

DYTISCIDAE: **III. The genus *Laccophilus* LEACH in China** **(Coleoptera)**

J. HÁJEK

Abstract

All species of *Laccophilus* LEACH, 1815 (Coleoptera: Dytiscidae) recorded from China are listed. All specimens of *Laccophilus* collected during the CWBS expeditions in the years 1992 - 2002 are summarized and the distribution for each species is presented. A total of 21 species is known presently from China. *Laccophilus pulicarius* SHARP, 1882 and *L. tonkinensis* BRANCUCCI, 1983 are recorded from China for the first time.

Key words: Coleoptera, Dytiscidae, *Laccophilus*, China, faunistics.

Introduction

The Palearctic species of *Laccophilus* LEACH, 1815 comparatively are well studied taxonomically. A revision of the Palearctic, Oriental and Australian species was carried out by BRANCUCCI (1983), who recognised a total of 59 species, classified in ten species groups. More recently, additional publications improved the knowledge of this genus in the Oriental Region and New Guinea, adding a total of nine new species and providing new faunistic data (BALKE & HENDRICH 1997, BALKE et al. 1997, 1998, GUÉORGUEV & ROCCHI 1992, HENDRICH & BALKE 1995, 1998, ROCCHI 1986).

NILSSON (1995) presented an annotated check list of the Chinese species, which included 19 species, most of which were known only from few localities.

The aim of this paper is to summarise the material collected during the CWBS expeditions (1993 - 2001), to list all *Laccophilus* species recorded from China and present the known distribution of each species, based on records verified by the author.

Material, acronyms, and CWBS localities

This study is based on the examination of more than 1000 specimens, predominantly collected during the CWBS (1993 - 2002) and deposited in the NMW.

CWBS China Water Beetle Survey

GWCV Coll. G. Wewalka, Vienna, Austria

JHCP Coll. J. Hájek, Prague, Czech Republic

JSCL Coll. J. Štátný, Liberec, Czech Republic

NMW Naturhistorisches Museum Wien, Vienna, Austria

CWBS locs. 23, 28, 30 - 34, 38, 40, 64, 103, 109, 113, 114, 115, 121, 122, 146 - 148, 150, 153, 154, 169, 171, 179, 181, 183, 186, 190, 196 - 199, 201 - 204, 209, 210, 213, 216, 217, 265, 269, 274 - 276, 280 - 282, 285, 304, 327, 348, 351, 352, 355 - 357, 362, 366, 369, 372, 375 - 377, 380, 381, 384, 387, 390, 392 - 394, 398, 400 - 403, 406, 410, 448, 449, 451, 452, 455, 457 - 461, 463, 466, 468, 469, 471, 472, 474, 479, 481, 491.

For detailed information concerning CWBS localities, refer to JÄCH & Ji (1995, 1998, 2003).

Laccophilus biguttatus* KIRBY, 1837Laccophilus biguttatus* KIRBY: NILSSON 1995: 69.

A Holarctic species. The first certain Chinese record was given by ZENG (1989) from Nei Mongol. NILSSON (1995) discussed the probable synonymy with *Laccophilus uniformis* FENG, 1936. The distribution of this species in China needs verification.

Laccophilus chinensis* BOHEMAN, 1858Laccophilus chinensis* BOHEMAN: NILSSON 1995: 71.**MATERIAL EXAMINED:**

HUNAN: CWBS loc. 28 (4 exs. NMW, 1 ex. JHCP); CWBS loc. 30 (1 ex. NMW); CWBS loc. 31 (3 exs. NMW); CWBS loc. 32 (1 ex. NMW); CWBS loc. 33 (1 ex. NMW).

HAINAN: CWBS loc. 183 (1 ex. NMW); CWBS loc. 186 (2 exs. NMW); CWBS loc. 190 (1 ex. NMW); CWBS loc. 196 (2 exs. NMW); CWBS loc. 197 (2 exs. NMW, 1 ex. JHCP); CWBS loc. 198 (1 ex. NMW); CWBS loc. 199 (1 ex. NMW); CWBS loc. 202 (1 ex. NMW); CWBS loc. 203 (3 exs. NMW); CWBS loc. 204 (17 exs. NMW, 1 ex. JHCP); CWBS loc. 209 (6 exs. NMW); CWBS loc. 216 (1 ex. NMW); CWBS loc. 217 (2 exs. NMW).

ANHUI: CWBS loc. 285 (1 ex. NMW).

JIANGXI: CWBS loc. 304 (1 ex. NMW).

YÜNNAN: CWBS loc. 355 (6 exs. NMW, 1 ex. JHCP); CWBS loc. 356 (17 exs. NMW); CWBS loc. 362 (10 exs. NMW); CWBS loc. 366 (24 exs. NMW, 1 ex. JHCP); CWBS loc. 369 (1 ex. NMW); CWBS loc. 372 (4 exs. NMW); CWBS loc. 376 (13 exs. NMW); CWBS loc. 380 (3 exs. NMW); CWBS loc. 381 (1 ex. NMW).

GUANGDONG: CWBS loc. 451 (2 exs. NMW); CWBS loc. 455 (2 exs. NMW); CWBS loc. 457 (2 exs. NMW); CWBS loc. 458 (6 exs. NMW); CWBS loc. 461 (13 exs. NMW, 1 ex. JHCP); CWBS loc. 463 (6 exs. NMW, 1 ex. JHCP); CWBS loc. 466 (1 ex. NMW); CWBS loc. 471 (10 exs. NMW); CWBS loc. 474 (1 ex. NMW); CWBS loc. 491 (2 exs. NMW).

GUANGXI: 10 km S Yangshuo, 3.XI.1999, J. Štastný leg. (2 exs. JSCL).

TAIWAN: Pingtung Hsien, Suchung - Shi, VII.1990, M. L. Jang [Jeng] leg. (1 ex. GWCV).

The species occurs near the border between the Palearctic and Oriental Regions. In China, this is a widespread species (Sichuan and Yünnan to the Pacific coast).

Laccophilus difficilis* SHARP, 1873Laccophilus difficilis* SHARP: NILSSON 1995: 69.**MATERIAL EXAMINED:**

HUNAN: CWBS loc. 23 (1 ex. NMW, 1 ex. JHCP); CWBS loc. 28 (32 exs. NMW, 1 ex. JHCP); CWBS loc. 31 (4 exs. NMW); CWBS loc. 33 (1 ex. NMW); CWBS loc. 34 (1 ex. NMW).

LIAONING: CWBS loc. 64 (1 ex. NMW); CWBS loc. 103 (1 ex. NMW); CWBS loc. 109 (8 exs. NMW); CWBS loc. 113 (8 exs. NMW); CWBS loc. 114 (3 exs. NMW); CWBS loc. 115 (1 ex. NMW); CWBS loc. 121 (1 ex. NMW); CWBS loc. 122 (1 ex. NMW); CWBS loc. 146 (1 ex. NMW); CWBS loc. 147 (1 ex. NMW); CWBS loc. 148 (1 ex. NMW); CWBS loc. 150 (2 exs. NMW); CWBS loc. 153 (4 exs. NMW); CWBS loc. 154 (2 exs. NMW).

SHANDONG: CWBS loc. 134 (1 ex. NMW).

GUIZHOU: CWBS loc. 265 (1 ex. NMW); CWBS loc. 269 (1 ex. NMW); CWBS loc. 274 (1 ex. NMW); CWBS loc. 275 (21 exs. NMW, 1 ex. JHCP); CWBS loc. 276 (4 exs. NMW, 1 ex. JHCP); CWBS loc. 280 (1 ex. NMW); CWBS loc. 281 (12 exs. NMW); CWBS loc. 282 (7 exs. NMW).

YÜNNAN: CWBS loc. 348 (68 exs. NMW, 1 ex. JHCP); CWBS loc. 351 (38 exs. NMW); CWBS loc. 352 (9 exs. NMW, 1 ex. JHCP); CWBS loc. 384 (9 exs. NMW); CWBS loc. 398 (1 ex. NMW); CWBS loc. 402 (1 ex. NMW); CWBS loc. 406 (1 ex. NMW); CWBS loc. 410 (21 exs. NMW); Old Dali env., 6.X.1999, J. Štastný leg. (4 exs. JSCL); 10 km NE Tengchong, Behai Zinghai Lake, 27.X.1999, J. Štastný leg. (2 exs. JSCL).

An east Palearctic species. It was described originally from Japan and recorded from many localities in the eastern half of China.

***Laccophilus ellipticus* RÉGIMBART, 1889**

Laccophilus ellipticus RÉGIMBART: NILSSON 1995: 70.

MATERIAL EXAMINED:

HAINAN: CWBS loc. 186 (1 ♀ NMW).

This Oriental species reaches southeastern China (Hainan, Guangdong, and Fujian).

***Laccophilus flexuosus* AUBÉ, 1838**

Laccophilus flexuosus AUBÉ: NILSSON 1995: 70.

This widespread species is distributed from India and Nepal to Japan and Vietnam. In China it is recorded from the southeast (NILSSON 1995), but no specimen was collected during the CWBS expeditions.

***Laccophilus kempii holmeni* BRANCUCCI, 1983**

Laccophilus kempii GSCHWENDTNER: NILSSON 1995: 69.

MATERIAL EXAMINED:

YÜNNAN: 100 km W Baoshan, Gaolingongshan Nat. Res., 14.-21.VI.1993, E. Jendek & O. Šauša leg. (15 exs. NMW); 100 km W Kunming, Diaolin Nat. Res., 22.V.-2.VI.1993 E. Jendek & O. Šauša leg. (15 exs. NMW, 1 ex. JHCP); Baoshan env., 5.-8.VI.1993, E. Jendek & O. Šauša leg. (4 exs. NMW, 1 ex. JHCP); CWBS loc. 357 (2 exs. NMW, 1 ex. JHCP); CWBS loc. 369 (1 ex. NMW); CWBS loc. 375 (15 exs. NMW, 1 ex. JHCP); CWBS loc. 377 (1 ex. NMW); CWBS loc. 384 (1 ex. NMW); CWBS loc. 390 (1 ex. NMW); CWBS loc. 400 (2 exs. NMW); CWBS loc. 401 (3 exs. NMW); CWBS loc. 402 (7 exs. NMW); (30 km E Tengchong, Gaoligong Shan, 24.X.1999, J. Štastný leg. (8 exs. JSCL); 10 km NE Tengchong, Behai Zinghai Lake, 27.X.1999, J. Štastný leg. (24 exs. JSCL).

Laccophilus kempii holmeni was described from Thailand and Yünnan. There are no other Chinese records from outside Yünnan.

***Laccophilus kobensis* SHARP, 1873**

Laccophilus kobensis SHARP: NILSSON 1995: 69.

MATERIAL EXAMINED:

HUNAN: CWBS loc. 31 (2 exs. NMW, 1 ex. JHCP).

GUANGXI: 10 km SE Yangshuo, 350 m a.s.l., 3.XI.1999, J. Štastný leg. (3 exs. JSCL).

The species was described originally from Japan. According to NILSSON (1995), the known records from China are from Shandong, Fujian, Taiwan and now also from Hunan and Guangxi.

***Laccophilus lewisoides* BRANCUCCI, 1983**

Laccophilus lewisoides BRANCUCCI: NILSSON 1995: 69.

MATERIAL EXAMINED:

NEI MONGOL: CWBS loc. 327 (3 exs. NMW, 1 ex. JHPC).

This species is known from the Ussuri region of Russia, southern Korea and China (Nei Mongol, Hebei, Jiangsu, and Shanghai Municipality).

***Laccophilus lewisius* SHARP, 1873**

Laccophilus lewisius SHARP: NILSSON 1995: 69.

This species is known from Japan and China. It is widespread in the eastern half of China (NILSSON 1995).

***Laccophilus medialis* SHARP, 1882**

Laccophilus medialis SHARP: NILSSON 1995: 71.

MATERIAL EXAMINED:

YÜNNAN: 100 km W Kunming, Diaolin Nat. Res., 22.V.-2.VI.1993 E. Jendek & O. Šauša leg. (13 exs. NMW, 1 ex. JHCP); 30 km E Tengchong, Gaoligong Shan, 24.X.1999, J. Šťastný leg. (5 exs. JSCL); CWBS loc. 356 (2 exs. NMW); CWBS loc. 357 (5 ex. NMW); CWBS loc. 362 (3 exs. NMW); CWBS loc. 366 (10 exs. NMW); CWBS loc. 369 (5 exs. NMW); CWBS loc. 376 (19 exs. NMW, 1 ex. JHCP); CWBS loc. 380 (2 exs. NMW); CWBS loc. 387 (3 exs. NMW); CWBS loc. 402 (1 ex. NMW); CWBS loc. 403 (7 exs. NMW, 1 ex. JHCP).
GUANGDONG: CWBS loc. 463 (1 exs. NMW, 1 ex. JHCP).

This is mainly an Oriental species. Chinese records are confined to the south (Yünnan, Guangdong).

***Laccophilus minutus* (LINNAEUS, 1758)**

Laccophilus minutus LINNAEUS: NILSSON 1995: 68.

This species is widely distributed in the Palearctic Region and occurs also in the Oriental Region. In China, it is recorded from Yünnan (BRANCUCCI 1983) and Xinjiang (ZENG 1989), but I have not seen any Chinese material.

***Laccophilus parvulus obtusus* SHARP, 1882**

Laccophilus parvulus AUBÉ: NILSSON 1995: 71.

MATERIAL EXAMINED:

HAINAN: CWBS loc. 181 (1 ex. NMW); CWBS loc. 186 (1 ex. NMW); CWBS loc. 201 (1 ex. NMW); CWBS loc. 209 (7 exs. NMW, 1 ex. JHCP).
YÜNNAN: CWBS loc. 356 (2 exs. NMW); CWBS loc. 366 (4 exs. NMW); CWBS loc. 372 (2 exs. NMW, 1 ex. JHCP); CWBS loc. 376 (2 exs. NMW).

Laccophilus parvulus is widely distributed in the Oriental Region (Pakistan and India to the Philippines and Indonesia). The subspecies *L. p. obtusus* occurs in China, Thailand, Laos, Cambodia, Vietnam and Sumatra (BRANCUCCI 1983).

***Laccophilus poecilus* KLUG, 1834**

Laccophilus poecilus KLUG 1834: t.XXXIII:8 (orig. descr.).

Laccophilus ponticus SHARP: NILSSON 1995: 70.

The synonymy between *L. poecilus* and *Laccophilus ponticus* was proposed by AHMED & ANGUS (1998). This species is distributed in the entire Palearctic Region, but it is collected more frequently in the western part. The only certain Chinese record was provided by ZENG (1989) from Xinjiang.

Laccophilus pulicarius* SHARP, 1882Laccophilus pulicarius* SHARP 1882: 313 (orig. descr.); BRANCUCCI 1983: 309 (descr.).**MATERIAL EXAMINED:**

HONG KONG: Pak Long, 11.VII.1995, D. Dudgeon leg., G. Wewalka det. 1996 (2 ♀ ♀ NMW).

This species is known from Japan (Ryukyu Archipelago), Thailand, Laos, Vietnam, Malaysia and Indonesia (BRANCUCCI 1983). *Laccophilus pulicarius* is here recorded from China for the first time.

Laccophilus sharpi* RÉGIMBART, 1889Laccophilus sharpi* RÉGIMBART: NILSSON 1995: 71.**MATERIAL EXAMINED:**

HUNAN: CWBS loc. 23 (1 ex. NMW); CWBS loc. 28 (47 exs. NMW, 1 ex. JIICP); CWBS loc. 31 (1 ex. NMW); CWBS loc. 34 (2 exs. NMW).

GUANGXI: 5 km N Yangshuo, 2.XI.1999, J. Štátný leg. (7 exs. JSCL); 10 km S Yangshuo, 3.XI.1999, J. Štátný leg. (5 exs. JSCL); CWBS loc. 38 (1 ex. NMW); CWBS loc. 40 (15 exs. NMW, 1 ex. JHCP); CWBS loc. 169 (34 exs. NMW, 1 ex. JHCP).

HONG KONG: CWBS loc. 171 (1 ex. NMW); Tai Po Kau, 13.-14.XI.1983, D. Dudgeon leg. (3 exs. NMW).

HAINAN: CWBS loc. 201 (1 ex. NMW).

YÜNNAN: CWBS loc. 356 (8 exs. NMW); CWBS loc. 362 (21 exs. NMW, 1 ex. JHCP); CWBS loc. 366 (2 exs. NMW); CWBS loc. 372 (2 exs. NMW); CWBS loc. 376 (13 exs. NMW); CWBS loc. 380 (1 ex. NMW).

GUANGDONG: CWBS loc. 451 (3 exs. NMW); CWBS loc. 452 (12 exs. NMW); CWBS loc. 458 (4 exs.); CWBS loc. 459 (1 ex. NMW); CWBS loc. 460 (1 ex. NMW); CWBS loc. 461 (7 exs. NMW, 1 ex. JHCP); CWBS loc. 463 (8 exs. NMW); CWBS loc. 468 (1 ex. NMW); CWBS loc. 469 (2 exs. NMW); CWBS loc. 471 (8 exs. NMW); CWBS loc. 472 (1 ex. NMW); CWBS loc. 474 (1 ex. NMW); CWBS loc. 479 (15 exs. NMW); CWBS loc. 481 (1 ex. NMW).

FUJIAN: Shaowu, 3.VIII.1937, J. Klapperich leg. (1 ex. JSCL).

TAIWAN: Pingtung Hsien, Suchung - Shi, 24.-25.IX.1989, M. L. Jang [Jeng] leg. (1 ex. GWCV).

A widely distributed species. Its range covers most of the Palearctic, Oriental, and Australian Regions. In China, it is widely distributed.

Laccophilus siamensis siamensis* SHARP, 1882Laccophilus siamensis* SHARP: NILSSON 1995: 70.

This variable species occurs in the Oriental Region (eastern India to Indonesia). BRANCUCCI (1983) recognized four subspecies. The nominotypical subspecies is known from Southeast Asia. The only Chinese record was published by ZENG (1989) from Yünnan.

Laccophilus siamensis taiwanensis* BRANCUCCI, 1983Laccophilus siamensis* SHARP: NILSSON 1995: 70.**MATERIAL EXAMINED:**

GUANGDONG: CWBS loc. 448 (1 ex. NMW); CWBS loc. 451 (7 exs. NMW, 2 exs. JHCP).

GUANGXI: 10 km S Yangshuo, 3.XI.1999, J. Štátný leg. (11 exs. JSCL).

This evenly yellowish-brown coloured subspecies is endemic to southeast China (Guangxi, Guangdong, Fujian, Taiwan). ZENG (1989) reports it also from Jiangxi and Hainan.

***Laccophilus tonkinensis* BRANCUCCI, 1983**

Laccophilus tonkinensis BRANCUCCI 1983: 258 (orig. descr.).

MATERIAL EXAMINED:

HAINAN: CWBS loc. 210 (4 exs. NMW, 1 ex. JHCP); CWBS loc. 213 (1 ex. NMW).

This species was described from Vietnam. It is here recorded from China for the first time.

***Laccophilus transversalis lituratus* SHARP, 1882**

Laccophilus transversalis RÉGIMBART: NILSSON 1995: 70.

MATERIAL EXAMINED:

HONG KONG: CWBS loc. 171 (1 ex. NMW).

HAINAN: CWBS loc. 179 (1 ex. NMW); CWBS loc. 183 (1 ex. NMW).

YÜNNAN: CWBS loc. 376 (4 exs. NMW, 1 ex. JHCP).

GUANGDONG: CWBS loc. 448 (2 exs. NMW).

This very variable species occurs from India to Australia. According to BRANCUCCI (1983), three subspecies are distinguished. *Laccophilus t. lituratus* is distributed in Vietnam, Cambodia, Thailand and southeast China (Yünnan, Hainan, Hong Kong, Guangdong, and Fujian).

***Laccophilus uniformis* MOTSCHULSKY, 1859**

Laccophilus uniformis MOTSCHULSKY: NILSSON 1995: 71.

This species is widely distributed in Southeast Asia (Myanmar to Borneo). In China it is recorded from Guangdong, Fujian and Hubei (NILSSON 1995).

***Laccophilus vagelineatus* ZIMMERMANN, 1922**

Laccophilus vagelineatus ZIMMERMANN: NILSSON 1995: 69.

MATERIAL EXAMINED:

FUJIAN: "Foochow" [= Fuzhou] (1 ex. GWCV).

This species was described from the Russian Far East and it was recorded also from South Korea and China. The Chinese records are concentrated mainly in the eastern part of the country.

***Laccophilus wittmeri* BRANCUCCI, 1983**

Laccophilus wittmeri BRANCUCCI: NILSSON 1995: 68.

MATERIAL EXAMINED:

YÜNNAN: CWBS loc. 392 (5 exs. NMW, 4 exs. JSCL); CWBS loc. 393 (18 exs. NMW); CWBS loc. 394 (1 ex. NMW).

GUANGDONG: CWBS loc. 449 (12 exs. NMW).

This species is known from Thailand, Laos, Vietnam and China. The Chinese records are limited to Yünnan and Guangdong. Specimens from Guangdong differ from typical material by the elytral coloration and by the different shape of the penile apex; they may represent a separate subspecies.

Zoogeographical realm	Type of distribution	Species, Subspecies	n	%
Palearctic	Whole Palearctic Region (<i>L. biguttatus</i> is in fact Holarctic)	<i>L. biguttatus</i> <i>L. poecilus</i>	2	9
	Eastern Palearctic Region	<i>L. difficilis</i> <i>L. kobensis</i> <i>L. lewisoides</i> <i>L. lewisius</i> <i>L. vagelineatus</i>	5	22.5
	Distribution limited to China	<i>L. s. taiwanensis</i>	1	4.5
Palearctic and Oriental	Species inhabiting border between Palearctic and Oriental Region	<i>L. chinensis</i> <i>L. k. holmeni</i> <i>L. wittmeri</i>	3	13.5
	Widely distributed species in both regions	<i>L. minutus</i>	1	4.5
Oriental	Predominately continental SE Asian species	<i>L. ellipticus</i> <i>L. flexuosus</i> <i>L. p. obtusus</i> <i>L. tonkinensis</i> <i>L. t. lituratus</i>	5	22.5
	Widely distributed Oriental species	<i>L. medialis</i> <i>L. pulcarius</i> <i>L. s. siamensis</i> <i>L. uniformis</i>	4	18
Palearctic, Oriental and Australian		<i>L. sharpi</i>	1	4.5

Table I: Grouping of Chinese species and subspecies of *Laccophilus* based on their zoogeographical distribution.

Zoogeographical considerations

China represents a transitional region between the Palearctic and Oriental fauna and precise borders cannot be determined easily. None the less, several species definitely occur in both regions (see Table 1).

In China, the Oriental *Laccophilus* species predominate slightly over the Palearctic species. The majority of the Chinese species represents two types of distribution (each group contains five species, 22.5%): 1) eastern Palearctic species, occurring usually in Japan, Russian Far East, Korea and eastern parts of China; 2) species of continental Southeast Asia, distributed mainly in Thailand, Laos, Vietnam, Cambodia, Malaysia, and southern China. These two groups are followed by widely distributed Oriental species (four species, 18 %). A special position is taken by those species, which occur along the border between the Palearctic and Oriental Regions (three species, 13.5 %); these are distributed in northern parts of Thailand, Laos and Vietnam, southern parts of China and also could reach Myanmar, northern India, Bhutan and Nepal (e.g. *L. chinensis*). In China, there are no endemic *Laccophilus* species. Although *L. siamensis taiwanensis* is known only from China, it is probable, that it occurs at least in northern Vietnam too.

The conclusions made above are not final. There are still many gaps in our knowledge of the Chinese fauna; there are for instance no records from three central Chinese provinces: Qinghai, Gansu and Henan. Anyway, these preliminary conclusions support earlier zoogeographical hypotheses based on Chinese Gyrinidae presented by BRINCK (1946) and MAZZOLDI (1995).

Acknowledgements

I would like to thank Dr. Manfred A. Jäch (Vienna) for putting at my disposal the Chinese *Laccophilus* material and for valuable comments on the manuscript, and to Jaroslav Šrastný (Liberec) and Prof. Günter Wewalka (Vienna) for providing me with data from their collections. The present study was supported in part by a grant from the Ministry of Education of the Czech Republic (FRVŠ 2808/G4).

References

- AHMED, R.S. & ANGUS, R. 1998: *Laccophilus poecilus* Klug, 1834 - the valid name for *L. ponticus* Sharp, 1882. - *Latissimus* 10: 3.
- BALKE, M. & HENDRICH, L. 1997: A new species of *Laccophilus* Leach, 1815 from Vietnam (Coleoptera: Dytiscidae). - *Koleopterologische Rundschau* 67: 99-100.
- BALKE, M., LARSON, D.J. & HENDRICH, L. 1997: A review of the New Guinea species of *Laccophilus* Leach 1815 with notes on regional melanism (Coleoptera Dytiscidae). - *Tropical Zoology* 10: 295-320.
- BALKE, M., MAZZOLDI, P. & HENDRICH, L. 1998: Two new *Laccophilus* species (Coleoptera: Dytiscidae) from Southeast Asia, and notes on other species of the genus. - *Raffles Bulletin of Zoology* 46 (1): 71-77.
- BRANCUCCI, M. 1983: Révision des especes est-paléarctiques, orientales et australiennes du genre *Laccophilus* (Col. Dytiscidae). - *Entomologische Arbeiten aus dem Museum G. Frey* 31/32: 241-426.
- BRINCK, P. 1946: Water beetles from Manchuria. With some zoogeographical remarks. - *Opuscula Entomologica* 11: 146-156.
- GUÉORGUIEV, V.B. & ROCCHI, S. 1992: Contributo alla conoscenza dei Dytiscidae della Nuova Guinea. - *Frustula Entomologica n.s. XV (XXVIII)*: 147-166.
- HENDRICH, L. & BALKE, M. 1995: Die Schwimmkäfer der Sunda-Insel Bali: Faunistik, Taxonomie, Ökologie, Besiedlungsgeschichte und Beschreibung von vier neuen Arten (Insecta: Coleoptera: Dytiscidae). - *Faunistische Abhandlungen des Museums für Tierkunde in Dresden* 20 (5): 29-56.
- HENDRICH, L. & BALKE, M. 1998: Ein neuer Schwimmkäfer der Gattung *Laccophilus* Leach 1815 von der Sundainsel Flores, Indonesien (Coleoptera: Dytiscidae). - *Entomologische Zeitschrift* 108 (11): 437-442.
- JÄCH, M.A. & JI, L. 1995: Introduction, pp. 5-32. - In Jäch, M.A. & Ji, L. (eds.): *Water Beetles of China*, Vol. I. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.
- JÄCH, M.A. & JI, L. 1998: China Water Beetle Survey (1995 - 1998), pp. 1-23. - In Jäch, M.A. & Ji, L. (eds.): *Water Beetles of China*, Vol. II. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 371 pp.
- JÄCH, M.A. & JI, L. 2003: China Water Beetle Survey (1999 - 2001), pp. 1-20. - In Jäch, M.A. & Ji, L. (eds.): *Water Beetles of China*, Vol. III. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, VI + 572 pp.
- KLUG, J.C.F. 1834: *Symbolae physicae seu icones et descriptiones insectorum quae ex itinere per Africam borealem et Asiam occidentalem Friderici Guillemi Hemprich et Christiani Godofredi Ehrenberg. Decas quarta.* - Berolini: Officina Academica, 42 pp.
- MAZZOLDI, P. 1995: Gyrinidae: Catalogue of Chinese Gyrinidae (Coleoptera), pp. 155-172. - In Jäch, M.A. & Ji, L. (eds.): *Water Beetles of China*, Vol. I. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.

- NILSSON, A.N. 1995: Noteridae and Dytiscidae: Annotated check list of the Noteridae and Dytiscidae of China (Coleoptera), pp. 35-96. - In Jäch, M.A. & Ji, L. (eds.): Water Beetles of China, Vol. I. - Wien: Zoologisch-Botanische Gesellschaft in Österreich and Wiener Coleopterologenverein, 410 pp.
- ROCCHI, S. 1986: Dytiscidi di Birmania, Tailandia e Sri Lanka, con descrizione di due nuove specie (Coleoptera) (XVI nota sui Coleotteri Idrodefagi). - Bollettino della Società Entomologica italiana, Genova 118 (1-3): 31-34.
- SHARP, D. 1882: On aquatic carnivorous Coleoptera or Dytiscidae. - Scientific Transactions of the Royal Dublin Society (2) 2: 179-1003, pls. 7-18.
- ZENG, H. 1989: Taxonomy of Chinese Dytiscidae in the museums of China. – Guangzhou: Department of Biology, University of Zhong-Shan, Abstract of Ph. D. Thesis, 8 pp. [in Chinese]

Jiří HÁJEK

Dept. of Zoology, Charles University, Viničná 7, 128 44 Praha 2, Czech Republic (broucek@natur.cuni.cz)

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Water Beetles of China](#)

Jahr/Year: 2003

Band/Volume: [3](#)

Autor(en)/Author(s): Hajek Jiri

Artikel/Article: [Dytiscidae: III. The genus Laccophilus Leach in China \(Coleoptera\) 115-123](#)