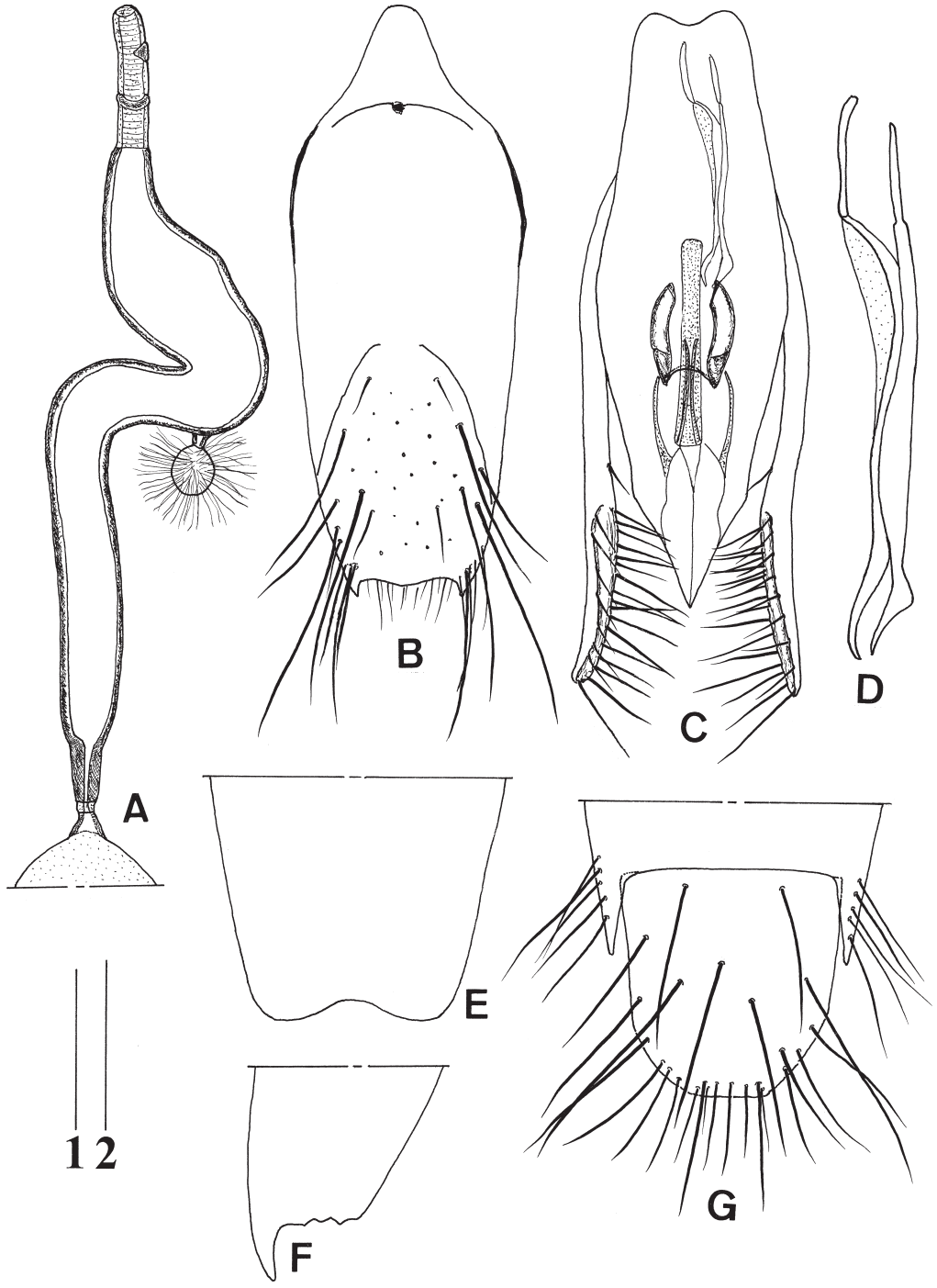

Fig. 89. *Stenus uedai* Naomi (Unpenji, Kagawa). A, spermatheca; B, 9th ventrite of male; C, aedeagus; D, copulatory tube; E, posterior part of 8th ventrite of male; F, posterior part of gonocoxite; G, 9th and 10th terga of male. Scale 1: 0.1 mm for A, D, F and 0.2 mm for B3–C, G; and scale 2: 0.3 mm for E.

(Fig. 89C) and the spermatheca with its duct bent twice (Fig. 89A). *S. uedai* is easily separable from all other Japanese species by the median lobe with its apicolateral corners sharply angulated (Fig. 89C) and the spermatheca with its duct characteristically bent twice (Fig. 89A).

Etymology. This species is named in honor of Dr. Kyoichiro Ueda (Kitakyushu Museum and Institute of Natural History, Kitakyushu), who studies the Noctuidae and also the fossil insects.

Stenus cirriformis Naomi
(Fig. 90A–G)

Stenus cirriformis Naomi, 1988b: 34; Herman, 2001: 2126; Naomi & Puthz, 2013: 141.

Type material. Holotype: ♂ (KUF), Sandankyo, Hiroshima Pref., 13. viii. 1986, I. Okamoto leg.

Type material examined. Paratype: 1 ♀ (cN), Sandankyo, Hiroshima Pref., 30. viii. 1986, I. Okamoto leg.

Other material examined. [HONSHU]: 1 ♂, Mt. Garyu, Geihoku, Hiroshima Pref., 27. vi. 1987, I. Okamoto leg.

Distribution. Japan: Honshu (Hiroshima Pref.).

Redescription. Male and female: Body 5.0–5.3 mm (fore body 2.1–2.6 mm) in length, glossy with head and abdomen strongly glittering, antennae relatively short, very thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, moderately concave, with a pair of distinct longitudinal furrows; punctures almost round to round, very dense, various in size (small to large), setiferous on the lateral parts of vertex, while punctures sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures almost round to round, very dense, moderately large, rather coarse. Elytra with surface weakly uneven; punctures round to elliptical, very dense, moderately large to large, rugose. Tarsi each with 4th tarsomere weakly bilobed, each lobe short, thin. Abdomen covered sparsely with suberect, thin setae; punctures round to elliptical, very dense, large to very large, setiferous on anterior part of 3rd segment; punctures round, dense, moderately large, setiferous on posterior part of 3rd segment; punctures round, sparse to very sparse, very small to small, setiferous on the other posterior segments. Lateroventrites existing in 4th and 5th segments, very narrow to narrow, punctate; tergoventral sutures thin in 6th segment.

Male: Eighth ventrite (Fig. 90G) posteromedially with a broad, moderately deep emargination; 9th tergum with antecostal apophyses long; 9th ventrite (Fig. 90A) hardly serrate posteriorly, with apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum rounded posteriorly. Aedeagal median lobe (Fig. 90B) broad, elongate-subovoidal, strongly narrowed apically in about apical 1/2, hardly angulate at apicolateral corners, acutely pointed at apex; apical sclerotized area (Fig. 90B) almost elongate-triangular. Endophallic median bands (Fig. 90B) with basal band long, thin; lateral bands (Fig. 90B) long, moderately broad; expulsion hooks (Fig. 90B) M-shaped; copulatory tube (Fig. 90B) simple, relatively short, with basal chamber subovoidal, main tube attenuate. Parameres (Fig. 90B) thick, rounded at apex; apical area long, weakly spatulate, furnished densely with about 50 to 55 thin, long setae along mesial margin.

Female: Eighth ventrite obtusely angulate posteromedially (Fig. 90F); 9th tergum simple (Fig. 90D); 10th tergum (Fig. 90D) entire; gonocoxites (Fig. 90E) each hardly serrate posteriorly,

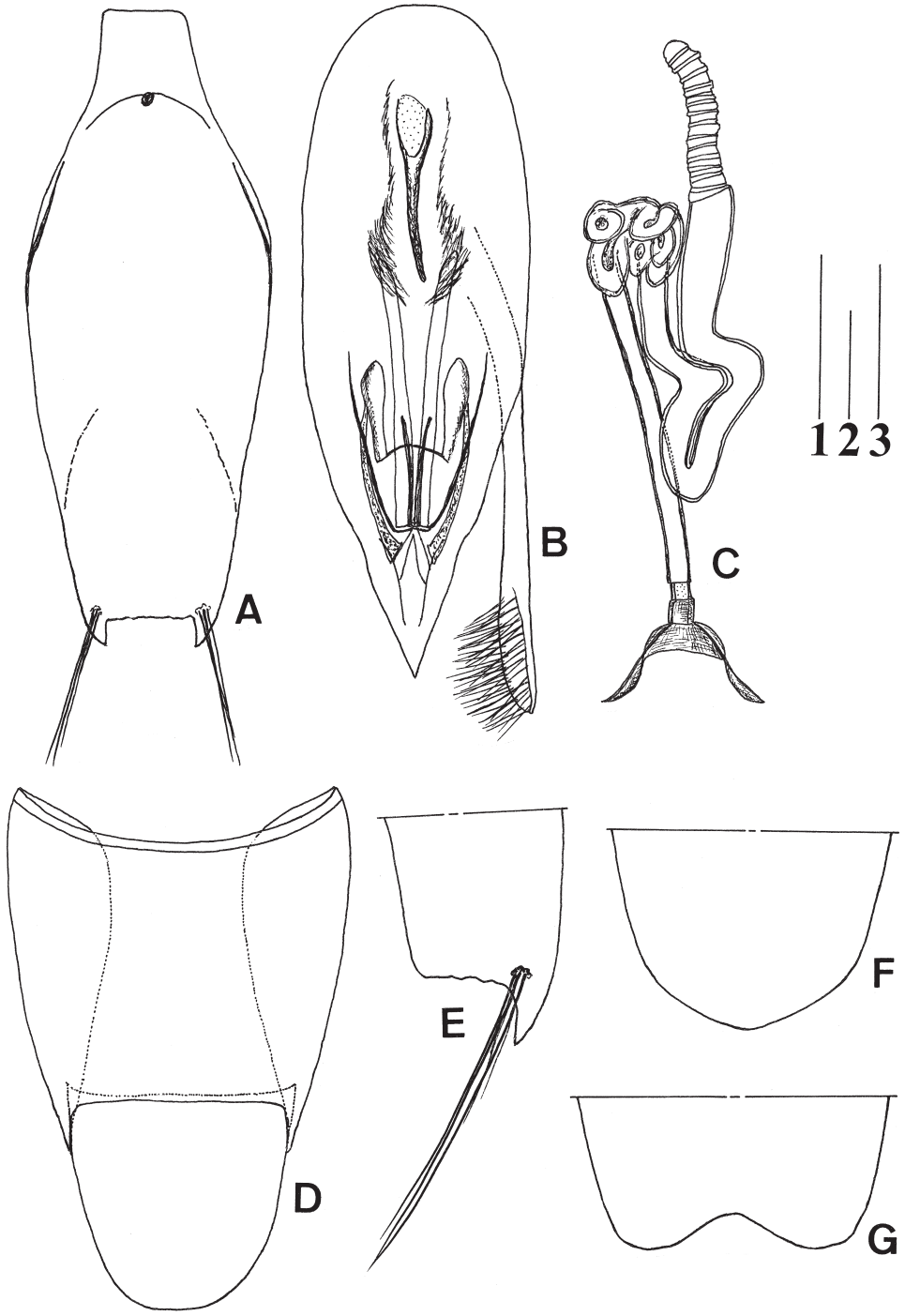

Fig. 90. *Stenus cirriformis* Naomi (A, B, G, Garyu, Hiroshima; C–F, Sandankyo, Hiroshima). A, 9th ventrite of male; B, aedeagus; C, spermatheca; D, 9th and 10th terga of female; E, posterior part of gonocoxite; F, 8th ventrite of female; posterior part of 8th ventrite of male. Scale 1: 0.2 mm for A, B, D, 0.1 mm for E; Scale 2: 0.1 mm for C; 0.2 mm for F; Scale 3: 0.2 mm for G.

with apicolateral tooth acutely pointed, apicolateral setae very long. Spermatheca (Fig. 90C) with capsule almost missing; RT-duct relatively short; duct moderately thick to thick, tightly coiled to form a ductal mass at the 1st turn, with the duct from the base to 1st turn very long, straight; basal valve very short; basal sclerotized duct very short. Basal structure (Fig. 90C) sclerotized, bowl-shaped.

Biology and ecology. *S. cirriformis* is distributed in the mountainous regions of the central part of Chugoku district, Honshu. The beetle inhabits leaf litter in the natural forests.

Remarks. *S. cirriformis* is allied to *S. angusticulus*, but it is separable from the latter species by the 8th ventrite of male more deeply emarginate posteriorly (Fig. 90G), the aedeagal median lobe with its apex broader (Fig. 90B), the endophallic copulatory tube simple in composition (basal chamber and main tube; Fig. 90B), and the aedeagal paramere thicker (Fig. 90B).

Stenus angusticulus Naomi, Nomura & Puthz sp. nov.
(Figs. 91A–E, 109C)

Type material. Holotype: ♂ (NSMT-I-C-200330 in NMNST), Mt. Ishizuchi, Ehime Pref., 21. vii. 1991, I. Okamoto leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Description. Male: Body 5.0 mm (fore body 2.3 mm) in length, glossy with head and abdomen strongly glittering, antennae moderately long, very thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, moderately concave, with a pair of distinct longitudinal furrows; punctures almost round to round, very dense, moderately large to large, setiferous on the lateral parts of vertex, while punctures sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with median longitudinal furrow shallow, broad near the center of pronotum; punctures round, very dense, moderately large, rather coarse. Elytra with surface weakly uneven; punctures elliptical, very dense, large to very large, strongly rugose especially near suture. Tarsi each with 4th tarsomere weakly bilobed, each lobe short, thin. Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large on anterior part of 3rd segment; punctures round, dense, moderately large, setiferous on posterior part of 3rd segment; punctures round, sparse to very sparse, very small to small, setiferous on other posterior segments. Lateroventrites existing only in 4th segment, narrow, punctate; tergoventral sutures thin in 5th and 6th segments.

Eighth ventrite (Fig. 91E) posteromedially with a broad, arcuate emargination; 9th tergum (Fig. 91A) with antecostal apophyses long; 9th ventrite (Fig. 91B) not serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 91A) rounded posteriorly. Aedeagal median lobe (Fig. 91C) broad, strongly narrowed toward apex in about apical 1/3, distinctly constricted a little before the apicolateral corners, rounded at apicolateral corners, pointed at apex; apical sclerotized area (Fig. 91C) very narrow, elongate-triangular, with a median longitudinal line. Endophallic median bands (Fig. 91C) with basal bands fused, long, narrow; lateral bands (Fig. 91C) very long, thin; expulsion hooks (Fig. 91C) M-shaped; copulatory tube (Fig. 91D) double-structured as follows: the basal Y-shaped sclerite surrounded by the setal band at base, and the thin flagellar tube, the basal chamber of which is located inside the Y-shaped sclerite. Parameres (Fig. 91C) thin; apical area long, moderately swollen mesially, furnished densely with about 35 to 40 thin, long setae along mesial margin.

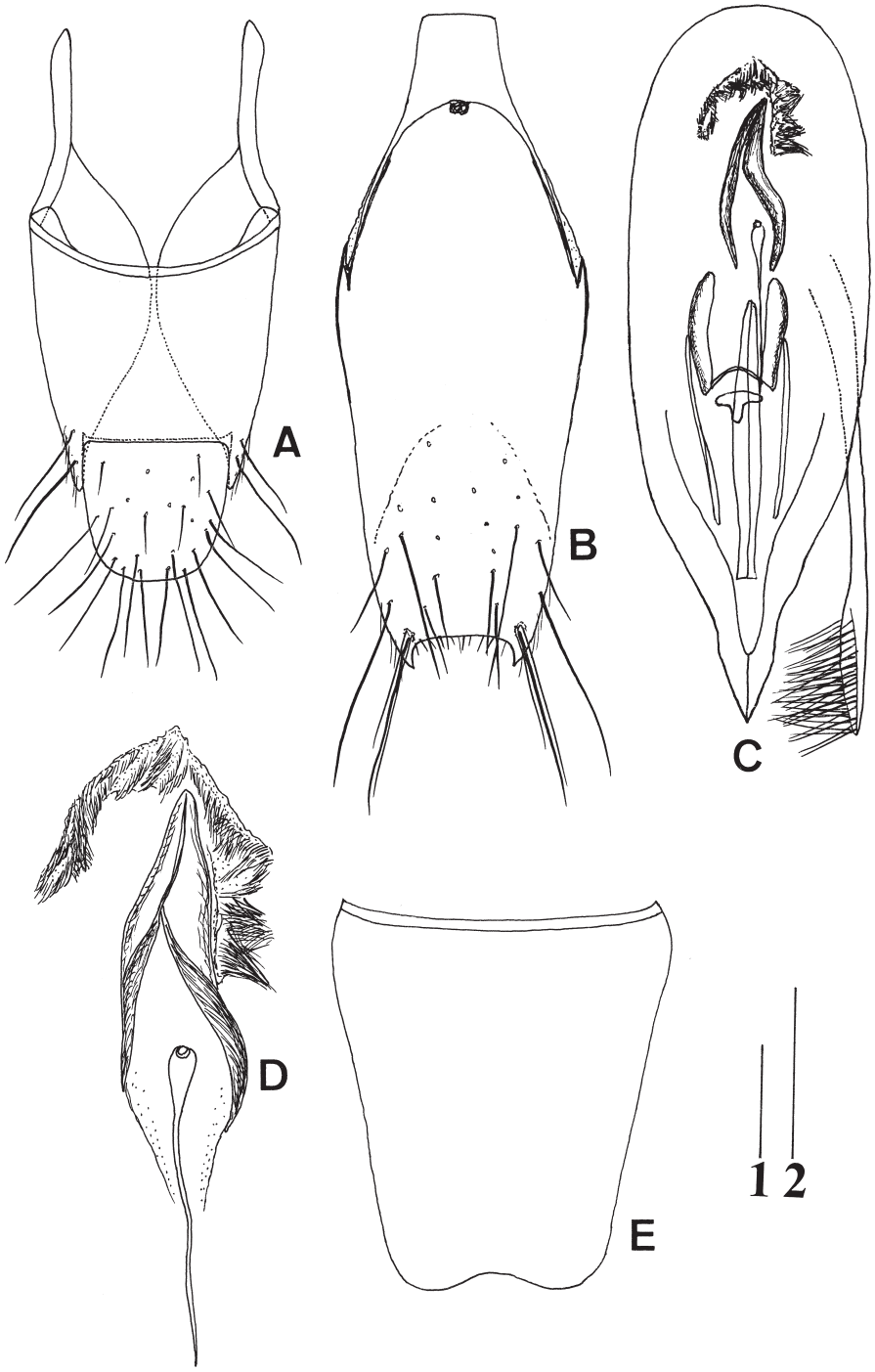

Fig. 91. *Stenus angusticulus* Naomi, Nomura & Puthz sp. nov. (Ishizuchi, Ehime). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, copulatory tube with the densely pubescent basal part of inner sac; E, 8th ventrite of male. Scale 1: 0.2 mm for A, E; Scale 2: 0.2 mm for B, C, 0.1 mm for D.

Female: Unknown.

Biology and ecology. *S. angusticulus* is presently collected only once from Mt. Ishizuchi located at the northwestern part of Shikoku. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. angusticulus* is allied to *S. cirriformis*, but it is separable from the latter species by the 8th ventrite of male more shallowly emarginate posteriorly (Fig. 91E), the aedeagal median lobe with its apex narrower (Fig. 91C), the endophallic copulatory tube double-structured (proximal Y-shaped structure and distal flagellum; Fig. 91C), and the aedeagal paramere thinner (Fig. 91C).

Etymology. The specific epithet of this new species is derived from the Latin adjective "*angustus* / *angusti*-" which means "narrow" + a Latin diminutive "-*culus*". The apex of aedeagal median lobe is certainly narrow as in Fig. 91C.

Stenus yashiro Naomi & Puthz
(Figs. 92A–H, 109D)

Stenus yashiro Naomi & Puthz, 1994: 257; Herman, 2001: 2438; Naomi & Puthz, 2013: 141; Naomi & Ito, 2015: 208.
Stenus hirtellus Sharp, 1874: Naomi, 1988, 18: 65.

Type material examined. Holotype: ♂ (CBM), Ryumon Valley, Saga Pref., 23. x. 1977, H. Ohishi leg. Paratype, 1 ♀ (cN), Mt. Unzen, Nagasaki Pref., 27. ix. 1977, S. Imasaka leg.

Other material examined. [KYUSHU]: 1 ♀, Mt. Kyogadake, Kashima City, Saga Pref., 13. iii. 2000, S. Nomura leg.; 1 ♀, same locality, 17. iii. 1998, S. Nomura leg.

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

Redescription. Male and female: Body 3.2–3.6 mm (fore body 1.6–1.7 mm) in length, glossy with head and abdomen strongly glittering, antennae short, thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, weakly concave, with a pair of distinct longitudinal furrows; punctures round, moderately dense, small to moderately large, irregular, setiferous on the lateral parts of vertex, while punctures round, sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, moderately large, coarse. Elytra with surface weakly uneven; punctures round to almost round, very dense, large, weakly coarse. Tarsi each with 4th tarsomere weakly bilobed. Abdomen with punctures ovoidal to elliptical, very dense, large to very large, setiferous on anterior parts of 3rd to 5th segments; punctures very sparse, very small, irregular, setiferous on posterior parts of 3rd to 5th segments and on other posterior segments. Lateroventrites missing; tergoventral sutures thin.

Male: Eighth ventrite (Fig. 92H) posteromedially with a very shallow, arcuate emargination; 9th tergum (Fig. 92B) with antecostal apophyses short, thin; 9th ventrite (Fig. 92G) with apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 92B) very weakly emarginate posteriorly. Aedeagal median lobe (Fig. 92F) slender, acutely pointed apically. Endophallic median bands (Fig. 92D) with basal bands running in parallel; expulsion hooks (Fig. 92E) M-shaped, each relatively broad, with anterior plate clearly demarcated by a transverse suture from posterior plate; copulatory tube (Fig. 92C) with basal chamber ovoidal, main tube long, attenuate but weakly curved at apical part. Parameres (Fig. 92F) each thin; apical area long, hardly swollen mesially, furnished with 24–26 setae along mesial margin.

Female: Eighth ventrite bluntly pointed posteromedially; gonocoxites (Fig. 92I) each with

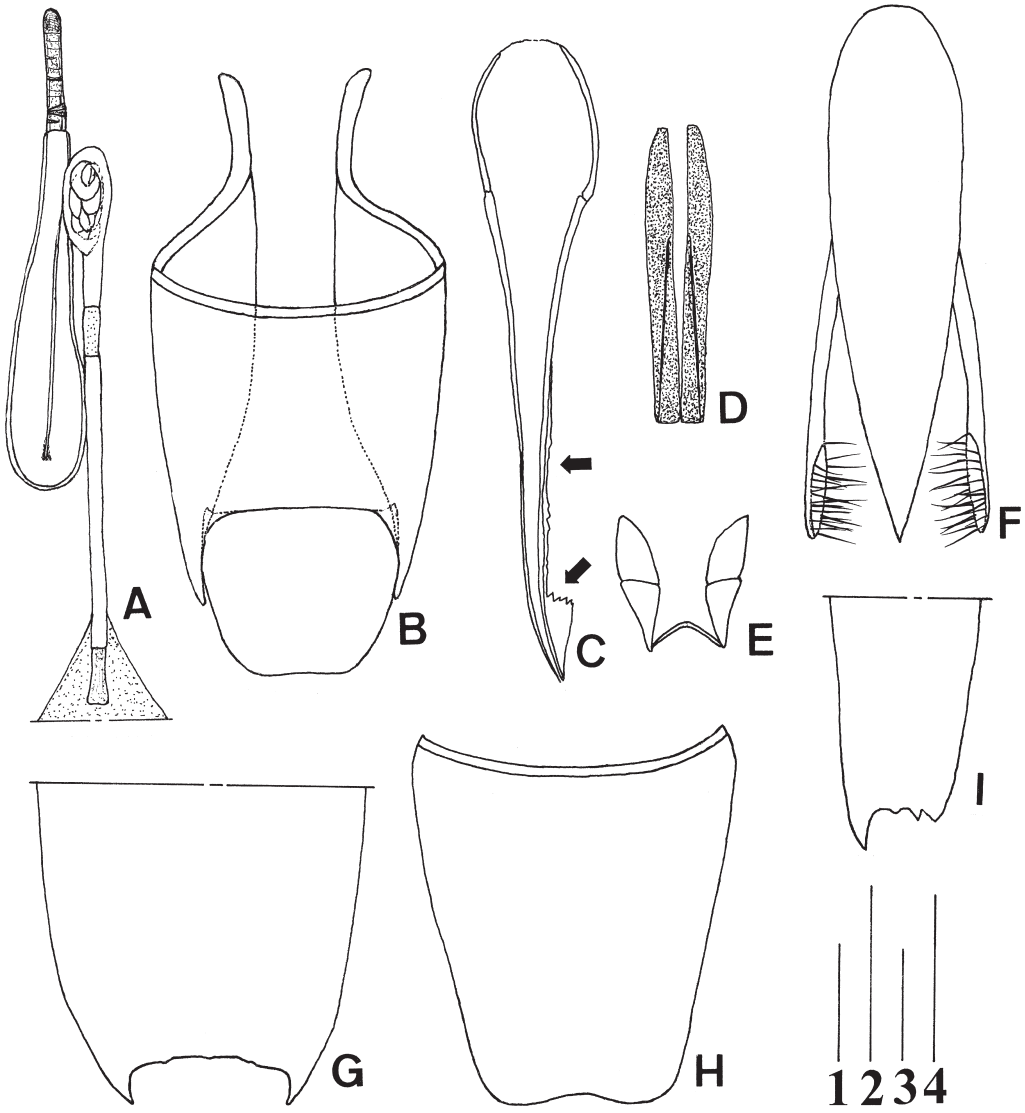

Fig. 92. *Stenus yashiro* Naomi & Puthz (A, I: Kyogatake, Saga: B–H: Ryumon, Saga). A, spermatheca; B, 9th and 10th terga of male; C, copulatory tube (the arrows show the broken parts of main tube); D, median bands; E, expulsion hooks; F, aedeagus; G, posterior part of 9th ventrite of male; H, 8th ventrite of male; I posterior part of gonocoxite. Scale 1: 0.1 mm for A; Scale 2: 0.2 mm for F, 0.1 mm for C–E, G, I; Scale 3: 0.1 mm for B; and Scale 4: 0.2 mm for H.

apicolateral tooth pointed, apicolateral setae long. Spermatheca (Fig. 92A) with capsule missing; RT-duct very thin; duct very thin to moderately thick, having 2 turns, with a small, coiled ductal mass at 1st turn; basal valve short; basal duct very long, slender, straight. Basal structure conical, membranous.

Biology and ecology. *S. yashiro* is distributed in the mountainous regions of northern Kyushu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given the small-sized body, the slender form of aedeagal median lobe, etc., *S. yas-*

hiro seems to be related to *S. nigritus* from China, but it is separable from the latter species by the 8th ventrite of male with its apicolateral tooth smaller (Fig. 92G), the endophallic expulsion hook broader (Fig. 92E), and the spermathecal duct with a coiled ductal mass at the 1st turn (Fig. 92A). *S. yashiro* is easily separable from all the other Japanese members of *cirrus*-group by the aedeagal median lobe much narrower (Fig. 92F) and the spermathecal duct more slender (Fig. 92A).

Since only one male specimen of *S. yashiro* (whose endophallic copulatory tube was broken) was examined, the copulatory tube was not able to be illustrated nor described unambiguously. However, the copulatory tube may have a lateral flap along the main tube, given that there exists the subtransparent fragment of a flap-like structure at the lateral side of the apical part of main tube (see the lower arrow in Fig, 92C).

Etymology. The specific epithet of this species is derived from the Japanese noun "yashiro", which means the place where the people enshrine the god in Japan.

Stenus domburi Hromádka
(Figs. 93A–F, 109E)

Stenus domburi Hromádka, 1979: 101; Herman, 2001: 2164; Naomi & Puthz, 2013: 141; Naomi & Ito, 2015: 212.
Stenus longisetosus Puthz, 1993: 160; Naomi & Ito, 2015: 212 (synonym of *S. domburi*).

Type material examined. Holotype of *S. domburi* Hromádka: ♂ (NMP), Mt. Kazigamori, Tosa (Kochi Pref.), 21. vii. 1952, K. Sawada leg.

Holotype of *S. longisetosus* Puthz: ♂ (cP), Mt. Ishizuchi, Tsuchigoya (1,400 m), Ehime Pref., Japan, 11–18. viii. 1980, S. & J. Peck leg. Paratype of *S. longisetosus* Puthz: ♂ (cN), same data as the holotype.

Other material examined. [SHIKOKU]: 2 ♂2 ♀, Mt. Takamaru, Kamikatsu-cho, Tokushima Pref., 19. vi. 2005, M. Yoshida leg.; 1 ♂, Mt. Kumoso, Kamiyama-cho, Tokushima Pref., 20. viii. 2005, M. Yoshida leg.; 1 ♂1 ♀, Mt. Kotsu, Yamakawa, Yoshinogawa city, Tokushima Pref., 24. vii. 2005, M. Yoshida leg.; 1 ♂, Mt. Tsurugi, Minokoshi (1,340 m), Tokushima Pref., 11 x. 1999, M. Yoshida leg.; 1 ♀, Mt. Ishizuchi, Ehime Pref., 21. vii. 1991, I. Okamoto leg.; 1 ♂, same locality, 16. ix. 1992, E. Yamamoto leg.; 1 ♂1 ♀, Mt. Tsutsujo, Ino-machi, Motokawa, Kochi Pref., 30. vi. 2007, T. & R. Miyata leg.; 1 ♂, Monobe, Kochi Pref., 23–24. ix. 2007, T. & R. Miyata leg.

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

Redescription. Male and female: Body 4.8–5.5 mm (fore body 2.1–2.5 mm) in length, glossy with head and abdomen strongly glittering, antennae relatively short, very thin. Body black, but sometimes pronotum and elytra having reddish tinge; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, moderately concave, with a pair of distinct longitudinal furrows; punctures round, dense to very dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures almost round to round, very dense, small, rugose. Elytra with surface weakly uneven; punctures round to elliptical, very dense, various in size (small to large), strongly rugose. Tarsi each with 4th tarsomere very weakly bilobed. Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large to very large, setiferous on anterior part of 3rd segment;

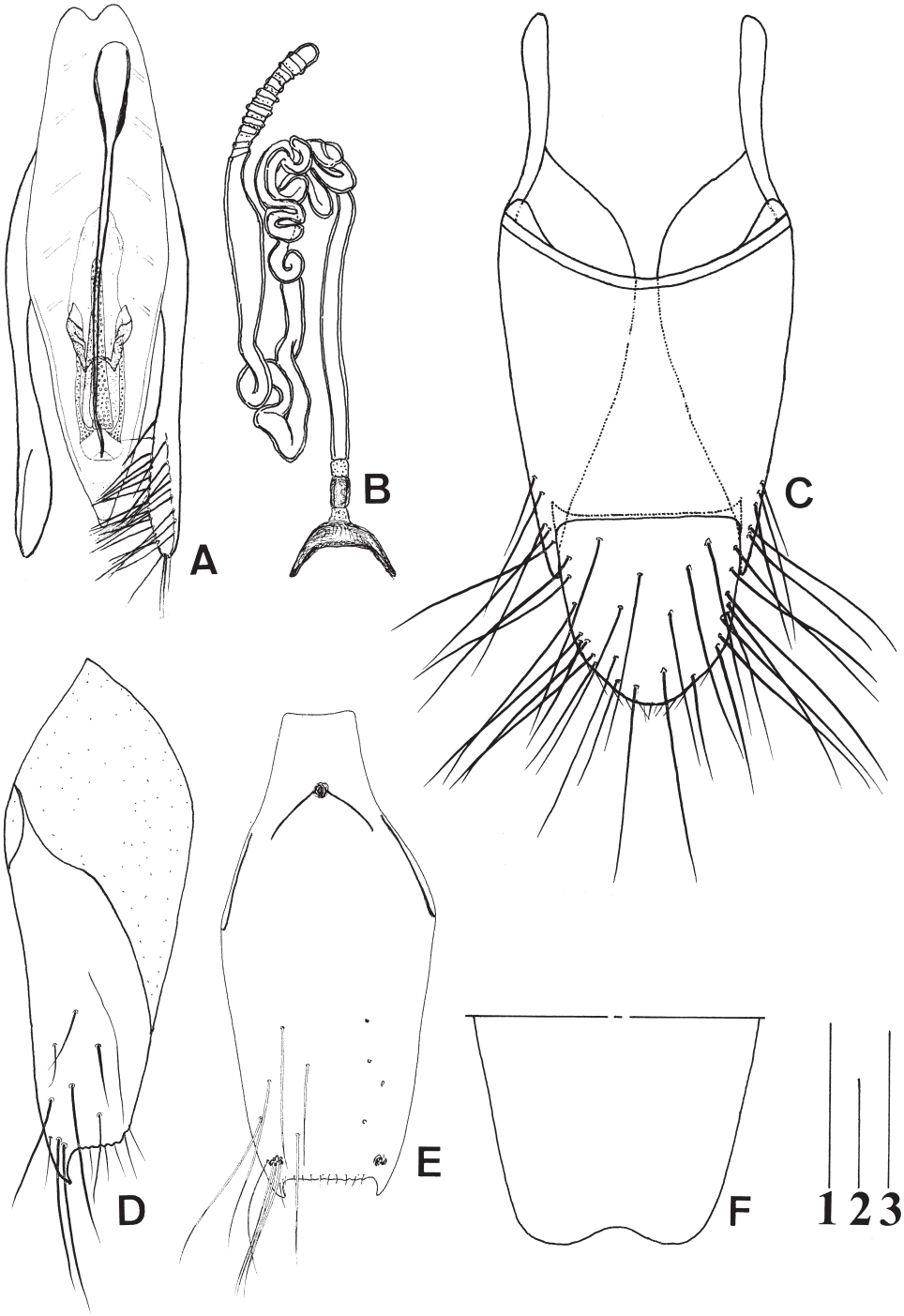

Fig. 93. *Stenus domburi* Naomi (A, B, D, E, Ishizuchi, Ehime; C, F, Takamaru, Tokushima). A, aedeagus; B, spermatheca; C, 9th and 10th terga of male; D, gonocoxite; E, 9th ventrite of male; F, *posterior* part of 8th ventrite of male. Scale 1: 0.2 mm for A, C, D, E; Scale 2: 0.1 mm for B; Scale 3: 0.2 mm for F.

puncture round, sparse, moderately large, setiferous on posterior part of 3rd segment; punctures round, sparse to very sparse, very small to small, setiferous on other posterior segments. Lateroventrites missing; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 93F) posteromedially with an arcuate emargination; 9th tergum (Fig. 93C) with antecostal apophyses moderately long; 9th ventrite (Fig. 93E) hardly serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae long; 10th tergum (Fig. 93C) rounded posteriorly. Aedeagal median lobe (Fig. 93A) elongate, strongly narrowed toward apex in about apical 1/2, pointed at apex; apical sclerotized area (Fig. 93A) narrow, almost elongate-triangular. Endophallic median bands (Fig. 93A) with basal bands fused, relatively short; lateral bands (Fig. 93A) moderately long and broad; expulsion hooks (Fig. 93A) M-shaped; copulatory tube (Fig. 93A) with basal chamber elongate-ovoidal, main tube comprising a very long flagellum. Parameres (Fig. 93A) each thick, weakly spatulate ae apex; apical area long, furnished densely with about 25 to 30 thin, long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 93D) each very minutely or hardly serrate posteriorly, with apicolateral tooth very short, acutely pointed, apicolateral setae long to very long. Spermatheca (Fig. 93B) with capsule very small, rounded; RT-duct relatively short; duct usually thin but moderately thick only at the distal part, strongly coiled at and near the 1st and 2nd turns, with the duct from the base to 1st turn very long, almost straight; basal valve very short; basal sclerotized duct short. Basal structure (Fig. 93B) sclerotized, bowl-shaped.

Biology and ecology. *S. domburi* is widely distributed in the mountainous regions of Shikoku. The beetle inhabits leaf litter in the natural forests.

Remarks. *S. domburi* is allied to *S. sakaii*, but it is separable from the latter species by the aedeagal median lobe less strongly pointed apex (Fig. 93A), the endophallic copulatory tube with its flagellum thicker (Fig. 93A), the paramere less strongly spatulate (Fig. 93A), and the spermathecal duct thinner and more strongly coiled (Fig. 93B).

Etymology. The specific epithet of this species is derived from a Japanese noun “domburi”, which means a “bowl”.

Stenus sakaii Naomi & Puthz
(Figs. 94A–F, 109F)

Stenus sakaii Naomi & Puthz, 1996: 154; Herman, 2001: 2376; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CMB), Mt. Saragamine (1100 m), Ehime Pref., 28. v. 1988. M. Sakai leg.

Other material examined. [SHIKOKU]: 1 ♂, Komenono, Ehime Pref., 23–24. v. 1970, S. Kinoshita leg.; 1 ♂, Mt. Fukumi, Ehime Pref., 20. ix. 1970, M. Tomokuni leg.; 1 ♂, Mt. Odami, Ehime Pref., 25. ix. 1993, I. Okamoto leg.; 1 ♀, same locality, 19. vii. 1993, M. Sakai leg.; 1 ♀, Sugitachi, Ehime Pref., 1. xi. 1992, I. Okamoto leg.; 1 ♂, Kuroson, Nishitosa Vil., Kochi Pref., 21. vi. 1999, T. Kan leg.; 1 ♀, same locality, 22–23. v. 1999, T. Kan leg.

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

Redescription. Male and female: Body 4.3–5.5 mm (fore body 2.0–2.3 mm) in length, glossy with head and abdomen strongly glittering, with antennae relatively short, very thin. Body black; labrum black; antennae yellowish brown to reddish brown, with apical segments infuscate; legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of dis-

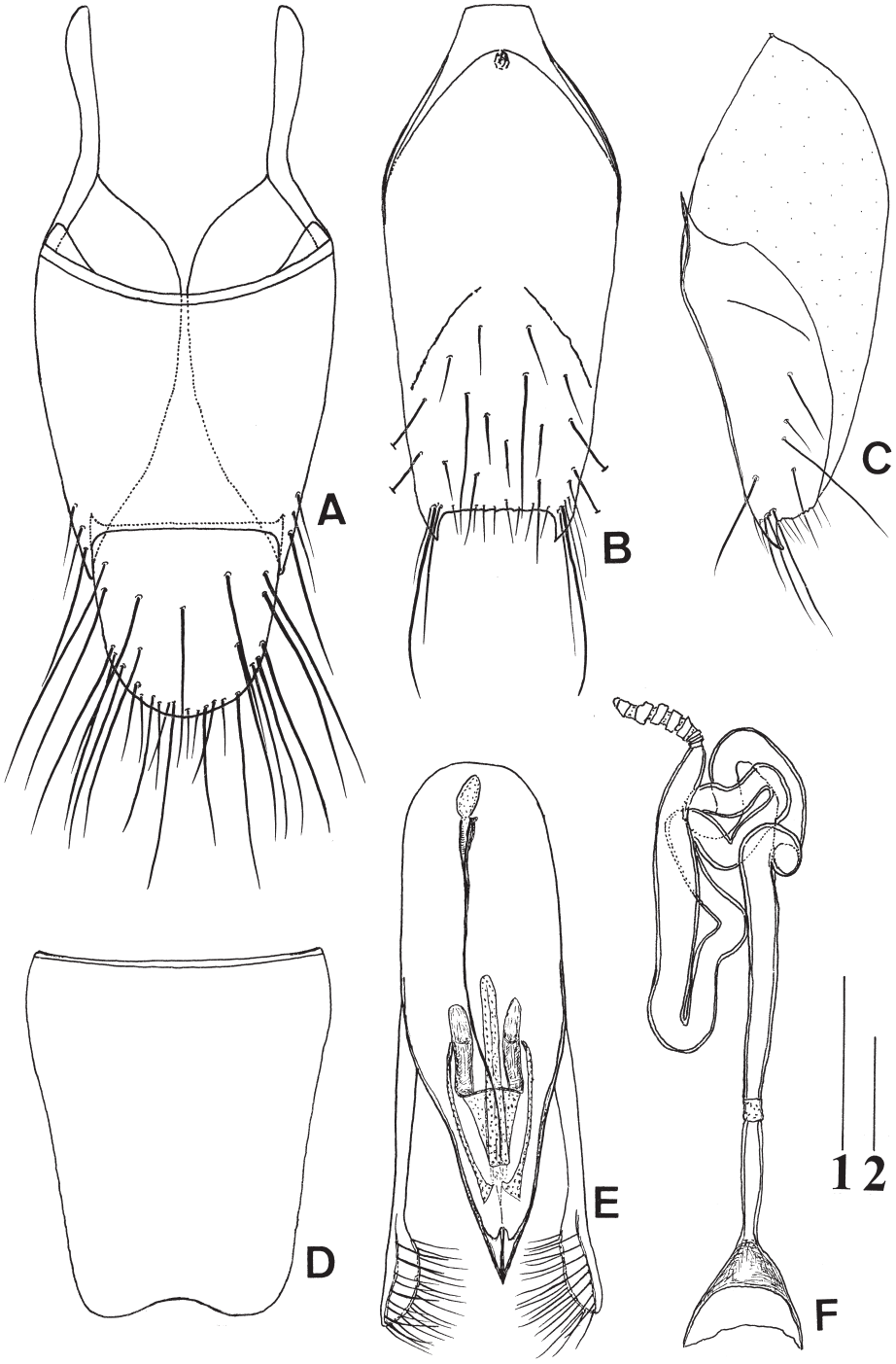

Fig. 94. *Stenus sakaii* Naomi & Puthz (A, B, F, Odami, Ehime; B, Kuroson, Kochi; D, Komenono, Ehime; E, Saragamine, Ehime). A, 9th and 10th terga of male; B, 9th ventrite of male; C, gonocoxite; D, 8th ventrite of male; E, aedeagus; F, spermatheca. Scale 1: 0.2 mm for A–C, E; Scale 2: 0.2 mm for D, F.

tinct longitudinal furrows; punctures round, dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, small to moderately large, rugose. Elytra with surface uneven; punctures round to elliptical, very dense, small to moderately large, rugose. Tarsi each with 4th tarsomere simple (not bilobed). Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures round, sparse, moderately large, setiferous on posterior part of 3rd segment; punctures round, very sparse to sparse, very small to small, setiferous on posterior part of 4th segment and on other posterior segments. Lateroventrites missing; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 94D) posteromedially with an arcuate, broad emargination; 9th tergum (Fig. 94A) with antecostal apophyses moderately long; 9th ventrite (Fig. 94B) hardly serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 94A) rounded posteriorly. Aedeagal median lobe (Fig. 94E) elongate, strongly narrowed apically in about apical 1/2, acutely pointed at apex; apical sclerotized area (Fig. 94E) very small, elongate-triangular, anteriorly with a short, rounded projection, and also with a median longitudinal keel. Endophallic median bands (Fig. 94E) with basal bands fused, moderately long, folded bands diverging anteriorly, shorter than basal bands; lateral bands (Fig. 94E) long; expulsion hooks (Fig. 94E) M-shaped; copulatory tube (Fig. 94E) with basal chamber elongate-ovoidal, small, main tube comprising a very long flagellum. Parameres (Fig. 94E) strongly spatulate; apical area moderately long, furnished densely with about 23 to 25 thin, long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 94C) each hardly serrate posteriorly, with apicolateral tooth very short, acutely pointed, apicolateral setae long. Spermatheca (Fig. 94F) with capsule missing; RT-duct short, thin; duct moderately thick, irregularly coiled at and near the 1st turn, with the duct from the base to 1st turn long, straight; basal valve very short; basal sclerotized duct long. Basal structure (Fig. 94F) subconical, widely emarginate at base.

Biology and ecology. *S. sakaii* is distributed in the mountainous regions of the western part of Shikoku. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sakaii* is allied to *S. domburi*, but it is separable from the latter species by the aedeagal median lobe more strongly pointed apex (Fig. 94E), the endophallic copulatory tube with its flagellum thinner (Fig. 94E), the paramere more strongly spatulate (Fig. 94A), and the spermathecal duct thicker and less strongly coiled (Fig. 94B).

Etymology. This species is named in honor of Dr. Masahiro Sakai (Ehime University, Matsuyama), who studies the Anobiidae and other beetle families.

Stenus rasilis Naomi & Ito
(Fig. 95A–F)

Stenus rasilis Naomi & Ito, 2015: 213.

Type material examined. Holotype: ♂ (EUMM), Mt. Tengu, Higashitsuno, Ehime Pref., 4. x. 2001, M. Sakai leg.

Distribution. Japan: Shikoku (Ehime Pref.).

Redescription. Male: Body 5.7 mm (fore body 2.2 mm) in length, glossy with head and

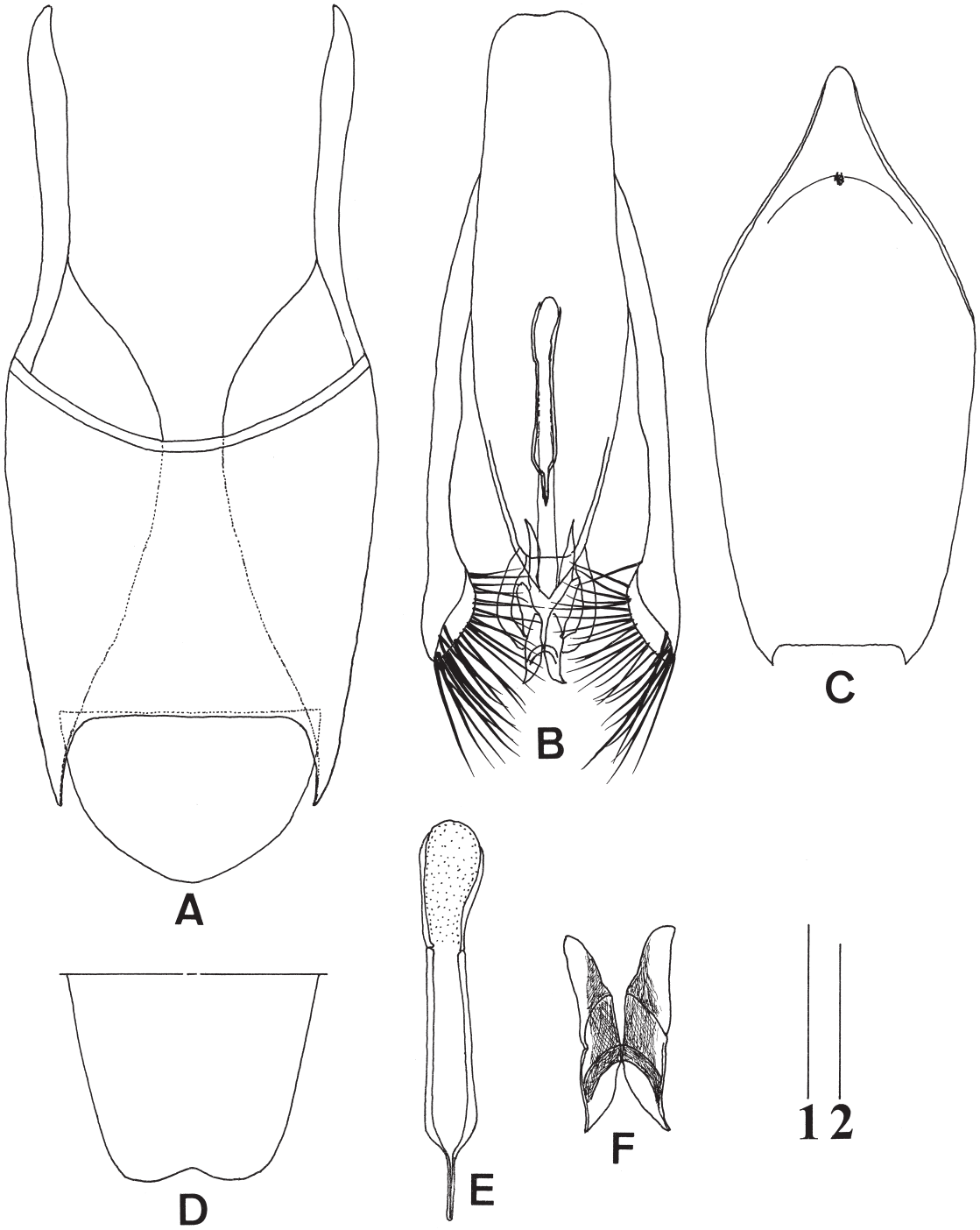

Fig. 95. *Stenus rasilis* Naomi & Ito (Tengu, Ehime). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite; D, posterior part of 8th ventrite of male; E, copulatory tube; F, expulsion hooks. Scale 1: 0.2 mm for A–C, 0.1 mm for E, F; Scale 2: 0.3 mm for D.

abdomen strongly glittering. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of longitudinal furrows; punctures round, moderately dense, irregular, setiferous on the lateral parts of vertex, while punctures rather sparse, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures very dense, rather coarse. Elytra with surface weakly uneven; punctures very dense, large. Tarsi each with 4th tarsomere rather thin, weakly bilobed. Abdomen with punctures elliptical, dense to very dense, large to very large on anterior parts of 3rd and 4th segments; punctures very small to small, very sparse on posterior parts of 3rd and 4th segments and on other posterior segments. Lateroventrites missing; tergoventral sutures thin.

Eighth ventrite (Fig. 95D) posteromedially with a arcuate, shallow emargination; 9th tergum (Fig. 95A) with antecostal apophyses very long; 9th ventrite (Fig. 95C) not serrate posteriorly, with apicolateral teeth very short, pointed; 10th tergum (Fig. 95A) obtusely pointed posteromedially. Aedeagal median lobe (Fig. 95B) slender, becoming gradually narrower toward apex in apical 1/2 but not very narrow even at apicolateral corners, more or less angulate at apicolateral corners, pointed at apex; apical sclerotized area (Fig. 95B) small, triangular, weakly turned dorsally when seen laterally. Endophallic expulsion hooks (Fig. 95F) connected at the mesial parts of posterior plates, each elongate, with anterior plate demarcated by an oblique line from posterior plate, the posterior plate acutely pointed posteriorly; copulatory tube (Fig. 95E) with basal chamber almost elliptical, rounded anteriorly, main tube with basal tube baculiform, apical tube short, very thin. Parameres (Fig. 95B) each weakly swollen mesially near the middle of pedicel; apical area short, strongly swollen mesially, furnished densely with 27 to 29 long to very long setae along mesial margin.

Female: Unknown.

Biology and ecology. *S. rasilis* is presently collected only once from the low mountainous region of the northwestern part of Shikoku. The beetle inhabits leaf litter in the natural forest.

Remarks. *S. rasilis* is allied to *S. sugiei*, but it is separable from the latter species by the aedeagal median lobe less strongly pointed apically, with its apical sclerotized area shorter (Fig. 95B), the endophallic copulatory tube much shorter, with its main tube comprising the basal and apical tubes (Fig. 95E), and the parameral setae longer (Fig. 95B).

Stenus sugiei Naomi
(Figs. 96A–G, 109G)

Stenus sugiei Naomi, 1997b: 3; Herman, 2001: 2409; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CMB), Nabetani, Tatsunokuchi-cho, Ishikawa Pref., 28. vii. 1995. Y. Sugie leg. Paratypes: 1 ♂ (cN), same locality as holotype, 3. v. 1995, Y. Sugie leg.; 1 ♂ (cN), same locality, 5. v. 1995, Y. Sugie leg.; 1 ♂1 ♀ (cN), same locality, 7. v. 1995, Y. Sugie leg.; 1 ♀ (cN), same locality, 30. v. 1995, Y. Sugie leg.; 1 ♂1 ♀ (cN), same locality, 7. vi. 1995, Y. Sugie leg.; 1 ♀ (cN), same locality, 25. v. 1996, Y. Sugie leg.

Other material examined. [HONSHU]: 1 ♀, Ichinose, Mt. Hakusan, Ishikawa Pref., 4–14. ix. 2002, H. Hoshina leg.; 1 ♀, same locality, 31. viii. 2001, H. Hoshina leg.; 1 ♀, Bettou-deai, Mt. Hakusan, Ishikawa Pref., 12. vii. 2002, H. Hoshina leg.; 1 ♂, Mennoki Pass, Aichi Pref., 20. ix. 1978, M. Sato leg.

Distribution. Japan: Honshu (Ishikawa and Aichi Prefs.).

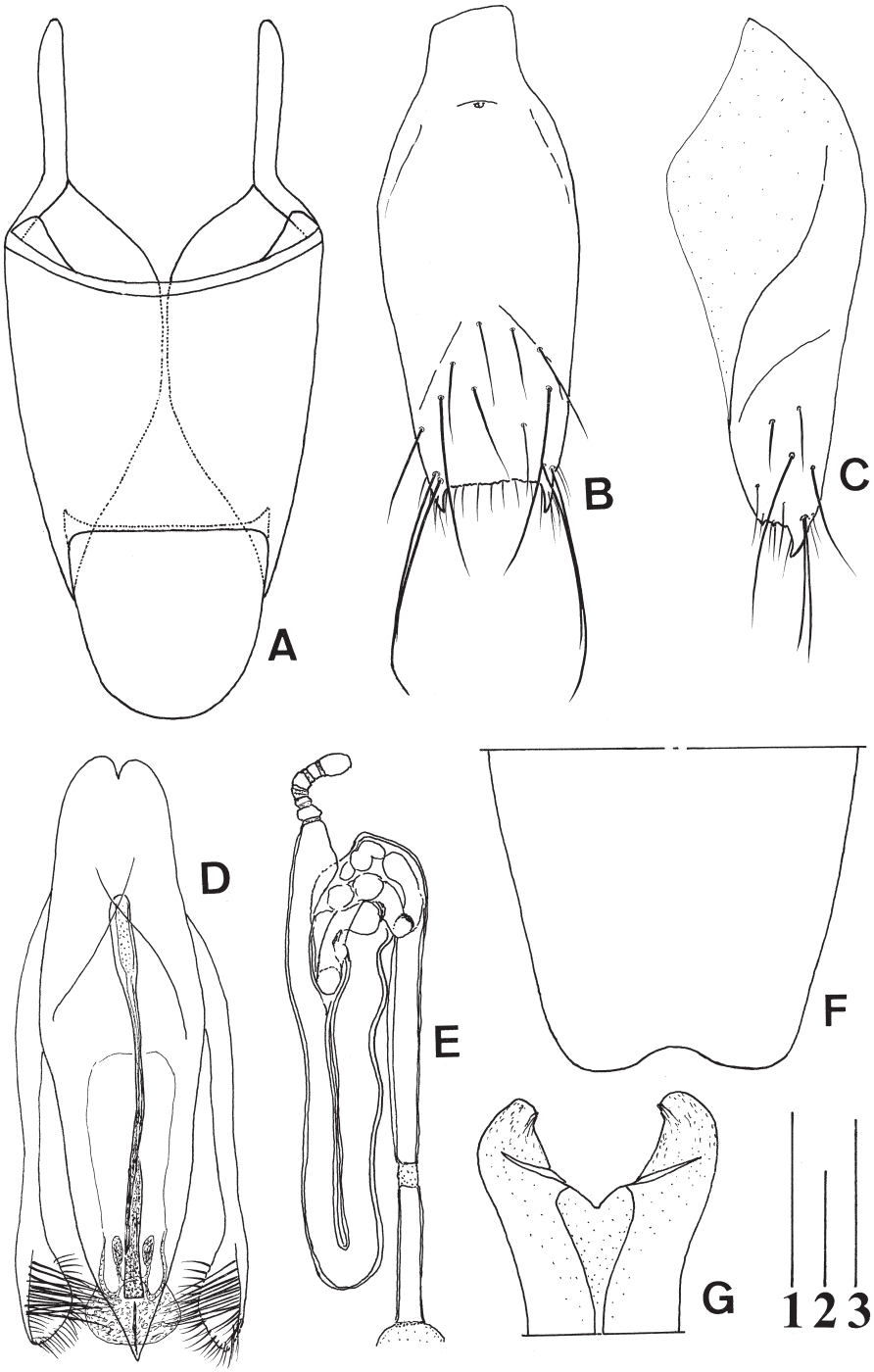

Fig. 96. *Stenus sugiei* Naomi (A, F, G, Mennoki, Aichi; B–E, Nabetani, Ishikawa). A, 9th and 10th terga of male; B, 9th ventrite of male; C, gonocoxite; D, aedeagus; E, spermatheca; F, *posterior* part of 8th ventrite of male; G, paraglossae (with the apices which are weakly bent mesially). Scale 1: 0.2 mm for A–D, 0.1 mm for G; Scale 2: 0.1 mm for E; Scale 3: 0.2 mm for F.

Redescription. Male and female: Body 4.0–5.0 mm (fore body 1.8–2.3 mm) in length, glossy with head and abdomen strongly glittering, with antennae short, thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round, very dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures sparse to moderately dense, small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to elliptical, very dense, small, rugose. Elytra with surface uneven; punctures round to elliptical, very dense, small to moderately large, rugose, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere simple (not bilobed). Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures round to elliptical, sparse to moderately dense, small to moderately large, irregular, setiferous on posterior parts of 3rd and 4th segments; punctures round, very sparse to sparse, very small to small, setiferous on other posterior segments. Lateroventrites missing or existing (very thin, punctate) only in 4th segment; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 96F) posteromedially with an arcuate, shallow emargination; 9th tergum (Fig. 96A) with antecostal apophyses moderately long; 9th ventrite (Fig. 96B) hardly serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 96A) rounded posteriorly. Aedeagal median lobe (Fig. 96D) slender, narrowed toward apex in about apical 1/2, very acutely pointed at apex; apical sclerotized area (Fig. 96D) small, elongate-triangular, with a median longitudinal keel. Endophallic median bands (Fig. 96D) with basal bands fused, narrow, short; expulsion hooks (Fig. 96D) M-shaped; copulatory tube (Fig. 96D) with basal chamber elliptical, narrow, main tube very long, flagellar. Parameres (Fig. 96D) each strongly spatulate; apical area moderately long, furnished mesially with about 10 to 15 long setae along ventral margin, and with about 25 to 30 short setae along apical and dorsal margins.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 96C) each hardly serrate posteriorly, with apicolateral tooth very short, acutely pointed, apicolateral setae long. Spermatheca (Fig. 96E) with capsule small, ovoidal; RT-duct very short, thin; duct moderately thick, strongly coiled at the 1st turn to form a ductal mass, with the duct from the base to 1st turn long, straight; basal valve very short; basal sclerotized duct long.

Biology and ecology. *S. sugiei* is distributed in the plains to mountainous regions of the western part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sugiei* is allied to *S. rasilis*, but it is separable from the latter species by the aedeagal median lobe more strongly pointed apically, with its apical sclerotized area longer (Fig. 96D), the endophallic copulatory tube much longer, with its main tube simply flagellar (Fig. 96D), and the parameral setae shorter (Fig. 96D).

Etymology. This species is named in honor of Mr. Yoshiharu Sugie (Tatunokuchi, Ishikawa), who collected the *Stenus*-beetle that was designated as the holotype.

Stenus caesariatus Naomi & Ito
(Figs. 97A–G, 109H)

Stenus caesariatus Naomi & Ito, 2015: 210.

Type material examined. Holotype: ♂ (KUM), Obara, Saji-mura, Tottori Pref., 5. vi. 1988, N.

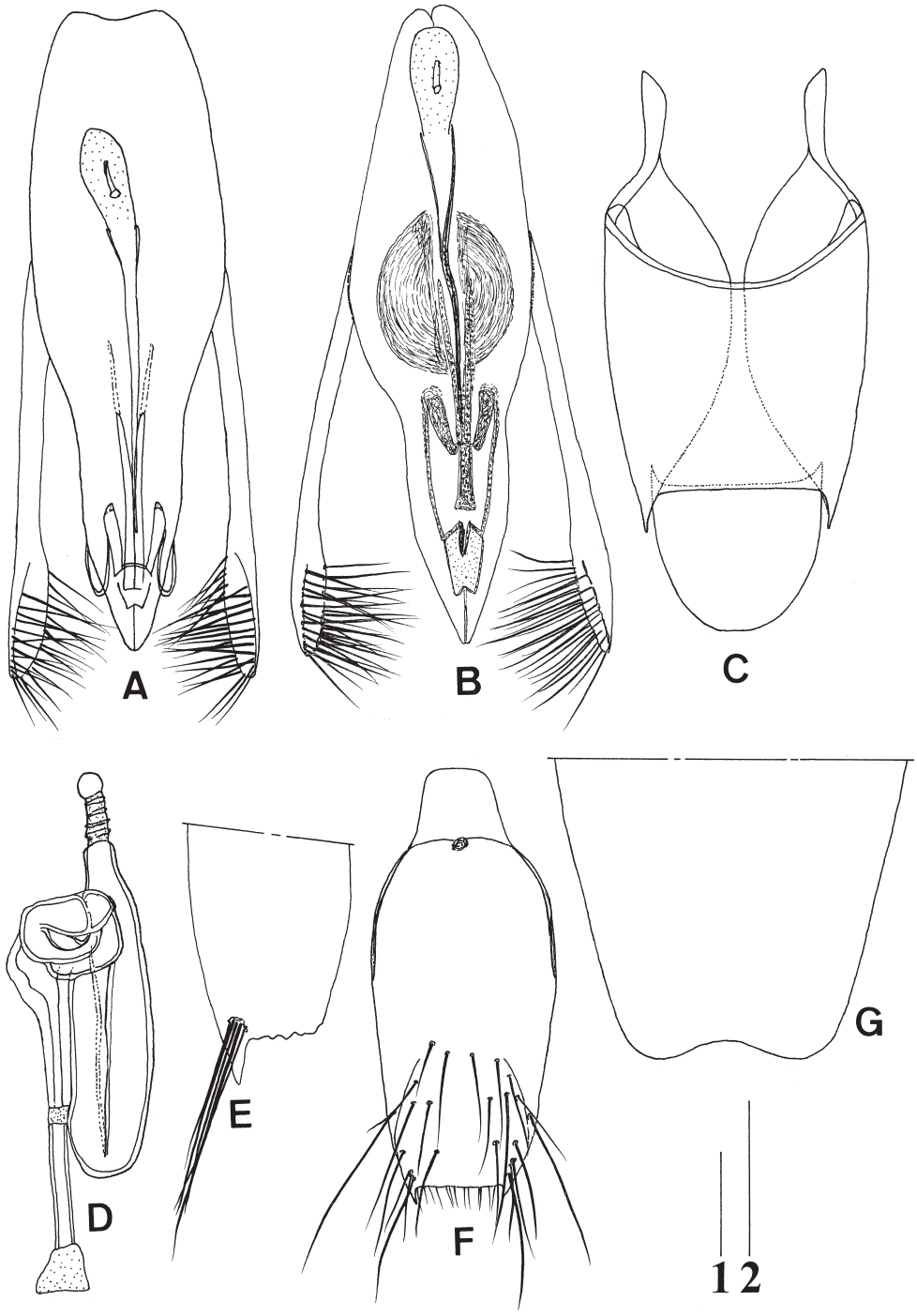

Fig. 97. *Stenus caesariatus* Naomi & Ito (A, D, E: Akagai, Hyogo; B, C, F, G: Obara, Tottori). A, B, aedeagus; C, 9th and 10th terga of male; D, spermatheca; E, posterior part of gonocoxite; F, 9th ventrite; G, 8th ventrite of male. Scale 1: 0.1 mm for A, B, D; Scale 2: 0.2 mm for C, F, G, 0.1 mm for E.

Tsurusaki leg. Paratypes: 1 ♂ (cN), Tottori City, Tottori Pref., 7. viii. 1992, A. Hayakawa leg.; 1 ♂ (cN), Kaya-cho, Kyoto, 5. v. 2004, K. Yasukawa leg.; 1 ♀, Sasayama, Hyogo, 18. ix. 1983, T. Ito leg.; 1 ♀, Akazai, Hyogo, 3. vi. 1979, T. Ito leg.; 1 ♂, same locality, 17. vi. 1979, T. Ito leg.; 4 ♀, same locality, 23. ix. 1979, T. Ito leg.; 2 ♂1 ♀, same locality, 15. ix. 1986, T. Ito leg.

Distribution. Japan: Honshu (Tottori, Hyogo and Kyoto Prefs.).

Redescription. Male and female: Body 4.3–5.0 mm (fore body 1.8–2.1 mm) in length, glossy with head and abdomen strongly glittering, with antennae relatively short, thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of longitudinal furrows; punctures round to elliptical, dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures sparse to moderately dense, small, setiferous on the median longitudinal swollen area. Pronotum with surface weakly uneven, with median longitudinal furrow missing or very indistinct; punctures round, very dense, small to moderately large, weakly coarse. Elytra with surface weakly uneven; punctures round to almost round, small to moderately large, weakly coarse. Tarsi each with 4th tarsomere hardly or weakly bilobed. Abdomen with punctures ovoidal to elliptical, very dense, large on anterior parts of 3rd and 4th segments; punctures round, very small to small, very sparse to sparse on posterior parts of 3rd and 4th segments and on other posterior segments. Lateroventrites very narrow, punctate only in 4th segment; tergoventrite sutures distinct in 5th and 6th segments.

Male: Eighth ventrite (Fig. 97G) posteromedially with an arcuate, broad emargination; 9th tergum (Fig. 97C) with antecostal apophyses short; 9th ventrite (Fig. 97F) not serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 97C) rounded posteriorly. Aedeagal median lobe (Fig. 97A, B) bulbous in basal 3/5, almost parallel-sided between the basal 3/5 and the apicolateral corners, more or less pointed at apex; apical sclerotized area (Fig. 97A, B) subtriangular, small. Endophallic median bands (Fig. 97A, B) with basal bands separated at anterior parts, each very thin, long; lateral bands (Fig. 97B) long, thin; expulsion hooks (Fig. 97A, B) M-shaped, each more or less rounded apically; copulatory tube (Fig. 97A, B) very long, with basal chamber elongate-subovoidal, large, main tube attenuate, flagellar in apical 1/2 (Fig. 97A, B). Parameres (Fig. 97A, B) each weakly spatulate; apical area long, furnished with 25 to 27 long to very long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 97E) each indistinctly serrate posteriorly, with apicolateral tooth acutely pointed, apicolateral setae very long. Spermatheca (Fig. 97D) with capsule spherical, small; RT-duct short, thin; duct moderately thick to thick, short with 2 turns, and with a relatively large coiled ductal mass at the 1st turn; basal valve very short; basal duct long, narrow, straight.

Biology and ecology. *S. caesariatus* is distributed in the plains and low mountainous regions of the eastern part of Chugoku district and the northern part of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. Given their common possessions of the unique structures (aedeagal median lobe elongate-subovoidal at base, then parallel sided before the apicolateral corners; spermathecal duct with a coiled ductal mass at or around the 1st turn; etc.), *S. caesariatus*, *S. kanzeon* and *S. sawadaianus* are allied phylogenetically. *S. caesariatus* is separable from the latter two species by the 9th tergum with its antecostal apophysis shorter (Fig. 97C), the aedeagal median lobe less strongly pointed (Fig. 97A, B), and the copulatory tube longer (Fig. 97A, B).

Stenus kanzeon Naomi
(Figs. 98A–G, 109I)

Stenus kanzeon Naomi, 2004: 19; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Fukumizu, Hakui City, Ishikawa Pref., 20. x. 1995, T. Kishimoto leg. Paratypes: 1 ♂1 ♀ (cP) & 1 ♂3 ♀ (cN), same locality as holotype.

Distribution. Japan: Honshu (Ishikawa Pref.).

Redescription. Male and female: Body 4.8–5.0 mm (fore body 1.9–2.1 mm) in length, glossy with head and abdomen strongly glittering, with antennae short, thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round, very dense, small to large, setiferous on the lateral parts of vertex, while punctures sparse to moderately dense, small to moderately large, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, small, coarse. Elytra with surface slightly uneven; punctures round to elliptical, very dense, moderately large to large, coarse, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere simple (not bilobed). Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures round to elliptical, sparse to moderately dense, small to medium-sized, irregular, setiferous on posterior part of 3rd segment; punctures round, very sparse to sparse, very small to small, setiferous on posterior part of 4th segment and on other posterior segments. Lateroventrites very thin, punctate in 4th segment; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 98F) posteromedially with an arcuate, very broad emargination; 9th tergum (Fig. 98A) with antecostal apophyses long; 9th ventrite (Fig. 98C) hardly serrate posteriorly, with macrosetae long to very long, apicolateral teeth very short, acutely pointed, apicolateral setae long; 10th tergum (Fig. 98A) rounded posteriorly. Aedeagal median lobe (Fig. 98B) elongate, almost parallel-sided between the basal 3/5 and the apicolateral corners, acutely pointed at apex; apical sclerotized area (Fig. 98B) small, elongate-triangular, with a median longitudinal keel. Endophallic median bands (Fig. 98B) with basal bands fused, narrow, relatively short; lateral bands (Fig. 98B) long, thin; expulsion hooks (Fig. 98B) M-shaped, each acutely pointed and weakly incurved at anterior tip; copulatory tube (Fig. 98B) moderately long, with basal chamber elongate-ovoidal, main tube comprising a very long flagellum. Parameres (Fig. 98B) each spatulate; apical area long, furnished with 27 to 33 long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 98E) each hardly serrate posteriorly, with apicolateral tooth very short, acutely pointed, apicolateral setae long. Spermatheca (Fig. 98D) with capsule very small; RT-duct very short, thin; duct moderately thick to thick, strongly coiled around the 1st turn to form a ductal mass; basal valve very short; basal sclerotized duct long, very thin to thin.

Biology and ecology. *S. kanzeon* is only once collected from a plain of the northwestern part of Chubu district, central Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. kanzeon* is allied to *S. caesariatus* and *S. sawadaianus*, but it is separable from the latter two species by the endophallic expulsion hook longer, each acutely pointed and weakly incurved at anterior tip (Fig. 98B), and the copulatory tube with its main tube thinner at base and surrounded by the nock-like structure (Fig. 98B). In the spermatheca of *S. kanzeon*, the size of the ductal mass formed around the 1st turn of duct varies. The ductal mass is rather large as in

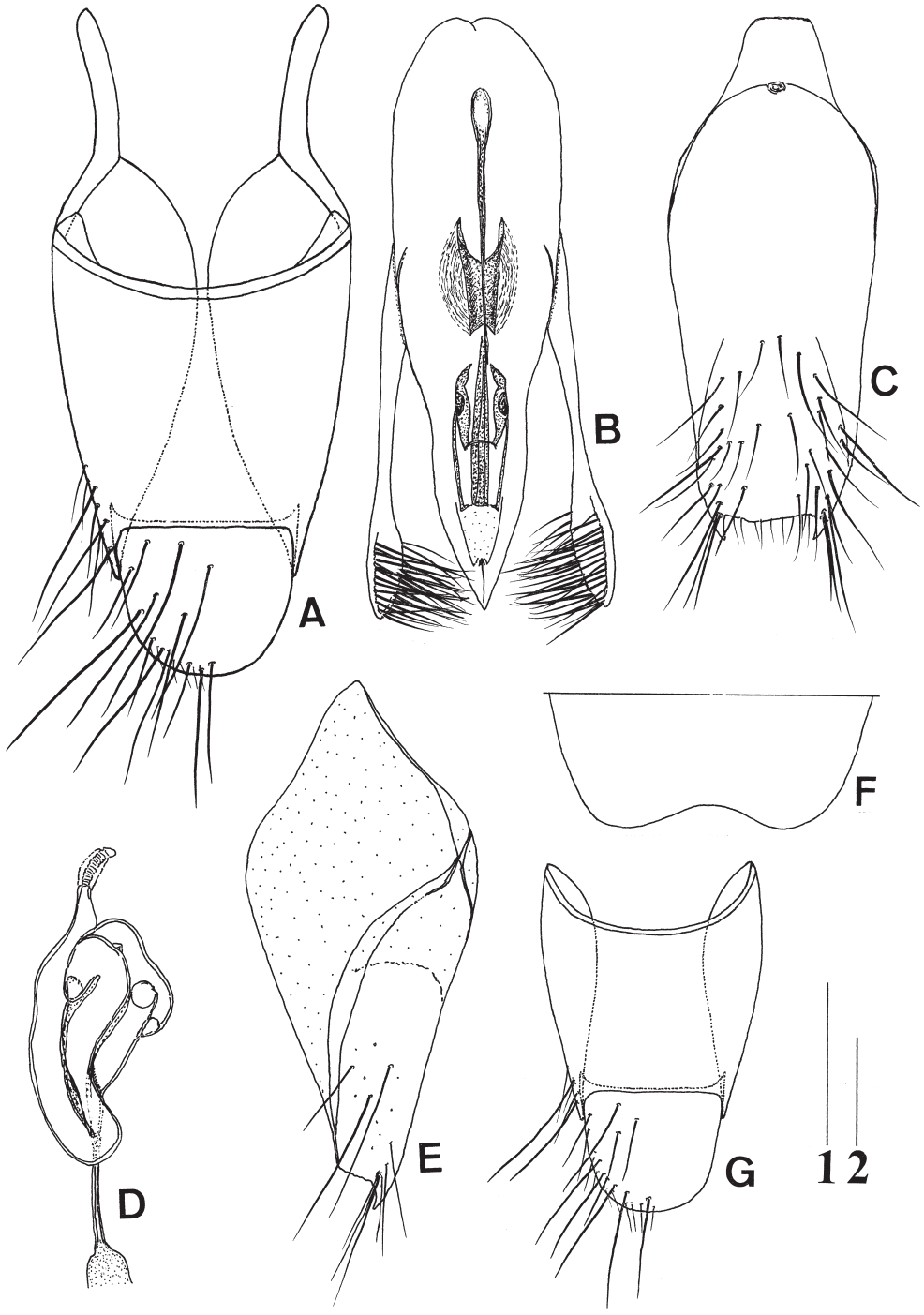

Fig. 98. *Stenus kanzeon* Naomi (Fukumizu, Ishikawa). A, 9th and 10th terga of male; B, aedeagus; C, 9th ventrite of male; D, spermatheca; E, gonocoxite; F, *posterior* part of 8th ventrite of male; G, 9th and 10th terga of female. Scale 1: 0.2 mm for A–F; Scale 2: 0.2 mm for G.

Fig. 98D in one female, but it is a little more compact and small in some other females.

Etymology. The specific epithet of this species is derived from the "Kanzeon", which is the Japanese name of a Bodhisattva.

Stenus sawadaianus Hromádka
(Figs. 99A–F, 109J)

Stenus sawadaianus Hromádka, 1979a: 100; Herman, 2001: 2379; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (NMP), Mt. Hiei, Yamashiro, Kyoto Pref., 3. x. 1954, K. Sawada leg.

Other material examined. [HONSHU]: 2 ♂2 ♀, Hanase, Kyoto Pref., 21. ix. 1990, T. Ito leg.; 1 ♀, same locality, 4. vii. 1987, T. Ito leg.; 1 ♀, same locality, 2. x. 1987, T. Ito leg.; 1 ♀, same locality, 26. x. 1991, T. Ito leg.; 4 ♀, Ashiu, Kyoto Pref., 5. ix. 1992, T. Ito leg.; 1 ♂, Mt. Daihi, Kyoto Pref., 30. iv. 1987, T. Ito leg.; 1 ♀, Mt. Daihi, Kyoto Pref., 19. ix. 1987, T. Ito leg.

Distribution. Japan: Honshu (Kyoto Pref.).

Redescription. Male and female: Body 4.6–5.8 mm (fore body 2.0–2.5 mm) in length, glossy with head and abdomen strongly glittering, with antennae short, thin. Body black; labrum black; antennae and legs yellowish brown to reddish brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round to elliptical, dense to very dense, various in size (small to large), setiferous on the lateral parts of vertex, while punctures very sparse, very small, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, small, coarse, sometimes two or more punctures fused. Elytra with surface uneven; punctures round to elliptical, very dense, moderately large to large, subrugose, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere simple. Abdomen covered sparsely with suberect, thin setae; punctures elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures round, sparse, small, setiferous on posterior part of 3rd segment; punctures round, very sparse, very small, setiferous on posterior part of 4th segment and on other posterior segments. Lateroventrites very thin, punctate in 4th segment, existing or missing in 5th segment; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 99F) posteromedially with a broad, subtriangular emargination; 9th tergum (Fig. 99C) with antecostal apophyses moderately long; 9th ventrite (Fig. 99A) not serrate posteriorly, with apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 99C) rounded posteriorly. Aedeagal median lobe (Fig. 99D) subovoidal in basal 4/7, parallel-sided from near the apical 3/7 to the apicolateral corners, acutely pointed at apex; apical sclerotized area (Fig. 99D) small, subtriangular, with a median longitudinal keel. Endophallic median bands (Fig. 99D) with basal bands separated at anterior parts, each very narrow, long; lateral bands (Fig. 99D) long; expulsion hooks (Fig. 99D) M-shaped; copulatory tube (Fig. 99D) with basal chamber elongate-ovoidal, main tube with basal tube thick, apical tube flagellar. Parameres (Fig. 99D) each moderately thick, spatulate; apical area moderately long, furnished densely with about 30 to 35 long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 99E) each posteriorly hardly serrate or with 1 small tooth, apicolateral tooth very short, acutely pointed, apicolateral setae long. Spermatheca (Fig. 99B) with capsule small, spherical; RT-duct short, thin; duct thick to very thick, strongly coiled at the 1st turn to form a ductal mass; basal valve very short; basal duct

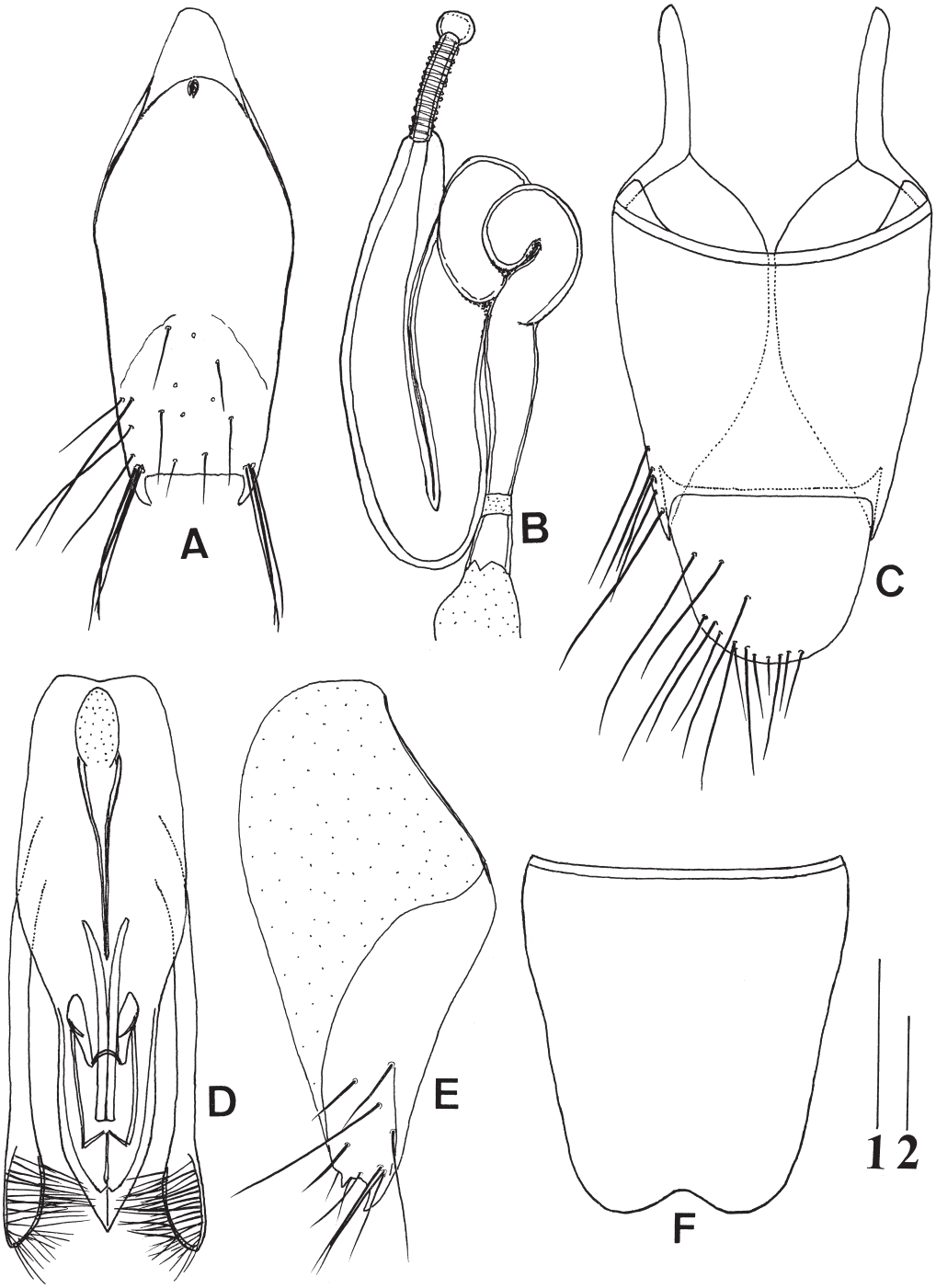

Fig. 99. *Stenus sawadaianus* Naomi (A, C, D, F, Daihi, Kyoto; B, E, Seryo, Kyoto). A, 9th ventrite of male; B, spermatheca; C, 9th and 10th terga of male; D, aedeagus; E, gonocoxite; F, 8th ventrite of male. Scale 1: 0.2 mm for A–D, 0.1 mm for E; Scale 2: 0.2 mm for F.

short.

Biology and ecology. *S. sawadaianus* is distributed in the plains to mountainous regions of the northwestern part of Kinki district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. sawadaianus* is allied to *S. caesariatus* and *S. kanzeon*, but it is separable from the latter two species by the aedeagal median lobe with its apical triangular part from the apicolateral corners to the apex shorter (Fig. 99D), the endophallic copulatory tube shorter (Fig. 99D), and the spermatheca with its duct thicker and its basal sclerotized duct short (Fig. 99B).

Etymology. This species is named in honor of Dr. Kohei Sawada (Takatsuki, Osaka).

Stenus vernicosus Naomi & Nomura
(Figs. 100A–G, 109K)

Stenus vernicosus Naomi & Nomura, 2015: 59.

Type material examined. Holotype: ♂ (NMNST), Mt. Daisen (Yokote-michi, NW slope 820 m), Daisen-cho, Tottori Pref., 7. ix. 1984, Y. Nishikawa leg. Paratypes: 2 ♀ (cN), Mt. Kenashi, Tottori City, Tottori Pref., 23. v. 1989, N. Tsurusaki leg.

Distribution. Japan: Honshu (Tottori Pref.).

Redescription. Male and female: Body 4.0–4.3 mm (fore body 2.0–2.1 mm) in length, glossy with head and abdomen strongly glittering, antennae relatively short, thin. Body black; labrum black; antennae with basal segments yellowish brown, apical segments brown to dark brown; legs yellowish brown to reddish brown. Head relatively small, weakly concave, with a pair of distinct longitudinal furrows; punctures round to almost round, dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures very sparse, very small, irregular, setiferous on the median longitudinal swollen area. Pronotum with surface weakly uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, small to moderately large, coarse. Elytra with surface uneven; punctures round to almost round, very dense, moderately large to large, coarse. Abdomen with punctures ovoidal to elliptical, dense to very dense, large to very large on anterior parts of 3rd and 4th segments; punctures very sparse, very small, irregular, setiferous on posterior parts of 3rd and 4th segments and on other posterior segments Lateroventrites very thin, punctate in 4th to 5th segments; tergoventrite sutures distinct in 6th segment.

Male: Eighth ventrite (Fig. 100E) posteromedially with an arcuate, broad emargination; 9th tergum with ventral apophyses long, thin; 9th ventrite (Fig. 100A) not serrate posteriorly, with macrosetae very long, apicolateral teeth very short, acutely pointed, apicolateral setae very long; 10th tergum (Fig. 100C) rounded posteriorly. Aedeagal median lobe (Fig. 100B) broad, weakly narrowed apically from near the apical 1/3 to the apicolateral corners, obtusely angulate at apicolateral corners, acutely pointed at apex; apical sclerotized area (Fig. 100B) developed, extending anteriorly along the lateral rims of median lobe, with a thin median longitudinal suture. Endophallic median bands (Fig. 100D) with basal bands long, fused except for anterior tips, folded bands fused in about basal 2/3, about as long as basal bands; lateral bands (Fig. 100D) long, thin; expulsion hooks (Fig. 100D) almost M-shaped, with anterior plate weakly incurved at anterior tip, demarcated by a suture from posterior plate; copulatory tube (Fig. 100D) long, with basal chamber large, subconical, main tube attenuate, very thin. Parameres (Fig. 100B) each robust, furnished mesially with 5 to 6 setae at distal part of stem; apical area long, moderately swollen

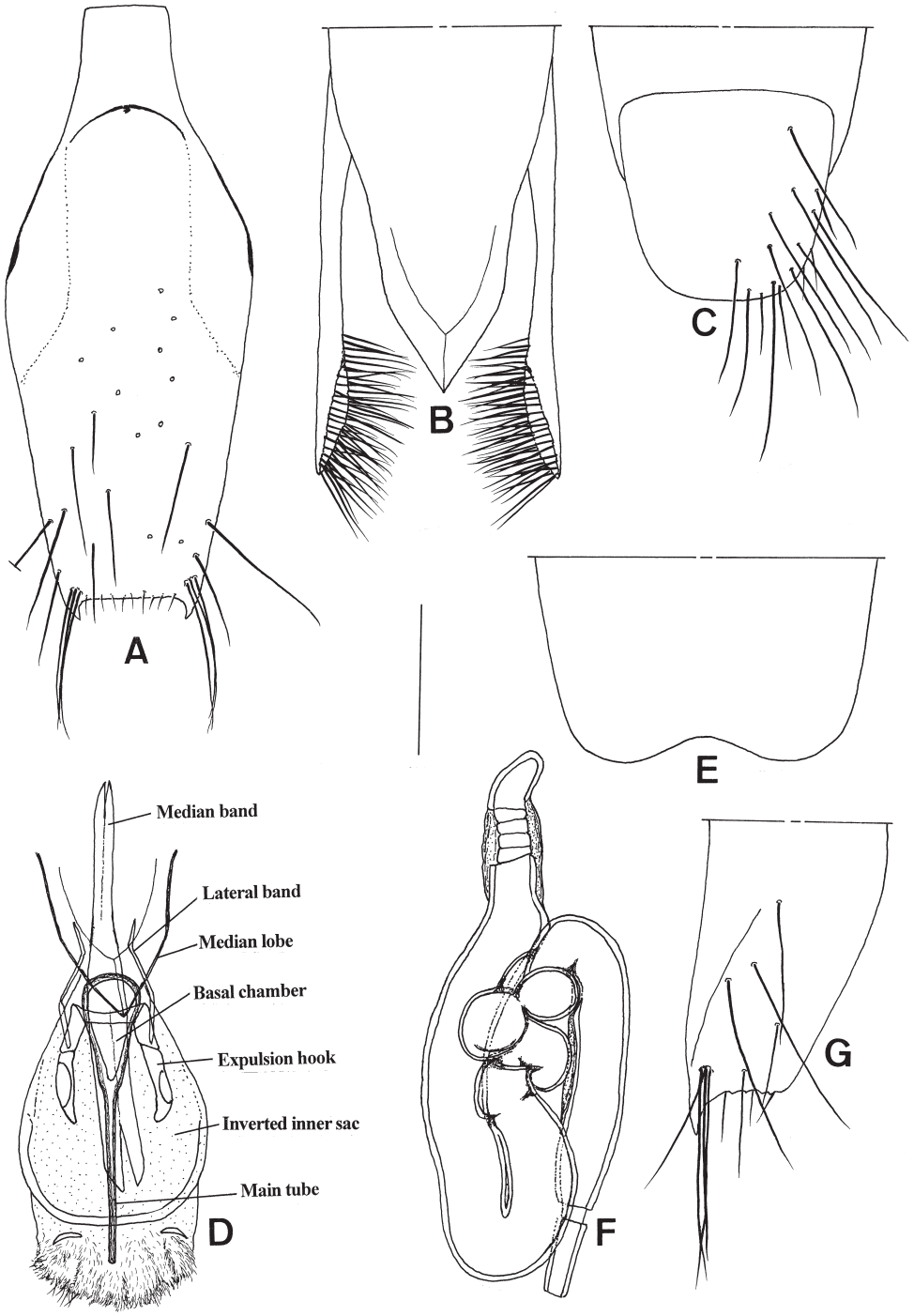

Fig. 100. *Stenus vernicosus* Naomi & Nomura (A–E: Daisen, Tottori; F, G: Kenashi, Tottori). A, 9th ventrite of male; B, posterior part of aedeagus; C, 9th and 10th terga of male; D, apical part of median lobe with the out-thrusted endophallus; E, posterior part of 8th ventrite of male; F, spermatheca; G, posterior part of gonocoxite. Scale: 0.2 mm for A–E, 0.1 mm for F, G.

mesially, with about 40 long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 100G) each hardly or minutely serrate posteriorly, with apicolateral tooth acutely pointed, apicolateral setae very long. Spermatheca (Fig. 100F) robust, with capsule small, weakly narrowed toward the rounded tip; RT-duct short; duct very thick, short with 2 turns, tightly coiled to form a tuberculous ductal mass between the 1st and 2nd turns; basal valve very short; basal duct short, moderately thick.

Biology and ecology. *S. vernicosus* is distributed in the mountainous regions of the central area of Chugoku district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. vernicosus* is allied to *S. nyoirin*, but it is separable from the latter species by the aedeagal median lobe weakly narrowed apically from near the apical 1/3 to the apicolateral corners (Fig. 100B), the endophallic expulsion hook weakly incurved at the anterior tip (Fig. 100D), and the spermatheca with its duct thicker, and its basal sclerotized duct much shorter (Fig. 100F).

Stenus nyoirin Naomi
(Figs. 101A–G, 109L)

Stenus nyoirin Naomi, 2004: 21; Naomi & Puthz, 2013: 141.

Type material examined. Holotype: ♂ (CBM), Nomugi Pass, Nagawa Vil., Nagano Pref., 8. viii. 1996, T. Kishimoto leg. Paratypes: 1 ♀ (cN), Mt. Kiso-komagadake, Nagano Pref., 21. ix. 1996, T. Kishimoto leg.; 1 ♂ (cN), Hirayu, Gifu Pref., 24. vii. 1987, S. Nomura leg.

Other material examined. [HONSHU]: 1 ♀, Mitsumata, Horisane Vil., Nagano Pref., 18. viii. 1991, T. Watanabe leg.; 2 ♀, Kawashima, Shimoina-gun, Nagano Pref., 23. viii. 1997, H. Sakayori leg.; 1 ♀,Ohshirakawa forest road, Azumi, Matsumoto City, Nagano Pref., 11. ix. 2009, T. Watanabe leg.; 1 ♂2 ♀, Tsukechi Valley, Kakomo Vil., Gifu Pref., 15. xi. 1999, S. Nomura leg.

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

Redescription. Male and female: Body 4.9–6.0 mm (fore body 2.3–2.5 mm) in length, with head and abdomen strongly glittering, pronotum and elytra weakly to moderately shining, with antennae short, very thin. Body black, but pronotum and elytra somewhat having reddish tinge; labrum black; antennae and legs yellowish brown to reddish brown or dark brown. Head relatively small, shallowly concave, with a pair of distinct longitudinal furrows; punctures round to almost round, moderately dense to dense, small to moderately large, setiferous on the lateral parts of vertex, while punctures round, very sparse, small to moderately large, setiferous on the median longitudinal swollen area. Pronotum with surface uneven, with indistinct median longitudinal furrow; punctures round to almost round, very dense, small, subrugose. Elytra with surface slightly uneven; punctures round to elliptical, very dense, moderately large to large, subrugose, sometimes two or more punctures partially fused. Tarsi each with 4th tarsomere simple (not bilobed). Abdomen covered sparsely with suberect, thin setae; punctures ovoidal to elliptical, very dense, large to very large, setiferous on anterior parts of 3rd and 4th segments; punctures round, sparse to moderately dense, small, setiferous on posterior part of 3rd segment; punctures round, very sparse, very small to small, setiferous on posterior part of 4th segment and on other posterior segments. Lateroventrites very thin, punctate in 4th segment; tergoventral sutures distinct in 4th to 6th segments.

Male: Eighth ventrite (Fig. 101E) posteromedially with a very broad, arcuate emargination; 9th tergum (Fig. 101A) with antecostal apophyses long; 9th ventrite (Fig. 101B) not serrate posteriorly, with macrosetae long to very long, apicolateral teeth very short, acutely pointed, apico-

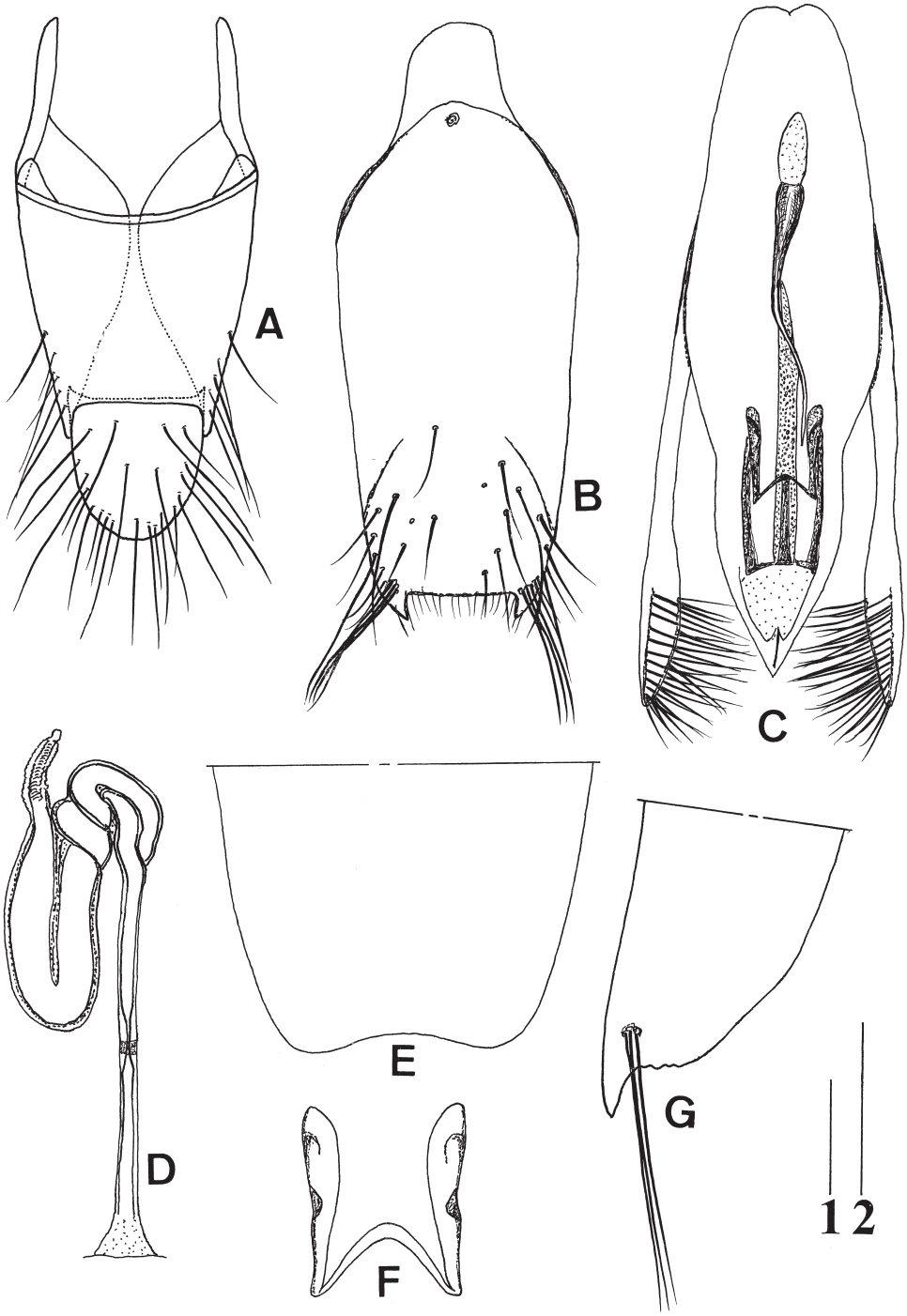

Fig. 101. *Stenus nyoirin* Naomi (A, Tsukechi, Gifu, B, C, E, F, Nomugi, Nagano; D, G, Kisokoma, Nagano). A, 9th and 10th terga of male; B, 9th ventrite of male; C, aedeagus; D, spermatheca; E, *posterior* part of 8th ventrite of male; F, expulsion hooks; G, *posterior* part of gonocoxite. Scale 1: 0.2 mm for A; Scale 2: 0.2 mm for B–E, 0.1 mm for F, G.

lateral setae very long; 10th tergum (Fig. 101A) rounded posteriorly. Aedeagal median lobe (Fig. 101C) elongate-subovoidal in basal 2/3, parallel-sided from near the apical 1/3 to the apicolateral corners, gently rounded at apicolateral corner, acutely pointed at apex; apical sclerotized area (Fig. 101C) very small, anteriorly with a small, pointed projection, and with a median longitudinal keel. Endophallic median bands (Fig. 101C) with basal bands fused, long, narrow; lateral bands (Fig. 101C) long, relatively thick; expulsion hooks (Fig. 101F) M-shaped, running almost in parallel, each slender, simply turning anteriorly, weakly broadened toward anterior tip; copulatory tube (Fig. 101C) with basal chamber elongate-ovoidal, main tube long, thick at base but flagellar at the apical 2/3, twice moderately curved on its way. Parameres (Fig. 101C) each spatulate, with stem moderately thick; apical area very long, furnished densely with about 30 to 40 long setae along mesial margin.

Female: Eighth ventrite rounded posteriorly; gonocoxites (Fig. 101G) each hardly serrate posteriorly, with apicolateral tooth short, pointed, apicolateral setae very long. Spermatheca (Fig. 101D) with capsule very small; RT-duct short, thin; duct thin at proximal part, thick at distal part, strongly coiled at the 1st turn; basal valve very short; basal duct long, thin.

Biology and ecology. *S. nyoirin* is distributed in the mountainous regions of Chubu district, Honshu. The beetles inhabit leaf litter in the natural forests.

Remarks. *S. nyoirin* is allied to *S. vernicosus*, but it is separable from the latter species by the aedeagal median lobe parallel-sided from near the apical 1/3 to the apicolateral corners (Fig. 101C), the endophallic expulsion hook simply turning anteriorly at the anterior tip (Fig. 101C), and the spermatheca with its duct thinner, and its basal sclerotized duct much longer (Fig. 101D).

Etymology. The specific epithet of this species is derived from the "Nyoirin", which is the name of a Bodhisattva.

Acknowledgements

We express our hearty thanks to Toshiya Hirowatari (Kyushu University, Fukuoka), Satoshi Kamitani (Kyushu University, Fukuoka) and Akiko Saito (Natural History Museum and Institute, Chiba) for loaning us the types specimens of several *Stenus* species. We sincerely thank Aleš Smetana and Anthony Davies (Agriculture and Agrifood Canada, Ottawa) for exchanging the paratypes of some *Stenus* species for the present study, and also for informing us of the etymology of a *Stenus* name. We sincerely thank Liang Tang (Shanghai Normal University, Shanghai) for sending us the photo of the paraglossae of *S. flammeus*, and also for letting us know the new information on his recent studies of the *indubius*-group. We sincerely thank Kwang-Sik Oh (Hannam University, Daejeon) for sending us the photos of the aedeagus of *S. sulcifer*. We sincerely thank Ivan Löbl (Muséum d'histoire naturelle, Genève) for his constructive comments on a near-final version of the draft of our Japanese Steninae monograph Part 2. We sincerely thank Hiromu Kamezawa (Kawagoe, Saitama) for helping us by taking the habitus photos of *Stenus*-species.

Our special thanks are due to the following entomologists who kindly gift or loan us the valuable *Stenus* specimens for the present study: A. Amagasu (Mie), Shiho Arai (Arashiyama, Saitama), Kaoru Haga (Saitama), Yasuhiko Hayashi (Kawanishi, Hyogo), Yasunori Hagino (Natural History Museum & Institute, Chiba), Yukihiko Hirano (Odawara, Kanagawa), Hideto Hoshina (Fukui University, Fukui), Koichi Hosoda (Nirasaki, Yamanashi), Futoshi Ichikawa (Mie), Sho-Ichi Imasaka (Fukuoka), Noboru Ito (Kawanishi, Hyogo), Tateo Ito (Yahata, Kyoto), Paweł Jałoszynski (University of Wrocław, Wrocław), Toshio Kishimoto (Museum of Natural & Environmental History, Shizuoka), Yoshinori Kaneko, Ivan Löbl (Muséum d'histoire naturelle,

Genève), Isao Matoba (Yuasa, Wakayama), Munetoshi Maruyama (Kyushu University Museum, Fukuoka), Takasuke Miyata (Kochi), Hisashi Ohishi (Kyoto), Ichiro Ohshio, Iwao Okamoto (Kure, Hiroshima), Masahiro Saito (Mikuni, Fukui), Masahiro Sakai (Ehime University, Matsuyama), Yasutoshi Shibata (Machida, Tokyo), Kohei Sawada (Takatsuki, Osaka), Yasutoshi Shibata (Machida, Tokyo), Yoshiharu Sugie (Tatsunokuchi, Ishikawa), Yasuaki Watanabe (Tokyo University of Agriculture, Atsugi), Takashi Watanabe (Fujisawa, Kanagawa), Kenzo Yamagishi (Meijo University, Nagoya), Hideyuki Yokozeki (Yokkaichi, Mie), Masataka Yoshida (Tokushima).

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Corrigenda and Addenda to the Steninae of Japan Part 1

Corrigenda to the Steninae of Japan Part 1 (Naomi *et al*., 2017)

Page iv, for "Cover Illustration", read "Cover Illustration: *Stenus flavidulus paederinus* Champion".

Page 19, Fig. 7, for "porch", read "pouch".

Page 20, line 9, for "Japanese species of the *S. comma* group to *S. guttalis* group of Steninae are revised", read "Japanese species of the *Dianous* and *Stenu*s (*S. comma* group to *S. guttalis* group) of Steninae are revised"

Page 188, lines 31–32, for

"*Stenus nomurai* Naomi, 1988c: 45.
Stenus mikado Hromádka, 1979a: Naomi & Puthz, 1994a: 218 (synonym of *S. mikado*)." read
"*Stenus nomurai* Naomi, 1988c: 45; Naomi & Puthz, 1994a: 218 (synonym of *S. mikado*).
Stenus mikado Hromádka, 1979a."

Addenda to the Steninae of Japan Part 1 (Naomi *et al*., 2017)

Page 37, *Type material examined*. Paratypes of *Dianous viridicatus*: 2♂1♀ (cN), Ohdaigahara, Nara Pref., 25–26. vi. 1981, S. Naomi leg.

Pages 330–339. Add scale in each of Figs. 127 to 136, as follows: "Scale: 0.5 mm" for all *Stenus* species.

Page 321. Add the following paper after the paper of Clarke and Grebennikov (2009): "de Rougemont, G. M. 1985. In the foots of H. G. Champion: new *Dianous* species from the Himalaya (Coleoptera, Staphylinidae). Entomologica Basiliensia, 10: 123–144.

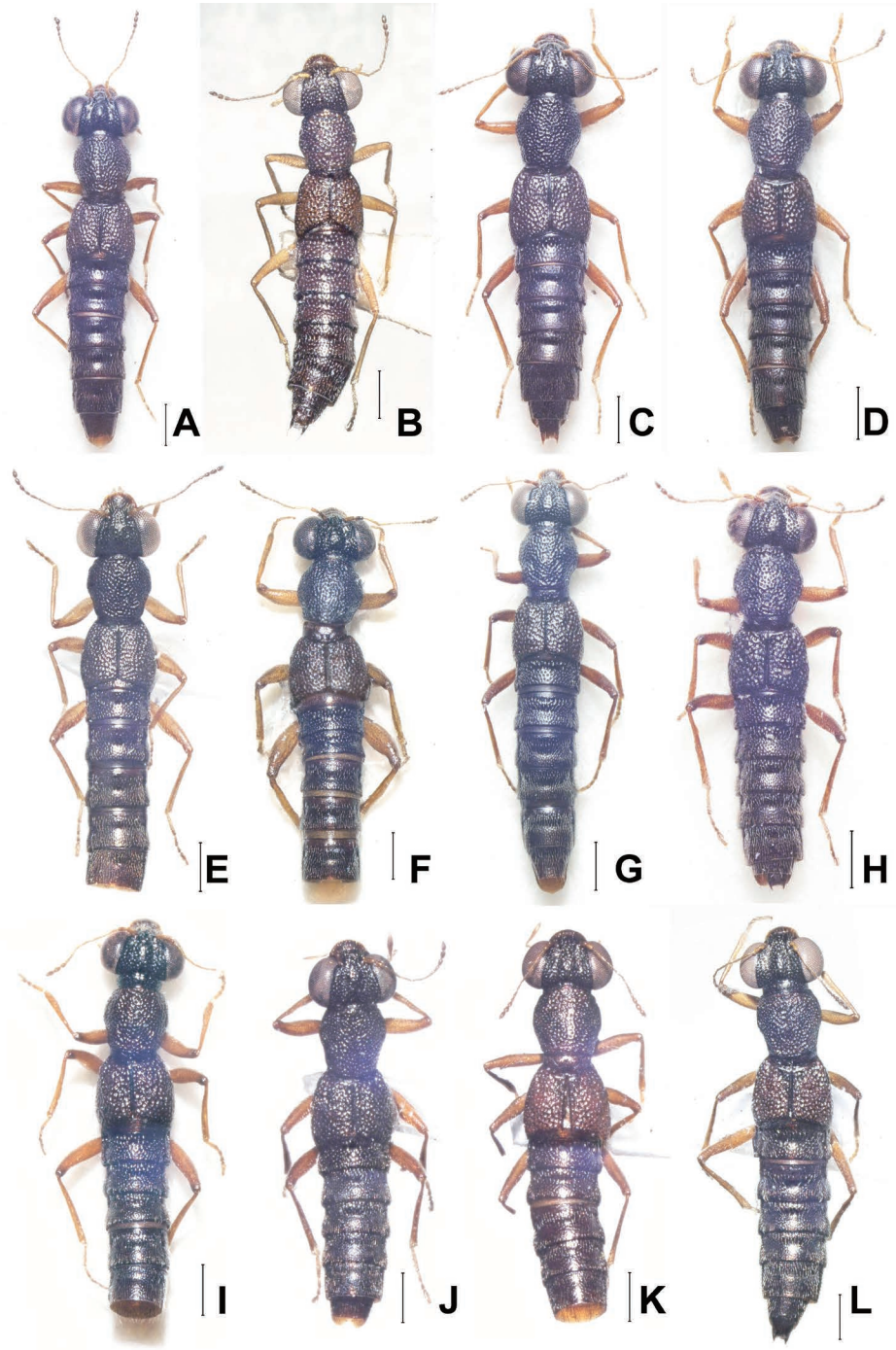

Fig. 102. A, *Stenus hayashii* Puthz (Oomine, Nara); B, *S. incommodus* Puthz (Yawata, Kyoto); C, *S. davidhulli* Naomi (Akazai, Hyogo); D, *Stenus inbecillus* Naomi (Renge, Niigata); E, *S. bishamon* Naomi (Tonomaru, Tokushima); F, *S. carura* Naomi (Saijyo, Ehime); G, *S. trispinosus* Naomi & Nomura (Misaka, Yamanashi); H, *S. nyorai* Naomi (Abe, Yamanashi); I, *S. kisomontanus* Naomi, Nomura & Puthz sp. nov. (Kiso-komagatake, Nagano); J, *S. scissilis* Naomi, Nomura & Puthz sp. nov. (Kamisaka, Gifu); K, *S. unicuspidatus* Naomi & Nomura (Oohira, Nagano); L, *S. kasumi* Naomi (Shibitsu, Gunma). Scale: 0.5 mm.

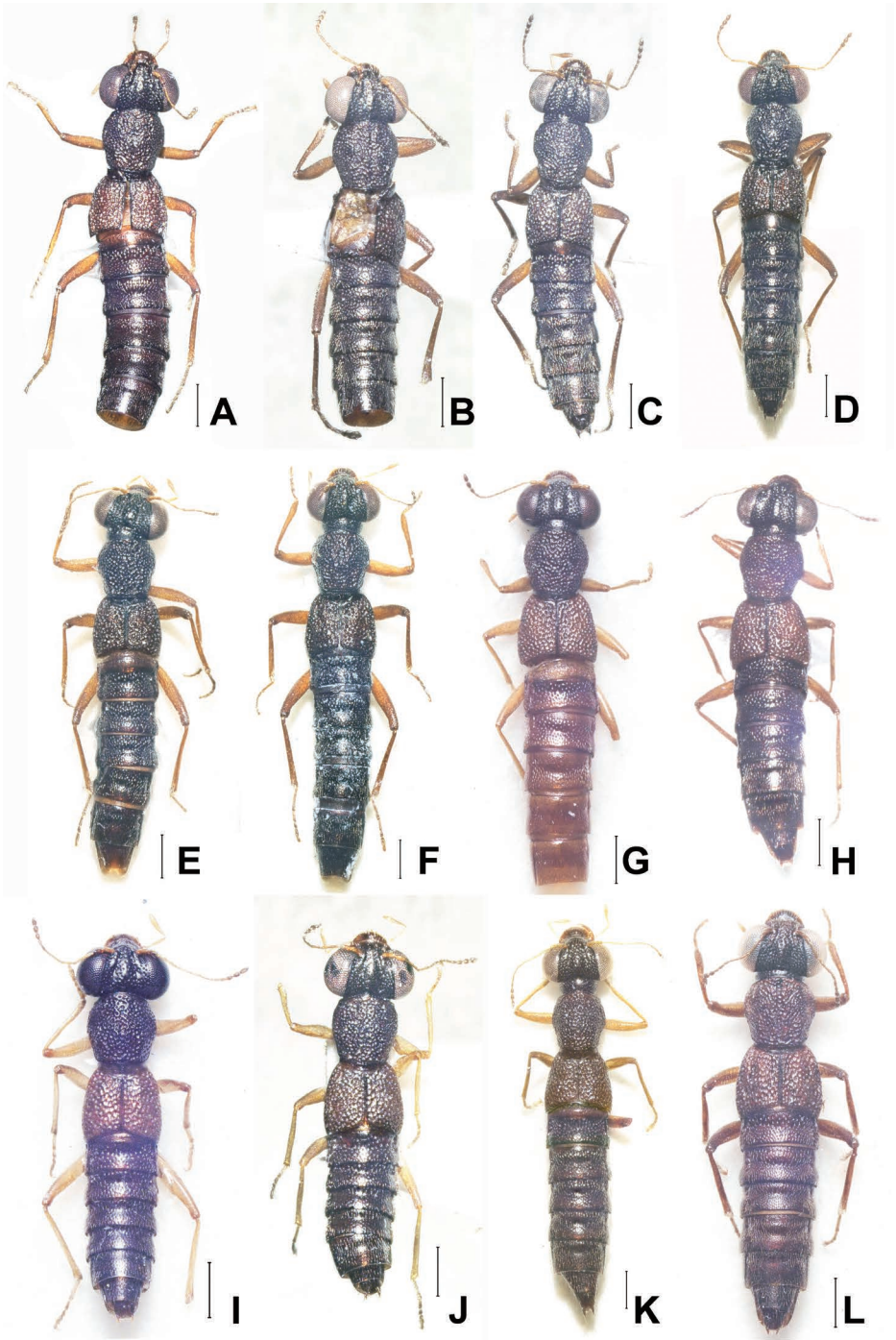

Fig. 103. A, *S. yatsugatakensis* Naomi (Shirakoma, Nagano); B, *S. sawadaiellus* Naomi & Puthz (Ontake, Nagano); C, *Stenus uncinatus* Naomi, Nomura & Puthz sp. nov. (Shinhotaka, Nagano); D, *S. houou* Naomi (Houou, Yamanashi); E, *S. kumoma* Naomi (Hayachine, Iwate); F, *S. izanagi* Naomi & Puthz (Kattadake, Miyagi); G, *S. brendelli* Naomi (Jôyama, Fukuoka); H, *S. ruricolaris* Naomi (Tachibana, Fukuoka); I, *S. clio* Naomi (Kamagadake, Mie); J, *S. komonoensis* Naomi (Gozaisho, Mie); K, *S. anfractus* Naomi (Kukizaki, Mie); L, *S. hijiri* Naomi (Norikuradake, Nagano). Scale: 0.5 mm.

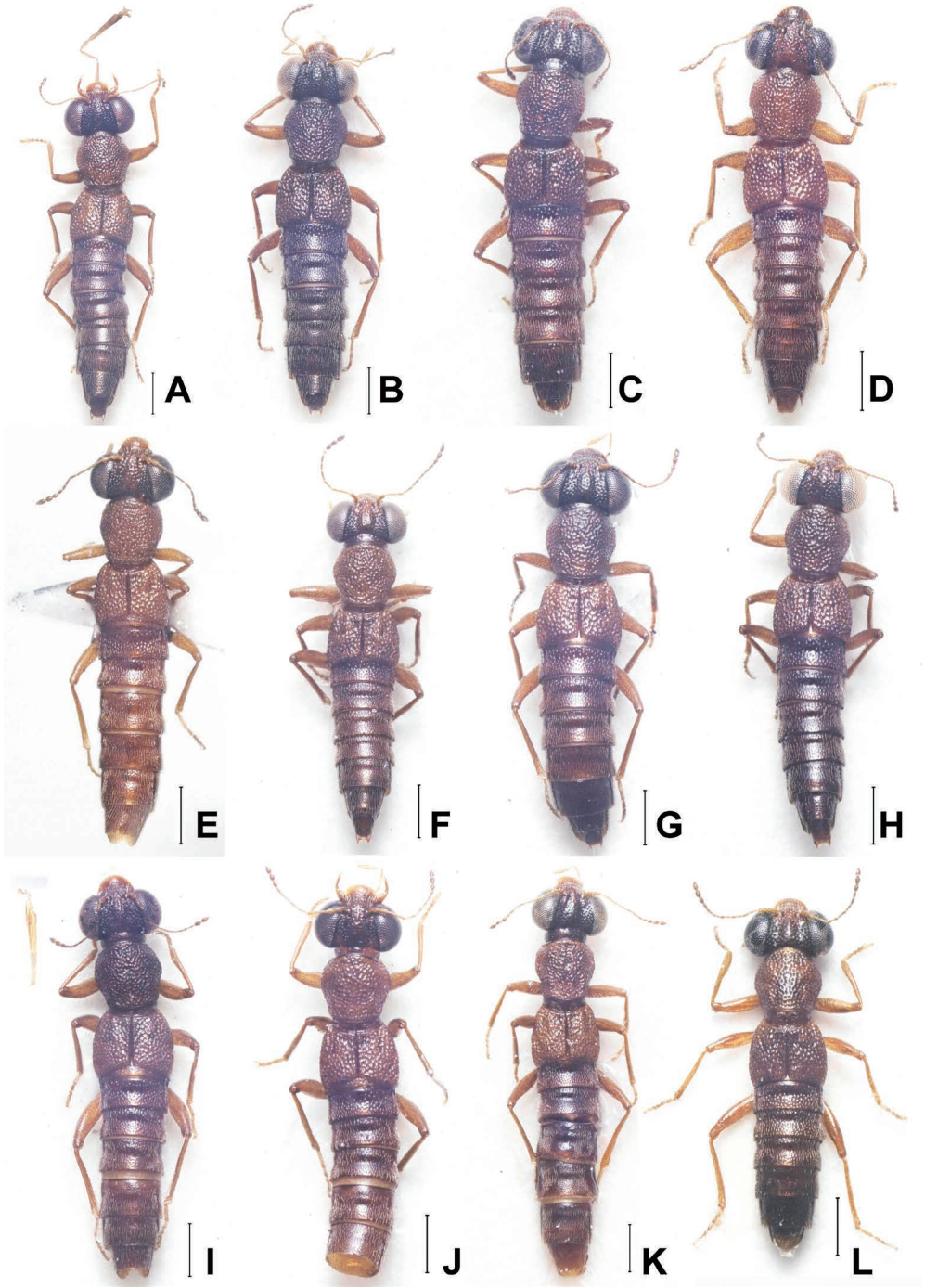

Fig. 104. A, *S. maruyamai* Naomi (Tanba, Yamanashi); B, *S. oisami* Naomi & Puthz (Ryogami, Saitama); C, *Stenus biwa* Hromádka (Towada, Aomori); D, *S. bicara* Naomi (Sawairi, Gunma); E, *S. araiorum* Naomi (Takao, Tokyo); F, *S. jurojin* Naomi (Tsukiore, Ibaraki); G, *S. tsukubamontis* Naomi, Nomura & Kamezawa (Tsukuba, Ibaraki); H, *S. santira* Naomi (Arakawa, Niigata); I, *S. ellipsoides* Naomi (Hosono, Fukushima); J, *S. fulvivestis* Naomi & Watanabe (Jinmuji, Kanagawa); K, *S. basara* Naomi (Mizugazuka, Shizuoka); L, *S. asyura* Naomi (Tsukuba, Ibaraki). Scale: 0.5 mm.

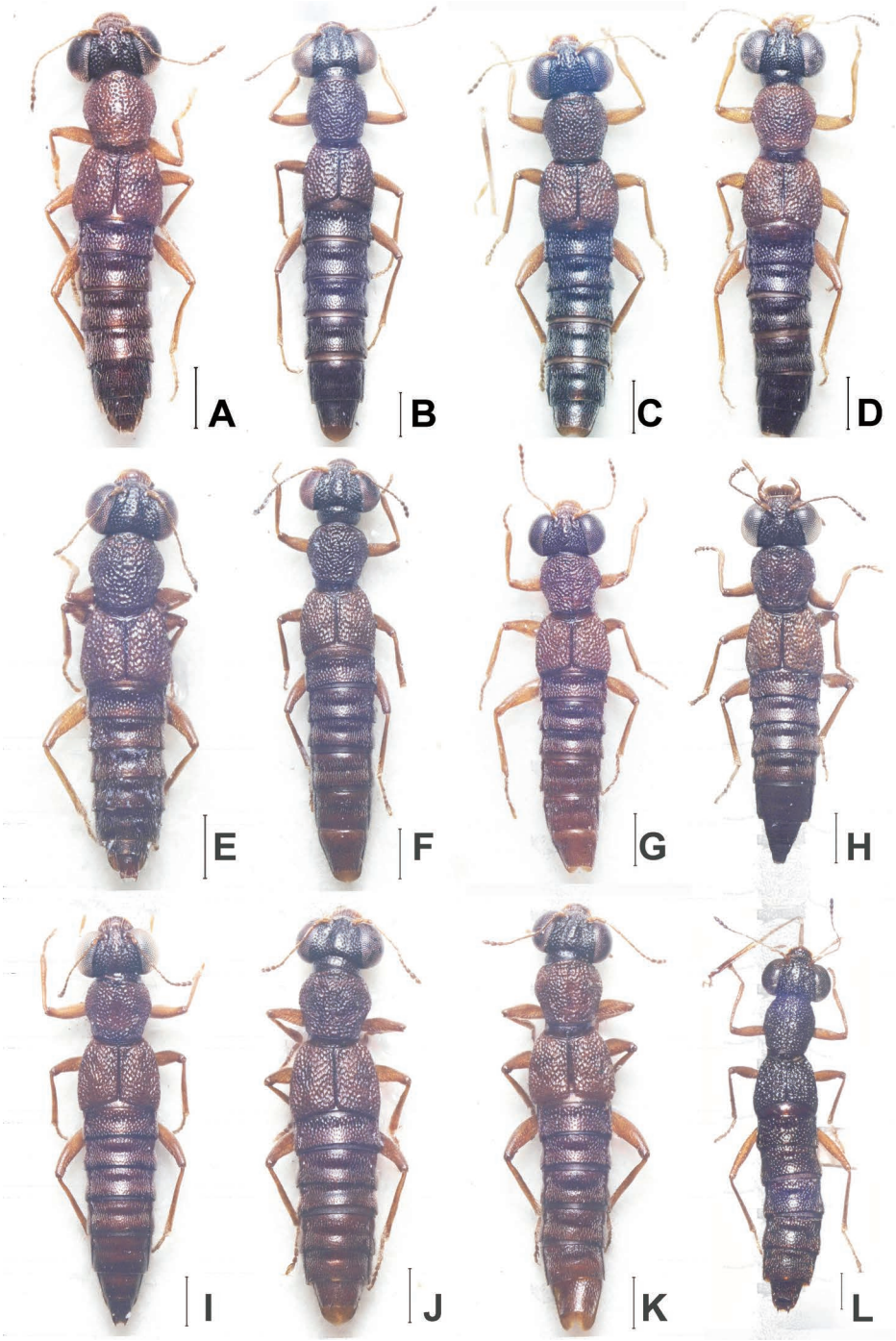

Fig. 105. A, *S. hakonensis* Naomi (Shiraito, Shizuoka); B, *S. nogohakusanus* Naomi, Nomura & Kamezawa (Nogo-Hakusan, Fukui); C, *S. yukawai* Naomi (Arano, Shizuoka); D, *S. alesi* Naomi (Udoyama, Shizuoka); E, *S. hannia* Naomi (Chuzenji, Tochigi); F, *S. naturalis* Naomi & Watanabe (Kagami-daira, Gifu); G, *S. zdenae* Hromádka (Kurofu, Gunma); H, *S. bunraku* Hromádka (Yuzawa, Niigata); I, *S. haginoi* Naomi (Shibitsu, Gunma); J, *S. oni* Naomi (Konsei, Tochigi); K, *S. triprotrudens* Naomi & Watanabe (Ishikorobi-zawa, Yamagata); L, *S. dubitativus* Puthz (Yuwan, Amami Is.). Scale: 0.5 mm.

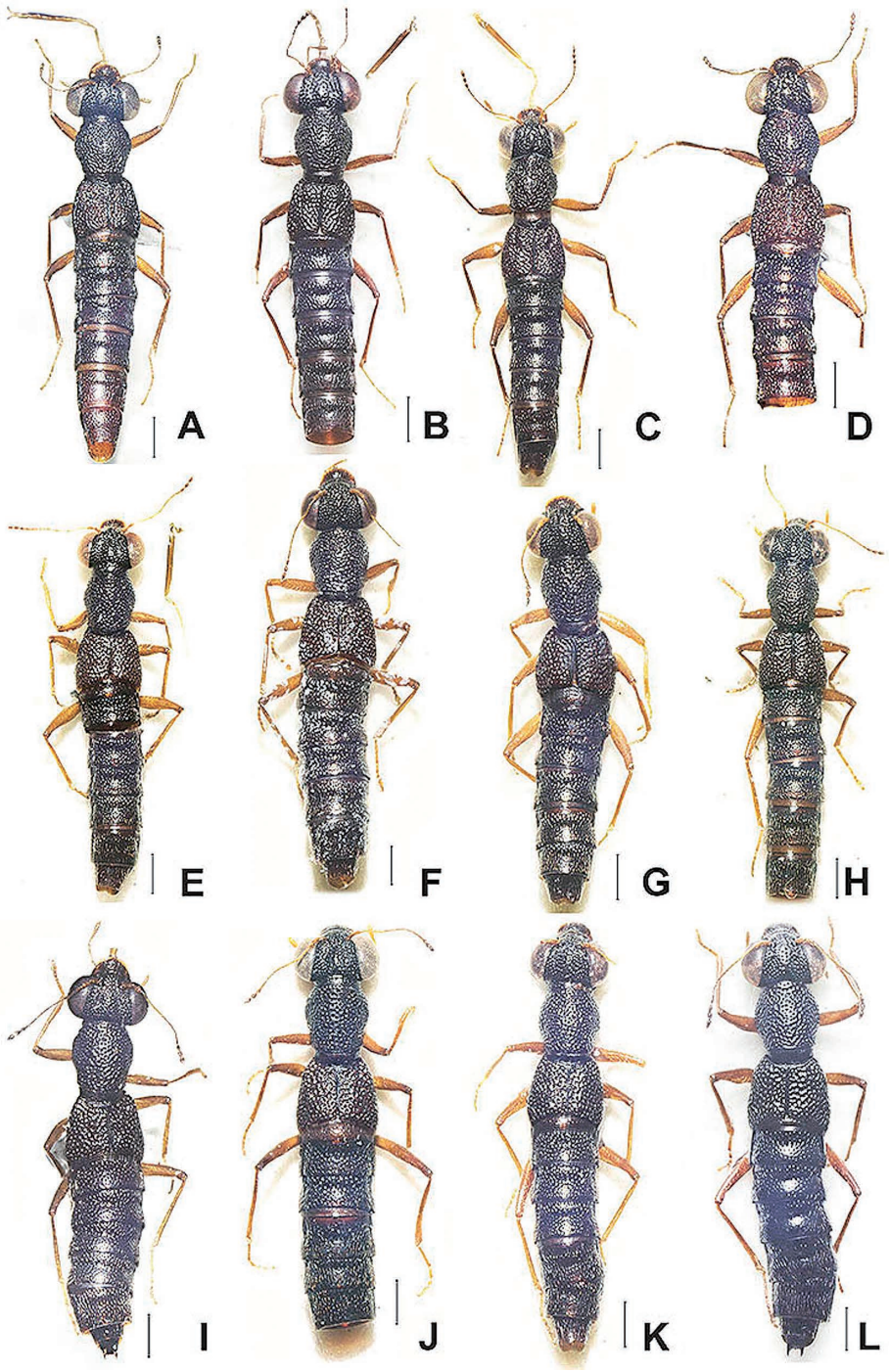

Fig. 106. A, *Stenus autumnalis* Naomi (Kotsu, Tokushima); B, *S. unzenmontis* Naomi & Puthz (Unzen, Nagasaki); C, *S. inimitabilis* Puthz (Odami, Ehime); D, *S. siphonifer* Naomi (Ohdaigahara, Nara); E, *S. serratus* Naomi (Setogaro, Fukushima); F, *S. sadoensis* Naomi (Ootaki, Sado Is.); G, *S. subserratus* Naomi (Shibitsu, Gunma); H, *S. takane* Naomi (Mayogatai, Aomori); I, *S. unicoloratus* Naomi & Puthz (Higashi-ozana, Fukushima); J, *S. tohokuensis* Naomi & Puthz (Jyuniko, Aomori); K, *S. campaniformis* Naomi, Nomura & Puthz sp. nov. (Oguni, Yamagata); L, *S. naomii* Puthz (Mimuro, Hyogo). Scale: 0.5 mm.

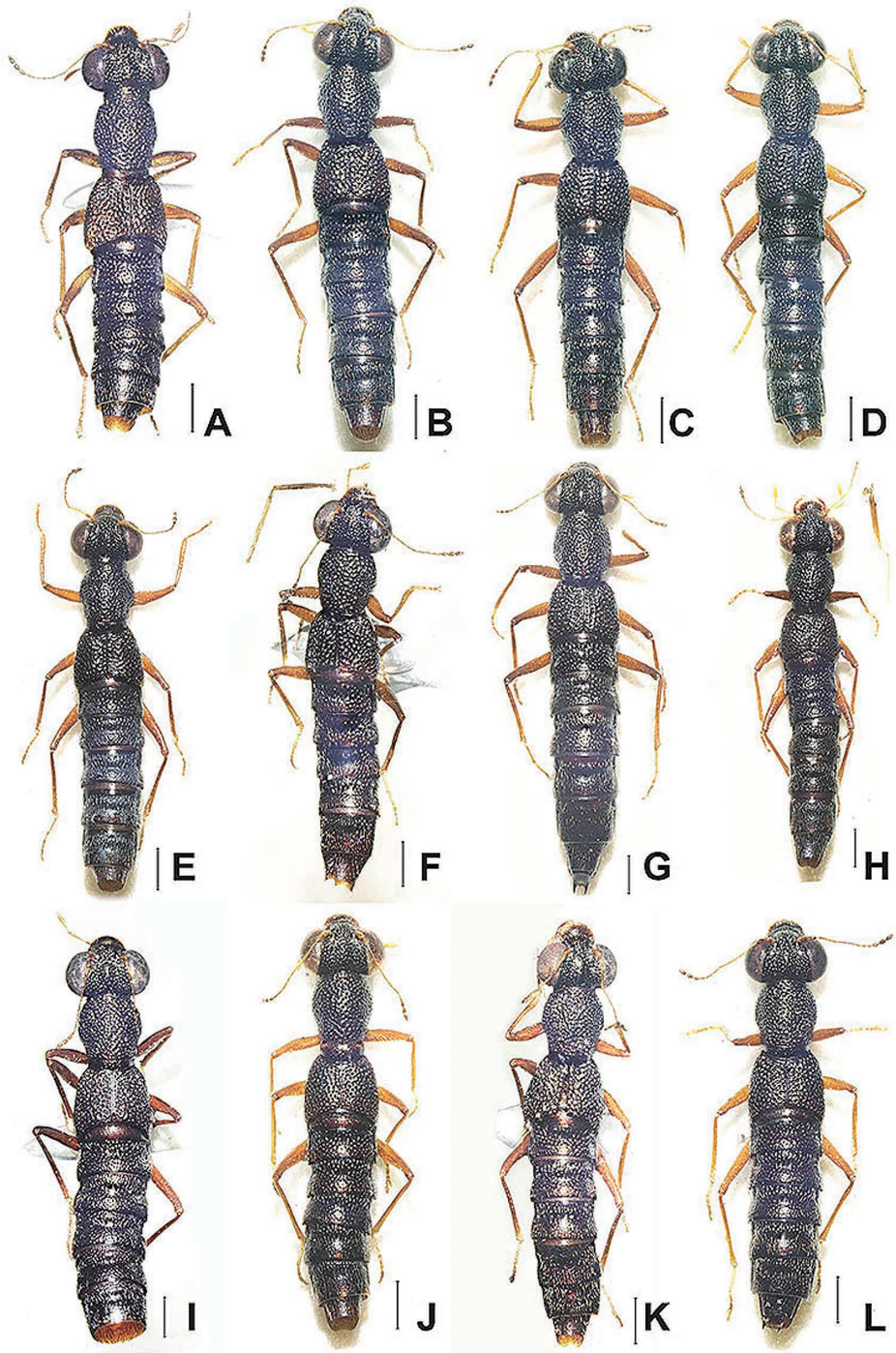

Fig. 107. A, *Stenus tuberascens* Naomi, Nomura & Puthz sp. nov. (Maizuru, Kyoto); B, *S. acerrimus* Naomi (Hira, Shiga); *S. cucumeroides* Naomi & Puthz (Utatsu, Ishikawa); D, *S. unagi* Hromádka (Katsuragi, Wakayama); E, *S. fugu* Hromádka (Inamura, Nara); F, *S. ukon* Naomi & Puthz (Sekigahara, Gifu); G, *S. kyushuensis* Naomi & Puthz (Fukuchi, Fukuoka); H, *S. tanuki* Hromádka (Kongo, Nara); I, *S. hypovelox* Naomi & Puthz (Oku-dogo, Ehime); J, *S. sawadai* Hromádka (Hanase, Kyoto); K, *S. kishimotoi* Naomi & Puthz (Kukizaki, Mie); L, *S. yokozekii* Naomi (Sugari, Mie). Scale: 0.5 mm.

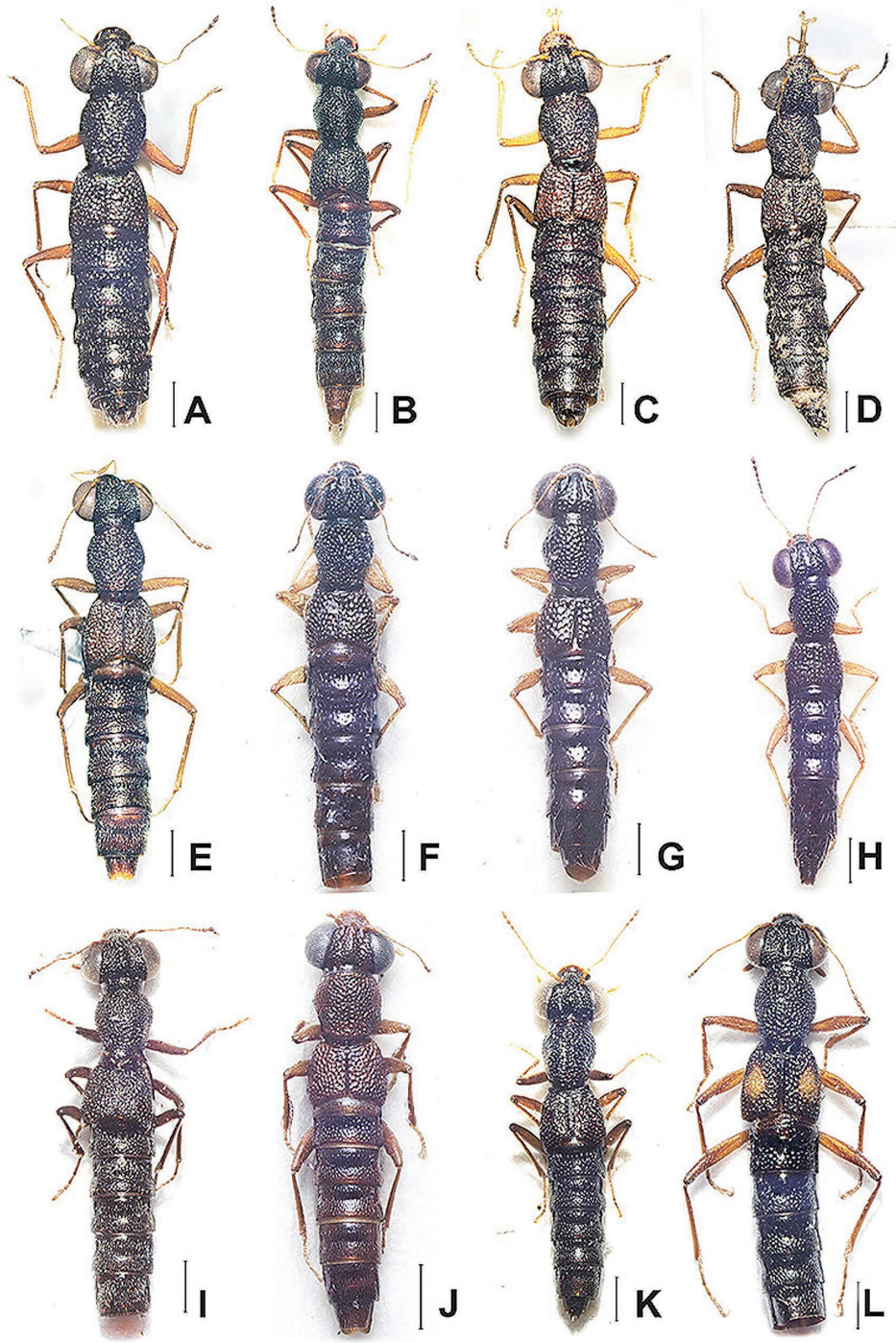

Fig. 108. A, *Stenus tateoi* Naomi (Komono, Mie); B, *S. ohishii* Naomi (Tsurugi, Tokushima); C, *S. fusciceps* Naomi (Muroto, Kochi); D, *S. indubius* Sharp (Nakakawane, Shizuoka); E, *S. kiyosumiensis* Naomi & Takeda (Yanagisawa, Yamanashi); F, *S. punctifer* Naomi (Nagodake, Okinawa Is.); G, *S. tokunis* Naomi (Yonama, Toku Is.); H, *S. amamiensis* Naomi (Hatsuno, Amami Is.); I, *S. nomuraianus* Puthz (Jeong-Lyeonchi, Korea); J, *S. fusciformis* Oh & Cho (Kyongeyomeon, Korea); K, *S. hewenjiae* Tang & Li (Sichuan, China); L, *S. shibatai* Puthz (Taichung, Taiwan). Scale: 0.5 mm.

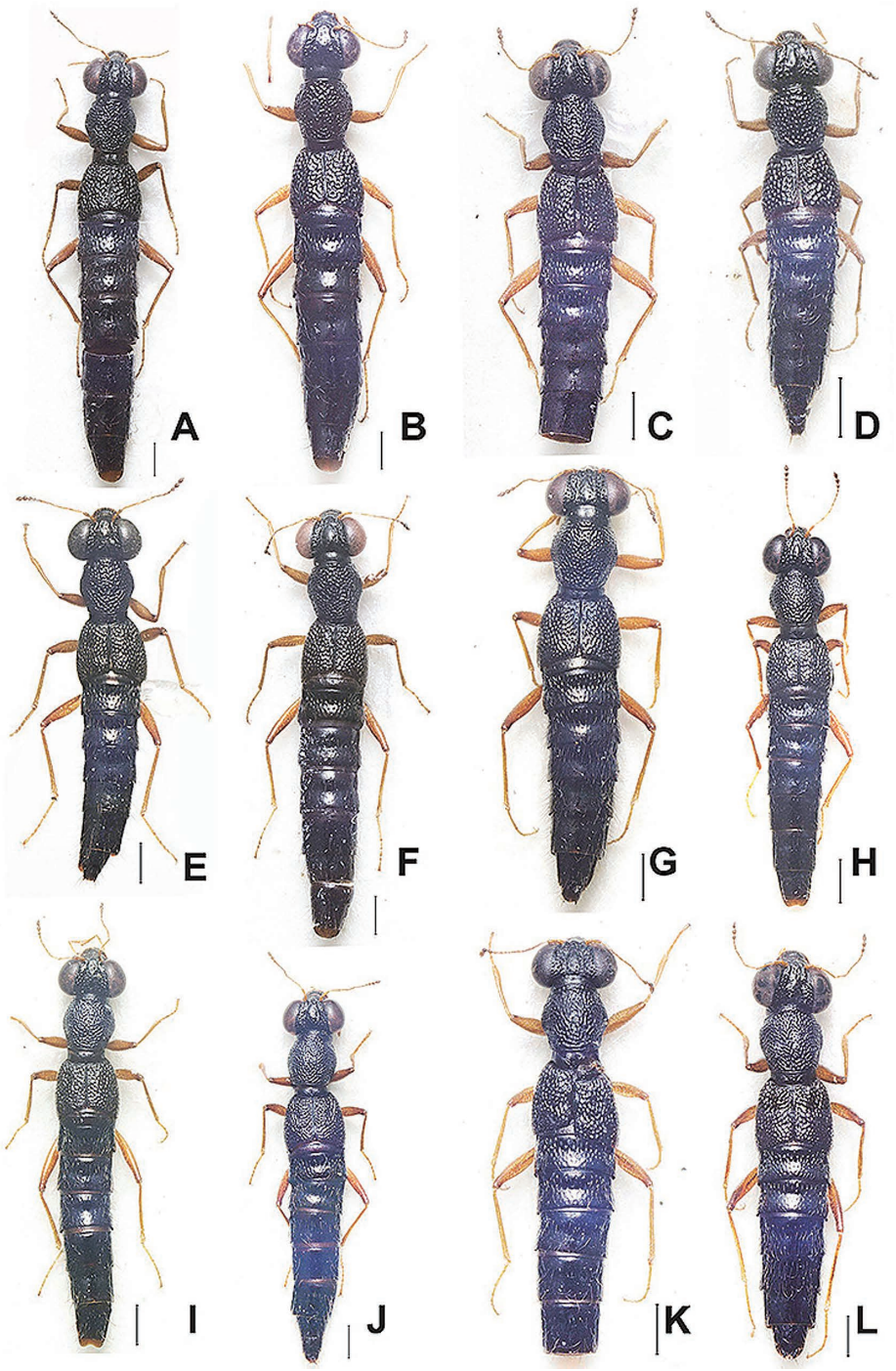

Fig. 109. A, *Stenus yamabusi* Naomi & Ito (Funato, Kochi); B, *S. uedai* Naomi (Keisoku, Tokushima); C, *S. angusticulus* Naomi, Nomura & Puthz sp. nov. (Ishizuchi, Ehime); D, *S. yashiro* Naomi & Puthz (Kyogatake, Saga); E, *S. domburi* Hromádka (Takamaru, Tokushima); F, *S. sakaii* Naomi & Puthz (Odami, Ehime); G, *S. sugiei* Naomi (Nabetani, Ishikawa); H, *S. caesariatus* Naomi & Ito (Akazai, Hyogo); I, *S. kanzeon* Naomi (Fukumizu, Ishikawa); J, *S. sawadaianus* Hromádka (Ashiu, Kyoto; K, *S. vernicosus* Naomi & Nomura (Kenashi, Tottori); L, *S. nyoirin* Naomi (Ohshirakawa, Nagano). Scale: 0.5 mm.

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