

HYDRAENIDAE

(Coleoptera)

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Abstract

Thirty-seven species and 4 genera of Hydraenidae from China are listed. A lectotype is designated for *Hydraena sauteri* d'ORCHYMONT. *Hydraena miyatakei* SATÔ and *Limnebius glabriventris* SHATROVSKIY are recorded for the first time from China.

Key words: Coleoptera, Hydraenidae, China, check list

Introduction

The Hydraenidae is a cosmopolitan family of small beetles (ca. 1 - 3 mm long), which live in a variety of aquatic or semiaquatic habitats; a few genera are recorded to be fully terrestrial.

Phylogenetically, the Hydraenidae show close affinities with Hydrophiloidea and Staphylinoidea (BEUTEL 1994).

Currently, more than 20 genera and 1000 species are known, many new species and a few genera will be described in the future.

Most of these genera have a quite restricted distribution; only 3 (*Limnebius* LEACH, *Hydraena* KUGELANN and *Ochthebius* LEACH) are found on all continents.

Material

About 2000 hydraenid specimens were collected by the CWBS (deposited in the NMW and CASS) in the years 1992 - 1994. As the material has not been completely worked up it cannot be estimated how many species there are. However, only a few of these species are mentioned herein. The majority, all still unidentified, will be revised later.

Acronyms & CWBS localities:

CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang
CWBS	China Water Beetle Survey
DEI	Deutsches Entomologisches Institut, Eberswalde (L. Zerche)
ISNB	Institut royal des Sciences naturelles de Belgique, Bruxelles
NMW	Naturhistorisches Museum, Wien

CWBS loc. 9. **Beijing Municipality:** Ming Tombs; small, unshaded rain puddles; 1.VII.1992; leg. Jäch

CWBS loc. 10. **Beijing Municipality:** Xiang Shan (Fragrant Hills), ca. 35 km NW Beijing City; small stream (epirhitron), flowing through forest; 2.VII.1992; leg. Jäch & Ji

CWBS loc. 65. **Jilin Province:** Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; Erdao Bai He (= 2nd White River), near bridge, 10 - 15 m wide, fast flowing, 650 m a.s.l.; 15.VIII.1994; leg.

Jäch, Ji & Wang

- CWBS loc. 67. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; several unshaded pools in the surrounding of Baihe City, near Academia Sinica Changbai Mountain Research Station, ca. 700 m a.s.l.; 15.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 72. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; river, ca. 5 m wide, very cold, fast flowing, in very deep (ca. 4 m) gorge, through primary coniferous forest, near road to Changbai Mountain, 1200 m a.s.l.; 16.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 75. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; on the way to Changbai Mountain, ca. 50 km N Baihe City, ca. 200 N of Bai Shan Station; stream, ca. 3 m wide, basalt, warm water (probably thermally heated), flowing through degraded primary forest, 1100 m a.s.l.; 16.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 76. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; 6 km W Baihe City; Toudao Bai He (= 1st White River), ca. 20 m wide, basalt, 600 m a.s.l.; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 77. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; springfed pool, ca. 50 m from loc. 76, unshaded; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 78. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; near Hongsi Forest Station, ca. 30 km NE Baihe City; stream, ca. 3 m wide, through primary broadleaf forest, basalt, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 79. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; shallow pool with muddy edges, close to loc. 78; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 80. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 30 km NE Baihe City; near Hongsi Forest Station; Sidao Bai He (= 4th White River), ca. 30 m wide, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 81. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; near Baihe City; Erdao Bai He, below the power plant dam, ca. 4 m wide, degraded primary forest, ca. 650 m a.s.l.; 17.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 82. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 80 km SE Baihe City; Yüan Chi (Round Lake), *Sphagnum* peat bog, ca. 650 m a.s.l.; 18.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 85. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 60 km SE Baihe City; near Dong Fang Bridge; river, ca. 5 m wide, 1000 m a.s.l.; 18.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 86. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 40 km SE Baihe City; Heilong Jiang (Black Dragon River), 2 - 3 m wide, very cold water, flowing through dense forest, ca. 900 m a.s.l.; 18.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 87. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 10 km SE Baihe City; small stream, ca. 2 - 3 m wide, slightly polluted, ca. 800 m a.s.l.; 18.VIII.1994; leg. Jäch
- CWBS loc. 88. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; near loc. 87; roadside pool, unshaded, ca. 50 cm deep; 18.VIII.1994; leg. Jäch
- CWBS loc. 89. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; surroundings of Changbai Mountain Research Station, along the road to Changbai Mountain; unshaded roadside pools, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jäch

- CWBS loc. 90. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; near Power Plant of Baihe City; forest pool, obviously springfed, rich in decaying organic matter, in primary forest, cool water, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jäch
- CWBS loc. 92. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City; Baohujü District; Erdao Bai He below Erdao Bai He Power Plant, near Baihe City, near loc. 81, but further upriver, below the big dam, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jäch
- CWBS loc. 93. **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; near Power Plant of Baihe City, near loc. 90; unshaded, springfed pools, cold water, ca. 750 m a.s.l.; 19.VIII.1994; leg. Jäch
- CWBS loc. 96. **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulü Shan; ca. 5 km NW Beizhen City (= Guaning); Toudao Gou He (= 1st Valley River), 2 - 5 m wide, only partly shaded, flowing through *Pinus tabulaeformis* forest, strongly washed out due to heavy spates which occurred 2 weeks before, ca. 200 m a.s.l.; 22.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 98. **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulü Shan, ca. 17 km NW Beizhen City; Sandao Gou He (= 3rd Valley River) 10 m wide, granite, including small pools on the gravel bank, ca. 150 m a.s.l.; 23.VIII.1994; leg. Jäch, Ji & Wang
- CWBS loc. 99. **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulü Shan, ca. 17 km NW Beizhen City; Sandao Gou He near loc. 98; several shallow pools, rain water or ground water, unshaded, mud, sand; 23.VIII.1994; leg. Jäch, Ji & Wang

Check list of Chinese Hydraenidae

Thirty-seven species are known from China. Twenty-two of these species were described by Zhelong [= Jillon = Chih-Lung] Pu (1937, 1942, 1951a, 1951b, 1958).

Hydraena KUGELANN

About 500 species of *Hydraena* are known, most of which inhabit the western Palearctic Realm. Only 11 species are known from China. Many new species await description.

1. *Hydraena bispinosa* Pu, 1951b

China: Guizhou, "Kweiyang [= Guiyang City]" (Pu 1951b: 281, 1956: 302); Hunan, "Ichang [= ca. 50 km S of Chenzhou City, Yizhang County, Chenzhou Prefecture]" (Pu 1951b: 281); ca. 20 km E Hengyang City, You Xian County, Xiangtan Prefecture (Pu 1956: 302)

2. *Hydraena confusa* Pu, 1951b

China: Guangdong, "Canton [= Guangzhou City]" (Pu 1951b: 284, Pu 1956: 303)

3. *Hydraena chenae* Pu, 1951b (= *H. dissimilis* Pu, 1956 syn.n.)

China: Guizhou, "Tushan [= ca. 50 km S Duyun City, Dushan County, Qinnan Autonomous Prefecture]" (Pu 1951b: 283, Pu 1956: 304); Hunan, Changsha (Pu 1951b: 283); "Ichang [= ca. 50 km S of Chenzhou City, (close to Guangdong border), Yizhang County, Chenzhou Prefecture]" (Pu 1951b: 283)

4. *Hydraena hunanensis* Pu, 1951b

China: Hunan, "Ichang [= ca. 50 km S of Chenzhou City, (close to Guangdong border), Yizhang County, Chenzhou Prefecture]" (Pu 1951b: 285, 1956: 305); "Yuhsien [= 70 km E Hengyang City, You Xian County, Xiangtan Prefecture]" (Pu 1951b: 285).

5. *Hydraena kwangsiensis* Pu, 1951b

China: Guangxi, "Hochih [= ca. 140 km NW Liuzhou City, Hechi County, Hechi Prefecture]" (Pu 1951b: 286, 1956: 305)

6. *Hydraena magna* Pu, 1951b

China: Guizhou, "Kweiyang [= Guiyang City]" (Pu 1951b: 287, 1956: 306)

7. *Hydraena szechuanensis* PU, 1951b

China: Sichuan, "Chungking [= Chongqing City]" (PU 1951b: 288, 1956: 307)

8. *Hydraena miyatakei* SATÔ, 1959 (= *H. flavomarginata* SHATROVSKIY, 1989 syn.n.)

Japan (SATÔ 1959: 63, JÄCH & SATÔ 1988: 65); Eastern Russia (SHATROVSKIY 1989: 263, SHATROVSKIY 1992: 360)
China (first record): Jilin, CWBS loc. 67, 77, 80, 89, 93

9. *Hydraena riparia* KUGELANN, 1794

Palaearctic Realm (JÄCH 1988: 128-130, JÄCH & SATÔ 1988: 64)

China: "East China" (SHATROVSKIY 1989: 263); Jilin, CWBS loc. 65, 67, 72, 75 - 81, 85 - 87, 90, 92, 93; Liaoning, CWBS loc. 96

10. *Hydraena sauteri* d'ORCHYMONT, 1913¹

China: Taiwan, "Akau [= Pingtung County, S Taiwan]" (d'ORCHYMONT 1913: 1)

11. *Hydraena yunnanensis* PU, 1942

China: Yunnan, "Chengkang [= ca. 75 km SE Kunming City, Chengjiang County, Yüxi Prefecture]" (PU 1942: 170)

***Laeliaena* SAHLBERG**

Only 3 species of *Laeliaena* are known (Kazakhstan, Uzbekistan, India, China). The genus was revised by JÄCH (1995).

1. *Laeliaena sichuanensis* JÄCH, 1995

China: Sichuan, Emei Shan (JÄCH 1995: 38)

***Limnebius* LEACH**

This genus includes about 120 described species of which ca. 90 are known from the Palearctic Realm. Surprisingly, only 7 species are known from China. The Palearctic species (including all Chinese species) were revised by JÄCH (1993).

1. *Limnebius clavatus* PU, 1951a

China: Hunan, Heng Shan, Hengyang Prefecture, Hengshan County, ca. 120 km SSW Changsu City (PU 1951a: 47, JÄCH 1993: 114)

2. *Limnebius glabriventris* SHATROVSKIY, 1989

Eastern Russia (SHATROVSKIY 1989: 164, 1992: 361, JÄCH 1993: 125)

China (first record): Jilin, CWBS loc. 67, 77 - 79, 81, 88 - 90, 93

3. *Limnebius kwangtungensis* PU, 1937

Vietnam (PU, 1951a: 48, JÄCH 1993: 130)

China: Guangdong, "Chiang-ts'un [= Jiang Chun Village, near Guangzhou City]" (PU 1937: 150, 1951a: 47); "Lienhsien [= ca. 170 km N Guangzhou City, Lian Xian County, Shaoguan Prefecture]" (PU 1951a: 48); Guizhou, "Kweiyang [= Guiyang City]" (PU 1951a: 48); "Tushan [= ca. 50 km S Duyun City, Dushan County, Qinnan Autonomous Prefecture]" (PU 1951a: 48); Guangxi, "Kweilin [= Guilin]" (PU 1951a: 48); Hunan, Changsha (PU 1951a: 48); "Ichang [= ca. 50 km S of Chenzhou City, Yizhang County, Chenzhou Prefecture]" (PU 1951a: 48); Yohsien [= You Xian County] (PU 1951a: 48); Sichuan, "Chungking [= Chongqing City Region]" (PU 1951a: 48); Taiwan (JÄCH 1993: 130)

4. *Limnebius kweichowensis* PU, 1951a (= *L. japonicus* NAKANE, 1951)

Japan (JÄCH 1993: 131, JÄCH & MATSUI 1994: 269); Eastern Russia (SHATROVSKIY 1989: 264)

China: Guizhou, "Kweiyang [= Guiyang City]" (PU 1951a: 49); "Tushan [= ca. 50 km S Duyun City, Dushan County, Qinnan Autonomous Prefecture]" (PU 1951a: 49); Beijing, CWBS loc. 10 (JÄCH 1993: 131, JÄCH & MATSUI 1994: 269); Liaoning (first record), CWBS loc. 99

¹ Lectotype ♀ (ISNB) of *H. sauteri*: "?♀ ... les ... v.1929 \ Akau [= Pingtung County] (Formosa) H.Sauter XII.1907 \ Para- type A.d'Orchymont det: Hydraena (s.str.) sauteri m." One paralectotype ♀ with similar label data is housed in the DEI. According to the original description there should be two syntypes: "Akau Dezember 1907; zwei Stück."

5. *Limnebius rufipennis* REGIMBART, 1903 (= *L. kwangsiensis* PU, 1951a)

India, Nepal, Thailand, Vietnam (JÄCH 1993: 150); not in Sri Lanka (the specimens recorded by JÄCH 1984 from Sri Lanka belong to an undescribed species)

China: Guangxi, "Hochih [= ca. 140 km NW Liuzhou City, Hechi County, Hechi Prefecture]" (PU 1951a: 49)

6. *Limnebius taiwanensis* JÄCH, 1993

Japan (JÄCH & MATSUI 1994: 273)

China: Taiwan (JÄCH 1993: 155)

7. *Limnebius wui* PU, 1942

China: Yunnan (JÄCH 1993: 159), "Chengkiang [= ca. 75 km SE Kunming City, Chengjiang County, Yüxi Prefecture]" (PU 1942: 175, 1951a: 50), Kunming (PU 1951a: 50), Kunyang (PU 1951a: 50), Chinning (PU 1951a: 50)

***Ochthebius* LEACH**

Almost 400 species of *Ochthebius* are known. They are grouped in several subgenera and species groups. Only 18 species are known to occur in China.

Ochthebius pusillus was recorded by SHATROVSKIY (1989: 263) from NE China. Although it is not impossible that this species occurs in western or northern parts of China, his records are probably based on *O. angusi* JÄCH.

1. *Ochthebius (Asiobates) furcatus* PU, 1958

China: Yunnan, "Chengkiang [= ca. 75 km SE Kunming City, Chengjiang County, Yüxi Prefecture]" (PU 1958: 254, 263, JÄCH 1990: 44)

2. *Ochthebius (Asiobates) pui* PERKINS, 1979 (= *O. nitidus* PU, 1958, nec LECONTE, 1850)

China: Yunnan, "Lou-fong-tsouen [= Lu Feng Village, near Chengjiang City, ca. 100 km SE Kunming City]" (PU 1958: 251, 261, JÄCH 1990: 73)

3. *Ochthebius (Asiobates) rugulosus* WOLLASTON, 1857

Palaearctic Realm

China: Heilongjiang, Harbin (JÄCH 1990: 49).

4. *Ochthebius (Asiobates) unimaculatus* PU, 1958

China: Guizhou, "Kweiyang [= Guiyang City]" (PU 1958: 153, 262, JÄCH 1990: 49); Guangdong, "Chiuchiang [= Qijiang County, Shaoguan City Region]" (PU 1958: 253, 262); Sichuan, "Chungking [= Chongqing City Region]" (PU 1958: 253, 262)

5. *Ochthebius (Asiobates) yunnanensis* ORCHYMONT, 1925

China: Yunnan (ORCHYMONT 1925: 263, 1935: 188, PU 1958: 253, JÄCH 1990: 49)

6. *Ochthebius (Aulacochthebius) hunanensis* PU, 1958

China: Hunan, "Ichang [= ca. 50 km S of Chenzhou City, Yizhang County, Chenzhou Prefecture]" (PU 1958: 250, 160); Hengyang (PU 1958: 250, 160)

7. *Ochthebius (Enicocerus) salebrosus* PU, 1958

China: Yunnan, "Chengkiang [= ca. 75 km SE Kunming City, Chengjiang County, Yüxi Prefecture]" (PU 1958: 249, 259)

8. *Ochthebius* (s.str.) *angusi* JÄCH, 1994

Russia (JÄCH 1994: 205-108)

China: Jilin, CWBS loc. 77, 79, 82, 89, 93 (JÄCH 1994: 205-108); Liaoning, CWBS loc. 99 (JÄCH 1994: 205-108)

9. *Ochthebius* (s.str.) *caucasicus* KUWERT, 1887

Turkey, Armenia, Kazakhstan, Tadzhikistan, Afghanistan, Nepal, Mongolia (JÄCH 1989a: 117)

China: Tibet, Mangsaka (d'ORCHYMONT 1943: 6, JÄCH 1989a: 117), Tatopani at Tibet-Nepal border (JÄCH 1989a: 117)

10. *Ochthebius* (s.str.) *exilis* PU, 1958

China: Yunnan, "Lou-fong-tsouen [= Lu Feng Village, near Chengjiang City, ca. 100 km SE Kunming City]" (PU 1958: 257, 265)

11. *Ochthebius* (s.str.) *flexus* PU, 1958

China: Yünnan, "Lou-fong-tsouen [= Lu Feng Village, near Chengjiang City, ca. 100 km SE Kunming City]" (PU 1958: 256, 263, JÄCH 1989a: 101)

12. *Ochthebius* (s.str.) *himalayae* JÄCH, 1989c

Nepal (JÄCH 1989c: 359)

China: Tibet, Sun Kosi River, Tatopani, Nepal-Tibet border (JÄCH 1989c: 359)

13. *Ochthebius* (s.str.) *lobatus* PU, 1958

China: Sichuan, "Chungking [= Chongqing City Region]" (PU 1958: 256, 264, JÄCH 1989a: 107).

14. *Ochthebius* (s.str.) *marinus* (PAYKULL, 1798)

Holarctic (JÄCH 1992a: 118)

China: Heilongjiang, Harbin (JÄCH 1992a: 118); Beijing (first record), CWBS loc. 9; Liaoning (first record), CWBS loc. 99

15. *Ochthebius* (s.str.) *octofoveatus* PU, 1958

China: Yünnan, "Lou-fong-tsouen [= Lu Feng Village, near Chengjiang City, ca. 100 km SE Kunming City]" (PU 1958: 258, 265)

16. *Ochthebius* (s.str.) *ovatus* JÄCH, 1989b

Nepal (JÄCH 1989b: 18), India (JÄCH 1992b)

China: Tibet, Tatopani, Nepal-Tibet border (JÄCH 1989b: 18)

17. *Ochthebius* (s.str.) *satoi* NAKANE, 1965

Japan (JÄCH 1991: 78), Eastern Russia (SHATROVSKIY 1989: 263), Mongolia (JÄCH 1991: 78)

China: Henan, Loyang (JÄCH 1991: 78); Taiwan (JÄCH 1991: 78); Jilin (Li 1992: 39); Liaoning (first record), CWBS loc. 98

18. *Ochthebius* (s.str.) *verrucosus* PU, 1942

China: Yünnan, "Chengkang [= ca. 75 km SE Kunming City, Chengjiang County, Yüxi Prefecture]" (PU 1942: 173)

Discussion

The genus *Neochthebius* d'ORCHYMONT, known from marine rock pools in Japan (1 species) and the USA (1 species) might also occur in suitable habitats in China.

Until now, Hydraenidae have been recorded from 13 Chinese regions only: Yünnan (10 spp.), Guizhou (6 spp.), Hunan (6 spp.), Jilin (5 spp.), Liaoning (5 spp.), Sichuan (5 spp.), Taiwan (4 spp.), Guangxi (3 spp.), Tibet (3 spp.), Beijing (2 spp.), Guangdong (2 spp.), Heilongjiang (2 spp.), Henan (1 sp.). Thus it is virtually impossible to draw any zoogeographical conclusions. The reason, why Hydraenidae have been collected so rarely is explained mainly by the fact that they are overlooked easily due to their small size and that generally they are not attracted by lights. Many species are vulnerable to habitat disturbances and have become rare nowadays.

It can be estimated that there are more than one hundred species occurring in China.

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Zusammenfassung

37 Arten und 4 Gattungen der Familie aus China werden aufgelistet. Ein Lectotypus wird für *Hydraena sauteri* d'ORCHYMONT designiert. *Hydraena miyatakei* SATÔ und *Limnebius glabriventris* SHATROVSKIY werden erstmals für China nachgewiesen.

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Artikel/Article: [Hydraenidae \(Coleoptera\) 173-180](#)