ON THE GENUS *SERICODA* FROM JAPAN
(Carabidae, Coleoptera)

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In the course of this study, Mr. Akira Yoshida lent me some literature of his rich library and gave me valuable advices and encouragement; Mr. Yoshihiko Kurosawa of the National Science Museum of Tokyo allowed me to access to the library and collection of the museum and Mr. Rin-ichi Kawasaki of the Research Division of Yokohama Plant Protection Station also to its library; Messrs. Akira Katô, Yasumi Karasawa, Shigeru Eda and Taichi Shibata generously offered their collections to my study. I wish to express my deep appreciation for their courtesies.

Genus **Sericoda** Kirby

Kirby, 1837, Richardson's Fauna Bor. Amer. IV, p. 14, (not seen); Hatch, 1953, Beetles Pac. Northw. I, p. 139 (Subg. of *Agonum*).

Tanystola, Reitter, 1907, Wien Ent. Zeit. XXVI, p. 63 (Subg. of *Agonum*) (nec Motschulsky).

Agonodromius Reitter, 1908, Fauna Germ. Käfer I, p. 139 (Subg. of *Agonum*); Csiki, 1931, Col. Cat. II, Carab. II, (pars 115), p. 822 (Subg. of *Agonum*); Jeannel, 1942, Faune Fr. 40, Col. Carab. II, p. 872.

Species of small size, winged, black, (bicoloured in one species of North America, *variolata* Le Conte, ex Hatch, 1953); surface most often covered with strong microsculpture. Head with 2 pairs of supraorbital pores; clypeus and labrum truncate or slightly emarginate; frontal furrows shallow and short; widely separated from each other; lateral grooves fine; eyes large and well convex, adjoining buccal fissure; temporae very short, not swollen; mentum with a simple tooth; palpi rather stout, vestigially pubescent, apical joint fusiform, in maxillaries much longer than penultimate; antennae densely pubescent from joint 4. Prothorax with 2 pairs of marginal pores, front one just before the widest part, hind one on the angle; apical margin bordered except at middle, the angles rounded; lateral margins bordered, the borders widened and reflexed behind, the grooves consequently deepened and widened behind; basal margin fairly produced backwards, unbordered, the angles very obtuse but evident: disk with a pair of foveiform depression, shallow, sometimes obsolete (variable individually); apical transverse impression variable individually; median line fine but distinct: basal fovea one on each side, deep and wide, merged with lateral groove. Elytra bordered at base; shoulders distinctly advanced and convex, the angles rounded off; lateral borders fine, constant up to apex; striae fine, macroscopically smooth; striole on interval 1; basal pore variable with species, dorsals on interval 3, 1st one adjoining stria

3, others stria 2; a preapical on stria 7 before apex, an apical on marginal groove about at apex of stria 2, marginals not specialized but often 6th pore more or less isolated. Underside: prosternal process unbordered, rounded, the vertical side more or less contracted towards base; metasternal process bordered; metepisterna long, bordered along front and inner margins; apical ventral segment 2-setose in ♂, 4-setose in ♀. Legs slender; protibia without bristle between 2 setae placed on underside of apical outer angle; tarsal joint 4 only slightly emarginate at middle of apex; basal 2 or 3 joints of meso- & metatarsi bisulcate on upper side but inner sulcus more or less reduced; protarsi ♂ with basal 3 joints a little dilated and biseriately squamose beneath; all tarsal joints with a row of setae on each side beneath, but joint 1 of meso- & metatarsi with additional ones. Genitalia ♂ comparatively small, parameres setose at apex, the number of the setae variable individually.

Range. Palae- & Nearctic Regions, Philippines, Thibet, India, Central America.

The Japanese *Sericoda* is composed of 3 species, only one, *quadripunctata*, has been known, the second, *bogemanni*, is recorded here for the first time, the third is new to science. The former 2 species are circumpolar and well known in Europe and North America though seem to be very rare, but in Japan both are hardly known, so I give below detailed descriptions based on Japanese examples.

Key to the species

1 (2) Elytra with dorsal pores accompanied with a conspicuous fovea respectively, intervals 2, 4, and 6 not wider than the others. Elytra with a basal pore at base of stria 1; apical sinuation deep ····· *quadripunctata* De Geer

2 (1) Elytra with dorsal pores not accompanied with fovea; intervals 2, 4 and 6 wider than the others.

3 (4) Smaller; elytra convex, shining, with a basal pore at base of stria 1; apical sinuation slight ····· *karasawai* sp. nov.

4 (3) Larger; elytra flat, alutaceous, without basal pore, apical sinuation deep ····· *bogemanni* Gyllenhal

Sericoda quadripunctata De Geer (Figs. 1 & 4)

De Geer, 1774, Mem. Ins. IV, p. 102 [*Carabus*],—Europe sept., (not seen); Morawitz, 1863, Mém. Acad. Imp. Sci. St.-Pétersb. (7) VI, 3, p. 43 [*Anchomenus* (*Agonum*)], —Konoma-Rücken, Yesso=Hokkaidô; Tschitscherine, 1893, Horae Soc. Ent. Ross. XXVII, p. 363 [*Anchomenus* (*?Agonum*)]; Csiki, 1931, Col. Cat. II, Carab. II, (pars 115), p. 823 [*Agonum* (*Agonodromius*)]; Jeannel, 1942, Faune Fr. 40, Col. Carab. II, p. 873, f. 298 a, b [*Agonodromius*]; Hatch, 1953, Beetles Pac. Northw. I, p. 140, pl. 25, f. 5 [*Agonum* (*Sericoda*)]; Ishihara, Miyatake, Hisamatsu, Edashige & Sasaki, 1953, Trans. Shikoku Ent. Soc. III, Suppl., p. 58 [*Agonodromius*],—Jôjusha, Shikoku; Lindroth, 1954b, Coleopterists' Bull. VIII, 2, p. 43 [*Agonum* (*Agonodromius*)].

As to the literature between De Geer and Csiki, see the latter; Morawitz and Tschitscherine quoted above were neglected by him, the former recorded this species from Japan for the first time.

The following synonyms were reproduced from Csiki (1931).

foveolata Illiger, 1801, Mag. Insektenk. I, p. 61.
cuprata Sturm, 1824, Deutschl. Ins. V, p. 218, t. 137, f. b, B.
quinquepunctata Letzner, 1851, Zeitschr. Ent. Breslau V, p. 175.
tibialis Letzner, l. c.
octocola Mannerheim, 1853, Bull. Soc. Nat. Mosc. XXVI, iii, p. 144.
stigmosa J. Leconte, 1854, Proc. Acad. Nat. Sc. Philad. p. 58.
ambigua Mäklin, 1857, Ent. Zeit. Stettin XVIII, p. 338.
nigrosericans Heller, 1923, Philippine Journ. Sci. XXIII, p. 298.

Length[1]: 5⅕–5½ mm. Width: 2–2¼ mm. Body only little convex, black, apex of mandibles ferruginous. pro- & mesotrochanters flavous; upper surface impunctate, covered with strong microsculpture, head and prothorax alutaceous with isodiametric (partly slightly transverse on disk of the latter) microreticulation, elytra sericeous with transverse and rather irregularly arranged one, in addition to this, surface of elytra uneven, thus it is mottled with different lustres; underside moderately shining with moderately impressed transverse microreticulation. Head (1–1.1 mm. wide) with frontal furrows superficial, accompanied with two fine (sometimes obsolete) longitudinal carinae and grooves on outer side; temporae ⅕–¼ as long as eye; hind supraorbital pores just behind post-eye level; neck slender; submentum 4-setose, the outer pair very small; apical joint of labial palpi about as long as penultimate; antennae long, nearly filiform (6th joint 2⅖ times as long as wide), joint 1=3=4, joint 2 unisetose. Prothorax rugose finely on disk and strongly at margins, ⅓ wider than long, widest at apical third, ⅕–¼ wider than head; apical margin shallowly emarginate, the angles not or a little produced; lateral margins arcuate, but very shortly and very slightly emarginate just before basal angle, the grooves shallow in apical half; basal margin strongly arcuate, the angles evident as a blunt projection breaking the continuity of lateral and basal borders. Elytra oblong, ½–⅗ longer than wide, widest at about middle, 3¼–3⅓ times as long and 1⅗ times as wide as prothorax; shoulders fairly advanced; side-borders regularly arcuate; striae shallow, deeper at base and apex, indistinctly punctulate or crenulate; intervals not convex; dorsal pores 3–5, marginals 13–15. Underside of thorax smooth, metepisterna twice as long as wide; abdomen vestigially pubescent. Claw-joints 2- or 3-setose on each side beneath. Genitalia ♂ (Fig. 4): median lobe thick, simply arcuate in lateral view, basal bulb without flap, but carinate along median line; parameres 1- or 2-setose.

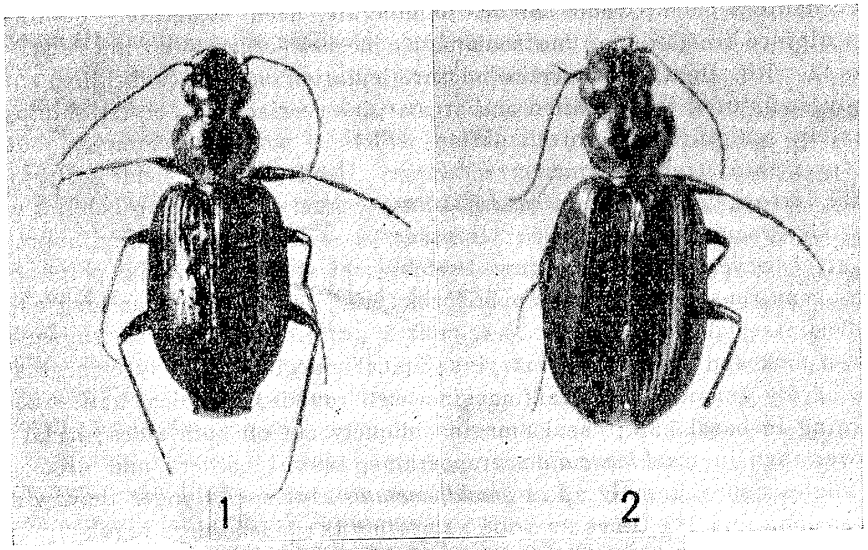
Specimens examined. 1♂, Mt. Mitsumine, Kantô Mountain-range, Honshû (June 5, 1955, S. Eda), in coll. Eda; 1♂, Mt. Inamura, Kii Mountain-range, Honshû (Aug. 13, 1958, T. Shibata), in coll. Tanaka; 1♂, Mt. Ishizuchi, Shikoku (July 13, 1953, A. Katô), in coll. Tanaka; 1♂, Osti n. L., Telnice, Europe (1950, J. Strejček), in coll. Tanaka, through Dr. M. Fassati.

Distribution. Palaearctic & Nearctic Regions, Thibet, India, Philippines; Japan: Hokkaidô (ex Morawitz), Honshû, Shikoku.

The Japanese three examples are fairly well identical with a European one, except their sericeous lustre of elytra. Heller's *nigrosericans* (from Philippines)

1) Including mandibles. 5–5.5 mm. auct.; 4–5 mm. Preudomme de Borre, 1879: 64; 4.5–4.7 mm. Hatch, 1953; 139.

synonymized with this species by Andrewes (1926) also has, according to Heller's description, the sericeous elytra, but this may not be a local variation but will probably be one of the individual variations of this extremely variable species. I examined genitalia of all three ♂-examples mentioned above; the left paramere of all three and the right one of two (Mt. Inamura & Europe) bear only one seta, the right paramere of one (Mt. Ishizuchi) bears 2 setae; in other respects, they well correspond with each other, thus, against inconsistency of median lobe



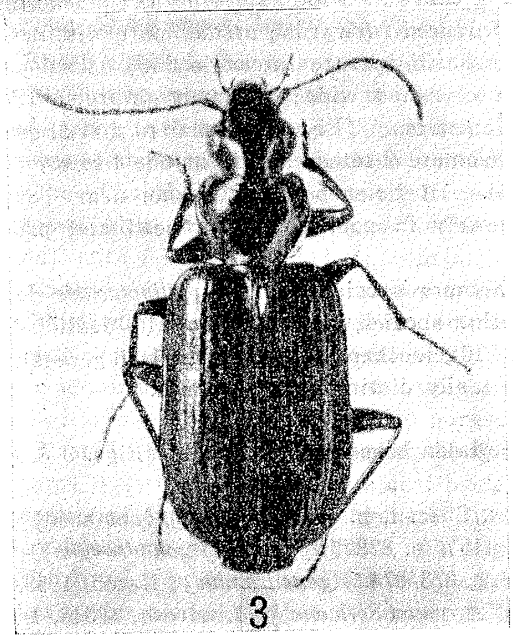


Fig. 1. *Sericoda quadripunctata* De Geer.
Fig. 2. *S. karasawai* sp. nov.
Fig. 3. *S. bogemanni* Gyllenhal. (× 8)

between Jeannel's figure (l. c.) and mine, I have no hesitation in referring the Japanese examples to *quadripunctata.*

Sericoda karasawai sp. nov. (Figs. 2 & 5)

Length: 5⅔ mm. Width: 2¼ mm. Body moderately convex, black, apex of mandibles ferruginous, palpi, legs and underside more or less brownish, mentum, coxae and trochanters paler; whole surface impunctate, head moderately shining with microsculpture consisting of fine isodiametric meshes (of irregular lines on clypeus), prothorax with slightly transverse microreticulation on disk (subshiny) and with strongly sculptured isodiametric one at margins (coriaceous), elytra shining with moderately sculptured microreticulation which is partly isodiametric but most often fused into strongly transverse meshes. Head (1.15 mm. wide) with frontal furrows narrow, deeper than in *quadripunctata*, vaguely bifurcating behind, without carina nor groove on outer side; temporae ⅕ as long as eye; hind supraorbital pores at post-eye level; submentum 4-setose; apical joint of labial palpi about as long as penultimate; antennae subfiliform (6th joint 2⅖ times as long as wide), basal 3 joints glabrous, joint 1<3≒4, joint 2 unisetose. Prothorax rugose rather finely on disk and strongly at margins; apical margin shallowly emarginate, the angles hardly advanced; lateral margins well rounded in apical half, straightly converging in basal half; basal margin obliquely cut on both sides; basal foveae shallower than in *quadripunctata*; proportions, lateral borders and grooves, and basal angles approximately as in *quadripunctata.* Elytra ⅗ longer than wide, 3½ times as long and 1⅔ times as wide as prothorax; sideborders regularly arcuate; shoulders strongly produced forwards; striae more distinctly impressed than in *quadripunctata,* constant throughout; intervals flat; dorsal pores 3, marginals 15. Metepisterna twice as long as wide; abdomen glabrous. Claw-joints 2-setose on each side beneath. Genitalia ♂ (Fig. 5) similar to that of *quadripunctata,* but much more slender, left paramere 2-setose and right one 4-setose (most likely variable).

Specimen examined. 1♂-holotype, Mt. Takao, near Tokyo (Apr. 29, 1956, Y. Karasawa), unfortunately in poor condition, head and prothorax split; in coll. Karasawa.

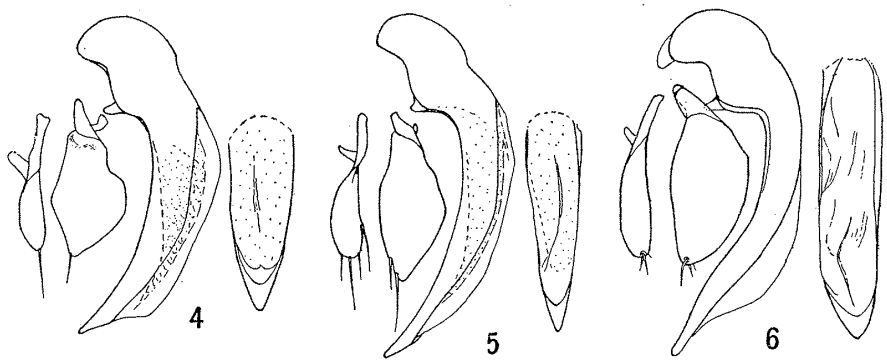
In East Asia, one more species occurs: *philippinensis* Jedlička, 1935 [*Agonum* (*Agonodromius*)], in this species, according to Mr. Jedlička's description, "Halsschild breitmaschig, Flügeldecken fast isodiametrisch genetzt;" by these characters *S. karasawai* may be easily distinguished from it.

Sericoda bogemanni Gyllenhal (Figs. 3 & 6)

Gyllenhal, 1813, Ins. Suec. I, p. 697 [*Harpalus*], (not seen); Csiki, 1931, Col. Cat. II, Carab. II, (pars 115), p. 823 [*Agonum* (*Agonodromius*)]; Jeannel, 1942, Faune Fr. 40, Col. Carab. II, p. 873, 874 [*Agonodromius*]; Hatch, 1953, Beetles Pac. Northw. I, p. 139, pl. 25, f. 3 [*Agonum*(*Sericoda*)]; Lindroth, 1954a, Bull. Mus. Comp. Zool. Harvard Coll. CXI, 3, p. 138, 139 [*Agonum* (*Agonodromius*)]; ——, 1954b, Coleopterists' Bull. VIII, 2, p. 43 [l. c.];——, 1955, Opusc. Ent. XX, 1, p. 21 [l. c.].

As to the references between Gyllenhal and Csiki, see the latter. The following synonyms were picked up from Csiki and Lindroth.

? morio Duftschmidt, 1812, Fauna Austr. II, p. 252.
obsoleta Say, 1823, Trans. Amer. Philos. Soc. II, p. 57.
luctuosa Dejean, 1828, Spec. gén. Col. III, p. 172.
placida J. Leconte, 1848, Ann. Lyc. Nat. Hist. New York, IV, p. 227, (nec Say).
strigicollis Mannerheim, 1852, Bull. Soc. Nat. Mosc. XXV, ii, p. 294.
borealis Motschulsky, 1864, l. c., XXXVII, iv, p. 319.
insulina Casey, 1920, Mem. Col. IX, p. 97.
indiviosa Casey, l. c.
tacomae Casey, l. c., p. 98.



Male genitalia. (×45)
Fig. 4. *Sericoda quadripunctata* De Geer.
Fig. 5. *S. karasawai* sp. nov.
Fig. 6. *S. bogemanni* Gyllenhal.

Length[2]: 7–7¼ mm. Width: 2¾ mm. Body depressed, black, apical half of antennae and underside of posterior body piceous, pro- & mesocoxae and trochanters brown; upper surface scattered with microscopic punctures, head and prothorax shiny with lightly impressed microsculpture which is consisted of isodiametric meshes on head and margins of prothorax, of moderately transverse ones on disk of prothorax, elytra alutaceous with strongly impressed isodiametric microreticulation. Head (1⅓ mm. wide) with frontal furrows superficial, vaguely bifurcating behind, sometimes with a slight carina and a fine groove on outer side; temporae about ⅓ as long as eye; hind supraorbital pores just behind post-eye level; lateral grooves deep behind; neck slender; submentum 2-setose; apical joint of labial palpi a little longer than penultimate; antennae short, subfiliform (6th joint 2⅓ times as long as wide), with basal 3 joints vestigially pubescent, joint 1<3>4, joint 2 bi- or trisetose. Prothorax transversely rugose, ¼–3/10 wider than long, widest at about apical third, ¼ wider than head; apical margin emarginate, the angles a little advanced; lateral margins gently arcuate in front and straight behind, the grooves deep; basal margin well arcuate, the angles evident though not protrudent; basal area limited in front by a transverse furrow. Elytra quadrate, ⅗ longer than wide, widest behind middle, 3⅗ times as long and 1⅔ times as wide as prothorax; side-borders slightly sinuate before middle; shoulders less

2) 6.5-7 mm. Ganglbauer, 1892: 255; Reitter, 1907: 63, 1908: 139; 5.5–6.5 mm. Blatchley, 1910: 133; 6.5–8 mm. Jeannel, 1942: 873; 5.5–6.7 mm. Hatch, 1953: 139.

advanced than in the preceding 2 species; striae fine and shallow throughout, microscopically crenulate; intervals slightly convex, partly flat; dorsal pores 3, sometimes 2, marginals 15–16. Sides of metasternum sometimes with vestigial punctures; metepisterna 2½ times as long as wide; abdomen vestigially pubescent. Claw-joints 3- to 5-setose on each side beneath. Genitalia ♂ (Fig. 6): median lobe elongate, slightly curved above at apex; setae of parameres shorter than those of the preceding 2 species, left one with 1 or 2 setae, right one with 2, sometimes an additional minute seta present.

Specimens examined. 1♂, Mt. Daisetsu (Aizankei), Hokkaidô (July 17, 1953, Y. Kurosawa), in coll. Nat. Sci. Mus. Tokyo; 1♂, Ashibetsu, Hokkaidô (Aug. 18, 1956, A. Oikawa), in coll. Tanaka, through A. Katô.

Distribution. Palaearctic & Nearctic Regions, Central America; Japan (new record): Hokkaidô.

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————, 1908. Fauna Germanica, Käfer I.

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