THREE NEW SPECIES OF THE GENUS *PTEROSTICHUS* FROM JAPAN (Coleoptera, Carabidae)

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In this paper I have described three new *Pterostichus*-secies from Japan. At the beginning I wish to express my heartfelt thanks to Mr. S. Kato for his kind and constant encouragement, and to Mr. T. Fujimura for his kind giving of his specimen.

Pterostichus (s. str.) **katashinensis** sp. nov.

"Katashina-naga-gomimushi"

Description. Length 16.7 mm. in holotype, 16.8 mm. in allotype, 16.5–19.0 mm. in paratypes (from apex of mandidles to apex of elytra); width 5.7 mm. in holotype, 5.6 mm. in allotype.

Black, shiny; palpi and tarsi dark reddish brown, three or four apical segments of antennae somewhat brownish, labrum, mandibles, apical half of lateral margin of elytra, and legs slightly reddish; underside almost black, but partially slightly reddish.

Head weakly convex; surface impunctate, with a few, more or less faint wrinkles; microsculpture weak, isodiametric; neck rather weakly constricted at lateral parts; temporae faintly tumid behind eyes, nearly as long as eyes; posterior supraorbital setae situated a little apart from eyes, on imaginary line connecting posterior margin of each eye; eyes small but rather convex, ommatidia distinctly visible on cornea; frontal furrows rather short, deep, somewhat diverging posteriorly; fronto-clypeal suture fine but distinct; apical margin of clypeus relatively weakly emarginate; antennae somewhat short, reaching basal one-fifth of elytra, segment 2 with one seta on dorsal side near apex in addition to lateral and ventral setae, basal three segments glabrous; tooth of mentum stout, conspicuously emarginate at apex.

Prothorax somewhat cordate, gently convex, widest at about one-third; in holotype (♂) slightly less than one-and-one-third times as wide as head, one-and-one-third times as wide as long, in allotype (♀) about one-and-one-third times wide as head and so much as wide as long; surface with relatively distinct transverse striations on disk and near basal foveae, with a few short, faint, longitudinal wrinkles at apico-central part, with faint scattered punctures on basal foveae and on outer area of basal foveae, punctures sometimes very faint and sparse; micro-sculpture generally faint, forming somewhat transverse meshes; apical margin gently emarginate at contral part, bordered except central part; apical angles somewhat prominent though rounded; base almost as wide as apex or slightly narrower, basal margin gently emarginate at central part, transverse

* The length of the prothorax is from the middle of the apical margin to the middle of the basal margin.

at lateral parts, unbordered; basal angles somewhat acute though weakly rounded at extreme tip; lateral sides taintly bordered, rather gently rounded, gently sinuate fairly before basal angles, thence almost parallel up to basal angles, with a few denticulations on parallel parts, last one near posterior marginal setae distincter; anterior marginal setae at about one-fifth, posterior setae somewhat before basal angles; median line fine, reaching neither extremity; anterior and posterior transverse impressions somewhat deep; basal foveae relatively deep.

Wings rudimental. Elytra almost flat, rather elongately rectangular, widest near middle ; in holotype one-and-one-fourth times as wide as and two-and-four-sevenths times as long* as prothorax, a little more than one-and-one-half times as long as wide, in allotype one-and-one-fifth times as wide as and two-and-one-half times as long as prothorax, one-and-four-sevenths times as long as wide; impunctate, not rugose; microsculpture in ♂ and ♀ rather faint, forming somewhat transverse meshes; basal border weakly oblique, but distinctly sinuate, adjoining lateral margin forming obtuse angle; shoulder somewhat distinct though fairly rounded; lateral side gently, almost straightly widened from behind shoulder up to widest part, thence rounded to apex, apical sinuation distinct, inner plica short; lateral explanate part or lateral channel rather narrow; apex very widely rounded, sometimes almost transverse to suture, sutural angle obtuse and somewhat pointed as small dull tooth, sometimes almost rectangular; striae fine but distinctly impressed; scutellar striole rather short, not reaching stria 1 at abex; intervals somewhat convex in ♂ and ♀, interval 3 with three to five setiferous pores, generally first one adjoining stria 3, others adjoining stria 2; basal umbilicate pore distant basal border, adjoining stria 1, but not stria 2; marginal series of pores more or less spaced at middle.

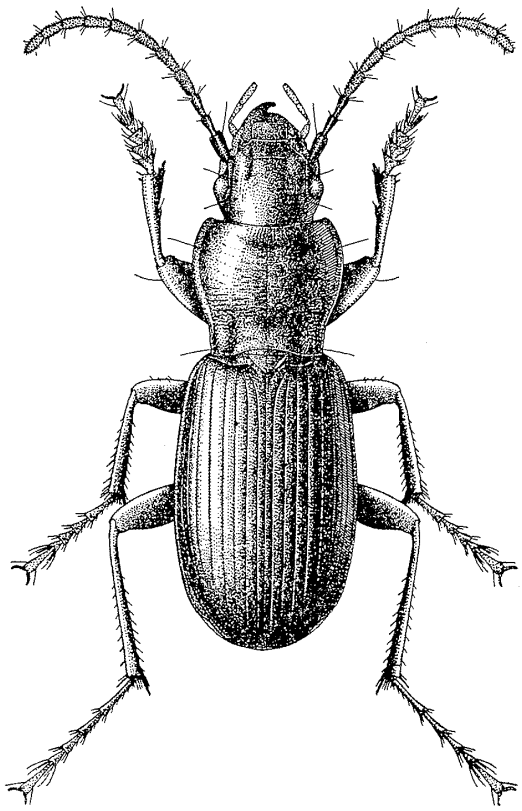

Fig. 1. *Pterostichus* (s. str.) *katashinensis* sp. nov. (holotype).

Mid and hind tarsi with three basal segments sulcate at outer side; segment 5 glabrous on underside.

Underside almost smooth, but mesoepisterna faintly punctate and lateral parts of ventral abdominal segments 1 and 2 generally with small, faint, scattered punctures; prosternal process shallowly sulcate in middle, apex unbordered; metepisterna as long as wide (front side as long as outer side), distinctly bordered at front side ; last ventral

*The length of the elytra is measured from the base of the scutellar striole to the apex of the elytra.

abdominal segment in ♂ (Fig. 4-A) distinctly concave in middle, apex bisinuate, right sinuation larger and deeper than left one and occupying almost contre of apical margin, central projection rather short and narrow, not fairly extending beyond both latero-apical angles, its apex somewhat reflexed dorsally, its apical margin straight though somewhat oblique; last ventral abdominal segment in ♀ rather distinctly concave along apical margin, with weak longitudinal carina in middle.

Aedeagus (Fig. 4-B) strongly curved, bending more than 90 degrees; apical lamella small, rather triangular, but extreme tip somewhat rounded; right paramere weakly curving, apical part narrow, ventral side somewhat dilated before middle, sinuate at middle.

Type locality. Gumma Prefecture, Central Honshu, Japan.

Types. Holotype: 1 ♂, Katashina, Gumma Prefecture, VIII. 6, 1956, A. Habu leg. Allotype: 1 ♀, the same locality, VII. 25, 1954, A. Habu leg. Paratypes: 1 ♂, 3 ♀♀, the same locality, VII. 25, 1954; 1 ♀, the same locality, VIII. 6, 1956; 1 ♂, Oze, Gumma Prefecture, VII. 24, 1954, A. Habu leg.

Remarks. This new species rather resembles *Pterostichus* (s. str.) *asymmetricus* Bates, but it may easily be distinguishable by the following characteristics: the size is a little larger; the temporae are less tumid; the prothorax is wider, with a surface more or less distinctly transversely rugose, and the lateral sides are less contracted posteriorly, with a few crenulations before the basal angles which are somewhat more prominent though slightly rounded at their extremities; the elytra are slightly flatter; the first and second ventral abdominal segments are generally with some faint punctures at the lateral areas (without punctures in *P. asymmetricus*), and the last segment in the male is with a narrower, less pointed central projection; the aedeagus is more strongly bending, with an apical lamella shorter and narrower, and the apex of the apical lamella is not widened, nor reflexed, but rather pointed.

Pterostichus (s. str.) **shiibanus** sp. nov.
"Shiiba-naga-gomimushi"

Description. Length 16.2 mm.; width 5.5 mm.

Black, shiny; palpi reddish brown, antennae, and legs dark reddish brown, labrum and mandibles slightly reddish; underside almost black.

Head gently convex; surface not punctate, not rugose; microsculpture faint, isodiametric; neck rather weakly constricted; temporae gently tumid, fairly longer than eyes; posterior supraorbital setae rather remote from eyes and somewhat remote from lateral fissures, on imaginary line connecting posterior margin of each eye; eyes rather small, gently convex, hind margin obscure, distinction of each ommatidium disappearing on cornea, so surface of eyes completely smooth, ommatidia visible only through transparent layer of cornea; frontal furrows very shallow, faint; lateral fissures distinct, ending a little beyond level of hind supraorbital setae; fronto-clypeal suture fine, faint; clypeus almost flat, apical margin gently emarginate; apical margin of labrum somewhat emarginate; antennae extending a little beyond shoulders, segment 2 with only one seta on ventral side, basal three segments glabrous; tooth of mentum stout, bifid.

Prothorax rather convex, widest near apical one-third; one-and-one-third

times as wide as head, one-and-two-sevenths times as wide as long; surface with a few obsolete wrinkles on disk, with distinct and somewhat rugose punctures on and near basal foveae and with several distinct but smaller, dense punctures on basal part of median line, with a few minute scattered punctures between basal foveae and median line; microsculpture faint, forming transversely wide meshes; apical margin sinuate, not bordered; apical angles somewhat protrudent, narrowly rounded; base as long as apex, basal margin distinctly emarginate at median part, gently oblique and slightly rounded at lateral parts, unbordered; basal angles slightly obtuse, somewhat rounded; lateral margin weakly bordered, gently rounded from behind apical angles to before basal angles, basal sinuation relatively weak, slightly denticulate between sinuation and basal angles, lateral explanate parts or lateral channels very narrow, especially narrower posteriorly; anterior marginal setae at one-fifth, posterior setae slightly before basal angles; median line fine but distinct, somewhat deep near base, obsoletely reaching apical margin, abbreviate before basal margin; anterior and posterior transverse impressions faint; basal foveae somewhat deep, areas between lateral margins and basal foveae slightly swollen.

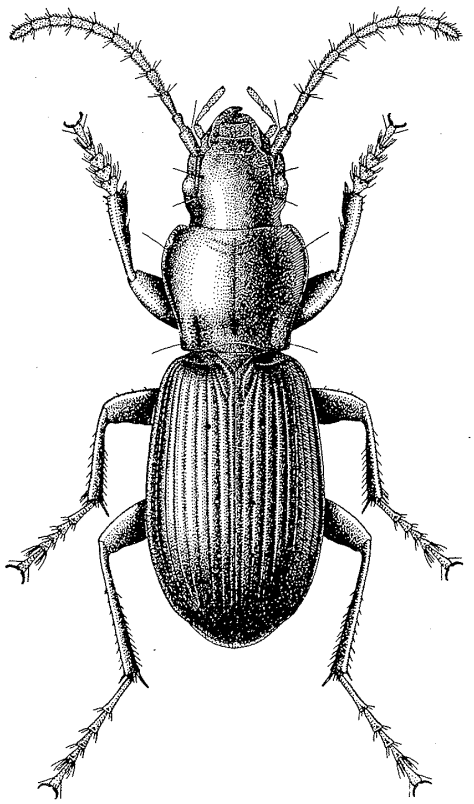

Fig. 2. *Pterostichus* (s. str.) *shiibanus* sp. nov. (holotype).

Wings rudimental. Elytra gently convex, elongately elliptic, widest slightly behind middle, each elytron completely fused with each other at suture; slightly more than one-and-one-fifth times as wide as and two-and-one-half times as long as prothorax, one-and-four-sevenths times as long as wide; impunctate; microsculpture relatively distinct, almost isodiametric; basal border weakly oblique, distinctly sinuate, adjoining lateral margin forming obtuse angle; shoulder slightly distinct; lateral margin gently, straightly dilated from behind shoulder to widest part, thence moderately rounded towards apex, apical sinuation distinct, inner plica short; lateral explanate part moderate in width; apex weakly pointed though somewhat rounded at extreme tip; striae deep, somewhat wide, faintly punctate, punctures relatively large, stria 1 arising from basal pore; scutellar striole united stria 1 at apex; intervals fairly convex, interval 3 with three pores at about one-fifth, middle, and two-thirds, first one adjoining stria 2, two others adjoining stria 3; basal umbilicate pore remote from basal border, adjoining stria 1; marginal series of pores somewhat interrupted at middle.

Mid and hind tarsi with three basal segments sulcate at outer side; segment 5 glabrous on underside.

Proepisterna with a few very faint punctures and with faint, longitudinal, short wrinkles at inner areas, mesosternum and mesoepisterna with rather distinct punctures, lateral parts of metasternum, metaepisterna, and lateral areas of three basal ventral abdominal segments with faint punctures; prosternal process with faint longitudinal furrow in middle, apex bordered; metaepisterna slightly wider than long, sulcate at front side; last ventral abdominal segment in ♂ (Fig. 5-A) simple, somewhat depressed at apical half, faintly swollen in middle, apical margin somewhat truncate.

Aedeagus (Fig. 5-B) short, stout, rather weakly bending, ventral side with deep concavity, right margin of ventral side deeply sinuate before apex, left margin widely explanate; apical lamella small, triangular, apex pointed; right paramere slightly curving, widely rounded at apex, narrowed at middle.

Type locality. Miyazaki Prefecture, Central Kyushu, Japan.

Type. 1 ♂, Shiiba, Miyazaki Pr., IX. 23, 1950, A. Habu leg.

Remarks. The faint frontal furrows, the small eyes without distinctions of each ommatidium on the cornea, the unbordered apical margin of the prothorax, the very narrow lateral explanate parts of the prothorax, the elytra fused with each other at the suture, the relatively wide and deep elytral striae, the prosternal process bordered at the apex, and the short stout aedeagus with a deeply concave ventral side, are the characteristics of this new species; I cannot find any allied species among *Pterostichus* (s. str.)-species of Japan.

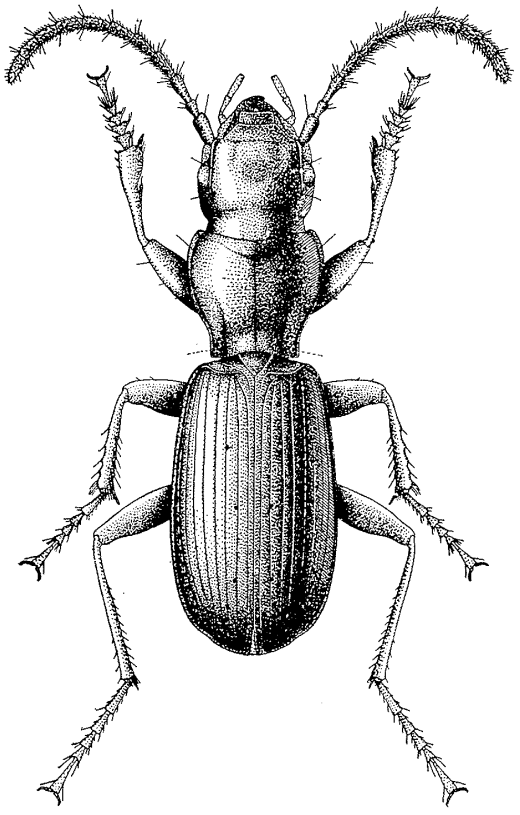

Fig. 3. *Pterostichus* (s. str.) *fujimurai* sp. nov. (holotype).

The smooth cornea without any distinctions of ommatidia of the compound eyes is also visible in *P.* (s. str.) *macrocephalus* Habu from Mt. Hiko, Kyushu, but in other characteristics this new species differs fairly from it.

Pterostichus (s. str.) **fujimurai**
sp. nov.
"Daisen-naga-gomimushi"

Description. Length 13.0 mm.; width 3.8 mm.

Black, shiny; buccal appendages, antennae and legs dark reddish brown; underside somewhat reddish. Head wide, convex; surface smooth, but scattered microscopic punctures visible near frontal furrows;

microsculpture faint, forming partially isodiametric, partially transverse meshes; neck-constriction relatively distinct; temporae fairly tumid, distinctly longer than eyes; posterior supraorbital setae inserted apart from eyes, behind line connecting posterior margin of each eye; eyes small, rather flat, combined width of each eye occupying a little less than one-fourth of maximum width of head including eyes, ommatidia visible on cornea; frontal furrows shallow; one round depression between eyes; lateral fissures distinct, ending near posterior supraorbital setae, narrow spaces between eyes and fissures somewhat carinate; fronto-clypeal suture somewhat deep; clypeus almost flat, apical margin faintly emarginate; antennae reaching about basal one-sixth of elytra, segments 1, 2 and basal half of segment 3 glabrous, segment 2 with one seta on dorsal side (Fig. 6-C); tooth of mentum stout, strongly emarginate at apex.

Prothorax cordate, nearly flat on disk, widest at apical one-fifth; one-and-one

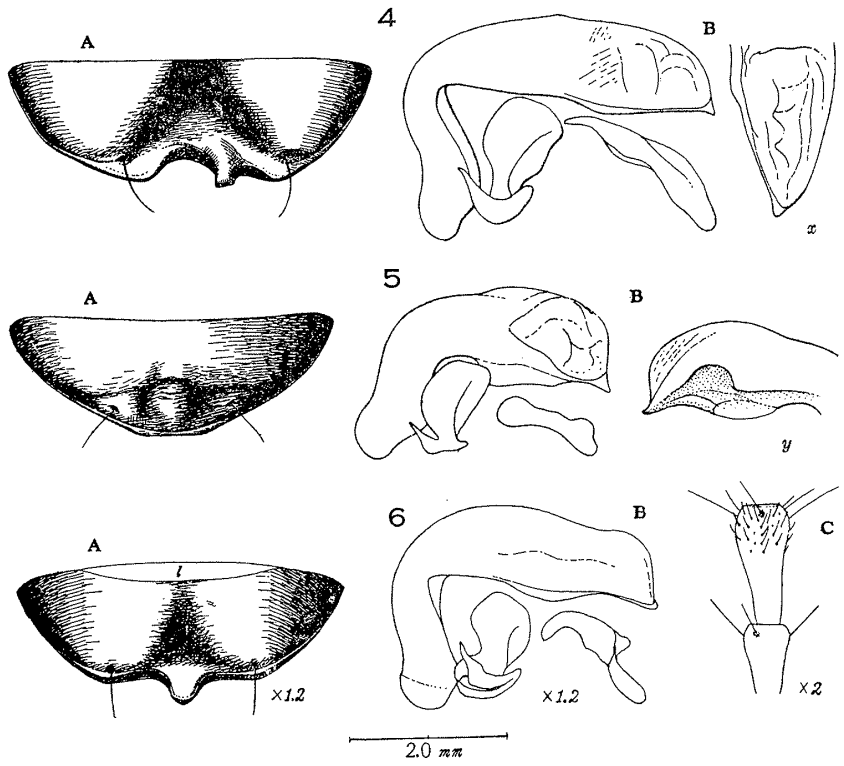

Fig. 4. *Pterostichus katashinensis* sp. nov.
Fig. 5. *Pterostichus shiibanus* sp. nov.
Fig. 6. *Pterostichus fujimurai* sp. nov.
A Apical ventral segment in ♂ (*l* lamina of penultimate segment).
B Aedeagus and parameres (*x* apico-dorsal part *y* apical part from rightside).
C Antennal segments 2 and 3.

-seventh times as wide as head, one-and-one-fourth times as wide as long; surface with some faint transverse striations on disk, with scattered punctures near basal foveae; microsculpture rather faint, forming transverse meshes; apical margin strongly emarginate, unbordered; apical angles well protrudent, narrowly rounded; base as wide as five-sixths of width of apex, two-thirds of maximum width; basal margin distinctly emarginate at middle, unbordered; basal angles rectangular though slightly rounded at extreme tip; lateral sides faintly bordered, strongly contracted posteriorly, fairly sinuate before basal angles, thence parallel up to basal angles, parallel parts faintly crenulate; anterior marginal setae at one-tenth; posterior pair somewhat before basal angles; median line rather deep, not reaching apical margin, but faintly attaining basal margin; anterior and posterior transverse impressions shallow; basal foveae rather shallow, areas between lateral margins and basal foveae somewhat depressed.

Wings rudimental. Elytra rather flat, elongately rectangular, widest near middle, each elytron fused with each other at suture; one-and-one-fifth times as wide as and two-and-three-fifths times as long as prothorax, one-and-three-fifths times as long as wide; impunctate; microsculpture faint, forming transverse meshes; basal border oblique, clearly sinuate, adjoining lateral margin forming fairly obtuse angle; shoulder rather distinct; lateral side weakly dilated up to widest part, apical sinuation rather faint, inner plica fairly short; apex almost rectangular; lateral channel narrow; striae moderately impressed, impunctate; scutellar striole rather short; intervals slightly convex, interval 3 with three pores at about one-fourth, middle, and three-fourths, front one adjoining stria 3, hind two adjoining stria 2; basal umbilicate pore relatively large, a little remote from basal border, adjoining striae 1 and 2; marginal series of pores somewhat interrupted at middle.

Femora relatively longer, hind femora a little longer than twice the length of hind trochanters; fore tibiae distinctly arcuate; mid tarsi with three basal segments distinctly sulcate at outer, inner and median parts, with segment 4 sulcate at only median part, hind tarsi with four basal segments distinctly sulcate at outer and median parts, spaces between sulci more or less carinate in mid and hind tarsi; underside of segment 5 glabrous.

Underside almost smooth, but proepisterna near fore coxae, mesosternum, mesoepisterna, metasternum near metaepisterna, and lateral parts of basal two ventral abdominal segments with several punctures; prosternal process with a shallow furrow in middle, unbordered at apex; metaepisterna as long as wide, sulcate at front side; penultimate ventral abdominal segment with transverse lamina (Fig. 6-A (*l*)) adjoining posterior margin; apical segment in ♂(Fig. 6-A) with one projection almost at centre of apical margin, projection distinctly bordered except apex, apex of projection rounded, faintly reflexed dorsally, right and left sinuations weak, right one slightly wider than left one, central foveae rather deep.

Aedeagus (Fig. 6-B) curving more than 90 degrees; apical lamella small, somewhat pointed and narrowly rounded at apex in dorsal view; right paramere distinctly bending before apex, apex not tapering but rounded.

Type locality. Tottori Prefecture, West Honshu, Japan.

Type. Holotype: 1♂, Mt. Daisen, Tottori P., VII. 14, 1956, T. Fujimura leg. I wish to name this interesting species in honour of Mr. T. Fujimura who found it.

Remarks. So far as I am aware, this species seems to be isolated among many *Pterostichus*-species of Japan, and I cannot indicate an allied species to compare with. The large head with small, rather flat eyes, the third antennal segment with hairs on its apical half, the cordate prothorax with unbordered apical margin, the narrower and longer elytra, the clearly arcuate fore tibiae, the tarsal segments with a sulcus in the centre besides lateral sulci, the penultimate ventral abdominal segment with a narrow lamina adjoining the posterior margin, the apical ventral abdominal segment in the male with almost symmetrical projection and weak sinuations, and the hook-shaped right paramere, are the main characteristics of this new species.

球角群甲虫2種の記録

神谷寛之

1. Danae taiwana Chûjô, 1938 タイワンダナエテントウムシ (Endomychidae).

1♂ 長崎市金比羅山 (Mt. Kompira, Nagasaki City, Kyûshû), 4. viii. 1957, 筆者採集保存.

中條道夫博士によつて台湾から記載された種で，従来まで本邦からの報告はないが，今回長崎で近縁種 *Danae orientalis* (Gorham, 1873) トウヨウダナエテントウムシダマシと共に，灌木濶葉樹の叩網によつて得ることが出来たので，本邦新記録として報告する.

2. Aulacochilus luniferus (Guérin-Méneville, 1841) ハスジカタビロオオキノコムシ (Erotylidae).

26 exs., 長崎市岩屋山 (Mt. Iwaya, Nagasaki City, Kyûshû), 3. viii. 1957, 田川宏及び筆者採集.

本種は台湾以南に汎く分布し，又，対馬 (白水隆，1942) にも産することが判明しているが，九州本土からははじめて記録されるものである. 台湾産及び対馬産の標本と比較した結果，指摘し得るような差異は見出せなかつた. 台湾，長崎，対馬という分布から九州西岸の他地方にも分布することが想像されるが，或いはキマダラカメムシ，モンタマムシ等と共に長崎地方の分布特異性を示す一例かもしれない.

尚，同行の田川宏氏は同日同場所で，*Aulacochilus japonicus* Crotch, 1873 ニホンカタビロオオキノコムシも採集しているが，本邦各地に普通の後者は長崎地方ではむしろ稀な種に属することは興味深い.

標本は一部づつを中條道夫博士，田川宏氏，九州大学農学部昆虫学教室及び筆者が保存する.

報告に当たり，御懇切な御指導を賜つた故江崎悌三，安松京三，中條道夫，白水隆各先生に深謝の意を表する.