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Discovery of the Family Spercheidae (Coleoptera, Hydrophiloidea) from Japan, with Redescription of *Spercheus stangli* Schwarz et Barber, 1917

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Abstract *Spercheus stangli* is recorded from Iriomote-jima Island, Japan for the first time. This is the first record of the family Spercheidae from the Japanese fauna.
Key words: Filterfeeding water scavenger beetle, new record, Iriomote-jima Island, Southeast Asia.

Introduction

The family Spercheidae (filterfeeding water scavenger beetles) contains only the genus *Spercheus* Kugelann, 1798 with 18 described species distributed in all zoogeographic regions except the Nearctic (Hebauer, 1990, 1997; Archangelsky, 2001). Recently, we obtained a peculiar hydrophiloid species in a pond on Iriomote-jima Island, the Ryukyu Islands, Japan. After a careful examination with reference to the original description (Schwarz & Barber, 1917) and Hebauer (1997), they were identified as *Spercheus stangli* Schwarz et Barber, 1917, widely distributed in Southeast Asia and its neighbouring areas (Yano *et al*., 1983; Hebauer, 1990, 1997; Hansen, 1999; Fikáček, 2011; Jäch *et al*., 2012).

In this paper, we record this species from Japan for the first time, and redescribe the species on the basis of the specimens from Iriomote-jima Island, because this species has not been described in detail since the original description (Schwarz et Barber, 1917; Hebauer, 1997).

The abbreviations used in this paper are as follows: EUM – Ehime University Museum, Matsuyama, Japan; KMNH – Kitakyushu Museum of Natural History & Human History, Kitakyushu, Japan.

Material and Methods

In this study, we used dried or 70% ethanol preserved specimens. Observations and dissections were carried out using Olympus SZ-Tr stereoscopic microscope and Nikon LABOPHOTO compound light microscope. The body immersed in 10% KOH solution for half a day or one day at room temperature, and were rinsed and dissected with distilled water.

Regarding the morphological terminology we generally followed Hansen (1991) and Fikáček (2011).

Family **Spercheidae** Erichson, 1837

[Japanese name: Oni-gamushi-ka]

Spercheidae Erichson, 1837: 193 (type genus: *Spercheus* Kugelann, 1798).
See Hansen (1999: 65) for synonymy.

Diagnosis. This family is distinguished from the other families of Hydrophiloidea by the following character states: head and pronotum not granulate, more or less rugulose-punctate. Head strongly

and abruptly constricted immediately behind eyes, the latter defined from temporae by a ridge. Front-clypeal suture fine or indistinct. Antenna seven-segmented, 2nd and 4th–7th segments with dense hydrofuge pubescence, separated only by a very small and inconspicuous 3rd segment, so the antenna appear six-segmented with four- or five- segmented pubescent club. Gula well developed, moderately narrowed anteriorly, subparallel in more than anterior half. Lateral glabrous portions of hypomeron broad, defined from the remainder, pubescent portion by a sharp ridge. Mesocoxae a little transverse.

Genus ***Spercheus*** KUGELANN, 1798

[Japanese name: Oni-gamushi-zoku]

Spercheus KUGELANN, 1798: 241 (type species: *Dytiscus emarginatus* SCHALLER, 1783).
See HANSEN (1999: 65) for synonymy.

Diagnosis. Body oval, more or less convex dorsally, 1.50–7.00 mm in length. Head strongly constricted behind eyes. Eyes demarcated from temporae by a strong ridge. Clypeus large, emarginate medially on anterior margin, antero-lateral corners angulate (male) or rounded (female). Antennae less than half the width of the head, 1st segment moderately long; 2nd segment thicker than 1st, with long pubescence; 3rd segment very small, glabrous; 4th segment well developed, and covered with pubescence as in the last three segments forming club which is rather loosely segmented. Galea long, thin, sickle-like. Mentum large, transverse. Pronotum transverse, lateral portion more or less explanate. Prosternum without antennal grooves; suprapleural area developed, shinning, without punctures; hypomeron demarcated from suprapleural area by a sharp ridge. Procoxal cavities closed posteriorly. Scutellum distinct, triangular. Elytra punctured to form more or less regular rows, sometimes with longitudinal ridges or tubercles; pseudepipleura developed; epipleura less distinct. Hind wings fully developed. Meso- and metaventrites densely pubescent; mesoventrite almost flat; metaventrite almost evenly convex, without well-defined middle portion and femoral line. Legs somewhat slender. Femora without distinct tibial grooves. Tibiae without fringes of long swimming hairs. Tarsi five-segmented, without swimming hairs on dorsal face; 1st tarsomere minute; 5th a little longer than 1st–4th combined; claws more or less curved; empodium multisetose. Abdominal ventrites I–V flat, densely pubescent; ventrite I not carinate; posterior margin of V simply rounded.

Spercheus stangli SCHWARZ et BARBER, 1917

[Japanese name: Kobu-oni-gamushi]

(Figs. 1 & 2)

Spercheus stangli SCHWARZ & BARBER, 1917: 133 (type locality: "Philippine Islands"). —— HEBAUER, 1997: 22 (additional description with illustrations of pronotum & male aedeagus).

Redescription. Body oval, strongly convex dorsally, coarsely punctate with minute squamae and covered with long erect silver setae sparsely, 3.86–4.21 mm in length. Coloration of body dark brown to black, more or less shiny; antennae and maxillary palpus dark yellowish brown, but club of antennae dark brown; apex of 4th maxillary palpus segment darkened; lateral margins of pronotum and elytra, and elytral spots brown; elytral spots scattered, often fused each other (Fig. 1 a).

Head transverse subhexagonal (Fig. 1 b). Eyes moderately protruding. Temporae short with a strong ridge. Clypeus large; antero-lateral corners furnished with some erect setae. Labrum concealed under clypeus in dorsal view. Antennae with 4th segment somewhat projecting inwards (Fig. 1 c). Mandibles robust, forked at apex; subapical semimembranous lobe distinct (Fig. 1 d). Maxillary palpi with apical segment spindle-like, longer than penultimate. Galea as long as apical maxillary palpus

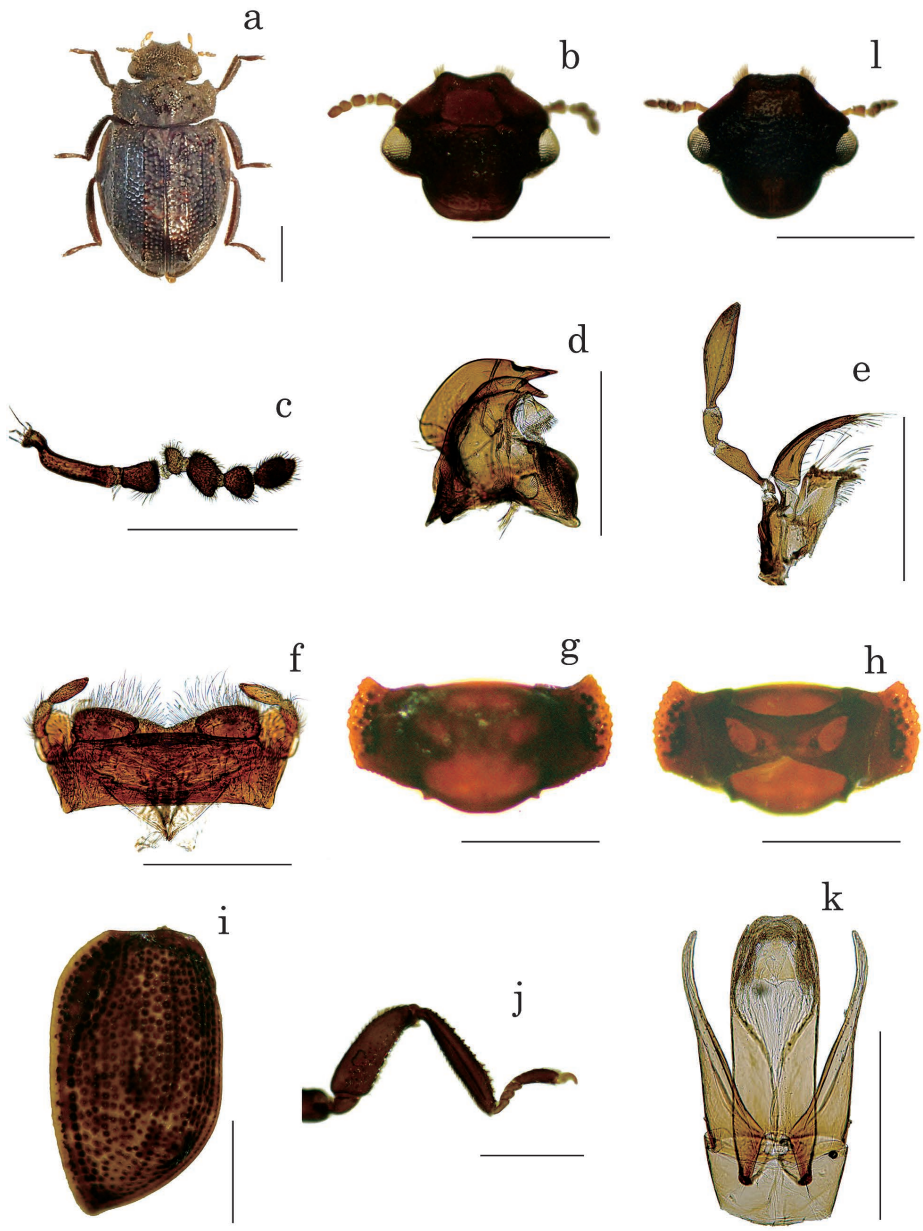

Fig. 1. *Spercheus stangli*. —— a, Dorsal habitus , male; b, head, male; c, right antenna; d, left mandible; e, left maxilla and maxillary palp; f, mentum; g, prothorax, dorsal view; h, prothorax, ventral view; I, left elytron, j, right front leg; k, male genital organ, dorsal view; l, head, female. Scales: 1.00 mm for a, b, g–j & l; 0.50 mm for c–f & k.

segment, (Fig. 1 e). Mentum about 3.4× as wide as long, with setiferous punctures (Fig. 1 f).

Pronotum (Fig. 1 g & h) about 0.5 times as long as wide, widest at middle; mesal portion strongly convex; lateral margin gently arcuate and more or less irregularly serrate; posterior margin protruding medially.

Fig. 2. Live specimens of *Spercheus stangli*. —— a, Adult, male; b, adult clinging to the lower surface of a floating dead branch (under rearing condition).

Fig. 3. A collecting site of *Spercheus stangli* in Uehara, Taketomi-chô, Yaeyama-gun, Okinawa Pref. (Iriomote-jima Island).

Elytra (Fig. 1 i) widest at near basal 1/3; each elytron 1.7 times as long as wide, strongly punctured to form more or less regular rows near suture, with three longitudinal ridges and three distinct longitudinal tubercles on each 1st and 3rd ridge, 1st at apical 1/5, 3rd at humerus and behind middle.

Legs (Fig. 1 j) slender. Each tibiae with spines on external margin and with two ridges on dorsal surface; each ridge with longitudinal row of fine dents.

M a l e. Antero-lateral corners of clypeus somewhat angular. Aedeagus with median lobe subparallel-sided, broadly rounded at apex; parameres gradually narrowed forwards, slightly incurved toward apex (Fig. 1 k).

F e m a l e. Anterior margin of clypeus hardly emarginate (Fig. 1l).

Specimens examined. Japan. 2 ♀♀, Uehara, Taketomi-chô, Yaeyama-gun, Okinawa Pref. (Iriomote-jima Is.), 4.IX.2013, T. KITANO leg.; 11 ♂♂, 10 ♀♀, same locality, 22.IX.2013, T. KITANO leg.; 25 exs., same locality, 7.VI.2014, Y. KAMITE leg.; 1 ♂, same locality, 14.VI.2014, T. KITANO leg.; 1 ♂, 1 ♀, same locality, 15.VIII.2014, T. KITANO leg.; 3 ♂♂, 4 ♀♀, same locality, 1.IX.2015, T. KITANO leg.; 1 ♂, 31.III.2016, same locality, T. KITANO leg.

Other specimens examined. 1 ♀ (EUMJ), Chiatou, Kaohsiung Hsien, Taiwan, 28.VII.1981, K. YANO leg. (light trap in sugar cane field); 2 exs. (EUMJ), Chiang Mai, Thailand, 16.X.1961, IMADATE leg.; 1 ex. (EUMJ), Khon Kaen, Thailand, 15.VI.1982, M. SATÔ leg.; 1 ex. (EUMJ), same locality,

5.X.1972, M. Satô leg.; 1 ♂ (EUMJ), same locality, 6.X.1972, M. Satô leg.; 1 ex. (EUMJ), Sepilok, Sandakan, Sabah, Malaysia, 18.XII.1981, S. Nagai leg. (at light); 1 ex. (EUMJ), same locality, 5–11. VIII.1983, N. Ohbayashi leg.

Distribution. Philippines (type locality), Indonesia, Brunei, Malaysia, Sri Lanka, Thailand, Cambodia, Vietnam, China (Tibet), Taiwan, and Japan (Iriomote-jima Is.).

Notes. This species has been living clinging to the back of the dead branch that floated on the surface of the stagnant waters which located in a dim place surrounded by trees (Figs. 2 & 3). Although they have a life in the water, swimming is very weak.

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要　　約

北野　忠・多比良嘉晃・河野裕美：オニガムシ科（鞘翅目ガムシ上科）およびコブオニガムシの日本からの発見．———— これまで国内では報告がなかったコブオニガムシ（和名新称）*Spercheus stangli* Schwarz et Barber, 1917 を沖縄県西表島から記録し，オニガムシ科（和名新称）Spercheidae およびオニガムシ属（和名新称）*Spercheus* の形態的特徴を概説するとともに再記載した．本種が属するオニガムシ科はオニガムシ属のみからなる 1 科 1 属の水生甲虫である．本科はこれまで国内から記録がなかったため，本報告が科レベルでの日本初記録となる．なお，本科の構成種の多くは，雄の頭楯の両端が突出する．科の和名はその特徴を鬼の角に見立てたことに因んだものである．

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