Entomological results from the scientific survey of the Tokara Islands. VI. Coleoptera: Coccinellidae.

By Takehiko Nakane and Michiko Araki

As the first report of our studies on the lady beetles occurring in Japan, we published a paper on the Coccinellids of the Yakushima Island in the last year. The present paper is the second report of our studies and deals with the Coccinellidae of the Tokara Islands, which lie south of Kyushu between Yakushima and Amami-Oshima in series. The material, on which the present study is based, was collected during the Tokara scientific survey carried out in 1953, by Nakane, one of the authors, and other members of the survey. The type-specimens of new forms described here are preserved in the collection of the Osaka Municipal Museum of Natural History, as well as in Nakane's collection.

Before going further we wish to express our sincere thanks to Mr. Yoshitaka Tsutsui, director of the Osaka Municipal Museum of Natural History, and other members of the Tokara scientific survey for their kind help in offering us valuable material. We are also much indebted to the late Dr. Hiroharu Yuasa, Dr. R. Bielawski, Dr. A. P. Kapur, and our friends for their favourable assistance given during the course of our study.

Subfamily EPILACHNINAE

*Epilachna vigintioctopunctata* (Fabricius, 1775)


In our previous paper we reported this species as *E. sparsa orientalis* Dieke, 1947. The true specific name will be precisely discussed by Kapur, Zoological Survey of India, Calcutta, in the near future.

In some specimens from Tokara, the colouration of the body is somewhat lighter and the spots of the elytra are a little smaller than in others and the examples from the main islands of Japan. In one male (Nakanoshima, 13. VI. 1953, T. Nakane leg.) the 6th, 8th to 11th spots of elytra (after Mader's form) are entirely disappeared (ab. nakanana nov.–Type: 1♂), and in another male (data same as above) the 14th spot is absent.

*Epilachna boisduvali* Mulsant, 1850

Nakanoshima (4 ♀8 ♂ 4-12. VI. 1953, T. Nakane & O. Tsuzimoto leg.)

In the specimens from Nakanoshima the elytral spots are relatively smaller than in the figures in Dieke's monograph, the 1st spot is more rounded and not transverse, the 3rd is definitely farther from the suture than the 1st and 5th as in some Philippine specimens, and the 4th is not widened and simply rounded at inner end. The male genitalia are nearly identical with those figured by Dieke, but the sipho is less deeply emarginate at the tip and the apical curvature of tegmen is somewhat different in profile. We name this form from Nakanoshima subsp. *tokarana* nov. (Holotype-♂, allotype-♀, & 10 paratypes from Nakanoshima)

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Subfamily COCCINELLINAE

Scymnus (Pullus) rectus Ohta, 1929

Nakanoshima (♀ 3. VI. 1953, S. Miyamoto leg.)

Occurs also in Amami-Ohshima and Okinawa (Miyatake, 1959), as well as in Japan main islands.

Scymnus (Pullus) sodalis Weise, 1923


This species was reported from Amami-Ohshima and Okinawa by Miyatake (1959). The colour pattern of our examples agree well with the figure given by Miyatake. Femoral lines and genital organs are also similar, but the tegmen of the male is distinctly narrower and the parameres are a little more acuminate to the apex.

Scymnus (Pullus) takaraensis sp. nov. (Figs. 2, 3)

Reddish brown, with mouth organs, legs, apical sternite of abdomen, etc. more or less yellowish.

Oval, moderately convex and shining above, clothed with pallid hairs not closely. Head slightly convex, finely and not closely punctured. Prothorax about 1.8 times as wide as length along middle, disc finely and not so closely punctured but the punctures a little more distinct and closer than those on head, front margin slightly and plainly emarginate, basal margin arcuate-produced with very fine marginal line, sides slightly arched and gently converging forwards, narrowly margined. Scutellum small, triangular, bearing very minute punctures sparingly. Elytra slightly broader than prothorax at base, widest at about anterior third, coarsely and rather closely punctured, and very sparsely bearing very fine punctures among coarse punctures. Prosternum finely punctured and somewhat rugose, with a pair of fine carinae, which are gently converging forwards and reaching front margin of sternum. Mesosternum distinctly and rather closely punctured. Metasternum also fairly strongly and closely punctured. Femoral lines entire, slightly surpassing middle of the shortest part of 1st abdominal sternite. Abdomen finely and closely punctured and pubescent, but the punctures coarser and sparser on median part of basal sternite and the area enclosed by femoral lines rather narrow and moderately coarsely and not closely punctured.

Body length: 1.8 mm.


The present new species is rather closely allied to S. (P.) fusculus Boheman and S. (P.) hoffmanni Weise, but the body is smaller, unicolorous, the femoral lines are less extended to backwards, the space enclosed by femoral lines is rather coarsely and not closely punctured, and the spermatheca is less strongly bent in the middle.

Scymnus (s. str.) miyamotoi sp. nov. (Fig. 1)

Black, with mouth organs, antennae, front margin of pronotum, legs (except femora dark brown) and apical two sternites of abdomen reddish testaceous. Each elytron bearing a large elong ovate spot of reddish testaceous colour on disc, extending from just behind humeral prominence somewhat obliquely backwards to behind middle with outer margin slightly but broadly emarginate, and the spot separated by a narrow obscure dark brownish band from a small oblique spot near suture before apex which is margined with reddish testaceous colour, and between the antepical spot and apical red colour there is also a rather narrow dark brownish band.
Oval, rather strongly convex and shining above, clothed with pallid hairs which are suberect and rather short. Head slightly convex, rather finely but distinctly and closely punctured. Prothorax convex, nearly twice as wide as length along middle, disc of pronotum punctured as head but a little less closely, with front margin slightly and plainly emarginate and sublinear in middle, basal margin slightly produced in middle and finely margined, sides feebly arched and narrowly bordered, front angles rounded and hind ones very obtuse and rather broadly rounded, surface nearly smooth but with a trace of microsculpture. Scutellum triangular but its side angles blunt, with surface somewhat uneven, indistinctly bearing microsculpture. Elytra slightly wider than prothorax at base, widest at basal third, disc moderately coarsely and closely punctured, and the punctures finer at sides and before apex, humeral prominence rather marked. Prosternum roughly cibrate-pectinate on both sides, in middle with a pair of fine carinae, which are parallel between coxae and then slightly converging forwards to front margin of sternum. Mesosternum strongly, closely and rather coarsely punctured, with posterior suture scarcely traceable. Metasternum coarsely and densely punctured on both sides and the punctures on median area somewhat finer and less closely set. Femoral lines incomplete, reaching apical eighth of 1st abdominal sternite, with outer end turned upwards to middle but far apart from outer margin of abdomen. Abdomen closely and rather finely but strongly punctured.

Body length: 2 mm.


This new species resembles closely S. frontalis (Fabricius) ab. suffraniani Weise in the colour pattern of the body and in the extension of the femoral lines, but the apical margin of the elytra is bordered with reddish testaceous colour and the metasternum lacks a median longitudinal line.

**Scymnus (Nephus) phosphorus** Lewis, 1896

Takarajima (2 ♀ 26. V. 1953, T. Nakane leg.)

The specimens mentioned above are differing from those from the main islands of Japan in having the punctures of the upper surface being somewhat finer and sparser, and the genital plate of the female shorter and its inner basal angle less produced proximally. The elytral spots are orange yellow and not brownish, and in one example extending to before the middle of the elytra.

**Stethorus aptus** Kapur, 1948. (Figs. 4, 5)

Nakanoshima (1 ♂ 1 ♀ 4 & 12. VI. 1953, T. Nakane leg.)

This species was described by Kapur from Tygosal Island, Chusan Archipelago, China, and the description agrees fairly well with our specimens cited above, except the point that the punctuation of meso- and metasternum is coarse, impressed and close. We give here tentatively a subspecific name for our specimens and add a description in the following lines:

![Figures 1-5](image-url)
Subsp. tsutsuii nov.

Black, with anterior part of head, mouth organs, antennae, tibiae and tarsi testaceous or reddish, femora dark brown with knees testaceous, and trochanters dark reddish brown.

Breadly ovate, moderately strongly convex, shining, clothed with pallid suberect hairs above. Head finely and rather sparsely punctured, with surface smooth, front margin truncate but rounded on both sides. Prothorax strongly transverse, twice as wide as length in middle, disc of pronotum coarsely and closely ocellate-punctate, but the punctures much finer and sparser in middle, front margin broadly sublinear or feebly arcuate-produced, with angles rounded-produced forwards, sides linear, convergent forwards, but rounded in front, hind angles obtuse, basal margin arcuate-produced as a whole and slightly sinuate on both sides of median lobe. Scutellum small, triangular, not smooth, with a few minute punctures. Elytra moderately coarsely and closely punctured, with surface faintly shagreened. Prosternum longitudinally convex in middle. Mesosternum finely punctured. Metasternum coarsely and closely punctured at sides, and not closely, rather strongly but not coarsely so in middle broadly. Abdomen finely and closely punctured, with recumbent hairs, and the punctures on median area of basal sternite somewhat coarser but much sparser. Femoral lines entire, reaching a little beyond middle of basal sternite, and the area surrounded by lines punctured but rather broadly smooth along lines. Apical margin of sixth sternite emarginate at middle in male, and the sternite split in female.

Body length: 1.3 mm.


Cryptogonus orbiculus (Gyllenhal, 1808)


The discal spots of the elytra are relatively larger than in the specimens from the main islands of Japan, and placed and formed as in the figure 5-A of Kapur's revision (1948).

Pseudaspidimerus japonensis Nakane et M. Araki, 1958


This species occurs also in Yakushima.

In appearance very closely resembles the preceding species and the male genitalia are also similarly constructed, but the structure of prosternum is quite different and of the genus Pseudaspidimerus, and the siphon of the male genitalia differs in the curvature. The body is relatively smaller than in the preceding species.

Serangium tokaranum sp. nov.

Black or blackish brown, with head, sides and under side of prothorax, abdomen and femora reddish brown, antennae, mouth parts, tibiae and tarsi yellowish brown.

Nearly hemispherical, strongly shining above. Head convex, very finely and rather sparsely punctured, and sparsely hairy. Last joint of antennae thickened and elongate, about 2/3 as long as the rest joints combined, with apex obtusely pointed. Terminal joint of maxillary palpi dilated, securoform, with apex obliquely truncate. Pronotum very transverse, fully twice as wide as length in middle, finely, sparsely and irregularly punctured, but the punctures coarser on both sides of median longitudinal impunctate line, with surface sparsely hairy, front margin slightly arched in middle and sinuate on both sides, front angles very
obtuse and rounded, sides short, sublinear, very strongly convergent forwards, basal margin produced in middle and slightly sinuate on both sides of median lobe, hind angles obtuse but nearly rectangular. Scutellum small, longly triangular, with a few fine punctures. Elytra very finely, moderately sparsely punctured, sparsely hairy along lateral margins, humeral prominence small but distinctly raised. Prosternum finely punctured and hairy. Metasternum smooth and impunctate, with faint transverse wrinkles, and sides narrowly shagreened as metapleura. Femoral lines extend to just before hind margin of 1st abdominal sternite near outer margin and reaching apical fourth of outer margin, and the area surrounded by lines deeply hollowed. Abdomen nearly impunctate on 1st sternite, sparsely and finely punctured on 2nd to 4th, and distinctly and somewhat closely punctured and hairy on last sternite. Femora very strongly dilated, especially in front legs. Tibiae rather slender, gently widened to middle.

Body length: 1.8 mm.


The present new species is closely allied to *S. japonicum* Chapin, but the elytra are very finely punctured.

**Telsimia nigra** (Weise, 1879)

Nakanoshima (1♂ 3♀ 25. V. 1953, T. Nakane leg.)

Hitherto known from Japan main islands (Honshu and Kyushu).

**Telsimia chujoi** Miyatake, 1959

Nakanoshima (2♂ 3 & 13. VI. 1953, S. Miyamoto leg.)

Originally described from Okinawa for three female specimens.

The examples above-mentioned are considered to be identical with those from Okinawa, but somewhat immature.

**Chilocorus takara** sp. nov.

Closely similar to *C. kuwanae* Silvestri from Japan main islands, but may be easily distinguished from the latter by the following characteristics:

Form and colour quite identical with *C. kuwanae*, but the discal spots of elytra much larger. Surface of densely punctured head smooth and shining between punctures. Prosternum a little more coarsely and closely punctured. Metasternum more strongly and somewhat more closely punctured on both sides of median line, which is less defined than in *C. kuwanae*. Elytral epipleura more roughly punctured. In the male genitalia tegmen robuster and longer, nearly as long as parameres, and siphon more strongly curved and not so sinuate near apex.

Body length: 3.5−3.9 mm.


From the Yakushima Island a male example of *C. kuwanae* was collected by Y. Kurosawa (Kurio-Onoaida, 27. VII. 1952).

**Menochilus sexmaculatus** (Fabricius, 1781) (Figs. 6, 7)


Recently Miyatake (1959) reported *M. sexmaculatus* from Okinawa and *M. quadriplagiatus*
(Swartz, 1808) from Amami-Ohshima respectively, and presented figures of the genitalia of both species. We have examined the genitalia as well as the external structure and colour pattern of the specimens in our collection, which came from Honshu, Kyushu, Tokara Islands, Amami-Ohshima, Okinawa, Ishigaki Is., and Formosa. According to our investigation the genitalia of this group of beetles are variable and we cannot separate our examples in two distinct species. Therefore we have treated them as belonging to one species, *M. sexmaculatus*.

Miyatake stated that his specimens of *M. quadriplagiatus* are to be referred to the typical form or forma nigrofasciatus (Mader, 1935), and actually a few specimens in our collection from Amami-Ohshima belong either of the two forms. A third of the specimens from the Tokara Is. show also the colour pattern of f. nigrofasciatus (Mader), and a fifth of them are surely belonging to f. sexmaculatus (Fabricius). Five examples of the rest and a female from Ishigaki Is. are differing from f. nigrofasciatus in having the median transverse black fascia being narrow and more distinctly undulate, and the anterior red portion of each elytron bearing a small transverse spot or band of different width, which is isolated from surrounding black colour. We name this form *f. insularis* nov. (Types: 2♂ 1♀ 26. V. 1953, & 1♀ 31. V. 1953, T. Nakane leg. from Takarajima, & 1♂ 4. VI. 1953, O. Tsuzimoto leg. from Nakanoshima; 1♀ 3. VI. 1952, K. Sato leg. from Ishigaki Is.). In another example of Takarajima (♀ 26. V. 1953, T. Nakane leg.) the small transverse black spot in anterior red portion is connected with a broad longitudinal branch of the median black fascia, and in the last one (♂ Nakanoshima, 4. VI. 1953, O. Tsuzimoto leg.) the spot developed in a wider transverse band reaching the sutural black colour inwardly and its outer end jointed the median fascia by a narrow longitudinal stripe, and the posterior red portion divided into a large inner spot and a small elongate one along outer margin, and the last form is considered to be near ab. *diversijuncta* (Mader, 1935).

*Verania discolor* (Fabricius, 1798)

Takarajima (6♂ 10♀ 26. V.–1. VI. 1953, T. Nakane leg.); Nakanoshima (1♂ 25. V. 1953, S. Miyamoto leg.)

Rather commonly found at Takarajima. It occurs also in Kyushu (after Lewis), Yaku-shima, Amami-Ohshima, Okinawa, Formosa and China.

*Lemma biplagiata* (Swartz, 1808)


Occurs also in s. Kyushu, Yakushima, Amami-Ohshima and Formosa.

*Propylaea japonica* (Thunberg, 1781)


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Of the specimens cited above one is clearly referable to the typical form, four are belonging to f. dionea (Mulsant, 1856), and one has the pattern of f. feliciae (Mulsant, 1866).

*Coccinella septempunctata* Linné, 1758
Takarajima (4♂3♀ 26, 29 & 31. V. 1953, T. Nakane leg.); Nakanoshima (5♂7♀ 4-12. VI. 1953, S. Miyamoto, T. Nakane & O. Tsuzimoto leg.)

Most of the specimens collected during the survey are referred to the subspecies *bruckii* Mulsant, 1868, though a few are clearly showing the pattern of the typical *septempunctata* Linné.

*Harmonia axyridis spectabilis* (Faldermann, 1835)

All the specimens from the Tokara Islands have the anterior discal spot of elytra decidedly larger, and the posterior spot variable in size and often entirely evanescent. The anterior spot is usually narrowed inwards with its anterior margin oblique, and sometimes joined with the posterior spot longitudinally. The posterior spot is usually small but in one example moderately large. According to Tan and Li (1932-33) such a colour pattern of this species is found in some Chinese examples.

*Harmonia octomaculata* (Fabricius, 1781)
Takarajima (1♀ 29. V. 1953, T. Nakane leg.)
The above example belongs to *f. duodecimnotata* (Fabricius, 1801)

Lewis (1893, '96) recorded this species from Nagasaki, Kyushu, and recently we reported from Yakushima and Miyatake (1959) noted on the specimens from Amami-Ohshima and Okinawa. It is widely distributed throughout the Oriental region and New Guinea.

*Ileis koebelei* Timberlake, 1943
Nakanoshima (2♀ 4. & 6. VI. 1953, S. Miyamoto & T. Nakane leg.)
Recently Miyatake described a subspecies of this species from Amami-Ohshima. We cannot confirm whether our two female examples are belonging to the typical *koebelei* or the subspecies *amamiana* Miyatake, 1959.

**摘要**

本報は我々の探検調査の分析研究の第2報であり、同時にトカラ諸島科学調査の昆虫類報告第6報である。トカラ諸島でえられた昆虫は22種を数し、その中の4種は新種と認められるのでここに記載した。又、別に2新亜種及び2新亜を命名した。それらは次の如くである。

*Epilachna vigintipectinata* (Fabr.) ab. *nakanana* nov.
E. *boisdewalti* Muls. subsp. *tokarana* nov.
*Scymnus (Pellis) takaraensis* sp. nov.
S. (s. str.) *miyamotoi* sp. nov.
*Stethorus aptus* Kapur subsp. *insutisi* nov.
*Serangium tokaraicum* sp. nov.
*Chiloecorsis takara* sp. nov.
*Monochilus sexmaculatus* (Fabr.) f. *insularis* nov.

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POSTSCRIPT

In the meantime two papers on the Coccinellids of Japan and the Lcchoos appeared in 'Konyû' Vol. 27, No. 2, in which H. Kamiya described three species of *Chilocorus* and one species of *Stethorus* as new.

*Stethorus japonicus* H. Kamiya from Japan is very intimately related to our *S. aptus tsutsuii*, but the punctuation of the upper surface of body is a little coarser and that of the under side (excluding prosternum and elytral epipleura) is coarser and closer and especially stronger on abdomen, and the siphon of the male genitalia is apparently narrower.

*Chilocorus takara* Nakane et M. Araki is considered to be a form of *C. esakii* species-group and most closely similar to *C. amamensis* H. Kamiya, but the discal red spots of elytra are relatively smaller, the punctuation of head is coarser as in *C. esakii* H. Kamiya and the tegmen of the male genitalia is more slender with the sides less rounded and the apex more pointed. A male example from Nakanoshima is rather more closely allied to *C. esakii* in the size of discal spots, the punctuation of head and the extent of microsculpture at the sides of pronotum, but the elytral spots are less rounded and the tegmen of the male is nearly the same as that of other males from Takarajima.

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