# Studies on the Subfamily Steninae (Coleoptera, Oxyporidae) from Japan

IX. Subgenus Hypostenus of the Genus Stenus LATREILLE, Part 1\*

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Abstract The Stenus rufescens complex of the subgenus Hypostenus is newly defined, and is divided into 11 species-groups. Of these, the groups of Stenus asyura and S. oni are dealt with. The asyura group is composed of five new species, Stenus asyura, S. basara, S. santira, S. bicara and S. kazami and the oni group is of one new species, S. oni. Male genitalia of these six new species are figured for comparison.

This is the first report of my study on the subgenus *Hypostenus* from Japan. Sharp (1874) first described five new species of *Hypostenus* from Japan. He added six more new species to the Japanese fauna in 1889. Bernhauer (1912) described a new species *Stenus weisei* from Hokkaido (Nemoro). After that no contribution had been made toward the Japanese fauna of the *Hypostenus* until Hromádka started in the study of the Japanese Steninae in 1979. Hromádka (1979) described a new species *Stenus hanami* from Honshu. He redescribed *Stenus rufescens* Sharp and described five new allied species mainly from Kinki District in 1982. He also revalidated *Stenus testaceopiceus* from the synonym of *S. rufescens* and newly recorded it from Japan. Thus, a total of 19 species of the subgenus *Hypostenus* are recognized from Japan at present.

I intend to revise the Japanese species of the subgenus *Hypostenus*, including descriptions of 31 new species and reports of unrecorded species (1) and subspecies (1) in the 9th to 15th parts of the papers on my study of the Japanese Steninae. In this 9th part, the *Stenus rufescens* complex of the subgenus *Hypostenus* is newly defined, and the *S. asyura* and *S. oni* groups are dealt with. Six new species are described and their male genitalia are figured.

### Subgenus Hypostenus REY

Hypostenus Rey, 1884, Annls. Soc. Linn. Lyon, (2), **30**: 390. (Type species: *Stenus kiesenwetteri* Bernhauer, designated by Tottenham, 1939.)

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Hypostenus is the largest subgenus of the genus Stenus LATREILLE and is defined at present by the following two characters: 1) 4th segments of tarsi bilobed and 2) abdomen without paratergites, and its terga and sterna completely fused or separated only by suture.

The subgenus *Hypostenus* is distributed in all zoogeographical regions. Puthz (1971, 1972, 1982) recorded 83 species of the genus *Stenus* from New Guinea and the ratio of *Hypostenus* species is 65.1%. Naomi (1987) reported that the Japanese fauna of the genus *Stenus* consists of 120 species including undescribed species, and the ratio of *Hypostenus* species is 40.8%. The genus *Stenus* is composed of 116 species in the central European Region (Lohse, 1964) and the ratio of *Hypostenus* species is 8.6%. These data show that the ratio of *Hypostenus* species to all the species of the genus *Stenus* decreases as the latitude becomes higher in the Northern Hemisphere.

PUTHZ (1972) reported that there is no brachypterous *Hypostenus* in New Guinea, although many of them are distributed in high altitudinal zone. The hypostenids show little variations in the body lengh and color, and in the internal structure of the male genitalia. Thus, he concluded that "most of the New Guinea *Stenus* are in an early stage of speciation". On the contrary, 37 out of 51 species of *Hypostenus* are apterous or brachypterous in Japan, although their habitats widely range from high montane areas to low lands near the sea shore. There are considerable variations among these Japanese species in each of the above-mentioned characters. Therefore, the Japanese *Hypostenus* is considered to be in an advanced stage of speciation.

### The Stenus rufescens Complex

Thirty-seven species of the brachypterous (or apterous) *Hypostenus* show difference in the body color (pale yellow through reddish brown to black), general appearance, etc. However, they have the following characters in common: 1) head broader than elytra (except for *Stenus oni* sp. nov. from Nikko), 2) eyes strongly convex, 3) elytra short and constricted at the bases, 4) legs yellow to reddish yellow and 5) abdomen cylindrical, and subparallel-sided or weakly narrowed posteriorly, with short, dense and decumbent hairs (except for one new species from Okinawa Main Island). As these characters are not credible enough to form them as a monophyletic group because of their parallel occurrence outside the component species, I tentatively call it "S. rufescens complex" here. They are classified into 11 speciesgroups on the basis of the body color and the modification of the ventral surface of the abdomen in male and the shape of the male genitalia, etc.

### 1. Group of S. asyura

This group is composed of 5 new species, *Stenus asyura*, *S. basara*, *S. santira*, *S. bicara* and *S. kazami*, and is distributed from Chûbu through northern Kantô to Tôhoku Districts in Honshu (Fig. 2).

The diagnosis of the *asyura* group is as follows: 1) head bicolorous, frontoclypeal area usually reddish brown, interocular area entirely blackish, or reddish brown in the median part and dark brown to black at sides, 2) 6th and 7th sterna each evenly convex, flat or very shallowly depressed at posteromedian part in male, and 3) male genitalia with median lobe broad, angulate at apicolateral parts (except for *S. kazami* sp. nov.), apical part with an acicular projection or obtusely pointed.

#### Stenus asyura sp. nov.

(Fig. 1 A)

Male and female. Body length: 3.0–3.2 mm.

Body pale yellowish brown to brown, moderately shiny, interocular area along inner margins of eyes and 7th to 9th abdominal segments dark brown to black; antennae, maxillary palpi and legs yellowish.

Head broader than elytra (1.11: 1), 1.67 times as broad as long, labrum sparsely haired, with anterior margin rounded, frontoclypeal area convex, sparsely haired, interocular area almost flat with a pair of depressions, the depressions longitudinal, parallel and shallow, median part between the depressions moderately convex; punctures moderate in density, shallow, interstices between punctures minutely sculptured. Eyes strongly convex. Antennae reaching a little before posterior margin of pronotum, slender, 3rd to 8th segments thin, 9th to 11th each elongate oval, with relative lengths of segments from base to apex as 8:9:17:12:10:7:7:6:6:6:7.

Pronotum about as long as or a little longer than (1.04:1) elytra, as long as broad, broadest at anterior 2/5, moderately constricted at base, side margins almost rounded; disk slightly uneven, almost glabrous, with a median longitudinal shallow depression; punctures dense, interstices between punctures very narrow, minutely sculptured.

Elytra broader than long (1.17:1), constricted at base, side margins rounded, hind margins together forming a broad V-shaped emargination; punctures dense, a little larger than those on pronotum. Hind wings reduced, elongate oval, 0.51 times as long as elytra.

Legs moderate in length, hind tarsi 0.66 times as long as hind tibiae.

Abdomen elongate and cylindrical; punctures dense, regular and round on 3rd tergum, punctures becoming smaller and sparser posteriorly from 3rd to 8th terga; pubescence yellowish red, short, sparse and decumbent.

Male. Abdomen weakly narrowed posteriorly; 8th sternum with an arcuate emargination at the middle of posterior margin; 9th sternum with a pair of pointed apicolateral projections. Genitalia (Fig. 1 A) with median lobe broad, subparallel-sided, apical margin with an acicular projection at the middle and with a small emargination on each side of the projection; parameres thick, extending a little beyond apex of the projection, each with two setae at apex.

Female. Abdomen subparallel-sided; 8th sternum entire.

Holotype, male (Type No. 2665, Kyushu Univ.), Jigokudani, Mt. Yatsu, Yamanashi Pref., 8. vii. 1982, S. Naomi leg. Paratypes, 10 exs., same data as for holotype. *Distribution*. Japan (Chûbu District).

Remarks. This new species is closely allied to Stenus basara sp. nov., but is separable from the latter by the structure of the male genitalia. The median lobe is more deeply emarginate at the sides of the apical projection. The parameres are shorter and two setae are present at each apex.

# Stenus basara sp. nov.

(Fig. 1 F)

*Male and female.* Body length: 3.1–3.6 mm.

Head blackish and shiny, with frontoclypeal area and anterior part of interocular area reddish brown, pronotum and elytra usually reddish brown, but sometimes dark brown to black, moderately shiny, abdomen reddish brown, 7th to 9th segments more or less infuscate; antennae, maxillary palpi and legs reddish brown.

Head broader than elytra (1.17: 1), 1.63 times as broad as long, frontoclypeal area very sparsely punctate, interocular area shallowly concave, with a pair of depressions, median longitudinal area between the depressions gently convex; punctures round, sparser on the middle than near inner margins of eyes, interstices between punctures distinctly sculptured. Antennae reaching posterior 2/3 of pronotum, 8th segment smallest, 9th to 11th each elongate oval, with relative lengths of segments from base to apex as 10: 10: 20: 10: 9: 8: 8: 6: 7: 7: 9.

Pronotum a little longer than elytra (1.05:1), about as long as broad, broadest at anterior 2/5, moderately constricted at base, side margins rounded; disk uneven, with a median longitudinal groove, the groove longer and broader than that in S. asyura sp. nov.; punctures very dense and subrugose.

Elytra broader than long (1.12:1), constricted at base, gradually broadened posteriorly, hind margins together forming a broad and shallow emargination; punctures dense, large and subrugose on anterior half, almost regular on posterior half. Hind wings completely lost in the specimens examined.

Legs moderate in length, hind tarsi 0.67 times as long as hind tibiae.

Abdomen with punctures round, dense and regular on 3rd tergum, punctures becoming smaller posteriorly from 3rd to 8th terga; pubescence golden yellow to reddish yellow, decumbent.

Male. Seventh sternum very shallowly depressed at posteromedian part, with a very shallow emargination at posterior margin; 8th sternum with a moderate emargination at posterior margin; 9th sternum arcuately emarginate and minutely serrate at posterior margin, with posterolateral projections strongly pointed. Genitalia (Fig. 1 F) with median lobe broad, very weakly narrowed apically, apical margin

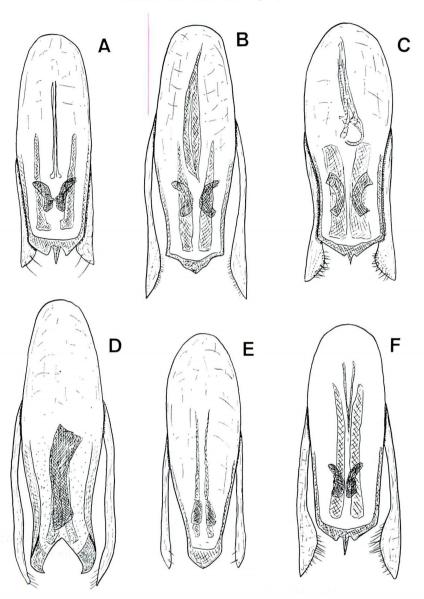


Fig. 1. A, Stenus asyura sp. nov; B, S. bicara sp. nov.; C, S. santira sp. nov.; D, S. oni sp. nov.; E, S. kazami sp. nov.; F, S. basara sp. nov. A-F, Male genitalia in dorsal view.

similarly modified as in *S. asyura* sp. nov., but the emarginations are shallower; parameres long, extending beyond apex of median lobe, apical parts broad, with hairs along inner margins.

Female. Eighth sternum minutely pointed at the middle of posterior margin.

Holotype, female (Type No. 2666, Kyushu Univ.), Aokigahara, Mt. Fuji, Yamanashi Pref., 20. vii. 1982, S. Naomi leg. Paratypes, 9 exs., same data as holotype; 1 ex., same locality as holotype, 23. vii. 1984, S. Nomura leg.; 2 exs., Okuniwa, Mt. Fuji, Yamanashi Pref., 21. vii. 1982, S. Naomi leg.; 3 exs., Konsei Pass, Nikkô, Tochigi Pref., 30. vi. 1982, S. Naomi leg.

Distribution. Japan (Honshu: Chûbu to northern Kantô Districts).

*Remarks*. This new species is closely allied to *S. asyura* sp. nov., but the interocular area is black behind the middle, the pronotum is provided with a longer longitudinal depression, and the parameters of the male genitalia are longer.

## Stenus santira sp. nov.

(Fig. 1 C)

Male. Body length: 3.2-3.5 mm.

Body yellowish brown to reddish brown, moderately shiny, interocular area along inner margins of eyes dark brown to black; antennae blackish except for 4 or 5 yellowish basal segments; maxillary palpi and legs yellow to yellowish brown.

Head broader than elytra (1.09: 1), 1.85 times as broad as long, frontoclypeal area sparsely punctate, interocular area very shallowly concave, with a pair of depressions, median longitudinal part between the depressions gently convex; punctures round, shallow and almost umbilicate, interstices between punctures minutely sculptured. Antennae reaching posterior 1/4 of pronotum, 8th segment a little broader than 7th, 9th to 10th each elongate oval, 11th pointed, with relative lengths of segments from base to apex as 10: 10: 20: 10: 9: 8: 8: 6: 7: 7: 10.

Pronotum about as long as elytra, as long as broad, broadest at anterior 2/5, side margins much rounded; disk slightly uneven, very densely punctate, with a median longitudinal depression, the depression as long as that in *S. asyura* sp. nov.; punctures very dense and subrugose, interstices between punctures minutely sculptured.

Elytra broader than long (1.21:1), weakly constricted at base, side margins rounded, hind margins together forming a broad and shallow emargination; punctures very dense and round. Hind wings reduced, 0.45 times as long as elytra.

Legs moderate in length, hind tarsi 0.63 times as long as hind tibiae.

Abdomen elongate, with punctures and pubescence similar to those in S. asyura sp. nov.

Male. Sixth and 7th sterna each flat or very weakly depressed at posteromedian part, 7th sternum with a very shallow emargination at the middle of posterior margin; 8th sternum with a moderate emargination at posterior mergin; 9th sternum with an arcuate emargination at posterior margin and pointed apicolateral projections. Genitalia (Fig. 1 C) with median lobe bulbous at base, parallel-sided in apical half, distinctly angulate at apicolateral parts, apicomedian projection shorter than that in S. asyura sp. nov., emarginations at its sides shallower than those in S. asyura sp.

nov.; parameres extending beyond apex of apicomedian projection, broad and obliquely truncate at apical parts which are haired on inner margins.

Holotype, male (Type No. 2667, Kyushu Univ.), Mt. Zaô, Miyagi Pref., 25. vi. 1983, S. Nomura leg. Paratypes, 1 male, Kawasaki-chô, Miyagi Pref., 25. vi. 1983, S. Nomura leg.; 1 male, Mt. Chôkai, Yamagata Pref., 5. vii. 1985, S. Nomura leg.

Distribution. Japan (Honshu: Tôhoku District).

Remarks. This new species is closely allied to S. asyura sp. nov., but the antennae are darker in color, and the 6th and 7th sterna each is flat or very weakly depressed at the posteromedian part in male. In addition, the male genitalia have a shorter apicomedian projection of the median lobe.

# Stenus bicara sp. nov.

(Fig. 1 B)

Male and female. Body length: 3.2–3.4 mm.

Body reddish brown to dark brown and shiny, interocular area along inner margins of eyes and 7th to 9th abdominal segments dark brown to black; antennae dark brown except for 2 or 3 yellowish basal segments; maxillary palpi and legs reddish brown.

Head broader than elytra (1.17: 1), 1.59 times as broad as long, frontoclypeal area sparsely punctate and separated from interocular area by a V-shaped line, interocular area almost flat with a pair of depressions, the depressions longitudinal, shallow and convergent anteriorly, median part between the depressions weakly convex; punctures sparse, smaller on the middle than near inner margins of eyes, interstices between punctures minutely sculptured. Antennae slender, reaching posterior 1/5 of pronotum, 7th to 10th segments gradually broadened apically, 8th smallest, 9th to 10th each elongate oval, 11th pointed, with relative lengths of segments from base to apex as 10: 10: 21: 11: 10: 8: 7: 5: 6: 7: 10.

Pronotum about as long as elytra, as long as broad, broadest at anterior 1/3, moderately constricted at base, side margins much rounded in anterior 2/3; disk uneven, with a median longitudinal depression which is almost as long as pronotum; punctures dense and subrugose, interstices between punctures clearly sculptured.

Elytra broader than long (1.15:1), constricted at base, weakly broadened posteriorly, hind margins together forming a broad and shallow emargination; punctures very dense, round to elliptical and subrugose. Hind wings reduced, 0.43 times as long as elytra.

Legs moderate in length, hind tarsi 0.73 times as long as hind tibiae.

Abdomen cylindrical, subparallel-sided; punctures and pubescence similar to those in *S. asyura* sp. nov.

Male. Seventh sternum flat at posteromedian part, with a very shallow emargination at the middle of posterior margin; 8th sternum with a large V-shaped emargina-

tion at posterior margin; 9th sternum with a moderate emargination at posterior margin and pointed apicolateral projections. Male genitalia (Fig. 1 B) robust, median lobe broadest near the middle, distinctly angulate at apicolateral parts, obtusely pointed at the middle of apical margin; parameres extending beyond apex of median lobe, similar in shape to those of *S. basara* sp. nov., with short hairs on apico-internal margins.

Female. Eighth sternum obtusely pointed at the middle of posterior margin.

Holotype, female (Type No. 2668, Kyushu Univ.), Chûzenji, Nikko, Tochigi Pref., 28–30. vi. 1982, S. Naomi leg. Paratypes, 1 male and 1 female, same data as holotype; 1 male, Yumoto, Nikko, Tochigi Pref., 29. vi. 1982, S. Naomi leg.

Distribution. Japan (Honshu: northern Kantô District).

Remarks. This new species is allied to S. kazami sp. nov., but the head is paler in color and the male genitalia are different in shape. The median lobe is broader in apical half and more angulate at the apicolateral parts. The parameres are longer and the apical parts are broader and provided with shorter hairs along the inner margins.

#### Stenus kazami sp. nov.

(Fig. 1 E)

*Male and female.* Body length: 2.8–3.5 mm.

Body reddish brown to brown, moderately shiny, posterior half or whole part of interocular area and 7th to 9th abdominal segments dark brown to black; antennae yellowish brown except for 4 or 5 brownish apical segments; maxillary palpi and legs yellow to yellowish brown.

Head broader than elytra (1.12: 1), 1.74 times as broad as long, frontoclypeal area sparsely haired and pubescent, interocular area almost flat, with a pair of depressions, the depressions longitudinal, shallow and broad; median part between the depressions weakly convex; punctures moderate in density, round, distinct and almost regular, interstices between punctures minutely sculptured. Antennae reaching posterior 2/3 of pronotum, 7th to 10th segments gradually broadened apically, 11th pointed, with relative lengths of segments from base to apex as 10:8:15:8:8:6:5:4:5:6:8.

Pronotum as long as elytra, about as long as broad, broadest at anterior 2/5, constricted at base, side margins rounded in anterior 2/3; disk weakly uneven, densely punctate, with a median longitudinal depression, the depression 0.81 to 0.90 times as long as pronotum; punctures very dense and subrugose, interstices between punctures indistinctly sculptured.

Elytra broader than long (1.24: 1), weakly constricted at base, hind margins together forming a very shallow emargination; punctures large and dense, interstices between punctures very narrow. Hind wings much reduced, 0.24 times as long as

elytra.

Legs elongate, hind tarsi 0.67 times as long as hind tibiae.

Abdomen subparallel-sided; punctures and pubescence similar to those in S. asyura sp. nov.

Male. Eighth sternum with a moderate emargination at posterior margin; 9th sternum with a deep V-shaped emargination at posterior margin and pointed apicolateral projections. Male genitalia (Fig. 1 E) with median lobe elongate oval in basal 2/3, broadest at basal 3/10, then gradually narrowed apically, with pentagonal apical part, internal armatures thinner than those in the other members of the asyura group; parameres extending to apex of median lobe, hardly broadened apically, each with two short hairs at apex.

Female. Abdomen robuster than in male; 8th sternum obtusely pointed at the middle of posterior margin.

Holotype, female (Type No. 2669, Kyushu Univ.), Kawarabô, Mt. Hayachine, Iwate Pref., 22–24. vi. 1980, S. Naomi leg. Paratypes, 1 male and 2 females, same data as holotype.

Distribution. Japan (Honshu: Tôhoku District).

Remarks. This new species is allied to S. bicara sp. nov., but the antennae are shorter and the male genitalia are different in structure. The median lobe is narrowed apically from the basal 3/10 to the pentagonal apical part and the parameres extend just to the apex of the median lobe.

# 2. Group of S. oni

This group is composed only of one new species, *Stenus oni* from Nikko, Tochigi Prefecture (Fig. 2). The diagnosis of the *oni* group is as follows: 1) head blackish with frontoclypeal area yellowish along anterior margin, 2) 4th to 6th sterna each moderately and 7th deeply depressed at posteromedian part in male, and 3) male genitalia with median lobe strongly bifurcate at apex.

Stenus oni sp. nov.

(Fig. 1 D)

Male and female. Body length: 3.4-3.6 mm.

Head blackish and shiny, frontoclypeal area yellowish along anterior margin, pronotum and elytra reddish brown to dark brown, moderately shiny, 3rd to 6th abdominal segments brownish, each blackish along posterior margin, 7th to 9th abdominal segments dark brown to black; antennae, labrum, maxillary palpi and legs reddish brown.

Head a little narrower than elytra (0.96: 1), 1.65 times as broad as long, frontoclypeal area sparsely punctate, interocular area almost flat, with a pair of depressions,

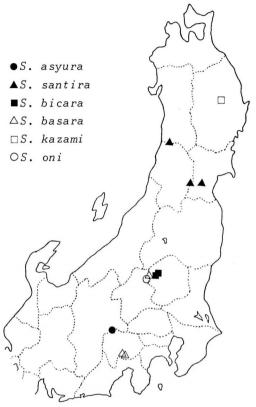


Fig. 2. Map showing the distribution of the Stenus asyura and oni groups.

the depressions longitudinal, broad and shallow, median part between the depressions weakly convex; punctures large, round and almost regular, interstices between punctures minutely sculptured. Eyes less strongly convex than those in the *asyura* group. Antennae a little thicker than those in the *asyura* group, reaching posterior 2/3 of pronotum, 8th segment smallest, 9th to 11th together forming a loose club, with relative lengths of segments from base to apex as 10: 10: 17: 10: 9: 8: 8: 5: 8: 8: 9.

Pronotum a little shorter than elytra (0.95:1), as long as broad, broadest at anterior 2/5, constricted at base, side margins rounded; disk uneven, with a median longitudinal depression, the depression 0.50 to 0.68 times as long as pronotum, deepest at the middle, with very minute and reticulate sculpture on its bottom; punctures dense, irregular and subrugose.

Elytra broader than long (1.26: 1), constricted at base, side margins rounded, hind margins together forming a wide and shallow emargination; disk uneven, with round, dense and subrugose punctures. Hind wings completely absent in the specimens examined.

Legs thick, hind tarsi 0.66 times as long as hind tibiae.

Abdomen subparallel-sided; punctures and pubescence similar to those in S. asyura sp. nov.

Male. Fourth to 6th sterna each moderately depressed at posteromedian part; 7th sternum deeply depressed at posteromedian part, the depression becoming deeper toward posterior margin which is arcuately emarginate, sides of the depression distinctly ridged; 8th sternum with a deep V-shaped emargination at posterior margin; 9th sternum with a pair of very small apicolateral projections. Genitalia (Fig. 1 D) with median lobe broadest a little before the middle, then narrowed both anteriorly and posteriorly, with a large and deep emargination (or strongly bifurcate) at apical part, each projection slightly curved internally and pointed at apex; parameres slender, extending beyond apices of the projections, sparsely haired on apico-internal parts.

Female. Antennae and abdomen a little thicker than in male; 8th sternum almost entire.

Holotype, female (Type No. 2670, Kyushu Univ.), Mt. Maeshirane, Nikkô, Tochigi Pref., 2. vii. 1982, S. Naomi leg. Paratype, 1 male, same data as holotype.

Distribution. Japan (Honshu: northern Kantô District).

*Remarks.* This new species is similar in general appearance to the members of the *asyura* group, but the frontoclypeal area is blackish except for yellowish anterior margin, and the median lobe of the male genitalia is strongly bifurcate at the apex.

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#### 摘 要

直海俊一郎:日本産メダカハネカクシ亜科の研究。IX. メダカハネカクシ属 Hypostenus 亜属,1. 本論文では,Hypostenus 亜属のうちで,トビイロメダカハネカクシ Stenus rufescens に近縁で後翅が退化した群を S. rufescens 複合群と称した。この複合群は,1)頭部は上翅より幅広く,2)複眼はいちじるしく大きく突出し,3)上翅は短かく基部が狭まり,4)肢は黄色から赤黄色を呈し,5)腹部は円筒形で,短毛を密に装う,などの形質で特徴づけられた。現在,日本産 37 種がこの複合群に属し,それらは 11 種群に分類できた。ここでは asyura 種群と oni 種群について論じた.

asyura 種群は、Stenus asyura、S. basara、S. santira、S. bicara および S. kazami の 5 新種からなり、中部地方、北関東地方および東北地方に分布する。この種群は頭部が黒色と赤褐色の 2 色からなり、雄交尾器中央片は通常、先端側方部が角ばり、先端中央部は鋭く尖った突起をもつか、鈍く尖る、などの形質で特徴づけられた。一方、oni 種群は、1 新種 Stenus oni だけからなり、北関東地方(日光)に分布している。この種群は、頭部は黄色の額頭盾前縁部をのぞいて黒色であり、雄交尾器中央片先端部に大型の V 字状切れ込みがある、などの形質で特徴づけられた。

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