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## On the identity of *Cybister chinensis* MOTSCHULSKY, 1854 (Coleoptera: Dytiscidae)

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### Abstract

A lectotype is designated for *Cybister chinensis* MOTSCHULSKY, 1854, thereby confirming its synonymy with *C. japonicus* SHARP, 1882, first published by ZAITZEV (1915).

**Key words:** Coleoptera, Dytiscidae, *Cybister chinensis*, *Cybister japonicus*, *Cybister ventralis*, taxonomy, lectotype, synonymy.

### Introduction

The identity of *Cybister chinensis* MOTSCHULSKY, 1854, described from China, has been doubtful until today. SHARP (1882), who had not seen the type material, associated the name with some other specimens from China in his collection, of which he provided a description. RÉGIMBART (1899) suggested that Sharp's specimens of *C. chinensis* belonged to the same species as the one described as *C. ventralis* SHARP, 1882 from India. Following RÉGIMBART (1899), most authors have thus listed *C. chinensis* with a question mark as a possible synonym of *C. ventralis*. The main exception being ZAITZEV (1915), who studied the type material.

After studying the collection of Motschulsky and the two males there standing under *Cybister chinensis*, ZAITZEV (1915) found them to be identical with *C. japonicus* SHARP, 1882. Following priority, ZAITZEV (1915) listed *C. chinensis* as valid, and by this action he prevented this species from being declared a nomen oblitum (ICZN 1999: Art. 23.9.1). For unknown reasons, ZAITZEV (1953) reversed priority and used *C. japonicus* as the valid name.

Our renewed study of Motschulsky's collection has confirmed ZAITZEV's (1915) conclusion. Based on the assumption that strict priority serves stability best in the long run, and given that identity of names is without doubt, it is not our intention to apply for maintained use of the younger synonym (cf. ICZN 1999: Art. 23.9.3).

### *Cybister* (s.str.) *chinensis* MOTSCHULSKY, 1854

*Cybister chinensis* MOTSCHULSKY, 1854: 44 (orig. descr., "Pékin" [= Beijing], 15 lines), 1866: 165 (Japan, leg. Gaschkevitch 1864); ZAITZEV 1915: 284 (syn. *japonicus*).

*Cybister japonicus* SHARP, 1873: 45 (orig. descr., "Nipon and Kushiu", leg. George Lewis, 18 lines), 1882: 748 (descr.), 1884: 463 (list); BRANDEN 1885: 112 (cat., Japan, China); ATKINSON 1891: 148 (cat., China, Japan); RÉGIMBART 1899: 348 ("Japon, Formose, Chine, Mandchourie", 35–40 mm), 1901: 336 (Japan); ZAITZEV 1908: 65 ("Sachalin & Mangutshaj-Fluss", 35–42 mm), 1953: 336 (descr., 35–40 mm); WILKE 1920: 264 (Japan, China, Korea, Russia); ZIMMERMANN 1920: 260 (cat.); GSCHWENDTNER 1938: 76 (descr., 35–40 mm); KAMIYA 1940: 129 (female illustr., Manchuria); BRINCK 1945: 20 (cat.); VAZIRANI 1977a: 86 (cat., Japan, Taiwan, Korea, China); NAKANE 1963: 61 + pl. 31 (descr.), 1965: 14 (descr., 35–40 mm), 1990: 31 (descr., 35–40 mm); SATÔ 1985: 200 + pl. 36 (descr.); YOON & AHN 1988: 259 (Korea); MORI & KITAYAMA 1993: 27, 145 (descr., 34–42 mm); NILSSON 1995: 77 (China), 2001: 93 (cat.), 2003: 51 (distr.). See NILSSON (1995) for additional references to *C. japonicus* focusing on Chinese faunistics.

*Trogus chinensis* (MOTSCHULSKY, 1854): GEMMINGER & HAROLD 1868: 459 (cat., China).

Type material: **Lectotype** ♂, here designated: “Cybister / chinensis / China bor. Motsch.” (Figs. 1–3), in Motschulsky’s handwriting, with Zaitzev’s pink number label, and with our lectotype label; deposited in coll. Motschulsky (Zoological Museum of Moscow State University, ZMUM). This lectotype designation is made in order to maintain nomenclatural stability.

Taxonomic remarks: The lectotype fits the original description by MOTSCHULSKY (1854: 44) fairly well. SHARP’s (1882) problem with the interpretation of the description may have originated from the body length given as “15 lines“ by MOTSCHULSKY (1854), compared to SHARP’s (1882) 18 lines for his *C. japonicus*. One should bear in mind, however, that the “line” was not standardized at that time, and displayed some national and probably also individual variation.

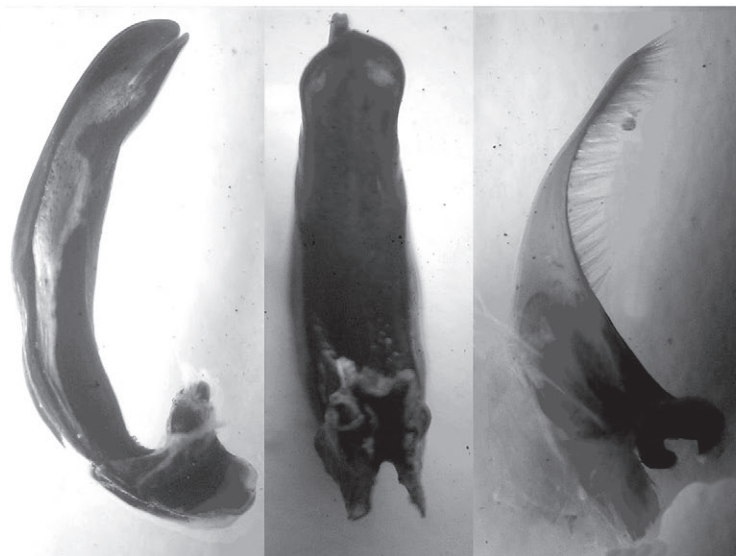
ZAITZEV (1915) mentions two type specimens of *C. chinensis* deposited in coll. Motschulsky (ZMUM). There is, indeed, another (also male) specimen of this species, standing next to the lectotype, labelled “C. chaudiir. Hochh.” in Motschulsky’s handwriting and with Zaitzev’s pink number label. Motschulsky seems to have originally attributed this specimen to *C. chaudiirii* HOCHHUTH, 1846, which is a junior synonym of *C. lateralimarginalis* (DE GEER, 1774) (ZAITZEV 1915, NILSSON 2001). We have, however, no reasons to accept this specimen as belonging to type series of *C. chinensis*, and, therefore, it cannot be regarded as a paralectotype.

Subgeneric classification: *Cybister chinensis* and *C. lateralimarginalis* were earlier classified as the only two species in the subgenus *Scaphinectes* ÁDÁM, 1993. This former subgenus was characterized by the male mesotarsus lacking adhesive discs, and the female metatarsus having both dorsal and ventral rows of swimming hairs. Recently MILLER et al. (2007) recognized that *C. chinensis* and *C. lateralimarginalis* together form a clade nested within *Cybister* (s.str.), of which *Scaphinectes* consequently was made a junior synonym.

These two species are strictly allopatric. The chiefly West Palearctic *C. lateralimarginalis* reaches its eastern distribution limits in Afghanistan, Kashmir and Xinjiang (NILSSON 2003). *Cybister chinensis* is confined to eastern margin of East Palearctic. There is some geographical variation in *C. lateralimarginalis*, which by most authors is separated into three subspecies: (1) *C. l. lateralimarginalis*, West Palearctic, (2) *C. l. ponticus* SHARP, 1882, Iraq, and (3) *C. l. torquatus* (FISCHER VON WALDHEIM, 1829), Caucasus and Central Asia. The status of these subspecies needs to be addressed in a more detailed study quantifying the supposed variation.

The two species differ chiefly in the larger and posteriorly more broadened body of *C. chinensis*, in which a larger area of the venter has dark coloration, including also the prosternal process and the posterior margins of the abdominal sterna (Figs. 4–5). The lateral yellow lines of the body are somewhat wider in *C. chinensis*. The anterior male mesotarsal claw has a more marked ventral expansion in *C. chinensis*. There is also a pronounced difference in the shape of the penis of the two species, which in both species is split into a dorsal and a ventral part (Figs. 6–8). It is markedly narrower apically in dorsal and in ventral view in *C. lateralimarginalis* than in *C. chinensis*. Moreover, in the former species the dorsal part is much shorter than the ventral part, whereas in *C. chinensis* both these parts meet at the apex.

Distribution: *Cybister chinensis* was first described from the Beijing environs in northern China (MOTSCHULSKY 1854). MOTSCHULSKY (1866) was the first to record it from Japan, soon followed by SHARP (1882) under the name *C. japonicus*. RÉGIMBART (1899) added Taiwan and Manchuria, and ZAITZEV (1908) provided records of *C. japonicus* from Primorye and Sakhalin in the Russian Far East. WILKE (1920) added Korea. The species occurs throughout Japan north of the Ryukyus (MORI & KITAYAMA 1993).



Figs. 1–3: Labels associated with the *Cybister chinensis* lectotype: (1) pink number label, most likely by Zaitzev, presumably representing the order of specimens in Motschulsky's collection, (2) original label placed below the specimen, and (3) identification label placed beside the specimen, most likely by Zaitzev. Photograph: P.N. Petrov.

Figs. 4–5: Dorsal (4) and ventral (5) habitus of *Cybister chinensis* lectotype. Photograph: P.N. Petrov.

Figs. 6–8: Male genitalia of *Cybister chinensis* lectotype: (6) penis, lateral view, (7) penis, dorsal view, and (8) paramere. Photograph: P.N. Petrov.

***Cybister (Melanectes) ventralis* SHARP, 1882**

*Cybister ventralis* SHARP, 1882: 742 (orig. descr., “Madras” [= Chennai], 31 mm); RÉGIMBART 1899: 345 (syn. ? *chinensis* Motschulsky sensu Sharp, syn. *crassus*); WILKE 1920: 263 (syn. of Régimbart not possible to control); ZIMMERMANN 1920: 266 (cat., Indien, Ceylon, Myanmar; ? *chinensis*); FENG 1933: 333 (syn. *chinensis*); VAZIRANI 1969: 296 (descr., 27–33 mm), 1977a: 92 (cat., India, Bangladesh), 1977b: 214 (penis illustrated, *gracilis* valid sp., *crassus* syn.); NILSSON 1995: 78 (identity of *chinensis* uncertain), 2001: 90 (syn. ? *chinensis*), 2003: 50 (distr.).

*Cybister chinensis* MOTSCHULSKY, 1854 (misident.): SHARP 1882: 742 (China, museum Castelnau, 28.5 mm; “Motschoulsky’s description of *Cybister chinensis* is very deficient, but as the present is the only species known to me to which it is applicable, I have adopted the name with some doubt as to the propriety of so doing”); BRANDEN 1885: 111 (cat.); ATKINSON 1891: 148 (China, Vietnam); JACOBSON 1908: 436 (syn. *ventralis*, *crassus* & *gracilis*; Ceylon, India, Sikkim, Myanmar, China, Japan).

*Cybister crassus* SHARP, 1882: 743 (orig. descr., “Sylhet”, 30.5 mm).

*Cybister gracilis* SHARP, 1882 (misident.): MOUCHAMPS 1957: 282 (syn.).

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