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NOTES ON SOME SPECIES OF HYDROPHILIDAE IN JAPAN (INSECTA, COLEOPTERA)

By

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Abstract

Available specimens of Japanese species belonging to the genera *Anacaena* and *Crenitis* are examined and compared with examples of two European species. A key to the genera and species of *Crenitis-Anacaena* group is provided and status of genera is discussed. New taxa proposed are as follows : *Crenitis* subg. *Acrenitis* and *Anacaena* subg. *Aparacymus*, and *Crenitis* (*Acrenitis*) *neglectus*.

Key words: *Anacaena* *Crenitis* Hydrophilidae Japan Key New taxa.

Introduction

The two genera treated here, *Anacaena* and *Crenitis*, are belonging to the tribe Hydrobiini of the subfamily Hydrophilinae and comprise small-sized species of 2 to 4 mm long, which are rounded or oblong elliptic in form. The species of the genus *Crenitis* are distributed over North America, Siberia and Europe, and those of the genus *Anacaena* in Eurasian and American continents and reported from New Zealand.

As to the species of two genera in Japan Nakane (1954) first reported *Anacaena limbata* from Ozegahara, and then he (1963 & 1966) described *Anacaena japonica*, *A. hokkaidensis* and *Crenitis osawai* with the subspecies *tokaranus*. After rather long vacant period Satô (1982) described *Anacaena asahinai* obtained during the 2nd scientific survey of the Ozegahara moor. He considered *Anacaena limbata* previously reported by Nakane to be *A. japonica*, and transferred this and *A. hokkaidensis* to the genus *Crenitis* owing to their close resemblance to *C. moratus* Horn of North America. Further he (1985) treated *Anacaena hokkaidensis* as subspecies of *A. japonica*. Nakane (1984) suggested that *A. limbata* reported by him might be *A. asahinai* and not *A. japonica*.

Material and method

The material used in this study is almost exclusively in the collection of Nakane now preserved in our laboratory. Two specimens of *Crenitis punctatostriatus* were sent on loan

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from Mr. M. E. Bacchus, Department of Entomology, British Museum (Natural History), to whom we are deeply grateful. Dr. A. G. Shatrovskiy kindly sent us three specimens of *Anacaena limbata* and we are also thankful to him. As we were unable to examine any specimen of *Anacaena asahinai* we simply followed Sato's description.

The specimens were carefully examined and compared with each other as usual. Main characteristics of the genera appeared in the literature were checked in relation to our species.

Results obtained

The material studied contains four species and a subspecies clearly belonging to two species-groups, of which one species seems to be new to science. Both species-groups do not exactly coincide in characteristics with the typical species of the genera *Anacaena* and *Crenitis*.

Descriptions of new taxa

Crenitis (Acrenitis) neglectus Nakane et Matsui sp. nov.

Black, with lateral margings of prothorax yellowish brown, mouth organs and palpi blackish brown.

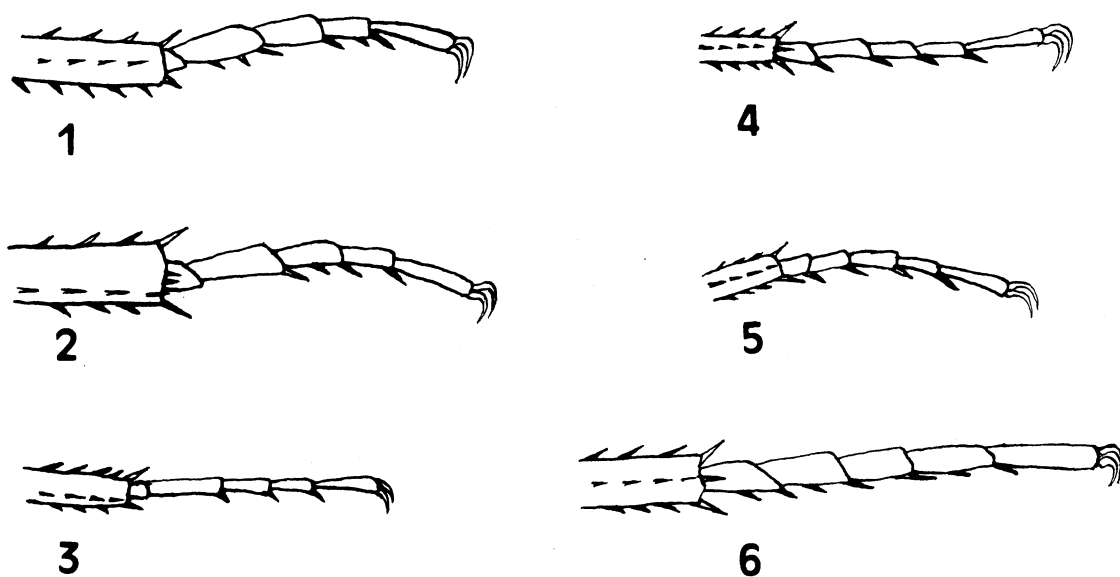
Oblong oval and rather weakly convex above.

Head transverse, trapezoidal, narrowed to apex, where it is broadly truncate, the surface strongly and rather closely punctured. Clypeus convex at middle anteriorly ; frontal suture arched and weakly impressed ; vertex with a pair of feeble impressions, which are extending to the suture in front. Eyes of usual size, prominent laterally and divided by a little more than twice their diameter. Antennae 8-jointed ; 1st joint elongate and stout, 2nd stout but shorter than 1st, 3rd nearly as long as 2nd but very thin, slender and obconical, 4th and 5th very short, 5th widened and distinctly transverse ; apical three joints forming a loosely articulated club, 6th and 7th subequal and slightly transverse, and 8th large, twice as long as 7th and oval. Maxillary palpi rather short and stout ; terminal joint subcylindrical, somewhat narrowed on both ends and a little longer than 2nd, 3rd shorter than 2nd, which is thicker than apical.

Pronotum strongly transverse, twice as wide as long (37 : 19), convex, rounded and gently narrowed in front and behind ; front angles not very broadly rounded ; hind angles broadly rounded ; front margin weakly bisinuous ; hind margin with the median lobe slightly arcuate-produced ; lateral margins broadly explanate, especially behind ; disk strongly and not closely punctured, with a pair of indistinct oblique impressions at base. Scutellum small, triangular and flattened, with a few punctures.

Elytra moderately convex, vaguely striate, strongly subseriately punctured ; each with a sutural stria, which is evanescent in anterior third.

Under side microsculptured, opaque and pubescent. Prosternum short and strongly transverse, with the median area nearly flattened. Mesosternum weakly convex longitudinally along middle, not carinate. Metasternum bearing an oblong polished space at



Figs. 1-6. Tarsi of hind legs. 1. *Anacaena japonica*, 2. *Anacaena hokkaidensis*, 3. *Anacaena limbata*; 4. *Crenitis osawai*, 5. *Crenitis osawai tokaranus*, 6. *Crenitis punctatostriatus*.

middle behind. Four anterior femora pubescent on basal half; hind femora very sparsely and finely punctured, not pubescent except for hairs arising from the punctures. Tibiae slender, rather sparsely bearing spines. Hind tarsi with 1st joint nearly as long as 2nd.

Body length : 2.4 mm ; width : 1.1 mm.

Holotype : ♀, Minamizawa, Nagano Pref., Honshu, Japan, 1. viii. 1956, Y. Hayashi leg.

This new species is similar to *C. osawai* Nakane in appearance, but the sides of pronotum are broadly depressed, the maxillary palpi are blackish and the sides of elytra are depressed along their margin.

***Acrenitis* Nakane et Matsui subgen. nov. (gen. *Crenitis*)**

Type species : *Crenitis osawai* Nakane

Differs from *Crenitis* (s.str.) in having not pubescent hind femora. Antennae 8-jointed. Elytra distinctly seriate-punctate. Mesosternum without a carina or nodule or protuberance. Femora of middle and fore legs pubescent on basal half. Tarsi slender; 1st joint of hind tarsi not very short, slightly shorter than 2nd, 2nd distinctly shorter than 5th.

***Aparacymus* Nakane et Matsui subgen. nov. (gen. *Anacaena*)**

Type species : *Anacaena japonica* Nakane

Differs from *Anacaena* (s.str.) in having inconspicuous fine seriate punctures on elytral disk and in lacking conspicuous protuberance at middle of mesosternum. Antennae 9-jointed. Femora of middle and fore legs pubescent on basal two-thirds; hind femora sparsely pubescent. Hind tarsi : 1st joint very short, much shorter than 2nd, 2nd nearly as

long as 5th.

Problem of the division of genera

In his revision of the Hydrobiini d'Orchymont (1942) gave a key to the genera of the subtribe Hydrobiae. According to him the genera *Anacaena* and *Crenitis* and closely related genus *Paracymus* can be separable by the following key :

- 1 (2) Prosternum with a longitudinal carina ; mesosternum frequently with a median longitudinal carina behind the anterior angulate transverse carina ; hind femora without dense pubescence even at anterior margin ; abdominal sternites short, especially the 1st, which sometimes bears a fine longitudinal carina ; 1st joint of four hinder tarsi not very short *Paracymus*
- 2 (1) Prosternum not longitudinally carinate ; mesosternum without carina or only with an angulate or arched anterior transverse carina ; hind femora with dense pubescence at base, at least at anterior margin ; abdominal sternites less short, especially the 1st, which is never carinate at middle ; 1st joint of four hinder tarsi very short or sometimes a little shorter than 2nd.
- 3 (4) Mesosternum flattened, without a carina ; antennae 8- or 9-jointed ; form more or less elongate ; hind femora densely pubescent on basal 2/3 or the pubescence much reduced and often confined to a short space at base of anterior margin *Crenitis*
- 4 (3) Mesosternum at least with a small, sometimes longitudinal, gibbosity before middle coxae, interspace of pronotal punctures very smooth, without microsculpture ; antennae 7- to 9-jointed ; if mesosternum unarmed, then hind femora pubescent at least along anterior margin ; sometimes pronotum sparsely punctured, punctures sparser than on elytra and often very superficial ; hind femora pubescent on basal 2/3, or only along trochanters and anterior margin ; form nearly hemispherical or elongate and often narrowed posteriorly *Anacaena*

The key shown above is considerably complicated in separating the two genera concerned as compared with keys given by other authors, and some species may be placed in either of the two genera.

For the species of United States Arnett (1963) presented a key to the genera and the part concerned is :

- 18(15) Prosternum longitudinally carinate at middle *Paracymus*
Prosternum not carinate 19
- 19(18) Mesosternum simple, not carinate, or with a small protuberance anterior to middle coxae *Crenitis*
Mesosternum with a prominent angularly elevated or dentiform protuberance anterior to middle coxae *Anacaena*

While Lohse (1971) separated three genera by the difference in elytral punctuation, relative lengths of hind tarsal joints and in the sculpture of prothorax beneath. Presence of metallic lustre on upper surface and median carina of prosternum are also considered.

D'Orchymont (1942) discussed the systematic position of *Paracymus apicalis* Reitter

Table 1. Main characteristics of Japanese and European species of genera, *Paracymus*, *Crenitis* and *Anacaena*.

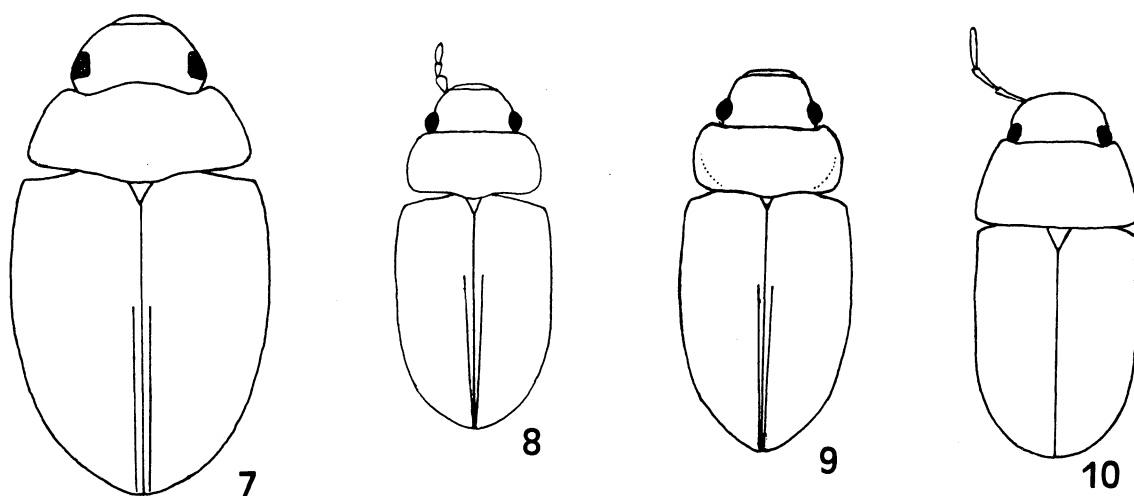
Species	Median area of prosternum	Median area of mesosternum	Extent of femoral pubescence (fore:middle:hind)			Lengths of tarsal joints of hind legs	Seriate punctures of elytra
<i>Paracymus evanescens</i>	carinate	strongly elevated	2/3	1/3	--	1 < 2 = 5	none
<i>Crenitis punctatostriatus</i>	not carinate	feebly elevated	2/3	2/3	2/3	1 < 2 < 5	evident
<i>Crenitis osawai</i>	not carinate	nearly flattened	1/2	1/2	--	1 < 2 < 5	evident
<i>Crenitis neglectus</i>	not carinate	nearly flattened	1/2	1/2	--	1 = 2 < 5	evident vaguely striate
<i>Anacaena japonica</i>	not carinate	with a small gibbosity	2/3	2/3	sparse	1 ≪ 2 = 5	indistinct, only evident at sides and apex
<i>Anacaena hokkaidensis</i>	not carinate	with a small gibbosity	2/3	2/3	sparse	1 ≪ 2 = 5	hardly traceable except at sides and apex
<i>Anacaena asahinai</i>	not carinate	with a protuberance	2/3	2/3	2/3	1 ≪ 2 = 5	none
<i>Anacaena limbata</i>	not carinate	with a dentiform protuberance	2/3	2/3	2/3	1 ≪ 2 > 5	none

and placed the species in the genus *Crenitis*. According to him the species extremely resembles *C. moratus* Horn. Two Japanese species, *Anacaena japonica* and *A. hokkaidensis*, may therefore, be derivatives of *apicalis* Reitter.

Under the circumstances we examined main characteristics of each Japanese species and the results are shown in Table 1. From the results we have to put stress on the lengths of 1st and 2nd joints of hind legs besides the extent of pubescence on hind femora.

Key to the genera and species in Japan

- 1 (2) Prosternum longitudinally carinate at middle *Paracymus*
Only one species has been known *evanescens* Sharp
- 2 (1) Prosternum not longitudinally carinate at middle.
- 3 (8) Mesosternum with a more or less distinct protuberance or gibbosity or transverse carina at middle in front of mesocoxae ; 2nd joint of hind tarsi as long as or longer than 5th and much longer than 1st *Anacaena*
- 4 (5) All femora densely pubescent except apical portion ; mesosternum with a prominent protuberance at middle ; elytra quite confusedly punctured even at sides (*Anacaena* s.str.) *asahinai* M.Satô
- 5 (4) Hind femora rather sparsely pubescent ; mesosternum with a weak gibbosity at middle ; elytra seriate-punctate at least at sides and apex (*Aparacymus*).
- 6 (7) Seriate punctures of elytra traceable on dorsum ; frontal suture of head fine but distinct ; apex of parameres of male genitalia more broadly rounded ; Honshu
..... *japonica* Nakane



Figs. Outlines of body above. 7. *Anacaena japonica*, 8. *Crenitis osawai*, 9. *Crenitis neglectus*, 10. *Agraphydrus narusei* M. Satô.

- 7 (6) Seriate punctures of elytra hardly traceable on dorsum ; frontal suture of head evanescent or very indistinct ; apex of parameres of male genitalia somewhat acuminate and less rounded ; Hokkaido *hokkaidensis* Nakane
- 8 (3) Mesosternum without any elevation or carina at middle in front of coxae ; 2nd joint of hind tarsi shorter than 5th and a little longer than 1st *Crenitis*
Front and middle femora densely pubescent on basal half, but hind femora nearly glabrous (*Acrenitis*)
- 9 (10) Sides of pronotum narrowly margined but not depressed ; palpi yellowish brown with apical portion infuscate *osawai* Nakane
- a. Head and pronotum strongly and closely punctured ; frontal suture of head weakly impressed ; Honshu ssp. *osawai* Nakane
- b. Head and pronotum more finely punctured ; frontal suture of head usually indistinctly impressed ; Tokara Is. ssp. *tokaranus* Nakane
- 10 (9) Sides of pronotum broadly explanate along margins ; palpi blackish brown
..... *neglectus* Nakane & Matsui

List of Japanese species belonging to *Anacaena* and *Crenitis*

- Anacaena asahinai* M. Satô, 1982, Ozegahara : 385, fig. 10 ; 1985, Coleopt. Jap. in col. 2 : 213, pl. 38—fig. 27.
= *A. limbata* : Nakane, 1954, Sci. Res. Ozegahara Moor : 728.
Distr. : Honshu.
- Anacaena japonica* Nakane, 1963, Icon. Ins. Jap. col. nat. ed. 2 : 65, pl. 33—fig. 3 ; 1966, Fragm. Coleopt. (14) : 57, fig. 4.
= *Crenitis japonica* : M. Satô, 1982, Ozegahara : 385, fig. 9 ; 1985, Coleopt. Jap. in col.

2 : 213, pl. 38—fig. 28a.

Distr. : Honshu.

Anacaena hokkaidensis Nakane, 1966, *Fragm. Coleopt.* (14) : 57, fig. 5.

= *Crenitis japonica hokkaidensis* : M. Satô, 1985, *Coleopt. Jap.* in col. 2 : 213, pl. 38—fig. 28b.

Distr. : Hokkaido.

Crenitis osawai Nakane, 1966, *Fragm. Coleopt.* (14) : 55.

= *Agraphydrus narusei* : Nakane, 1963, *Icon. Ins. Jap. col nat. ed.* 2 : 66, pl. 33—fig. 13.

Distr. : Honshu.

ssp. *tokaranus* Nakane, 1966, *Fragm. Coleopt.* (14) : 56.

Distr. : Tokara Is. (Nakanoshima Is.).

Crenitis neglectus Nakane & Matsui sp. nov.

Distr. : Honshu.

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