

RESEARCH PAPER

Review of the genus *Cybister* in China, with description of a new species from Guangdong (Coleoptera: Dytiscidae)

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Accepted:
21st February 2023

Published online:
12th March 2023

Abstract. The genus *Cybister* Curtis, 1827 is reviewed with respect to the fauna of China. A new species, *Cybister (Melanectes) danxiaensis* sp. nov. is described and illustrated. Altogether, 16 *Cybister* species are recorded from China, although the status of two of them remains in question. All species are diagnosed, with their habitus and male genitalia illustrated. Additional faunistic data from China are provided for the following species: *C. guerini* Aubé, 1838 from Hainan; *C. lewisianus* Sharp, 1873 from Guangdong and Hainan; *C. limbatus* (Fabricius, 1775) from Guangdong, Guangxi and Hainan; *C. rugosus* (W. S. Macleay, 1825) from Chongqing, Guangdong, Hubei, Hunan, Jiangxi, Yunnan, Zhejiang; *C. tripunctatus lateralis* (Fabricius, 1798) from Chongqing, Guangxi, Jiangxi, Shanghai; *C. brevis* Aubé, 1838 from Guizhou, Hunan, Zhejiang; and *C. sugillatus* Erichson, 1834 from Guangxi and Yunnan. An updated identification key and distribution maps for all species are provided. *Cybister lateralmarginalis torquatus* (Fischer von Waldheim, 1829) is recorded for the first time from Tajikistan and Uzbekistan.

Key words. Coleoptera, Dytiscidae, Cybistrinae, *Cybister*, taxonomy, new species, new records, China, Palaearctic Region

Zoobank: <http://zoobank.org/urn:lsid:zoobank.org:pub:937DF12A-BC2F-4406-802F-63838312B0C1>

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Introduction

Cybister Curtis, 1827 is the only genus of Cybistrinae that occurs in China. It comprises a total of 106 known species/subspecies worldwide (NILSSON & HÁJEK 2022a). These beetles are large to extremely large (13–43 mm), dark green to black, and in some species with yellow margins of the pronotum and elytra. Members of the genus typically inhabit stagnant waters, generally with dense submerged aquatic vegetation. Although species of *Cybister* occur in all zoogeographical regions, the genus is most abundant in the Afrotropical and Oriental Realms (MILLER & BERGSTEN 2016).

SHARP (1882) divided *Cybister* species into six groups based on morphological characters, and BRINCK (1945) divided the genus into seven subgenera. However, VAZIRANI (1969) discovered some problems with the classification of the groups and subgenera when he studied the male genitalia of Indian *Cybister*. MILLER et al. (2007) re-evaluated the classification of the genus and proposed four subgenera based on the results of both morphological and DNA analysis.

In China, there were few studies on *Cybister* until FENG (1932, 1933a) recorded ten species in his catalogue of Chinese Dytiscidae. Based on the material he studied and



the data from ZIMMERMANN (1920), FENG (1933b) provided a detailed faunistic report with a key in which eight *Cybister* species were included. WU (1937) recorded ten species in China. NILSSON (1995) reported sixteen species in his annotated check-list of China based on a literature review. JIA et al. (2010) provided faunistic data on *Cybister* in China in which two species names were treated as synonyms and one species was recorded as new for China. Up to now, a total of fifteen species have been recorded from China (JIA et al. 2010, NILSSON & HÁJEK 2022b), but a comprehensive taxonomic revision of Chinese or continental Asian species is still missing. Therefore, the identification of some species (e.g. *Cybister guerini* Aubé, 1838, *C. limbatus* (Fabricius, 1775)) treated in the present publication can be tentative only. Additional information about *Cybister* species occurring in China can be found also in the Indian revision by VAZIRANI (1969), or in the faunistic review of *Cybister* from Laos, including habitus and habitat photos by HENDRICH & BRANCUCCI (2013).

In the present work, we describe another new species in the subgenus *Melanectes* Brinck, 1945 from northern Guangdong, increasing the total number of Chinese *Cybister* to 16. In addition, we summarize all previously published records and provide numerous new faunistic data for some species. For the first time, the habitus and male genitalia are illustrated for all species occurring in China, and an identification key is provided.

Material and methods

The studied specimens were examined and measured under a Nikon SMZ800N binocular microscope and a Leica M205C stereomicroscope. Male specimens of each species were dissected. First relaxed in hot water for 30 minutes and then the genital capsule extracted with strong, pointed forceps with curved tips. The median lobe of the aedeagus and the parameres were glued to a small card for photographing, and mounted together with the specimen after being photographed. Photographs of habitus, detailed characteristics and male genitalia were taken with a Nikon DS-Ri2 camera mounted on a Nikon SMZ25 microscope and a Canon EOS 550D camera fitted with either a 65 mm or MPE65 macro lens, attached to a Stackshot Macrorail controlled with Zerene Stacker software; Illumination was with two Canon Speedlite 430EX III-RT flashlights and translucent paper diffusers. Images were assembled using Helicon Focus and NIS-Elements software and were edited with Adobe Photoshop CS6.

The following abbreviations are used in the descriptions:

| | |
|------|---|
| TL | total length, measurement of length from clypeal margin to apex of elytra; |
| TL-h | total length minus head length, measurement of length from anterior margin of pronotum to apex of elytra; |
| MW | maximum width of body measured at right angle to TL. |

The terminology used to describe morphological structures follows MILLER & BERGSTEN (2016). The terminology to denote the orientation of the genitalia follows MILLER & NILSSON (2003). The species are listed alphabetically. Exact label data are cited for the type material and given in quotation marks. Authors' additional remarks

are provided in square brackets; [hw] – preceding data are handwritten; [p] – preceding data are printed. Separate label lines are indicated by a slash (/), separate labels by a double slash (//).

The specimens included in this study are deposited in the following collections:

| | |
|------|---|
| JSCL | Jaroslav Šťastný collection, Liberec, Czech Republic; |
| LHCM | Lars Hendrich collection, München, Germany (property of NHMW); |
| NHMB | Naturhistorisches Museum, Basel, Switzerland; |
| NHRS | Swedish Museum of Natural History, Stockholm, Sweden; |
| NMPC | Národní muzeum, Prague, Czech Republic; |
| SYSU | Biological Museum, Sun Yat-sen University, Guangzhou, China; |
| ZMUC | Zoological Museum, University of Copenhagen, Copenhagen, Denmark; |
| ZSMG | Zoologische Staatssammlung, München, Germany. |

Taxonomy

Subgenus *Cybister* Curtis, 1827

Type species. *Dytiscus lateralis* Fabricius, 1798.

Diagnosis. With distinctive yellow margins laterally on the pronotum and elytron. Males with a single claw per metatarsus; females usually with single claws, except in some North and Central American species.

Included (Chinese) species. *Cybister bengalensis* Aubé, 1838; *C. chinensis* Motschulsky, 1854; *C. fumatus* Sharp, 1882; *C. guerini* Aubé, 1838; *C. laevis* Falkenström, 1936; *C. lateralimarginalis torquatus* (Fischer von Waldheim, 1829); *C. lewisianus* Sharp, 1873; *C. limbatus* (Fabricius, 1775); *C. rugosus* (W. S. Macleay, 1825); *C. tripunctatus lateralis* (Fabricius, 1798); *C. ventralis* Sharp, 1882.

Cybister bengalensis Aubé, 1838

(Figs 1A–E)

Cybister bengalensis Aubé, 1838: 61 (orig. descr.).

Material examined. CHINA: JIANGXI: 1 ♀, Pingxiang [Pingxiang], coll. A. Zimmermann (ZSMG). TAIWAN: 2 ♂♂, Formosa, coll. A. Zimmermann (ZSMG); 1 ♂, Ku Sia, coll. A. Zimmermann (ZSMG). WITHOUT PRECISE DATA: 1 ♀, China, coll. A. Zimmermann (ZSMG).

Diagnosis. See under *C. rugosus*.

Comments to classification. Almost all characters of *C. bengalensis* described by RÉGIMBART (1899) also appear in *C. rugosus*. Based on the material we have studied from South China, *C. bengalensis* could be conspecific with *C. rugosus* as was suggested already by GSCHWENDTNER (1938) after he studied aedeagi of both species. The status of *C. bengalensis* and *C. rugosus* should be confirmed after the type material of the two species will be studied in future.

Careful study of the specimens deposited in SYSU and a few specimens deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China, we found the specimens of *C. bengalensis*, identified by Tong-xu Peng and checked by Zeng, from Guangzhou in SYSU are mixed with specimens of *C. guerini* and *C. rugosus*. The specimens from Beijing and Hebei should be *C. chinensis*; the record from Northern Territory of China needs to be confirmed as well.

Distribution. *Cybister bengalensis* was originally described from “East India and China”. It was subsequently

recorded from North China (SHARP 1882), Sichuan (SHARP 1882, RÉGIMBART 1899, FALKENSTRÖM 1936), Jiangxi and Guangdong (RÉGIMBART 1899), and further from Beijing, Fujian, Hainan (FENG 1932), Zhejiang (WU 1937), Hebei and Yunnan (ZENG 1989, NILSSON 1995, JIA et al. 2010).

***Cybister chinensis* Motschulsky, 1854**

(Figs 2A–E; 18A–C; 19A; 20A)

Cybister chinensis Motschulsky, 1854: 44 (orig. descr.).

Cybister japonicus Sharp, 1873: 45 (orig. descr.), synonymy by ZAITZEV (1915): 284 and confirmed by NILSSON & PETROV (2007): 43; SHARP (1882): 748 (Manchuria, Shandong, Taiwan); RÉGIMBART (1899): 348

(Manchuria, Taiwan); FENG (1932): 36 (Beijing, Fujian: Fuzhou and Xiamen, Guangdong, Hainan, Manchuria, Shandong: Yantai, Taiwan); FALKENSTRÖM (1936): 244 (Sichuan); FENG (1936): 13 (Liaoning: Shenyang, Shaanxi); GSCHWENDTNER (1938): 76 (Manchuria, Taiwan); BRINCK (1946): 151 (Heilongjiang, Liaoning); ZAITZEV (1972): 360 (Taiwan); ZHAO (1981): 110 (Fujian); ZENG (1989): 90 (NE China, Fujian, Guangdong, Hainan, Hebei, Ningxia: Yinchuan, Shandong, Taiwan); LI (1992): 36 (Jilin, Liaoning); MORI & KITAYAMA (1993): 145 (Taiwan).

Material examined. CHINA: GUANGDONG: 3 ♂♂, Canton, 1.–21.iii.2001, L. Hojný leg. (NMPC). **NINGXIA:** 1 ♀, Yinchuan, under light, 6.vi.1960 (SYSU); 1 ♂, Yinchuan, under light, 15.vii.1962 (SYSU); 1 ♂, Yinchuan, Gujiaqiao, 23.vi.2011 (SYSU); 2 ♀♀, Yinchuan (SYSU).



Fig. 1. *Cybister bengalensis* Aubé, 1838 (♂, Ku Sia, Taiwan). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

TIANJIN: 1 ♀, Tsing tou, 17.viii.1933 (SYSU); 1 ♂, Tientsin, 10.iv.1935 (SYSU); 1 ♀, Tianjin, Balitai, 4.v.1955, Y. Y. Liu leg. (SYSU). **WITHOUT PRECISE DATA:** 15 spec., donated by Xing-min Wang, purchased from market, without data (SYSU); 1 ♂, China (LHCM).

Diagnosis. TL 35–40 mm, elongate, oblong-oval (Fig. 2A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margins laterally. Ventral surface yellow; prosternal process, middle of metaventricle and metacoxae dark green; metacoxae and abdominal ventrites narrowly margined (Fig. 2B). Dorsal surface dimorphic: smooth with sparse fine punctures in male; in female with isolated short, irregular

striae on pronotum, and with dense longitudinal striae of various lengths on elytra except at its apex. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventricle (‘metasternal wings’) tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs yellow, midlegs and hindlegs yellow to brown; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; metatarsal claws single in both sexes. Median lobe of aedeagus ‘C’-shaped in lateral



Fig. 2. *Cybister chinensis* Motschulsky, 1854 (♂, Heihe, Heilongjiang). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

view, moderately curved (Fig. 2C); ridged in middle in ventral view, lateral margin strongly curved near apex, apex obtuse-angled (Fig. 2D). Parameres moderately broad, strap-like apically (Fig. 2E).

Habitat. This species inhabits ponds, paddy fields and wetlands with aquatic plants (MORI & KITAYAMA 1993); specimens from Shanxi were found in a natural lake (Figs 18A–C).

Distribution. China (Beijing, Fujian, Guangdong, Hainan, Hebei, Heilongjiang, Jilin, Liaoning, Ningxia, Sichuan, Shaanxi, Shandong, Shanxi, Taiwan, Tianjin) (Fig. 20A), Japan, North Korea, Russia, South Korea (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b;

GSCHWENDTNER 1938; ZAITZEV 1972; ZENG 1989; MORI & KITAYAMA 1993; NILSSON 1995; NILSSON & HÁJEK 2022b).

***Cybister fumatus* Sharp, 1882**

(Figs 3A–E; 20A)

Cybister fumatus Sharp, 1882: 731 (orig. descr.); FENG (1936): 13 (Shanghai).

Material examined. None from China but 9 specimens from **LAOS**: 4 spec., Kham Mouan prov., Ban Khoun Ngeun, 18°07'N 104°29'E, 200 m, 19.–31.v.2001, P. Pacholátko leg. (NHMB, LHCM); 1 spec., Vientiane prov., Phou Khao Khouay, 18°20.369'N 102°48.523'E, nr. strongly disturbed primary rainforest on light, 25.–30.v.2008, A. Solodovnikov & J. Pedersen leg. (ZMUC); 1 spec., Sekong Prov., Tad Faek waterfalls, 15°14.7'N 106°42.1'E, 118 m, light trap, 8.v.2010, J. Hájek leg. (NMPC);



Fig. 3. *Cybister fumatus* Sharp, 1882 (♂♀, Laos). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

1 spec., Bolikhamsay prov., Nam Kading NPA research center near Ban Phone Kham, 18°20'N 104°08'E, 250 m, 23.–29.v.2011, NHMB Basel Laos 2011 Expedition M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan (NHMB); 1 spec., Bolikhamsay prov., Pakkading Ban Phone Kham env. 18°19'N 104°08'E 200–300 m, 23.–29.v.2011, NHMB Basel Laos 2011 Expedition M. Brancucci, M. Geiser, D. Hauck, Z. Kraus, A. Phantala & E. Vongphachan (NHMB); 1 spec., Savannakhet prov., 10 E of Savannakhet, Dong Natad forest, 180 m, 4.xii.2011, J. Šťastný leg. (JSCL).

Diagnosis. TL 22–24 mm, elongate, oblong-oval (Fig. 3A). Head dark green, clypeus yellow. Pronotum and elytra dark green, with distinct yellow margins laterally; apex of yellow margin on elytra slightly hooked. Ventral surface black; with lateral part of metaventrite and metacoxae yellow; abdominal ventrites III–V with a pale spot on each side (Fig. 3B). Dorsal surface smooth in both sexes. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; metatarsal claws single in both sexes. Median lobe of aedeagus 'C'-shaped in lateral view, moderately curved (Fig. 3C); gradually narrowed from base to near apex in ventral view, apex furcate, with a deep acute-angled notch medially, lateral margins of apex straight and parallel (Fig. 3D). Parameres moderately broad, approximately the same width apically (Fig. 3E).

Habitat. In Laos all specimens were collected at lower altitudes between 180 and 300 m above sea level. The specimen from Sekong was attracted by a light trap placed near the border of a lowland river. The single specimen from Dong Natad was collected in a shallow swamp in lowland monsoon primary forest, associated with *Hyphydrus lyratus* (Swartz, 1808), *Hyphydrus* sp. and *Lacconectus* sp. For habitat photos see HENDRICH & BRANCUCCI (2013).

Distribution. China (Shanghai) (Fig. 20A), Indonesia, Laos, Malaysia, Thailand, Vietnam (RÉGIMBART 1899, ZIMMERMANN 1920, FENG 1936, NILSSON 1995, HENDRICH & BRANCUCCI 2013).

Cybister cf. *guerini* Aubé, 1838

(Figs 4A–E; 20A)

Cybister guerini Aubé, 1838: 57 (orig. descr.); SHARP (1882): 741 (China, Manchuria); RÉGIMBART (1899): 342 (Guangdong); FENG (1932): 35 (Guangdong); ZENG (1989): 91 (Guangdong).

Material examined. CHINA: GUANGDONG: 76 spec., Guangzhou, 14.xi.1964, T. X. Peng got from market (SYSU); 1 ♂ 1 ♀, Nanhai District, Xiqiaoshan Mt., 11.x.1973, S. T. Lu leg. (SYSU); 1 ♂ 2 ♀♀, Guangzhou (SYSU). HAINAN: 1 ♂, Lingshui County, Diaoluoshan Mt., Xiaomei Village, 29.xii.1963, L. F. Huang leg. (SYSU).

Diagnosis. TL 31–36 mm, elongate, oblong-oval (Fig. 4A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margins laterally; apex of yellow margin on elytra hooked. Ventral surface black; abdominal ventrites III–V with a yellow spot on each side (Fig. 4B). Dorsal surface dimorphic: smooth sometimes

with inconspicuous small granules in male, in female with isolated short, irregular striae on pronotum, and with dense longitudinal striae of various lengths on elytra except at its apex. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; metatarsal claws single in both sexes. Median lobe of aedeagus 'C'-shaped in lateral view, moderately curved (Fig. 4C); slightly narrow near apex in ventral view, apex furcate, with a notch medially, lateral margins of apex sinuate (Fig. 4D). Parameres moderately broad, strap-like apically (Fig. 4E).

Comments to classification. As already mentioned in HENDRICH & BRANCUCCI (2013), it will be necessary to study the type material of *C. guerini* and *C. limbatus* carefully before identifying freshly collected material. In many collections, historical specimens of the same species can be found under the two different names.

Habitat. The knowledge of habitat of *Cybister guerini* is very poor, all specimens examined here were collected in 1960s and 70s without habitat information. Some specimens from Guangzhou were obtained from a market.

Distribution. China (Guangdong, Hainan, Hong Kong, “Manchuria”) (Fig. 20A), India, Indonesia, Laos, Thailand, Vietnam (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b; GSCHWENDTNER 1938; VAZIRANI 1969; ZENG 1989; NILSSON 1995, NILSSON & HÁJEK 2022b). The record of *C. guerini* from Northeast China by SHARP (1882) is outside the distribution area of this Oriental species and needs to be confirmed. **First record from Hainan.**

Cybister laevis Falkenström, 1936

(Figs 5A–C; 20A)

Cybister laevis Falkenström, 1936: 243 (orig. descr.).

Cybister tripunctatus var. *laevis*: GSCHWENDTNER (1938: 64).

Type material. HOLOTYPE: ♀ (NHRS), labelled: “Giufu-Shan [Chongqing, Jinfoshan Mt.] / Szechuan / Em. Reitter [p] // *Cybister* ♀ / *laevis* / Falk. [hw] / det. Falkenström [p] // Typus [red label with black frame, p] // 7533 / E91 + [blue label, p] // NHRS-JLKB / 000073974 [p]”.

Diagnosis. See *Cybister tripunctatus lateralis*. Ventral side yellowish.

Comments to classification. The female type specimen has smooth elytra without any striolae – a condition which can be observed also in all females of *C. tripunctatus lateralis*. Since it is an odd, old museum specimen, it has a yellowish ventral side, which is not the case for *C. tripunctatus lateralis* from China, where the ventral side is always black or ferruginous in freshly hatched specimens. The size (26 mm) and the coloration of the dorsal side also indicate that *C. laevis* is conspecific with the variable and widespread *C. tripunctatus lateralis*, as already suggested by GSCHWENDTNER (1938).

Distribution. China (Chongqing) (Fig. 20A).



Fig. 4. *Cybister guerini* Aubé, 1838 (♂, Guangzhou, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

***Cybister lateralimarginalis torquatus*
(Fischer von Waldheim, 1829)**

(Figs 6A–E; 19B; 20B)

Dytiscus torquatus Fischer von Waldheim, 1829: 25 (orig. descr.).

Cybister chaudiarii Hochhuth, 1846: 213 (orig. descr.), synonymy by NILSSON (2001: 93).

Cybister hedini Zaitzev, 1908: 419 (orig. descr.), synonymy by NILSSON (2001: 93).

Cybister kansou Feng, 1936: 13 (orig. descr.), synonymy by JIA et al. (2010: 257).

Cybister lateralimarginalis chaudiarii: ZAITZEV (1972): 359 (Xinjiang).

Material examined. CHINA: NINGXIA: 1 ♀, Yinchuan, 9.–15.ix.1984, W. Ma leg. (SYSU). XINJIANG: 1 ♀, Ili River, 28.vii.2005, L. Zhao leg. (SYSU); 1 ♂ 1 ♀, Shule County, 21.vii.2006, L. Zhao leg. (SYSU). **WITHOUT PRECISE DATA:** 42 spec., donated by Xing-min Wang, purchased from market, without data (SYSU). TAJIKISTAN: 1 ♂ 1 ♀, Leninabad [Chudschand], 5.v.1978, Dr. Sobotka leg. (NMPC); 1 ♀, Leninabad, viii.1983, E. Tamplon leg. (LHCM). UZBEKISTAN: 2 ♂♂, Tashkent/Sirdarya Province, 50 km WSW Tashkent, near Chinaz (Yangi Chinoz Qorgoni), 40°57'N 68°43'E, 9.viii.2004, L. & E. Hendrich leg. (Loc. 5b) (LHCM); 1 ♀, Tashkent, Bektemir, Chirchiq floodplains, 41°15'57.64"N 69°22'58.37"E, 450 m, 21.iv.2009, L. & E. Hendrich leg. (LHCM);



Fig. 5. *Cybister laevis* Falkenström, 1936 (holotype ♀). A – habitus in dorsal view; B – habitus in ventral view; C – labels. Scale bar: 5.0 mm.

1 ♀, Tashkent “Botanicheskiy sad”, ponds, 23.–28.vi.2005, L. & E. Hendrich leg. (Loc. 4) (LHCM); 2 ♂♂ 6 ♀♀, Buchara, Kopon 15 km Ecocentr Dzejran, 21.v.1992, A. Snizek leg. (LHCM).

Diagnosis. TL 29–37 mm, elongate, oblong-oval (Fig. 6A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margin

laterally. Ventral surface yellow; middle of metaventrite and metacoxae reddish-brown to brown (Fig. 6B). Dorsal surface dimorphic: smooth sometimes with inconspicuous small granules in male, in female with isolated short, irregular striae on pronotum, and with dense longitudinal striae of various lengths on elytra except at its apex. Prosternal



Fig. 6. *Cybister lateralimarginalis torquatus* (Fischer von Waldheim, 1829) (♂, Shule County, Xinjiang). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E)

process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs yellow, midlegs and hindlegs yellow to brown; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral

side. Metatarsal claw single in both sexes. Median lobe of aedeagus ‘C’-shaped in lateral view, strongly curved (Fig. 6C); with acuminate protuberance on each side near apex in ventral view, apex rounded, slightly inflated (Fig. 6D). Parameres moderately broad, strap-like apically (Fig. 6E). **Comments to classification.** At first sight, many Central Asian and Chinese specimens of *Cybister lateralimarginalis torquatus* have a more elongate (i.e. less broadly oval)

habitus than European specimens of the nominotypical subspecies. Furthermore, in lateral view, some specimens of *C. lateralimarginalis* ssp. *torquatus* are slightly more flattened than *C. lateralimarginalis* from Europe. The lateral yellow margin on the elytra is wider in some specimens of *C. lateralimarginalis torquatus* than in most specimens of the nominotypical form. The extension of the striolation of the elytra in females can vary in both forms as does the shape of the outer posterior angle of the metafemora. The more individuals we have examined, the clearer it becomes that *Cybister lateralimarginalis* is a very variable species over its area of distribution, and the expression of the characteristics previously mentioned in the literature for separating subspecies can vary greatly (see also, e.g., HÁJEK et

al. 2019). Further genetic and morphological investigations are needed to determine whether the current subspecific concept of *C. lateralimarginalis* is justified or not.

Habitat. There is little knowledge about the habitat of *Cybister lateralimarginalis torquatus* in China. Some specimens were purchased from a market. In Uzbekistan most specimens were collected from exposed eutrophic ponds and ditches, mainly with bottle traps. The specimens from Bukhara were collected near steppe lakes at light.

Distribution. China (Gansu, Ningxia, Nei Mongol, Xinjiang) (Fig. 20B), Afghanistan, Georgia, India, Russia, Tajikistan, Turkmenistan, Turkey, Uzbekistan (ZAITZEV 1972, GHOSH & NILSSON 2012, NILSSON & HÁJEK 2022b).

First record from Tajikistan and Uzbekistan.



Fig. 7. *Cybister lewisianus* Sharp, 1873 (♂, Guangzhou, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

***Cybister lewisianus* Sharp, 1873**

(Figs 7A–E; 21A)

Cybister lewisianus Sharp, 1873: 46 (orig. descr.); SHARP (1882): 732 (Shanghai); RÉGIMBART (1899): 350 (Shanghai, Jiangxi); FENG (1932): 36 (Anhui; Wuhu, Beijing, Hubei; Wuchang, Jiangsu; Suzhou, Zhejiang; Hangzhou and Jiaying); ZHAO (1981): 110 (Fujian); ZENG (1989): 92 (Anhui, Beijing, Hubei, Jiangsu, Zhejiang); LI (1992): 36 (Liaoning).

Material examined. CHINA: GUANGDONG: 2 ♂♂ 1 ♀, Nanhai District, Jiujiang Township, 16.xi.1957, D. X. Gu leg. (SYSU); 6 ♂♂ 2 ♀♀, Guangzhou, 14.xi.1964, T. X. Peng got from market (SYSU). HAINAN: 1 ♀, Mt. Wuzhishan at Wuzhishan city, 15–24.vii.2011, Jingke Li leg. (SYSU). HUBEI: 2 ♂♂ 2 ♀♀, Wuchang, vii.1956, Q. Y. Hu leg. (SYSU).

Diagnosis. TL 23–27 mm, elongate, oblong-oval (Fig. 7A). Head dark green, clypeus reddish-brown. Pronotum and elytra dark green to black, with distinct yellow margins laterally. Ventral surface black, with lateral part of metaventricle and metacoxae reddish-brown; abdominal ventrites III–V with a yellow spot on each side (Fig. 7B). Dorsal surface smooth in both sexes. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventricle tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs yellow, midlegs and hindlegs yellow to reddish-brown; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; both sexes with a single metatarsal claw. Median lobe of aedeagus ‘C’-shaped in lateral view, moderately curved (Fig. 7C); slender in ventral view, apex rounded (Fig. 7D). Parameres moderately broad, strap-like apically (Fig. 7E).

Habitat. This species inhabits large ponds with aquatic plants (MORI & KITAYAMA 1993).

Distribution. China (Anhui, Beijing, Guangdong, Hainan, Hebei, Hubei, Jiangsu, Jiangxi, Liaoning, Shanghai, Zhejiang) (Fig. 21A), India, Indonesia, Japan, Vietnam (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b; GSCHWENDTNER 1938; ZAITZEV 1972; ZENG 1989; MORI & KITAYAMA 1993; NILSSON 1995; GHOSH & NILSSON 2012; NILSSON & HÁJEK 2022b). **First record from Guangdong and Hainan.**

***Cybister cf. limbatus* (Fabricius, 1775)**

(Figs 8A–E; 18F; 21A)

Dytiscus limbatus Fabricius, 1775: 230 (orig. descr.).

Dytiscus aciculatus Herbst, 1784: 123 (orig. descr.), synonymy by SCHÖNHERR (1808: 10).

Cybister limbatus: SHARP (1882: 739) (Manchuria); ZIMMERMANN (1919: 77) (Taiwan); KANO (1931: 176) (Taiwan); MORI & KITAYAMA (1993: 144) (Taiwan).

Material examined. CHINA: GUANGDONG: 1 ♀, Canton, Honam Island, P’an-yu District, 25.vii.1934, William E. Hoffmann leg. (SYSU); 1 ♂, Lung-tau Shan, Yiu vill., above Taokokwan, 600 m, 7.vi.1947, PM, Gressitt & Lam (SYSU); 13 ♂♂ 3 ♀♀, Guangzhou, 14.xi.1964, T. X. Peng got from market (SYSU). GUANGXI: 1 ♂, Nanning, 19.vi.1977, Z. H. Huang leg. (SYSU). HAINAN: 1 ♂, Sanya, 28.xii.1963, T. X. Peng leg. (SYSU); 1 ♂, Jianfengling Mt., 1.xi.1983, P. L. Chen leg. (SYSU); 1 ♀, Limushan Mt., 28.v.1984, G. R. Lin leg. (SYSU). YUNNAN: 1 ♀, Longling County, 1060 m, 24.vi.1956, B. S. Zhou leg. (SYSU).

Diagnosis. TL 33–39 mm, elongate, oblong-oval (Fig. 8A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margins laterally, apex of yellow margin on elytra hooked. Ventral surface black; abdominal ventrites III–V with a reddish-brown spot on each side (Fig. 8B). Dorsal surface dimorphic: smooth sometimes with inconspicuous small granules in male, in female with isolated short, irregular striae on pronotum and dense longitudinal striae of various length on elytra except at its apex. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventricle tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; both sexes with a single metatarsal claw. Median lobe of aedeagus ‘C’-shaped in lateral view, moderately curved (Fig. 8C); gradually narrowed from base to near apex in ventral view, apex furcate, with a deep obtuse-angled notch medially, lateral margins of apex concave (Fig. 8D). Parameres moderately broad, strap-like apically (Fig. 8E).

Comments to classification. As mentioned under *C. guerini*, it will be necessary to study the type material of *C. limbatus* and *C. guerini* to clarify the status of both taxa. Specimens of the same morphospecies can be found under the two different names in many historical collections (HENDRICH & BRANCUCCI 2013).

Habitat. This species inhabits deep ponds and abandoned paddy fields with aquatic plants (MORI & KITAYAMA 1993, HENDRICH & BRANCUCCI 2013); specimens from Danxiashan Mt. (Guangdong) were found in a temporary pond in a valley (Fig. 18F). In Thailand, the adults prey on larvae and pupae of *Aedes aegypti* (Linnaeus, 1762) and *Culex quinquefasciatus* Say, 1823 (YUKALAND 2005). The species is sold as food in Thailand (CHEN et al. 1998) and Laos (HENDRICH & BRANCUCCI 2013).

Distribution. China (Guangdong, Guangxi, Hainan, Taiwan, Xizang, Yunnan, “Manchuria”) (Fig. 21A), Afghanistan, India, Japan, Laos, Myanmar, Nepal, Pakistan, Philippines, Thailand, Vietnam (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b; GSCHWENDTNER 1938; VAZIRANI 1969; ZAITZEV 1972; MORI & KITAYAMA 1993; NILSSON 1995; GHOSH & NILSSON 2012; HENDRICH & BRANCUCCI 2013; NILSSON & HÁJEK 2022b). The record of *C. limbatus* from Northeast China by SHARP (1882) is outside the distribution area of this Oriental species and needs to be confirmed. **First records from Guangdong, Guangxi and Hainan.**

***Cybister rugosus* (W. S. Macleay, 1825)**

(Figs 9A–E; 18D–E, G; 19C; 21A)

Dytiscus rugosus W. S. Macleay, 1825: 32 (orig. descr.).

Cybister indicus Aubé, 1838: 62 (orig. descr.), synonymy by SHARP (1882: 992).

Cybister rugosus: NILSSON (1995): 78 (Taiwan).

Material examined. CHINA: CHONGQING: 1 ♂, Fengdu County, Shiping Village, 610 m, 5.x.1994, J. Chen leg. (SYSU); 2 ♂♂, Fengdu County, Shiping Village, 580 m, 6.x.1994, J. Yao leg. (SYSU). **GUANGDONG:** 1 ♂ 2 ♀♀, suburbs of Guangzhou, 6.xi.1956 (SYSU); 1 ♀, Nanhai District, Jiujiang Township, 16.xi.1957, D. X. Gu leg. (SYSU); 69 spec., Guangzhou, 14.xi.1964, T. X. Peng got from market (SYSU); 1 ♂, Sanshui District, 18.xi.1964, T. X. Peng leg. (SYSU); 2 ♂♂, Nanhai District, Xiqiaoshan Mt., 11.x.1973, S. T. Lu leg. (SYSU); 1 ♂, Guangzhou, Sun Yat-sen University, x.1973, S. T. Lu leg. (SYSU); 1 ♂, Dinghushan Mt., 28.vi.1978, Z. Y. Wang leg. (SYSU); 1 ♂, Guangzhou, Sun Yat-sen

University, in front of Huaishitang, 2.x.1999, L. Z. Hua leg. (SYSU); 1 ♀, Shaoguan, Danxiashan Mt., 30.v.–8.vi.2008, F. L. Jia leg. (SYSU); 1 ♂, Fengkai County, He'erkou, light trap, 2.xii.2010, L. J. Yang & Y. L. Yu leg. (SYSU). **HUBEI:** 1 ♀, Hwang-mei & vicinity, Hwang-mei Dist., 9.–11.vii.1935, H. W. Djou (SYSU). **HUNAN:** 1 ♂, Tongdao County, 20.viii.1982, Z. H. Huang leg. (SYSU); 1 ♂, Hengyang, Zhoujiaao, 28.vi.1986, Q. Zou leg. (SYSU). **JIANGXI:** 1 ♀, main peak of Jinggangshan Mt., 1.ix.2011, L. J. Yang leg. (SYSU); 1 ♂, Nanchang (SYSU); 1 ♀, Shusi, H. Y. Cai leg. (SYSU). **YUNNAN:** 1 ♀, Yingjiang County, 820 m, 25.v.1983, L. Z. Hua leg. (SYSU). **ZHEJIANG:** 2 ♀♀, Kecheng district,



Fig. 8. *Cybister limbatus* (Fabricius, 1775) (♂, Guangzhou, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

Lankeshan Mt., Quzhou, 28.8781N, 118.9199E, 118 m, 18.iii.2020, Z. Y. Jiang leg. (SYSU).

Diagnosis. TL 27–33 mm, elongate, oblong-oval (Fig. 9A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margins laterally, apex of yellow margin on the elytra hooked. Ventral surface black with lateral part of metaventrite and metacoxae yellow; abdominal ventrites I–V with yellow spot on each side (Fig. 9B). Dorsal surface dimorphic:

smooth sometimes with inconspicuous small granules in male; in female with isolated short, irregular striae on pronotum and dense longitudinal striae of various length on elytra at its apex. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs yellow, midlegs and



Fig. 9. *Cybister rugosus* (W. S. Macleay, 1825) (♂, Fengkai County, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

hindlegs yellow to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; both sexes with a single metatarsal claw. Median lobe of aedeagus ‘C’-shaped in lateral view, moderately curved (Fig. 9C); slightly narrow near apex in ventral view, apex furcate, with a notch medially, lateral margins of apex concave (Fig. 9D). Parameres moderately broad, strap-like apically (Fig. 9E).

Habitat. This species inhabits ponds, abandoned paddy fields and wetlands with aquatic plants (MORI & KITAYAMA 1993); specimens from Shenzhen (Guangdong) were found in a lowland marsh (Figs 18D–E) and specimens from Lankeshan Mt. (Zhejiang) were found in a natural pond (Fig. 18G).

Distribution. China (Chongqing, Guangdong, Hubei, Hunan, Jiangxi, Taiwan, Yunnan, Zhejiang) (Fig. 21A), Cambodia, Indonesia (Java, Kalimantan), Japan, Laos, Malaysia, Singapore, Thailand, Vietnam (RÉGIMBART 1899, ZIMMERMANN 1920, GSCHWENDTNER 1938, MORI & KITAYAMA 1993, NILSSON 1995, HENDRICH et al. 2004, HENDRICH & BRANCUCCI 2013). **First record from Chongqing, Guangdong, Hubei, Hunan, Jiangxi, Yunnan and Zhejiang.**

Cybister tripunctatus lateralis (Fabricius, 1798)

(Figs 10A–E; 18D–F; 19D; 21B)

Dytiscus lateralis Fabricius, 1798: 64 (orig. descr.).

Cybister asiaticus Sharp, 1882: 731 (orig. descr.), synonymy by NILSSON (2001: 90).

Cybister gotschii Hochhuth, 1846: 214 (orig. descr.), synonymy by NILSSON (2001: 90).

Cybister similis Régimbart, 1899: 352 (orig. descr.), synonymy by NILSSON (2001: 90).

Cybister tripunctatus orientalis Gschwendtner, 1931: 99 (orig. descr.), synonymy by NILSSON (2001: 90); FENG (1932): 37 and FENG (1933a): 329 (Sichuan, Hubei: Wuchang, Fujian: Fuzhou and Xiamen, Guangdong, Hainan); BRINCK (1946): 151 (Heilongjiang); ZHAO (1981): 110 (Fujian); ZENG (1989): 91 (Fujian, Guangdong, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Yunnan, Xizang, Zhejiang); LI (1992): 36 (NE China); PU et al. (1992): 484 (Yunnan); MORI & KITAYAMA (1993): 142 (Taiwan).

Cybister szechwanensis Falkenström, 1936: 238 (orig. descr.), synonymy by JIA et al. (2010: 258).

Cybister tripunctatus lateralis: JIA et al. (2010): 258 (NE China, N China, Fujian, Guangdong, Hainan, Hubei, Hunan, Jiangsu, Sichuan, Taiwan, Yunnan, Xizang, Zhejiang).

Material examined. CHINA: CHONGQING: 1 ♀, Jinyunshan Mt., 800 m, 13.vi.1994, Y. W. Zhang leg. (SYSU). FUJIAN: 1 ♂, Haitong, NR., Foot How, iii.1926, H. T. Chen (SYSU); 1 ♂, Fuqing, Xitai, 6.–13.x.1932 (SYSU); 1 ♂, Nan-ping District, Yen-ping, vi.–vii.1933, D. C. Ngu (SYSU). GUANGDONG: 1 ♂ 2 ♀♀, Ch’eng-hai District, K’ei-luk, Swatow, viii.1932, Y. C. Ng (SYSU); 1 ♂, Lingnan University, 10.vi.1948 (SYSU); 3 ♀♀, suburbs of Guangzhou, 6.xi.1956 (SYSU); 1 ♂ 2 ♀♀, Guangzhou, Honam Island, 2.–9.xi.1957, D. X. Gu leg. (SYSU); 6 ♂♂ 6 ♀♀, Nanhai District, Jiujiang Township, 16.xi.1957, D. X. Gu leg. (SYSU); 1 ♂ 2 ♀♀, Guangzhou, Xinshi, 11.x.1964, C. M. Chen & Z. W. Huang leg. (SYSU); 1 ♂, Guangzhou, Lianhe, 18.x.1964, Z. Y. Chen leg. (SYSU); 1 ♀, Guangzhou, Baiyunshan Mt., 2.xi.1964, J. C. Bao leg. (SYSU); 126 spec., Guangzhou, 14.xi.1964, T. X. Peng got from market (SYSU); 1 ♀, Guangzhou, 18.xi.1964, T. X. Peng leg. (SYSU); 1 ♂, Nanhai District, Shijing Village, 10.x.1973, S. T. Lu leg. (SYSU); 84 spec., Nanhai District, Xiqiaoshan Mt., 10.–11.x.1973, S. T. Lu leg. (SYSU); 1 ♂ 2 ♀♀, suburbs of Guangzhou, Renhe Township, 26.–27.x.1973, S. T. Lu leg. (SYSU); 1 ♀, Nanhai District, 2.xi.1973, S. T. Lu leg. (SYSU); 1 ♂, Shunde District, Xingtian Township, 2.xi.1973, S. T. Lu leg. (SYSU);

1 ♀, Guangzhou, Baiyunshan Mt., 6.xi.1973, S. T. Lu leg. (SYSU); 1 ♀, Ruyuan County, Luoyang Commune, 26.v.1974, C. Liao leg. (SYSU); 1 ♂, Guangzhou, Kangle, 28.iv.1989, F. L. Jia leg. (SYSU); 1 ♂ 1 ♀, Shenzhen, Noi Ling Ding Island, 20.x.1998, H. D. Chen leg. (SYSU); 1 ♂ 1 ♀, Xinhui District, viii.2001, X. L. Tong leg. (SYSU); 4 ♂♂ 11 ♀♀, Gaoming District, Yangmei Township, 20.–27.iv.2006, F. L. Jia et al. leg. (SYSU); 1 ♂, Lian County, Dadongshan Mt., 3.–9.vii.2008, W. C. Xie leg. (SYSU); 1 ♀, Lianjiang City, 26. ix.2008 (SYSU); 1 ♂, Fengkai County, Heishiding, 5.x.2011, Y. Li leg. (SYSU). GUANGXI: 2 ♂♂, Rong County, 10.x.1962, D. X. Gu leg. (SYSU); 4 ♂♂ 2 ♀♀, Nanning, 19.vi.1977, Z. H. Huang leg. (SYSU). HAINAN: 1 ♂, Jianfengling Mt., 18.xii.1963, T. X. Peng leg. (SYSU); 3 ♂♂ 1 ♀, Sanya, 24.xii.1963, T. X. Peng leg. (SYSU); 1 ♂, Dongfang-Huangliu, 25.xii.1963, T. X. Peng leg. (SYSU); 2 ♂♂, Tongshi, 27.xii.1963, T. X. Peng leg. (SYSU); 1 ♂, Lingshui County, Diaoluoshan Mt., Xiaomei Village, 29.xii.1963, L. F. Huang leg. (SYSU); 1 ♀, Qionghai, Shangyong Village, light trap, 17.vii.1984, C. L. Wang leg. (SYSU). HUBEI: 1 ♂, Zigui County, Maoping Township, 80 m, 28.iv.1994, W. Z. Li leg. (SYSU). HUNAN: 2 ♂♂, Tongdao County, 20.viii.1982, Z. H. Huang leg. (SYSU); 1 ♀, Hengyang, Zhoujiaao, 2.vii.1986, Q. Zou leg. (SYSU). JIANGXI: 1 ♀, Nanchang, iii.1963, X. W. Chen leg. (SYSU); 1 ♀, Nanchang (SYSU). SHANGHAI: 1 ♂, Shanghai, 16.ii.1926, W. E. Hoffmann (SYSU). YUNNAN: 1 ♀, Xishuangbanna, Menglun Township, light trap, 580 m, 13.ix.1993, H. L. Xu leg. (SYSU); 1 ♀, Xishuangbanna Tropical Botanical Garden, 650 m, 9.viii.2003, Y. Zhang leg. (SYSU). XIZANG: 1 ♀, Gyirong County, Gyirong Commune, 26.vii.1984, Z. X. Yan leg. (SYSU); 5 ♂♂ 10 ♀♀, Linzhi, Médog County, Beibeng Township, Didong Village, 840 m, 16.viii.2006, M. Bai leg. (SYSU); 3 ♂♂ 1 ♀, Linzhi, Médog County, Beibeng Township, 887 m, 17.viii.2006, M. Bai leg. (SYSU); 3 ♂♂ 2 ♀♀, Linzhi, Médog County, Yarang Township, Didong Village, 760 m, 19.viii.2006, M. Bai leg. (SYSU); 20 spec., Linzhi, Médog County, 1084 m, 21.viii.2006, M. Bai leg. (SYSU); 20 spec., Linzhi, Médog County, 1084 m, 23.viii.2006, M. Bai leg. (SYSU); 1 ♂, Linzhi, Médog County 80K, 2110 m, 24.viii.2006, M. Bai leg. (SYSU).

Diagnosis. TL 24–28 mm, elongate, oblong-oval (Fig. 10A). Head dark green, clypeus yellow. Pronotum and elytra dark green to black, with distinct yellow margins laterally, apex of yellow margin on the elytra slightly hooked. Ventral surface black, sometimes with lateral part of metaventrite and metacoxae yellow; abdominal ventrites III–V with a yellow spot on each side (Fig. 10B). Dorsal surface smooth in both sexes. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; metatarsal claws single in both sexes. Median lobe of aedeagus ‘C’-shaped in lateral view, moderately curved (Fig. 10C); slightly narrow near apex in ventral view, apex furcate, with a deep acute-angled notch medially, lateral margins of apex convex (Fig. 10D). Parameres moderately broad, tapering apically (Fig. 10E). **Habitat.** The most common species of the genus in Southeast Asia. An eurytopic species which is widespread in artificial habitats such as irrigation channels, flooded paddy fields, open swamps, fish and ornamental ponds and larger ditches, even in urban and suburban areas (MORI & KITAYAMA 1993, HENDRICH et al. 2004). Specimens from Shenzhen (Guangdong) were found in a lowland marsh (Figs 18D–E) and specimens from Danxiashan Mt. (Guangdong) were found in a temporary pond in a valley (Fig. 18F).

Distribution. China (Chongqing, Fujian, Guangdong, Guangxi, Hainan, Hebei, Heilongjiang, Hubei, Hunan, Jiangsu, Jiangxi, Macao, Shanghai, Sichuan, Taiwan, Yunnan, Xizang, Zhejiang) (Fig. 21B), Afghanistan, United Arab Emirates, Azerbaijan, Bhutan, Cyprus, India, Iran, Iraq, Japan, Kyrgyzstan, Laos, Mongolia, Nepal, Oman, Pakistan, Russia, Singapore, Syria, Thailand, Tajikistan,

Turkmenistan, Turkey, Uzbekistan (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933a,b; GSCHWENDTNER 1938; VAZIRANI 1969; ZAITZEV 1972; ZENG 1989; MORI & KITAYAMA 1993; HENDRICH et al. 2004; GHOSH & NILSSON 2012; HENDRICH & BRANCUCCI 2013; NILSSON & HÁJEK 2022b). **First record from Chongqing, Guangxi, Jiangxi and Shanghai.**



Fig. 10. *Cybister tripunctatus lateralis* (Fabricius, 1798) (♂, Guangzhou, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

***Cybister ventralis* Sharp, 1882**

(Figs 11A–E; 22A)

Cybister ventralis Sharp, 1882: 742 (orig. descr.); KANO (1931): 177 (Taiwan); FENG (1933a): 329 (Sichuan, Shandong: Qingdao).**Material examined.** None from China. **INDIA:** 1 ♂ 2 ♀♀, Behar, India or., Coll. A. Zimmermann (ZSMG). **SRI LANKA:** 1 ♀, Negombo, 1899, W. Horn, Coll. A. Zimmermann (ZSMG).**Diagnosis.** TL 28–32 mm, broad, oblong-oval (Fig. 11A). Head dark green, clypeus yellow. Pronotum dark green to black with lateral yellow margins projecting a little inwards along anterior margin behind eyes; elytra dark green to black, with distinct yellow margin laterally, apex of yellow margin on elytra hooked. Ventral surface yellow

with central part of metaventrite and metacoxae black; abdominal ventrites III–V yellowish with a dark brown band anteriorly (Fig. 11B). Dorsal surface dimorphic in females: smooth or with isolated short, irregular striae on pronotum and dense longitudinal striae of three-fourths of elytral length from base. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs and midlegs yellow, tarsi darker; metafemur and metatibia yellow with broad dark brown marking; female with a



Fig. 11. *Cybister ventralis* Sharp, 1882 (♂♀, Pusa, Bihar, India). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

single metatarsal claw. Median lobe of aedeagus 'C'-shaped in lateral view, moderately curved (Fig. 11C); slightly narrow near apex in ventral view, apex furcate, with a notch medially, lateral margins of apex concave (Fig. 11D). Parameres more elongate, strap-like apically (Fig. 11E).

Distribution. China (Macao, Sichuan, Shandong, Taiwan) (Fig. 22A), Bangladesh, India, Myanmar, Pakistan, Sri Lanka (RÉGIMBART 1899, ZIMMERMANN 1920, KANO 1931, FENG 1933a, VAZIRANI 1969, NILSSON 1995, GHOSH & NILSSON 2012, NILSSON & HÁJEK 2022b).

Subgenus *Melanectes* Brinck, 1945

Type species. *Cybister owas* Laporte, 1835.

Diagnosis. Without distinctive yellow or pale margins on

the elytron and pronotum. Males with a single metatarsal claw; females with two claws, the posterior claw small.

Included (Chinese) species. *Cybister brevis* Aubé, 1838; *C. convexus* Sharp, 1882; *C. danxiaensis* sp. nov.; *C. posticus* Aubé, 1838; *C. sugillatus* Erichson, 1834.

Cybister brevis Aubé, 1838

(Figs 12A–E; 18G; 22A)

Cybister brevis Aubé, 1838: 98 (orig. descr.); KANO (1931): 177 (Taiwan); FALKENSTRÖM (1936): 238 (Sichuan); LI (1992): 36 (Liaoning).

Material examined. CHINA: GUZHOU: 1 ♂, Jiangkou County, Shengxisi, 19.vi.1984 (SYSU); 1 ♂, west slope of Fanjingshan Mt., Huguosi, 1.viii.2001, H. Pang leg. (SYSU). HUNAN: 1 ♂, Longshan County, Tongche, 5.vi.1965, Z. Y. Chen leg. (SYSU). ZHEJIANG: 2 ♂♂ 1 ♀, Quzhou, Kecheng district, Lankeshan Mt., 28.8781N, 118.9199E, 118 m, 18.iii.2020, Z. Y. Jiang leg. (SYSU).



Fig. 12. *Cybister brevis* Aubé, 1838 (♂, Lankeshan Mt., Zhejiang). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

Diagnosis. TL 20–25 mm, elongate, oblong-oval (Fig. 12A). Head dark green, clypeus orange. Pronotum and elytra dark green to black, apex of elytra with reddish-brown spots. Ventral surface black; abdominal ventrites III–IV with a yellow spot on each side (Fig. 12B). Head and pronotum densely covered with coarse punctures, elytra sparsely covered with inconspicuous small granules. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of

punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; male with a single metatarsal claw; female with two metatarsal claws, posterior claw small and sinuate. Median lobe of aedeagus ‘C’-shaped in lateral view, slightly curved, gradually broader from base to apex, then strongly narrowing at apex (Fig. 12C); broad medially in ventral view, apex obtuse-angled (Fig. 12D). Parameres moderately broad, strap-like apically (Fig. 12E).

Habitat. This species inhabits ponds, abandoned paddy fields and ditches of paddy fields with aquatic plants (MORI



Fig. 13. *Cybister convexus* Sharp, 1882 (♂, Kunming, Yunnan). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

& KITAYAMA 1993); specimens from Lankeshan Mt. (Zhejiang) were found in a natural pond (Fig. 18G).

Distribution. China (Guizhou, Hunan, Liaoning, Sichuan, Taiwan, Zhejiang) (Fig. 22A), Japan, South Korea (RÉGIMBART 1899, ZIMMERMANN 1920, FENG 1933a, GSCHWENDTNER 1938, ZAITZEV 1972, MORI & KITAYAMA 1993, NILSSON 1995, NILSSON & HÁJEK 2022b). **First record from Guizhou, Hunan and Zhejiang.**

***Cybister convexus* Sharp, 1882**

(Figs 13A–E; 18H; 19E; 22A)

Cybister convexus Sharp, 1882: 718 (orig. descr.); RÉGIMBART (1899): 353 (Yunnan); FENG (1932): 35 (Yunnan); VAZIRANI (1969): 284 (Yunnan); ZENG (1989): 93 (Yunnan).

Material examined. CHINA: YUNNAN: 1 ♂, Tia Feng on (Grassy hill 3ml. N Yunnanfu). 25.viii.1934, C. Brownell leg. (SYSU); 1 ♀, Honghe Hani-Yi Autonomous Prefecture, Lvchun County, Niukong Township Section, terrace, 22.9873N, 102.2675E, 1336 m, 30.iv.2021, Z. Y. Jiang, Z. M. Yang, B. P. Huang & Z. Q. Mai leg. (SYSU); 1 ♀, Dehong Dai Aut. Pref. mount. Range 31 km E Luxi, 2280 m, 24°29'31"N 98°52'58"E, 3.vi.2007, D.W. Wrase leg. (LHCM); 1 ♂, Yunnan, Baoshan Pref. mount. Range, 22 km S Tengchong, 1750m, 24°49'29"N 98°29'27"E (in fishpond), 30.viii.2009, D. W. Wrase leg. (LHCM).

Diagnosis. TL 24–30 mm, elongate, oblong-oval (Fig. 13A). Head, pronotum and elytra dark green to black, apex of elytra with reddish-brown spots. Ventral surface black; abdominal ventrites III–IV with a yellow spot on each side (Fig. 13B). Head and pronotum smooth, elytra densely covered with conspicuous small granules. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventricle tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Legs black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; male with a single metatarsal claw; female with two metatarsal claws, posterior claw small and sinuate. Median lobe of aedeagus ‘C’-shaped in lateral view, slightly curved, broadest at middle, strongly narrowing in apical fifth, apex rounded (Fig. 13C); broad medially in ventral view, apical fifth slender like a tubular spine, apex truncated (Fig. 13D). Parameres moderately broad, strap-like apically (Fig. 13E).

Habitat. The habitat information is not well known for this species. It can be found from hilly to high mountain regions (ATTHAKOR et al. 2018). In Yunnan, it was collected in a water-filled rut on a forest track from Dehong (HENDRICH 2008) and in a fish pond. In Lvchun County it was collected at night from terraced fields (Fig. 18H).

Distribution. China (Yunnan) (Fig. 22A), India, Thailand (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b; GSCHWENDTNER 1938; VAZIRANI 1969; ZENG 1989; GHOSH & NILSSON 2012; ATTHAKOR et al. 2018).

***Cybister (Melanectes) danxiaensis* sp. nov.**

(Figs 14A–E; 15A–E; 22B)

Type locality. China, Guangdong Province, Shaoguan, Renhua County, Danxiashan Mt., ca. 25.0244N, 113.7158E.

Type material. HOLOTYPE: ♂ (SYSU), labelled: “广东仁化丹霞 / 1941. VIII / 林平 [hw] // CHINA: Guangdong Province / Renhua County /

Danxiashan Mt. / viii.1941, Ping Lin leg. [p] // HOLOTYPE / *CYBISTER danxiaensis* sp. nov. / Jiang, Zhao, Mai & Jia det. 2021 [red label, p]”.

Description. *Habitus* (Fig. 15A) elongate oblong oval, with continuous outline, widest in apical third of elytra, moderately convex. Dorsal surface distinctly matt. TL 21.7 mm; TL-h 19.4 mm. MW 11.3 mm.

Colouration. Head black; pronotum black with broad brown sides; elytra blackish brown; appendages black; ventral side blackish brown.

Head moderately broad, ca. 0.6× width of pronotum, trapezoidal. Surface densely covered with fine punctures. A pair of depressions present near anterior margin of clypeus. Anterior margin of clypeus concave. Labium and genae with some punctures near gular suture. Antenna with antennomeres long and slender.

Pronotum transverse (width/length ratio = 2.36), broadest between posterior angles, lateral margins moderately curved, without lateral bead. Punctuation double; coarse setigerous puncture row present along anterior margin, with a perpendicular setigerous puncture row laterally that does not reach posterior margin; fine punctures dense throughout whole surface. Centre of disc with a moderately impressed longitudinal line medially.

Elytra with dense large protuberances that are arranged almost in rows; each protuberance with a puncture medially in which is a small granule (Fig. 14A). Punctuation double; larger punctures sparse between protuberances; finer punctures dense throughout whole surface. Medioapical area of elytra with a field of short, coarse setae (Fig. 14B).

Ventral side (Fig. 15B). Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed (Fig.

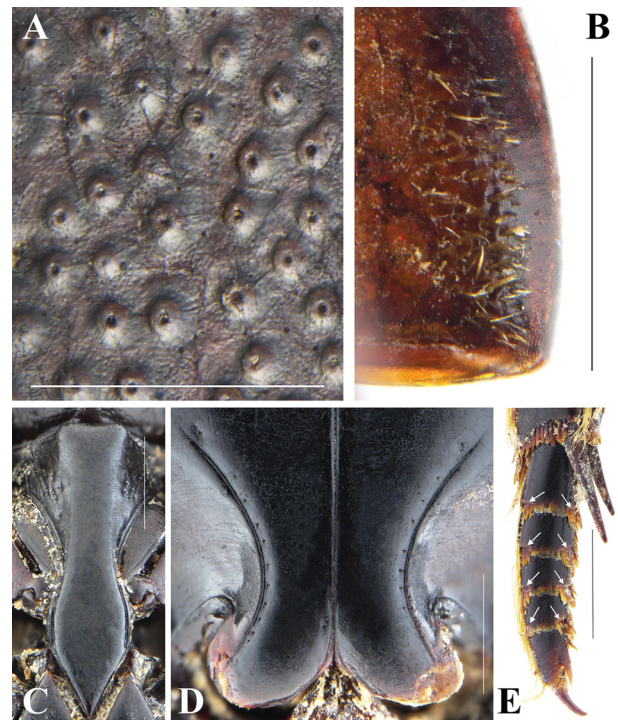


Fig. 14. Morphological characters of *Cybister danxiaensis* sp. nov. A – detail of elytral structure; B – Medioapical area of elytra viewed with sutural margin at bottom of picture; C – prosternal process; D – metacoxal lines; E – mesotarsomeres. Scale bars: 1.0 mm.

14C). Lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures (Fig. 14D). Lateral part of abdominal ventrites without spot.

Legs. Protarsomeres 1–3 with four rows of adhesive setae on their ventral side, broadly expanded into a palette; claws simple. Mesotibia with setae in a continuous line on posteroapical margin; mesotarsomeres with two separate series of setae present along posteroventral and posterodorsal apical margin; claws simple (Fig. 14E). Hindlegs lost.

Male genitalia. Median lobe of aedeagus ‘C’-shaped in lateral view, strongly curved, broadest at middle, strongly narrowing in apical fourth, apex rounded (Fig. 15C); in ventral view broad at base, apical fourth slender like a tubular spine, apex rounded (Fig. 15D). Parameres moderately broad, distinctly curved in apical third, strap-like apically (Fig. 15E).

Female. Unknown.

Differential diagnosis. Based on the pronotum and elytra without distinct lateral yellow margins, the new species can be assigned to subgenus *Melanectes* (MILLER et al.



Fig. 15. *Cybister danxiaensis* sp. nov. (holotype ♂). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

2007). Within the subgenus, the new species is similar to *Cybister sugillatus* but can easily be recognized by the large punctate protuberances on the elytra and the longer apical slender part of the median lobe of the aedeagus (elytra smooth without punctate protuberances, apical slender part of median lobe of aedeagus shorter in *C. sugillatus*).

Etymology. The species is named after the type locality, Danxiashan Mt., Guangdong Province, China; the name is an adjective.

Distribution. So far known only from the type locality in northern Guangdong, China (Fig. 22B).

***Cybister posticus* Aubé, 1838**

(Figs 16A–E; 22B)

Cybister posticus Aubé, 1838: 87 (orig. descr.); JIA et al. (2010): 259 (Xizang: Zayü County).

Material examined. CHINA: XIZANG: 1 ♂, Mêdog County, Beibeng Township, 800 m, 5. ix.1974, F. S. Huang leg. (SYSU); 1 ♀, Bomê County, Yigong, 1450 m, 9.v.1983, Y. H. Han leg. (SYSU); 1 ♂ 1 ♀, Zayü County, Xia Zayü, 28.50N 97.00E, 4.–8.x.2007, F. M. Shi leg. (SYSU).

Diagnosis. TL 23–35 mm, elongate, oblong-oval (Fig. 16A). Head dark green, clypeus reddish-brown. Pronotum and elytra dark green to black, apex of elytra with reddish-brown



Fig. 16. *Cybister posticus* Aubé, 1838 (♂, Zayü County, Xizang). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

spots. Ventral surface black; abdominal ventrites III–IV with a yellow spot on each side (Fig. 16B). Head and pronotum smooth, elytra densely covered with conspicuous small granules. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventricle tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to brown; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae

on their ventral side; male with a single metatarsal claw; female with two metatarsal claws, posterior claw small and sinuate. Median lobe of aedeagus ‘C’-shaped in lateral view, slightly curved, broadest at middle, strongly narrowing in apical fifth, apex rounded (Fig. 16C); broad medially in ventral view, apical fifth slender like a tubular spine, apex rounded (Fig. 16D). Parameres moderately broad, strap-like apically (Fig. 16E).

Habitat. Although this species is widely distributed in India, nothing is known about its habitat.

Distribution. China (Xizang) (Fig. 22B), Bangladesh, In-



Fig. 17. *Cybister sugillatus* Erichson, 1834 (♂, Shenzhen, Guangdong). A – habitus in dorsal view; B – habitus in ventral view; C – median lobe of aedeagus in lateral view; D – median lobe of aedeagus in ventral view; E – paramere. Scale bars: 5.0 mm (A, B), 1.0 mm (C–E).

dia, Nepal, Pakistan (RÉGIMBART 1899, ZIMMERMANN 1920, VAZIRANI 1969, JIA et al. 2010, GHOSH & NILSSON 2012).

Cybister sugillatus Erichson, 1834

(Figs 17A–E; 18D–E, H; 19F; 22B)

Cybister sugillatus Erichson, 1834: 227 (orig. descr.); RÉGIMBART (1899): 355 (Xizang); ZIMMERMANN (1919): 77 (Taiwan); KANO (1931): 176 (Taiwan); FENG (1932): 36 (Beijing, Fujian; Fuzhou and Xiamen, Guangdong, Hainan, Hubei; Wuchang, Jiangxi, Sichuan, Xizang, Zhejiang); FALKENSTRÖM (1936): 238 (Sichuan); ZHAO (1981): 110 (Fujian); ZENG (1989): 92 (Beijing, Fujian, Guangdong, Hainan, Hubei, Jiangxi, Sichuan, Xizang, Zhejiang); MORI & KITAYAMA (1993): 142 (Taiwan).

Cybister bisignatus Aubé, 1838: 88 (orig. descr.), synonymy by SHARP (1882: 991).

Cybister notasicus Aubé, 1838: 90 (orig. descr.), synonymy by SHARP (1882: 717).

Cybister olivaceus Boheman, 1858: 21 (orig. descr.), synonymy by SHARP (1882: 717).

Material examined. CHINA: GUANGDONG: 8 ♂♂ 7 ♀♀, Guangzhou, 14.xi.1964, T. X. Peng purchased from market (SYSU); 1 ♀, Ruyuan County, Tianjingshan Mt., 8.viii.1980, Q. X. Zhang leg. (SYSU); 1 ♂, Fengkai County, Heishiding, 10.iv.1985, W. Wu leg. (SYSU); 1 ♂, Fengkai County, Heishiding, 14.vii.1999, Y. C. Wang leg. (SYSU); 1 ♀, Fengkai County, Heishiding, 12.vii.2000, Y. L. Feng leg. (SYSU); 2 ♂♂ 2 ♀♀, Gaoming District, Yangmei Township, 20–27.iv.2006, D. P. Wu, N. Yu, Q. S. Liu & Y. Y. Niu leg. (SYSU); 1 ♂, Zhuhai, back mountain of Sun Yat-Sen University, 5.–8.vii.2011, F. L. Jia leg. (SYSU). GUANGXI: 1 ♀, Rong'an County, Dajiang-Yayao, 28.iv.1959 (SYSU); 2 ♂♂ 1 ♀, Nanning, iii.2001, L. Hojný leg. (NMPC); 1 ♂, Jingxi, Bangliang Nature Reserve, 1.viii.2010, J. H. Huang leg. (SYSU). HAINAN: 1 ♂, Cheung-kon-ts'uen, Ka-luk-kong (18ml. E. of Nam-fung), Kiung-shan Dist., 29.–31.iii.1935, F. K. To leg. (SYSU); 1 ♀, Lingshui County, 1.i.1964, T. X. Peng leg. (SYSU); 1 ♀, Jiangfengling, the third partition, 24.xi.1981, J. P. Lu leg. (SYSU); 1 ♂, Jiangfengling, Heiling, 10.vii.1982, L. Z. Hua leg. (SYSU). HONG KONG: 1 ♂, Hong Kong, 1934 (SYSU). YUNNAN: 1 ♂ 1 ♀, Chengjiang County, 30.iv.1932, Z. L. Pu leg. (SYSU).

Diagnosis. TL 18–23 mm, elongate, oblong-oval (Fig. 17A). Head, pronotum and elytra dark green to black, lateral part of pronotum reddish-brown, apex of elytra with reddish-brown spots. Ventral surface black; abdominal ventrites III–IV with a yellow spot on each side (Fig. 17B). Dorsal surface smooth. Prosternal process lanceolate, with distinct lateral bead, surface flat, apex pointed; lateral parts of metaventrite tongue-shaped, slender, not reaching lateral margins; metacoxal lines distinct, well impressed, nearly parallel medially, divergent anteriorly, along metacoxal lines with a row of punctures. Forelegs reddish-brown, midlegs and hindlegs reddish-brown to black; protarsomeres 1–3 of male broadly expanded into a palette, with four rows of adhesive setae on their ventral side; male with a single metatarsal claw; female with two metatarsal claws, posterior claw small and sinuate. Median lobe of aedeagus 'C'-shaped in lateral view, strongly curved, broadest at middle, strongly narrowing in apical fifth, apex rounded (Fig. 17C); broad medially in ventral view, apical fifth slender like a tubular spine, apex rounded (Fig. 17D). Parameres moderately broad, strap-like apically (Fig. 17E).

Habitat. This species inhabits not only ponds, wetlands, abandoned paddy fields and ditches of paddy fields with aquatic plants, but also eutrophic waters near grazing land

(MORI & KITAYAMA 1993). Specimens from Shenzhen (Guangdong) were found in a lowland marsh (Figs 18D–E) and specimens from Lvchun County (Yunnan) were found in terraced fields (Fig. 18H).

Distribution. China (Beijing, Fujian, Guangdong, Guangxi, Hainan, Hebei, Hong Kong, Hubei, Jiangxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang) (Fig. 22B), Afghanistan, Bhutan, India, Indonesia, Japan, Laos, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka (RÉGIMBART 1899; ZIMMERMANN 1920; FENG 1932, 1933b; GSCHWENDTNER 1938; VAZIRANI 1969; ZAITZEV 1972; ZENG 1989; MORI & KITAYAMA 1993; NILSSON 1995; HENDRICH et al. 2004; GHOSH & NILSSON 2012; HENDRICH & BRANCUCCI 2013; NILSSON & HÁJEK 2022b). **First record from Guangxi and Yunnan.**

Key to the Chinese species of *Cybister*

- 1 Pronotum and elytra with yellow margins laterally; female with a single metatarsal claw. Subgenus *Cybister* Curtis, 1827 2
- Pronotum and elytra without yellow margins laterally; female with two metatarsal claws. Subgenus *Melanectes* Brinck, 1945 11
- 2 Apex of median lobe of aedeagus furcate in ventral view. 3
- Apex of median lobe of aedeagus not furcate in ventral view. 9
- 3 Metaventrite and metacoxae black with lateral parts yellow. 4
- Metaventrite and metacoxae entirely black. 7
- 4 Smaller species, TL: 22–28 mm; female with dorsal surface smooth (Fig. 3A). 5
- Larger species, TL: 27–33 mm; female dorsal surface with dense longitudinal striae of various lengths on elytra except at its apex (Fig. 11A). 6
- 5 Smaller species, TL: 22–24 mm; median lobe of aedeagus with apical notch shallower, lateral margins of apex straight and parallel in ventral view (Fig. 3D). *C. fumatus* Sharp, 1882
- Larger species, TL: 24–28 mm; median lobe of aedeagus with apical notch deeper, lateral margins of apex convex in ventral view (Fig. 10D). *C. tripunctatus lateralis* (Fabricius, 1798) (partim) and *C. laevis* Falkenström, 1936
- 6 Abdominal ventrites III–V black, with lateral yellow spots (Figs 1B; 9B). *C. rugosus* (W. S. Macleay, 1825) and *C. bengalensis* Aubé, 1838
- Abdominal ventrites III–V yellowish, with a dark brown band anteriorly (Fig. 11B). *C. ventralis* Sharp, 1882
- 7 Smaller species, TL 24–28 mm; median lobe of aedeagus with acute-angled apico-medial notch (Fig. 10D). *C. tripunctatus lateralis* (Fabricius, 1798) (partim)
- Larger species, TL > 30.0 mm; median lobe of aedeagus with an obtuse-angled apico-medial notch. 8
- 8 Median lobe of aedeagus in ventral view with apex and base almost equal in width, lateral margins of apex sinuate, notch of apex shallower (Fig. 4D). *C. guerini* Aubé, 1838

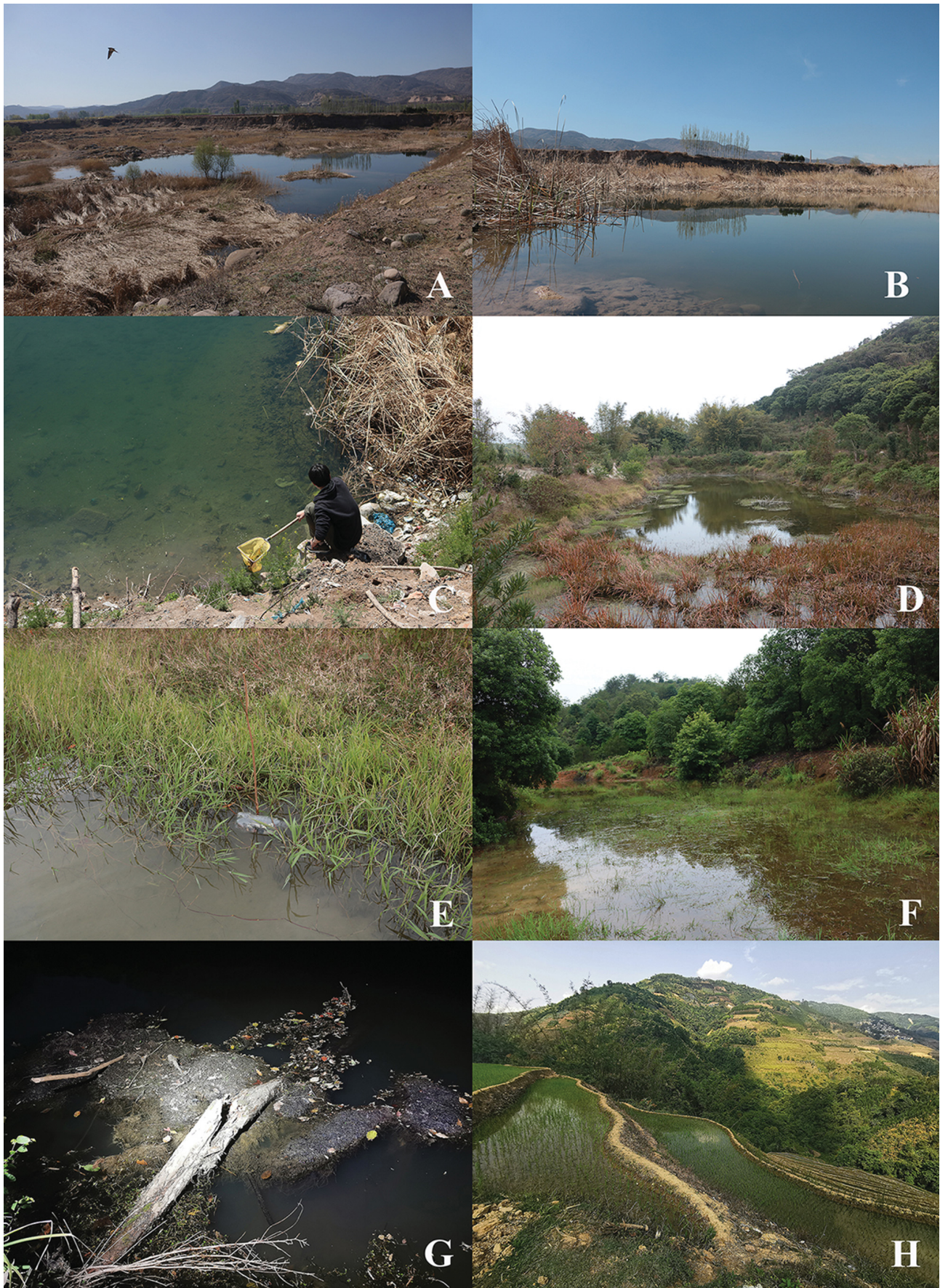


Fig. 18. Habitats of *Cybister* in China. A–C – lake, Shanxi (*C. chinensis*); D–E – lowland marsh, Shenzhen, Guangdong (*C. rugosus*, *C. tripunctatus lateralis* and *C. sugillatus*); F – temporary pond in a valley, Danxiashan Mt., Guangdong (*C. tripunctatus lateralis* and *C. limbatus*); G – natural pond, Lankeshan Mt., Zhejiang (*C. rugosus* and *C. brevis*); H – terraced fields pools, Lvchun County, Yunnan (*C. convexus* and *C. sugillatus*).

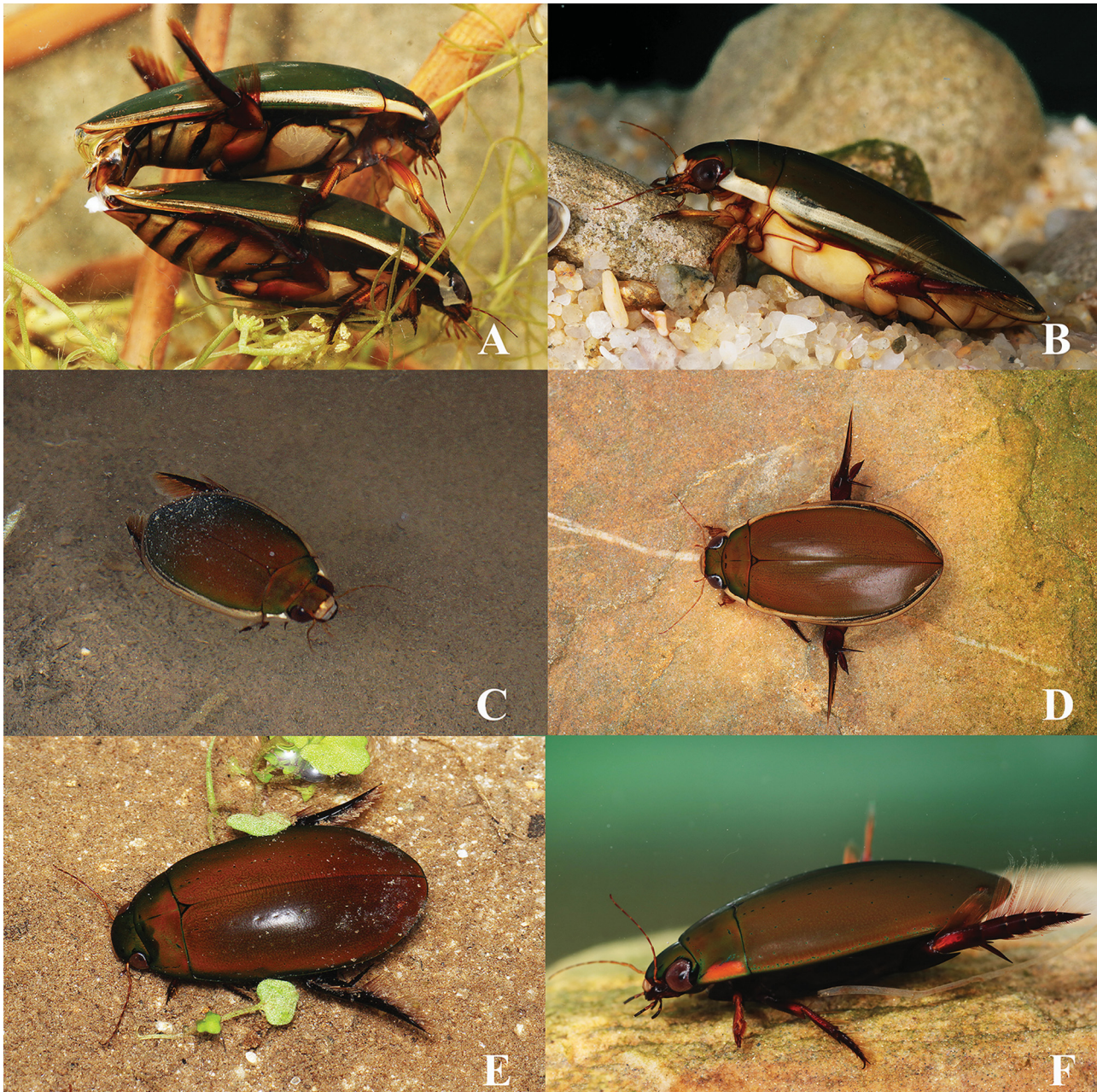


Fig. 19. Live specimens of Chinese *Cybister*. A – *C. chinensis* Motschulsky, 1854 (mating couple); B – *C. lateralimarginalis torquatus* (Fischer von Waldheim, 1829); C – *C. rugosus* (W. S. Macleay, 1825); D – *C. tripunctatus lateralis* (Fabricius, 1798); E – *C. convexus* Sharp, 1882; F – *C. sugillatus* Erichson, 1834.

- Median lobe of aedeagus in ventral view with apex narrower than base, lateral margins of apex concave, notch of apex deeper (Fig. 8D). *C. limbatus* (Fabricius, 1775)
- 9 Smaller species, TL: 23–27 mm; ventral surface black with lateral parts of metaventrite and metacoxae reddish-brown (Fig. 7B); median lobe of aedeagus slender in ventral view (Fig. 7D); female with dorsal surface smooth. *C. lewisianus* Sharp, 1873
- Larger species, TL>29 mm; ventral surface yellow with middle parts of metaventrite and metacoxae reddish-brown or dark green; median lobe of aedeagus thick in ventral view; female dorsal surface with isolated short, irregular striae on pronotum, and with dense longitudinal striae of various lengths on elytra except at its apex. 10 Larger species, TL: 35–40 mm; prosternal process and middle parts of metaventrite and metacoxae dark green (Fig. 2B); median lobe of aedeagus in ventral view ridged in middle, lateral margin strongly curved near apex, apex obtuse-angled (Fig. 2D). *C. chinensis* Motschulsky, 1854
- Smaller species, TL: 29–37 mm; prosternal process yellow, middle parts of metaventrite and metacoxae reddish-brown (Fig. 6B); median lobe of aedeagus in ventral view with acuminate protuberance on each side near apex, apex rounded, slightly inflated (Fig. 6D). ... *C. lateralimarginalis torquatus* (Fischer von Waldheim, 1829)

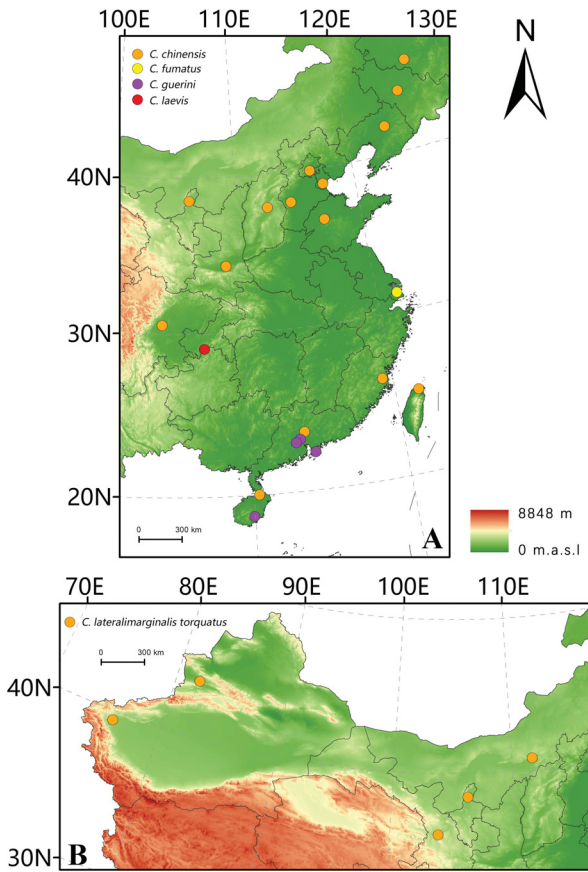


Fig. 20. Map of distribution of *Cybister* in China.

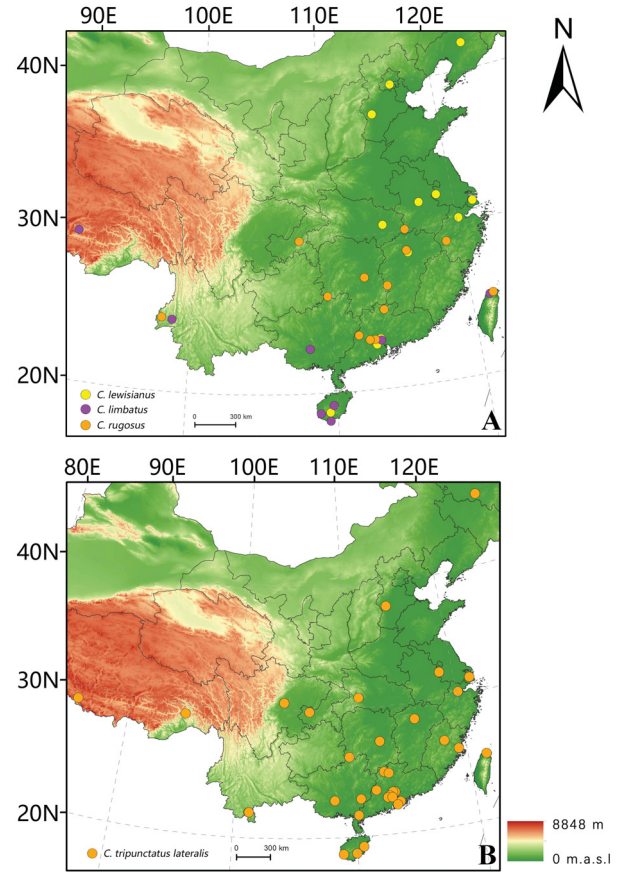


Fig. 21. Map of distribution of *Cybister* in China.

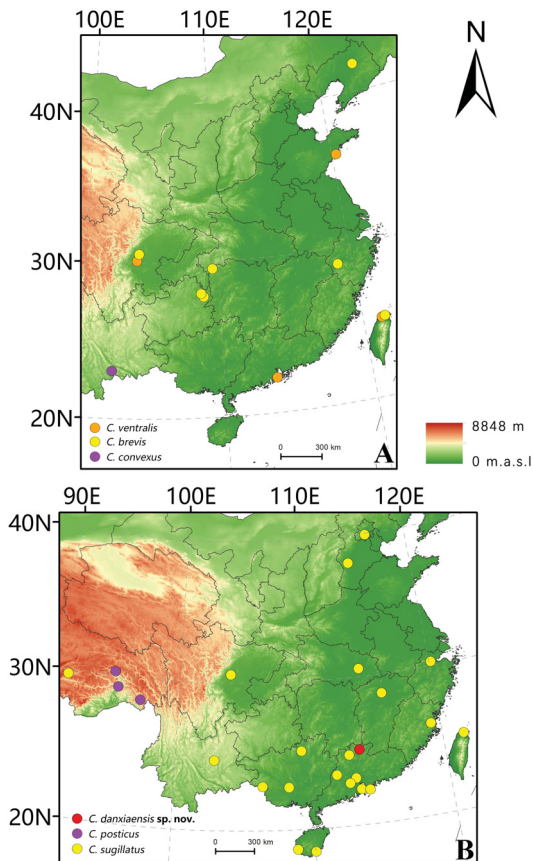


Fig. 22. Map of distribution of *Cybister* in China.

- 11 Elytra with large protuberances densely arranged almost in rows, each protuberance with a medial puncture containing a small granule (Fig. 15A).
 *C. danxiaensis* sp. nov.
 – Elytra smooth or with small granules. 12
- 12 Head and pronotum densely covered with coarse punctures (Fig. 12A); apical fifth of median lobe broad (Figs 12C–D). *C. brevis* Aubé, 1838
 – Head and pronotum smooth; apical fifth of median lobe of aedeagus slender, like a tubular spine. 13
- 13 Elytra smooth in both sexes (Fig. 17A).
 *C. sugillatus* Erichson, 1834
 – Elytra with small granules in both sexes. 14
- 14 Median lobe of aedeagus thicker in ventral view, apex truncated (Fig. 13D).
 *C. convexus* Sharp, 1882
 – Median lobe of aedeagus thinner in ventral view, apex rounded (Fig. 16D). ... *C. posticus* Aubé, 1838

Discussion

The unique specimen of *Cybister* (*Melanectes*) *danxiaensis* sp. nov. was collected from Danxiashan Mountain eighty years ago. Around twenty years ago we examined and dissected the specimen and considered it as representing an undescribed species. We would have liked to have a few more specimens available for the description, and therefore went to the type locality several times – unfortunately without success. Most probably, the species’

former habitat at the locus typicus has been destroyed due to construction of the river channel or to agricultural development. No other specimens of this species were collected in well-preserved forests near the type locality either. Danxiashan Mountain has a very special landform clearly different from that of nearby areas.

Although *Cybister* includes the largest predatory water beetles in China, and members of several species are occasionally sold at local food markets, their distribution and habitat requirements are still poorly known. Further investigations, using more effective collecting methods such as baited bottle traps (e.g., AIKEN & ROUGHLEY 1985, HILSENHOFF 1987, VOLKOVA et al. 2013, HENDRICH et al. 2019), could increase the knowledge of the species' ecological demands and their actual conservation status in China.

Acknowledgements

We are grateful to Miss Fang Chen and Zai-xiong Chen, the managers of Danxiashan National Nature Reserve. We thank Dr. Xing-min Wang, a specialist on ladybird beetles in South China Agricultural University (Guangzhou, China), for his donation to some specimens of *C. chinensis* and *C. lateralimarginalis torquatus*. Michael Balke (ZSMG) is thanked for providing some photos of median lobes and parameres; and Johannes Bergsten (NHRS), for providing the photos of an important type specimen. Martin Spies (ZSMG) is thanked linguistic corrections. This study was supported by GDAS Special Project of Science and Technology Development (2020GDSYL-20200102021, 2020GDASYL-20200301003).

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