

NOTERIDAE:
Synopsis of the Noteridae of China, based mainly on
material collected during the China Water Beetle Survey
(1993 - 2001)
(Coleoptera)

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Abstract

More than 380 specimens of Noteridae (Coleoptera), collected from 58 different localities, are kept in the CWBS (China Water Beetle Survey) collections of the Natural History Museum, Vienna. These specimens represent more or less all the species recorded for the Chinese territory. 14 species are discussed here, one of them is described as new: *Canthydrus antonellae* sp.n. (Yunnan), which is close to *C. luctuosus* (AUBÉ) and *C. semperi* (WEHNCKE). For two species from southeastern China, one *Neohydrocoptus* SATÔ and one *Canthydrus* SHARP, it has not been possible to provide specific names with certainty. *Hydrocanthus indicus* WEHNCKE and *Canthydrus morsbachi* (WEHNCKE) are recorded for the first time from China; the old record of *C. bakeri* PESCHET for Taiwan by (KANO 1931) – under the name *C. guttula* AUBÉ – could in fact refer to the latter species. Keys to the Chinese genera and species are given. Habitus and male characters are illustrated for each species. A check list is given of all the taxa of Noteridae recorded from China.

Key words: Coleoptera, Noteridae, *Canthydrus*, *Hydrocanthus*, *Neohydrocoptus*, *Noterus*, China, taxonomy, new records, new species.

Introduction

The Noteridae are a rather small family of aquatic Adephaga, close to the Dytiscidae and from which they have been separated formally only in the last decades, although a few authors are still of the opinion that they are only a subfamily of Dytiscidae (e.g. PEDERZANI 1995). Almost all species live in marshes and other kinds of stagnant or slowly flowing waters, with aquatic vegetation and debris; occasionally in ephemeral muddy puddles, running waters or subterranean habitats. For the rest, very little is known of their biology and the larvae of most genera are still unknown; this is a pity as larval morphology should be of great help in the study of the phylogeny within this family, which is actually somewhat controversial (e.g. BEUTEL & ROUGHLEY 1987).

Without considering *Phreatodytes* UÉNO – a small genus of blind, phreatobiontic beetles, living in aquifers of Japan, whose membership of Noteridae is still in discussion (UÉNO 1957, 1996) - five genera of Noteridae are known in Asia, none of which are exclusive to this region, before the description in 1996 of *Speonoterus bedosae* SPANGLER, a small blind, troglobiontic noterid, somewhat close to *Notomicrus*, discovered in a cave of Sulawesi. Nevertheless a ratio of exclusive genera/total number of genera, shows that Australasia has the lowest generic differentiation ($1/6 = 0.16$), when compared with the Afrotropical ($2/6 = 0.33$) and the high diversity of the Americas ($5/7 = 0.71$). In spite of this, a large number of taxa is known from

tropical Asia, most of which are in need of a modern revision, identifications being impossible without the examination of types. Several new species are waiting to be described and new distributional records must be published.

Regarding Chinese Noteridae, a check list of species has been published recently by NILSSON (1995), who recorded 13 species, three of which are recorded doubtfully from this territory. Later, a fourteenth unidentified species of *Canthydrus* has been recorded from Macao (JÄCH & EASTON 1998). More than 380 specimens of Chinese Noteridae are kept in the NMW; This material is of great importance as it represents most of the species known from China, collected in 58 different localities, with new distributional records and a new species for the science. Nevertheless, based on this material, the present paper does not have the intention to be a revision of the Chinese Noteridae, but represents a contribution to the knowledge of these beetles in this territory.

Acronyms & CWBS localities:

CASS	Chinese Academy of Sciences, Institute of Applied Ecology, Shenyang
CWBS	China Water Beetle Survey
LHB	Coll. Lars Hendrich, Berlin
MHNP	Muséum national d'Histoire naturelle, Paris
MTB	Coll. Mario Toledo, Brescia
NHML	The Natural History Museum, London
NMW	Naturhistorisches Museum Wien
PMB	Coll. Paolo Mazzoldi, Brescia

CWBS loc. 28: **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; near Paotuan Village, ca. 1 km from Academia Sinica Research Station; small river, flowing through rice terraces, partly dammed up, slightly polluted, ca. 1 m wide, ca. 350 m a.s.l.; 2.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label: 8].

CWBS loc. 33: **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; ca 10 km S of lower Research Station of Academia Sinica; springfed pools along road ditch and flooded rice fields, ca. 400 m a.s.l.; 6.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label: 12].

CWBS loc. 35: **Hunan Province**; Huaihua Prefecture; Huitong County; Guangping Township; 2 km upstream of CWBS loc. 30, near Moshao Village; small stream, 0.5 - 1 m wide, partly canalized, partly vanishing beneath the gravel, ca. 400 m a.s.l.; 7.XI.1993; leg. H. Schönmann, H. Schillhammer & L. Ji; [locality number on label: 14].

CWBS loc. 67: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujü District; several unshaded pools in the surroundings of Baihe City, near Academia Sinica Changbai Mountain Research Station, ca. 700 m a.s.l.; 15.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 4].

CWBS loc. 68: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 60 km N Baihe City; Shao Tian Chi (= Small Heaven Lake), warm water (probably thermally heated), ca 1700 m a.s.l.; 16.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 5].

CWBS loc. 79: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; shallow pool with muddy edges, close to CWBS loc. 78; 17.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 16].

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. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 19]; (see JÄCH & Ji 1995: Fig. 24).

- CWBS loc. 83: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; ca. 80 km SE Baihe City; near CWBS loc. 82; shallow, unshaded roadside rain pools; 18.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 20].
- CWBS loc. 88: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; near CWBS loc. 87; roadside pool, unshaded, ca. 50 cm deep; 18.VIII.1994; leg. M.A. Jäch; [locality number on label: 24].
- CWBS loc. 99: **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulü Shan, ca. 17 km NW Beizhen City; Sandao Gou He [river] near CWBS loc. 98; several shallow pools, rain water or ground water, unshaded, mud, sand; 23.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 35].
- CWBS loc. 103: **Liaoning Province**; Fushun City Region; Xinbin County; 80 km NE Fushun City; 3 km E Cangshi Town; Hun He, ca. 60 m wide, fast flowing, unshaded, gravel and mud, including gravel pools, ca. 20°C, slightly polluted, ca. 80 m a.s.l.; 11.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 39].
- CWBS loc. 104: **Liaoning Province**; Fushun City Region; Xinbin County; 80 km NE Fushun City; 12 km SW Cangshi Town; 4 km W Liujiazi Village; fast flowing stream (tributary of Hun He), ca. 3 - 5 m wide, shaded, gravel and mud, ca. 18°C, slightly polluted, surrounding vegetation composed of artificial forest with *Larix* sp. and *Pinus* sp.; 11.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 40].
- CWBS loc. 110: **Liaoning Province**; Fushun City Region; Qingyang County; 120 km NE Fushun City; 3 km E Douhutun Town; near CWBS loc. 108; small stream, ca. 0.5 m wide, near rice field, slowly flowing, mud, warm, unshaded, slightly polluted, ca. 100 m a.s.l.; 12.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 46].
- CWBS loc. 113: **Liaoning Province**; Dandong City Region; Fengcheng County; Fenghuang Shan; on the way to Fenghuang Shan, 4 km S Fengcheng City; *Sphagnum* swamp, ca. 40 m long, 5 m wide, decaying plant material, margin with stones, mud and numerous water plants, 20°C, *Populus* sp., *Salix* sp., *Robinia* sp., ca. 20 m a.s.l.; 24.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 49].
- CWBS loc. 122: **Liaoning Province**; Benxi City Region; Benxi County; ca. 50 km SE Benxi City; 1 km W Xiamatang Village; springfed pool, including *Sphagnum* swamp, 50 m long, 1 - 2 m wide, 1 m deep, margin with stones and mud, decaying plant material, 20°C, surrounding vegetation composed of shrubs, ca. 200 m a.s.l.; 26.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 58].
- CWBS loc. 148: **Liaoning Province**; Shenyang City Region; ca. 7 km NW Xinmin City; close to road No. 102; rain water and ground water pool, ca. 6 m wide, unshaded, 50 m a.s.l.; 2.VI.1995; leg. M. Wang [locality number on label: 11].
- CWBS loc. 150: **Liaoning Province**; Shenyang City Region; ca. 7 km NW Xinmin City; 20 m from road No. 102; rain water and ground water pool, ca. 30 m wide, unshaded, 50 m a.s.l.; 2.VI.1995; leg. M. Wang [locality number on label: 13].
- CWBS loc. 153: **Liaoning Province**; Shenyang City Region; ca. 30 km S Shenyang City; 1 km W Shilihe Zheng Village; rain water pool, ca. 10 m wide, close to rice field, slightly polluted, 30 m a.s.l.; 18.VII.1995; leg. M. Wang [locality number on label: 16].
- CWBS loc. 154: **Liaoning Province**; Shenyang City Region; ca. 30 km S Shenyang City; 1 km N Shilihe Zheng Village; small rain water pool, muddy, ca. 1 m wide, close to road, slightly polluted, 30 m a.s.l.; 18.VII.1995; leg. M. Wang [locality number on label: 17].
- CWBS loc. 156: **Liaoning Province**; Shenyang City Region; ca. 30 km S Shenyang City; 1 km N Shilihe Zheng Village; small rain water pool, with gravel, ca. 1 m wide, close to CWBS loc. 154, slightly polluted, 30 m a.s.l.; 18.VII.1995; leg. M. Wang [locality number on label: 19].

- CWBS loc. 161: **Liaoning Province**; Dandong City Region; Kuandian County; Baishila Natural Reserve; 35 km NE Kuandian City; 10 km N Baishila Village; rain and ground water pool in forest, shallow, ca. 3 m², mud and gravel, ca. 600 m uphill CWBS loc. 160, 500 m a.s.l.; 30.VIII.1995; leg. L. Ji & M. Wang.
- CWBS loc. 176: **Hong Kong**; NW New Territories; Luk Keng area; Luk Keng Marsh near Kai Kuk Shue Ha Village, slightly above sea level; 14.I.1996; leg. M.A. Jäch.
- CWBS loc. 178: **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, close to Haikou-Sanya Highway; shallow pool, with aquatic vegetation, probably abandoned fish pond, margins with mud, gravel and sand, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 179: **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, ca. 1 km E of CWBS loc. 178; warm ground water pool, 6 m², margins with mud and grass, ca. 0.5 m deep, bottom with more than 10 cm mud, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 183: **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City; close to CWBS loc. 182; deep ground water pool, 40 m², slightly polluted, margins with mud, shaded, 20 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 180: **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, 2 km E of a small village; Wanchuan (= Ten Thousand Springs) River, ca. 60 m wide, slowly flowing, margins with mud and aquatic vegetation, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 181: **Hainan Province**; Qionghai City Region; 6 km W of Qionghai City, 1 km E of a small village; ground water pool, ca. 5 m², close to rice fields, edges with mud and grass, 10 m a.s.l.; 13.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 185: **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City; stream and pools under bridge close to main gate of park area, unshaded, slightly polluted, 15 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 186: **Hainan Province**; Qionghai City Region; Baishiling Scenic Spot, ca. 20 km SW of Qionghai City, 4 km NE of Baishiling; fish pond, > 100 m², edges with aquatic vegetation, margins with mud, 15 m a.s.l.; 14.I.1996; leg. L. Ji & M. Wang.
- CWBS loc. 190: **Hainan Province**; Qiongzong County; ca. 4 km W Qiongzong City; fish pond, ca. 150 m a.s.l.; 16.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.
- CWBS loc. 202: **Hainan Province**; Ledong County; E Jianfeng Town; several streams (including residual pools), 1 - 5 m wide, slowly flowing through rice fields and shrubs, only partly shaded, ca. 60 m a.s.l.; 21.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.
- CWBS loc. 212: **Hainan Province**; Ledong County; Jianfeng Mountains; 10 km E Jianfeng Town; springfed pools and small stream, ca. 2 - 3 m wide, potamal, flowing through pastures and shrubs, margins with grass, mud and sand, ca. 700 m a.s.l.; 23.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & Ji 1998: Fig. 10).
- CWBS loc. 214: **Hainan Province**; Wanning County; ca. 15 km SW Dongxing Town, ca. 1 km W Jianfeng Village; small stream, ca. 1 - 2 m wide, probably a tributary of CWBS loc. 215, meandering, water turbid, flowing through cultivated land (rubber plantations, bamboo groves, villages, etc.), ca. 70 m a.s.l.; 25.I.1996; leg. M.A. Jäch, L. Ji & M. Wang.
- CWBS loc. 216: **Hainan Province**; Wanning County; ca. 8 - 10 km W Dongxing Town; meandering river, crossing the Dongxing - Jianfeng road three times, ca. 3 - 6 m wide, slightly turbid, with sand and gravel, flowing through cultivated land (rubber plantations, village gardens, rice fields, bamboo groves), probably being the lower course of CWBS loc. 215; ca. 70 m a.s.l.; 26.I.1996; leg. M.A. Jäch, L. Ji & M. Wang (see JÄCH & Ji 1998: Fig. 11).
- CWBS loc. 265: **Guizhou Province**; Guiyang City Region; 17 km S Guiyang City, ca. 100 m below Huaxi Town, near reservoir dam; pool, ca. 20 m², polluted, with aquatic vegetation, ca. 1100 m a.s.l.; 25.VII.1997; leg. M. Wang.

- CWBS loc. 267: **Guizhou Province**; Liupanshui City Region; 10 km W Liupanshui City, close to CWBS loc. 266; shallow and small ground water pool, ca. 20 m², slightly polluted, ca. 1800 m a.s.l.; 27.VII.1997; leg. M. Wang.
- CWBS loc. 269: **Guizhou Province**; Liupanshui City Region; 2 km E Liupanshui City; Dewu Reservoir, slightly polluted, ca. 1800 m a.s.l.; 27.VII.1997; leg. M. Wang.
- CWBS loc. 270: **Guizhou Province**; Bijie Prefecture; Weining Hui and Miao Autonomous Region; 2 km S Weining City; lake (Cao Hai (= Sea of Grass)), with aquatic vegetation, polluted, ca. 2400 m a.s.l.; 28.VII.1997; leg. M. Wang.
- CWBS loc. 275: **Guizhou Province**; Bijie Prefecture; Minxi County; Gong Jia Lake, with aquatic vegetation, surrounded by agricultural fields, slightly polluted, ca. 1200 - 1300 m a.s.l.; 30.VII.1997; leg. M. Wang.
- CWBS loc. 276: **Guizhou Province**; Zunyi Prefecture; Zunyi City Region; 29 km NE Zunyi City; River Huangni (= Yellow Mud), 10 m wide, slowly flowing, surrounded by rice fields, banks with gravel, mud and sand, polluted, ca. 1000 m a.s.l.; 3.VIII.1997; leg. M. Wang.
- CWBS loc. 277: **Guizhou Province**; Zunyi Prefecture; Zunyi City Region; 25 km NE Zunyi City, near Niuxin Shan Village; stream, 2 m wide, slowly flowing, banks with gravel, mud and sand, surrounded by agricultural fields, ca. 1000 m a.s.l.; 3.VIII.1997; leg. M. Wang.
- CWBS loc. 278: **Guizhou Province**; Zunyi Prefecture; Zunyi City Region; 25 km NE Zunyi City, near Niuxin Shan Village; river, 5 m wide, fast flowing, banks with gravel and sand, slightly polluted, ca. 1000 m a.s.l.; 3.VIII.1997; leg. M. Wang.
- CWBS loc. 281: **Guizhou Province**; Zunyi Prefecture; Zunyi City Region; 40 km N Zunyi City, close to CWBS loc. 280; pool, 3 m², polluted, ca. 1200 m a.s.l.; 4.VIII.1997; leg. M. Wang.
- CWBS loc. 282: **Guizhou Province**; Zunyi Prefecture; Zunyi City Region; 25 km N Zunyi City; small river, ca. 3 m wide, gravel and sand, polluted, surrounded by agricultural fields and trees, ca. 1200 m a.s.l.; 5.VIII.1997; leg. M. Wang.
- CWBS loc. 327: **Nei Mongol Autonomous Region**; Zhaowuda Meng Prefecture; Wengniute Qi County; ca. 120 km NNE Chifeng, surroundings of Wulanaodu Research Station; springfed pool with steep margins, surrounded by dense vegetation (reed, bushes and trees), ca. 480 m a.s.l.; 22.VII.1998; leg. L. Ji, H. Schönmann, K. Schönmann & M. Wang.
- CWBS loc. 328: **Nei Mongol Autonomous Region**; Zhaowuda Meng Prefecture; Wengniute Qi County; 120 km NNE Chifeng, surroundings of Wulanaodu Research Station; flat rain water pools between dunes, submerged vegetation, ca. 480 m a.s.l.; 22.VII.1998; leg. L. Ji, H. Schönmann, K. Schönmann & M. Wang (see JÄCH & Ji 1998: Figs. 22, 23).
- CWBS loc. 329: **Nei Mongol Autonomous Region**; Zhaowuda Meng Prefecture; Wengniute Qi County; 120 km NNE Chifeng, surroundings of Wulanaodu Research Station; flat rain water pools in a meadow, filled with submerged vegetation, ca. 480 m a.s.l.; 22.VII.1998; leg. L. Ji, H. Schönmann, K. Schönmann & M. Wang.
- CWBS loc. 348: **Yünnan Province**, Kunming City Region, plain near River Panlong, northern part of Kunming City, ca. 1800 m a.s.l.; rice fields (partly abandoned), irrigation canals and muddy pools; 2.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei (see JÄCH & Ji 2003: Fig. 4).
- CWBS loc. 356: **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Mengla County, Menglun Town, Menglun Tropical Botanical Garden, ca. 500 m a.s.l.; ornamental pond, size: ca. 10 x 40 m; 6.XI.1999; leg. M.A. Jäch & H. Schönmann (see JÄCH & Ji 2003: Fig. 6).
- CWBS loc. 366: **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Mengla County, near Mengla, ca. 700 m a.s.l.; small pools, margins with mud and grass; 9.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.

- CWBS loc. 368: **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Mengla County, near summit of pass between Mengla and Mengyüan, ca. 20 km NW Mengla, ca. 1000 m a.s.l.; small stream, ca. 1 m wide, flowing in steep ravine through Dragon Forest (dense primary forest); 9.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.
- CWBS loc. 376: **Yünnan Province**, Xishuangbanna Dai Autonomous Prefecture, Menghai County, plain around Mengao Village, ca. 12 km NW Menghai, ca. 1000 m a.s.l.; various pools (roadside ditches, mud pools between rice fields); 11.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.
- CWBS loc. 447: **Guangdong Province**, Guangzhou City Region, northeastern part of Guangzhou City, Botanical Garden (South China Institute of Botany), guest house (hotel), ca. 30 m a.s.l.; at light; 26. – 27.X.2001; leg. M.A. Jäch.
- CWBS loc. 460: **Guangdong Province**, Zhaoqing Prefecture, Fengkai County, ca. 60 km E of Fengkai, ca. 6 km NE of Heishiding Nature Reserve head office, near CWBS loc. 459, ca. 300 m a.s.l.; River Donguang, ca. 5 – 8 m wide, through valley with degraded forest and cultivated land; 2.XI.2001; leg. M.A. Jäch & A. Komarek.
- CWBS loc. 463: **Guangdong Province**, Zhaoqing Prefecture, Huaiji County, ca. 35 km NE of Huaiji, Huaiji – Yangshan road, near Sanmianliang Village, ca. 130 m a.s.l., 24°00'25"N 112°26'09"E; River Madi, ca. 5 – 10 m wide, flowing through swampy plain and forested valley, shore with gravel bank and numerous flat muddy pools with grassy edges; 3.XI.2001; leg. M.A. Jäch & A. Komarek.
- CWBS loc. 479: **Guangdong Province**, Shaoguan Prefecture, Shixing County, ca. 10 km SW of Chebaling Village, at Jiangciao Village, Chebaling – Siqian road, ca. 270 m a.s.l., 24°41'11"N 114°07'17"E; several small pools with mud and aquatic vegetation, in meadow, close to river (CWBS loc. 480); 7.XI.2001; leg. M.A. Jäch & A. Komarek.
- CWBS loc. 480: **Guangdong Province**, Shaoguan Prefecture, Shixing County, ca. 10 km SW of Chebaling Village, at Jiangciao Village, Chebaling – Siqian road, ca. 270 m a.s.l., 24°41'11"N 114°07'17"E; river, ca. 5 – 7 m wide, margins with gravel banks and grass; 7.XI.2001; leg. M.A. Jäch & A. Komarek.

Key to Chinese genera of adult Noteridae

- 1 Apical spurs of protibiae straight, at most slightly curved apically, subequal in length or almost so; outer lateral margin of protibiae with few, strong spurs (Fig. 5); hind side of metacoxal process visibly notched medially (Fig. 1)..... *Neohydrocoptus*
- Apical spurs of protibiae unequal, with the longer very large and hooked, the smaller almost invisible in some cases; outer lateral margin of protibiae without large and strong spurs, but with a comb-like structure (Fig. 6); first article of protarsi visibly broader and longer than articles 2-4; hind side of metacoxal process medially incised in V-shaped, but not notched (Figs. 2-3)..... 2
- 2 Complex of prosternal process, metaventral plate and metacoxal process forming a uniform plate covered by dense hairs (Fig. 3); apex of prosternal process wide and somewhat truncate (Figs. 3, 4); hind side of metafemora with a subapical tuft of hairs (Fig. 7); antennal segments uniform in both sexes..... 3
- Complex of prosternal process, metaventral plate and metacoxal process forming a somewhat uniform plate, without hairs (Fig. 2); apex of prosternal process tapering (Figs. 2, 17,18); metafemora without subapical tuft of hairs; antennae in males with part of their segments enlarged..... *Noterus*
- 3 Size larger (4.8 – 5.0 mm); metafemora and metatibiae broad, with longer spur of metatibiae serrate (Fig. 7); prosternal process visibly broadened just behind coxae (Fig. 4); dorsal coloration evenly dark brown *Hydrocanthus*

- Size smaller (2.5 - 3.5 mm); metafemora and metatibiae quite slender, with both spurs of metatibiae smooth; prosternal process only slightly broader behind coxae (Fig. 3); dorsal coloration evenly testaceous or black with pale markings..... *Canthydrus*

Neohydrocoptus SATÔ

Neohydrocoptus SATÔ 1972: 144 (subg. of *Hydrocoptus* MOTSCHULSKY). Type species: *Hydrocoptus bivittis* MOTSCHULSKY, 1859.

DIAGNOSIS: Small to moderate Noteridae (2.0 - 3.6 mm long). Body outline oblong, rather convex; surface covered by a reticulation of polygonal, rounded, cells; coloration testaceous to pitch-brown, with or without paler markings on elytra. Antennae composed of short segments, not enlarged in both sexes. Protibiae apically enlarged, with acuminate and straight apical spurs and with robust spines on outer side. Males with slightly modified inner protarsal claws. Median lobe of males (in Australasian species) slender with enlarged and flattened tip.

Tropical genus of about 28 species, occurring in Africa and Madagascar, southern Asia, New Guinea and Australia. Especially in tropical Asia this genus is very poorly known: many species are hard to distinguish and no modern descriptions are available for most.

Nomenclature: This genus was known, until recently, as *Hydrocoptus* MOTSCHULSKY. In their revision of dytiscid genera, NILSSON, ROUGHLEY & BRANCUCCI (1989) observed that *Hydrocoptus* is not a valid name as the type species formally designated is not valid. Therefore *Neohydrocoptus* SATÔ – previously erected as a subgenus of *Hydrocoptus* – becomes the valid available name for this genus, with *Hydrocoptus bivittis* MOTSCHULSKY as type species. *Hydrocoptus* MOTSCHULSKY is now a junior subjective synonym of the dytiscid genus *Hydroporus* CLAIRVILLE.

Key to Chinese species of *Neohydrocoptus*

- 1 Body longer (3.0 - 3.6 mm); lateral margins of pronotum, near the hind angles, with a subcircular depression with large, deep, and irregular dots; elytra black, with sharp reddish-yellow pattern composed of medial longitudinal stripe and two lateral spots joined by lateral pale band..... *bivittis*
- Body shorter (2.0 - 2.3 mm); lateral margins of pronotum without depressions, at most some isolated dots along the inner side; elytra reddish-brown or brown, at most with a paler medial line..... 2
- 2 Elytral colour clearly faded medially, with a more or less longitudinal stripe; few impressed dots visible on hind margin of pronotum; median lobe of aedeagus thin and straight..... *subvittulus*
- Elytra unicoloured, or almost so; no larger dots are visible on hind margin of pronotum; median lobe of aedeagus thicker and twisted apically *unidentified sp.*

Neohydrocoptus bivittis (MOTSCHULSKY)
(Fig. 23)

Hydrocoptus bivittis MOTSCHULSKY 1859: 44 (orig.descr.).
Neohydrocoptus bivittis MOTSCHULSKY: NILSSON 1995: 39.

MATERIAL EXAMINED:
CHINA: HAINAN: CWBS loc. 190 (8 exs.); GUANGDONG: CWBS loc. 447 (3 exs.).

Unmistakable species (in China) for size and coloration, known from China, India, Sri Lanka and Myanmar; I have also seen specimens from Malaysia (NMW, PMB, MTB). At present in China it is known from Hainan (FENG 1932: 17, NILSSON 1995: 39) and Guangdong (FENG 1933b: 83).

***Neohydrocoptus subvittulus* (MOTSCHULSKY)**
(Fig. 24)

Hydrocoptus subvittulus MOTSCHULSKY 1859: 43 (orig. descr.).

Neohydrocoptus subvittulus MOTSCHULSKY: NILSSON 1995: 39.

MATERIAL EXAMINED:

CHINA: YÜNNAN: CWBS loc. 366 (2 exs.); CWBS loc. 368 (1 ex.); GUANGDONG: CWBS loc. 460 (2 exs.).

A widespread species known from India, Sri Lanka, Bangladesh, Vietnam, Malaysia, Indonesia (Sumatra, Java). In China it is recorded from Fujian (FENG 1932: 17, 1933b: 83, WU 1937: 197, ZHAO 1981: 110, NILSSON 1995: 39). All the specimens that I have seen, from Yünnan and Guangdong, are females, nevertheless almost surely they belong to this species. First record for Yünnan and Guangdong.

***Neohydrocoptus* sp.**
(Fig. 25)

MATERIAL EXAMINED:

CHINA: HAINAN: CWBS loc. 179 (1 ex.); CWBS loc. 185 (6 exs.); CWBS loc. 186 (1 ex.), CWBS loc. 202 (2 exs.); CWBS loc. 212 (8 exs.). HONG KONG: Tai Po Kau, 6-7.VI.1984, leg. Dudgeon (3 exs. in NMW); same locality and collector, 16.-17.VI.1984 (1 ex. in NMW); same locality and collector, 18.X.1983 (1 ex. in NMW).

This species is similar to the preceding, but it is distinguished readily by the characters given in the key and the uniform and darker coloration of elytra. In 1996, some of the above specimens have been identified with a question mark as *Hydrocoptus rubescens* (CLARK, 1863) by G. Wewalka. Judging by the descriptions given in RÉGIMBART (1899: 242-243) this species seems to be close to *N. rubescens* (type locality: Batavia [= Jakarta]) or *N. distinctus* (WEHNCKE, 1883) (type locality: Bangkok) and maybe it belongs to one of these; nevertheless the question can be resolved only with the examination of type material.

***Noterus* CLAIRVILLE**

Noterus CLAIRVILLE 1806: 222. Type species: *Dytiscus crassicornis* MÜLLER, 1776.

Medium-sized Noteridae (3.5 – 5.0 mm), convex, regularly oval. Dorsal coloration more or less uniformly reddish-yellow or brown-reddish. Surface covered by a fine reticulation composed of minute and transverse cells. Elytra with coarse or finer dots, arranged in poorly regular longitudinal series. Prosternum medially carinate, slightly elevated, or even with an extended depression. Ventral plate glabrous. Males with articles of antennae (often articles 5-11) visibly broadened. Median lobe of aedeagus elongate and flattened laterally, dorsally with a sharp keel.

A Palearctic genus, distributed from Portugal to Japan. Seven species are described, five of which - one doubtfully - have been recorded from China. *N. granulatus* RÉGIMBART, described from China, is known only from a single female specimen in MHNP which I have been unable to see, and its status is unclear; according to ZAITZEV (1953) this taxon could be a synonym of *N. japonicus* SHARP. In the CWBS material I have seen only specimens of *N. japonicus*, which is the most common species in China, and one specimen of *N. angustulus* ZAITZEV. Therefore only these two species are discussed here; for discussion on the other species see NILSSON (1995: 40). Nevertheless a key for all the species (except *N. granulatus* for the above reasons) recorded from China is given below.

Key to Chinese species of *Noterus*

- 1 Prosternum in males medially depressed or almost concave, slightly elevated in females, but never sharply carinate and without an anterior tooth-like process (Fig. 18); male antennae with 5th and 6th segments distinctly larger and broader than the following; average size smaller (length < 4.4 mm), oblong and less convex; ventral surface of males reddish, darkened only around the eyes and prosternum..... 2
- Prosternum visibly carinate in both sexes (slightly less marked in *N. japonicus*), ending anteriorly, in both sexes, with a tooth-like process projecting downward (Fig. 17); male antennae with 5th – 10th segments almost of the same size; average size larger (length ≥ 4.4 mm), more rounded and convex; ventral surface of males almost completely dark 3
- 2 Longitudinal rows of dots on disc and apex of elytra very deeply impressed, large and scattered; male antennae with segments 7-10 slightly widened, but with a distinct expansion on outer margin (Fig. 22)..... [*crassicornis*]
- Longitudinal rows of dots very fine and poorly impressed, small and arranged in almost regular series on disc, hardly visible on apex of elytra; male antennae with segments 7-10 poorly modified, without lateral expansions and segment 6 more expanded than in *N. crassicornis* (Fig. 21)..... *angustulus*
- 3 Dots on elytra large and very deeply impressed, scattered; male antennae broader: 6th article as wide as long or slightly wider and 5th segment scarcely protruding from inner margin (Fig. 20)..... *clavicornis*
- Dots on elytra fine and small, less deeply impressed and arranged in somewhat regular rows; male antennae slender: width of 6th article less than its length and 5th segment visibly protruding from inner margin (Fig. 19)..... *japonicus*

Noterus japonicus SHARP (Figs. 19, 26)

Noterus japonicus SHARP 1873: 52 (orig. descr.). – NILSSON 1995: 40.

MATERIAL EXAMINED:

C H I N A: LIAONING: CWBS loc. 103 (1 ex.); CWBS loc. 104 (1 ex.); CWBS loc. 110 (2 exs.); CWBS loc. 113 (14 exs.); CWBS loc. 122 (1 ex.); CWBS loc. 148 (2 exs.); CWBS loc. 150 (5 exs.); CWBS loc. 153 (6 exs.); CWBS loc. 154 (10 exs.); CWBS loc. 156 (3 exs.); CWBS loc. 161 (1 ex.); NEI MONGOL: CWBS loc. 327 (1 ex.); CWBS loc. 328 (3 exs.); CWBS loc. 329 (2 exs.); GUIZHOU: CWBS loc. 265 (5 exs.); CWBS loc. 267 (15 exs.); CWBS loc. 269 (3 exs.); CWBS loc. 270 (11 exs.); CWBS loc. 275 (6 exs.); CWBS loc. 276 (7 exs.); CWBS loc. 277 (1 ex.); CWBS loc. 278 (3 exs.); CWBS loc. 281 (2 exs.); CWBS loc. 282 (4 exs.); YÜNNAN: CWBS loc. 348 (83 exs.); CWBS loc. 376 (1 ex.); HONG KONG: CWBS loc. 176 (1 ex.).

Widespread in the eastern Palearctic, this species is known from Japan, Far Eastern Russia (Primorye), and Korea. In China it is recorded from the provinces of Heilongjiang, Jilin, Liaoning, Hebei, Beijing, Shaanxi, Shandong, Jiangsu, Hubei, Jiangxi, Fujian, and Hainan. NILSSON (1995) gives the following CWBS localities: JILIN: locs. 67, 68, 79, 82, 83, 88; LIAONING: loc. 99. Probably common in the whole Chinese territory except for Tibet, and the northwest. First records for Yünnan, Nei Mongol, Guizhou and Hong Kong.

Noterus angustulus ZAITZEV (Figs. 21, 27)

Noterus angustulus ZAITZEV 1953: 95 (orig. descr.). – NILSSON 1995: 40.

MATERIAL EXAMINED:

C H I N A: NEI MONGOL: CWBS loc. 327 (1 ex.).

Very similar to *N. crassicornis*. According to NILSSON (1995), all the Chinese records for *crassicornis* (FENG 1933a, 1933b, GSCHWENDTNER 1933, WU 1937, KAMYA 1940), most

probably refer to *N. angustulus*. Assuming that this is correct, this species therefore is known from NE China (Jilin, Beijing, Hebei), Far Eastern Russia (Primorye) and Korea; most probably it is a vicariant of *N. crassicornis*. First record for Nei Mongol.

***Hydrocanthus* SAY**

Hydrocanthus SAY 1823: 105. Type species: *Hydrocanthus iricolor* SAY, 1823.

This genus includes the largest representatives of Noteridae, reaching the size of 7 mm in some African species. Body elongate, slightly or distinctly convex. Dorsal coloration quite uniform, at most with head and pronotum paler than elytra, without markings; prosternal process broad, more or less covered in close hairs, as on metaventral plate and metacoxal process; hind legs broad, with longer spur of metatibia serrate, due to the presence of a row of short setae; labial palps with last article strongly expanded, triangular in shape. A quite speciose genus, divided into two subgenera, sharply separated geographically: *Hydrocanthus* s.str. in the Americas and *Sternocanthus* GUIGNOT (type species *Hydrocanthus micans* WEHNCKE, 1883) in the tropics of the Old World. Only one species is known from Asia.

***Hydrocanthus (Sternocanthus) indicus* WEHNCKE** (Figs. 4, 7)

Hydrocanthus indicus WEHNCKE 1876: 223 (orig. descr.). – SHARP 1882: 279; RÉGIMBART 1899: 252.

MATERIAL EXAMINED:

CHINA: HONG KONG: Luk Keng marsh, 23.VI.1995, leg. D. Dudgeon (2 exs. in NMW). First record for China.

This medium-sized *Hydrocanthus* is the only member of this genus in the Indian Region and it is known from South India, Sri Lanka, Bangladesh, Myanmar, Vietnam, Cambodia, Singapore, Indonesia (Java, Sumatra, Borneo). The specimens I have examined from Hong Kong are dark brown, which seems to be the most common coloration, although black specimens are known from India and Sri Lanka.

***Canthydrus* SHARP**

Canthydrus SHARP 1882: 269. Type species: *Hydrocanthus guttula* AUBÉ, 1838.

Small to moderately sized Noteridae (2.5 - 3.7 mm) for the Chinese fauna. Convex or strongly convex, shining; from yellowish to completely black, often with pale markings on elytra and pronotum. Dorsal surface with a very fine, wrinkle-like reticulation. Prosternal process in the shape of a regular triangle; prosternal process, metaventrite and metacoxal process covered in close hairs. Antennae not broadened in both sexes. Labial palps with last article larger, bifid and expanded in a triangle. Metafemora with a ventro-apical tuft of hairs. Fore tibiae narrow anteriorly. Median lobe of aedeagus broad and flattened laterally, with the two processes of the bulb strongly different in length.

Large genus occurring mainly in the Old World tropics, especially in Africa and Asia. Few species live in Australia and in the South of the Palearctic. The Neotropical species formally attributed to this genus, most probably do not belong to *Canthydrus*. Seven species have been recorded previously from China (NILSSON 1995), two doubtfully. Eight species are discussed here, one of which is described as new.

Key to Chinese species of *Canthydrus*

- 1 Dorsal coloration completely testaceous or reddish-yellow, at most vaguely darkened on elytra, no markings visible, at least not distinctly 2

- Dorsal coloration black, at least on elytra, with distinct paler markings, more or less extended 3
- 2 Body slightly larger (2.7 - 2.9 mm); body more broadly oval; normally a paler submedial spot is visible on each elytron; median lobe of aedeagus narrowed apically (dorsal view) *flavus*
- Body slightly smaller (2.5 - 2.7 mm); body more elongate; no paler spots are visible on elytra; median lobe of aedeagus broadly rounded apically *ritsemae*
- 3 Pronotum black, with fore angles and, normally, lateral margins testaceous or reddish; pale markings of elytra small, poorly extended 4
- Pronotum reddish, with a dark band along the base and, often, along the anterior margin; pale markings of elytra more extended 5
- 4 In lateral view, body strongly convex, with lateral margins of elytra arcuate deeply; reddish markings on elytra are visible, more or less developed, basally and submedially *morsbachi*
- In lateral view the beetle is less convex, with lateral margins of elytra visibly less arcuate; pale markings on elytra composed only of a single, small, submedial spot *antonellae*
- 5 Size larger (3.3 - 3.7 mm); a wide, black band, is present on both basal and anterior margins of pronotum *nitidulus*
- Size smaller (2.8 - 3.0 mm); black band on anterior margin of pronotum thinner and, when present, reduced to an almost circular spot 6
- 6 Body shape more broadly oval; apex of elytra yellow; pronotum with only a thin darker band anteriorly; median lobe of aedeagus broad and rounded apically *politus*
- Body shape more elongate; apex of elytra black; pronotum also with a distinct black, somewhat circular, spot on hind margin; median lobe of aedeagus elongate and somewhat pointed apically **unidentified sp.**

***Canthydrus flavus* (MOTSCHULSKY)**
(Figs. 8, 28)

Hydrocanthus flavus MOTSCHULSKY 1855: 83 (orig. descr.).

Canthydrus flavus: WEWALKA 1994: 804; NILSSON 1995: 39.

Canthydrus fulvescens RÉGIMBART 1889: 149 (orig. descr.).

MATERIAL EXAMINED:

C H I N A: YÜNNAN: CWBS loc. 356 (14 exs.); CWBS loc. 366 (13 exs.).

Testaceous species, widespread in the Oriental Region. In China it is recorded from Hubei, Fujian, Guangdong, Taiwan, Hainan and Hong Kong. First record for Yünnan.

***Canthydrus ritsemae* (RÉGIMBART)**
(Figs. 9, 29)

Hydrocanthus ritsemae RÉGIMBART 1880: 213 (orig. descr.).

Canthydrus ritsemae RÉGIMBART: WEWALKA 1994: 806 (revis.); NILSSON 1995: 39.

Canthydrus javanus WEHNCKE 1883: 149 (orig. descr.).

Canthydrus pseudoflavus ROCCHI 1986: 31 (orig. descr.).

MATERIAL EXAMINED:

C H I N A: GUANGDONG: CWBS loc. 460 (1 ex.); HAINAN: CWBS loc. 178 (1 ex.); CWBS loc. 179 (3 exs.); CWBS loc. 180 (1 ex.); CWBS loc. 181 (1 ex.); CWBS loc. 183 (1 ex.); CWBS loc. 186 (39 exs.); CWBS loc. 214 (1 ex.); CWBS loc. 216 (2 exs.).

Slightly smaller, with uniformly reddish elytra, this species is separable easily from the preceding, based on the median lobe of the aedeagus. Widespread in southeastern Asia, as *C. flavus*, occurring also in Nepal and India. In China (Hong Kong) it has been recorded for the first time by WEWALKA (1994). First record for Guangdong and Hainan.

***Canthydrus testaceus* (BOHEMAN)**

Hydrocanthus testaceus BOHEMAN 1858: 19 (orig. descr.).

Canthydrus testaceus BOHEMAN: FENG 1933b: 87; NILSSON 1995: 39.

Very poorly known taxon, described from China with no other indications. Judging by the description given in FENG (1933b), it seems to be very close to *C. ritsemae* and maybe the two taxa are synonyms.

***Canthydrus morsbachi* (WEHNCKE)**

(Figs. 10, 30)

Hydrocanthus morsbachi WEHNCKE 1876: 222 (orig. descr.).

Canthydrus morsbachi WEHNCKE: RÉGIMBART 1899: 247; VAZIRANI 1968: 32.

Canthydrus angularis SHARP 1882: 277. - RÉGIMBART 1899: 247 (junior synonym of *morsbachi*).

Canthydrus guttula AUBÉ : KANO 1931: 177 (misspelling, ?misinterpretation).

MATERIAL EXAMINED:

CHINA: YÜNNAN: CWBS loc. 380 (2 exs.). First record for China.

Very convex, large. The above two specimens from Yünnan are females with reduced pale patterns on the elytra, very similar to the five syntypes of *C. angularis* SHARP (type locality: Singapore) in NHML, which is formally a junior synonym of *C. morsbachi* after RÉGIMBART (1899). Maybe the record of *Canthydrus bakeri* PESCHET, for Taiwan (KANO 1931 – under the name *C. guttula* AUBÉ) could be referred to *C. morsbachi*, to which it is closely related. *Canthydrus bakeri* has been described from the Philippines and then was recorded from Laos, Borneo and New Guinea. I have seen also examples of this species from Sulawesi (NMW). *Canthydrus morsbachi* is a widespread species, known from India, the Andamans, Sri Lanka, Cambodia, Myanmar, Vietnam, Thailand, Malaysia, Singapore and Indonesia (Sumatra, Java).

***Canthydrus antonellae* sp.n.**

(Figs. 11, 31)

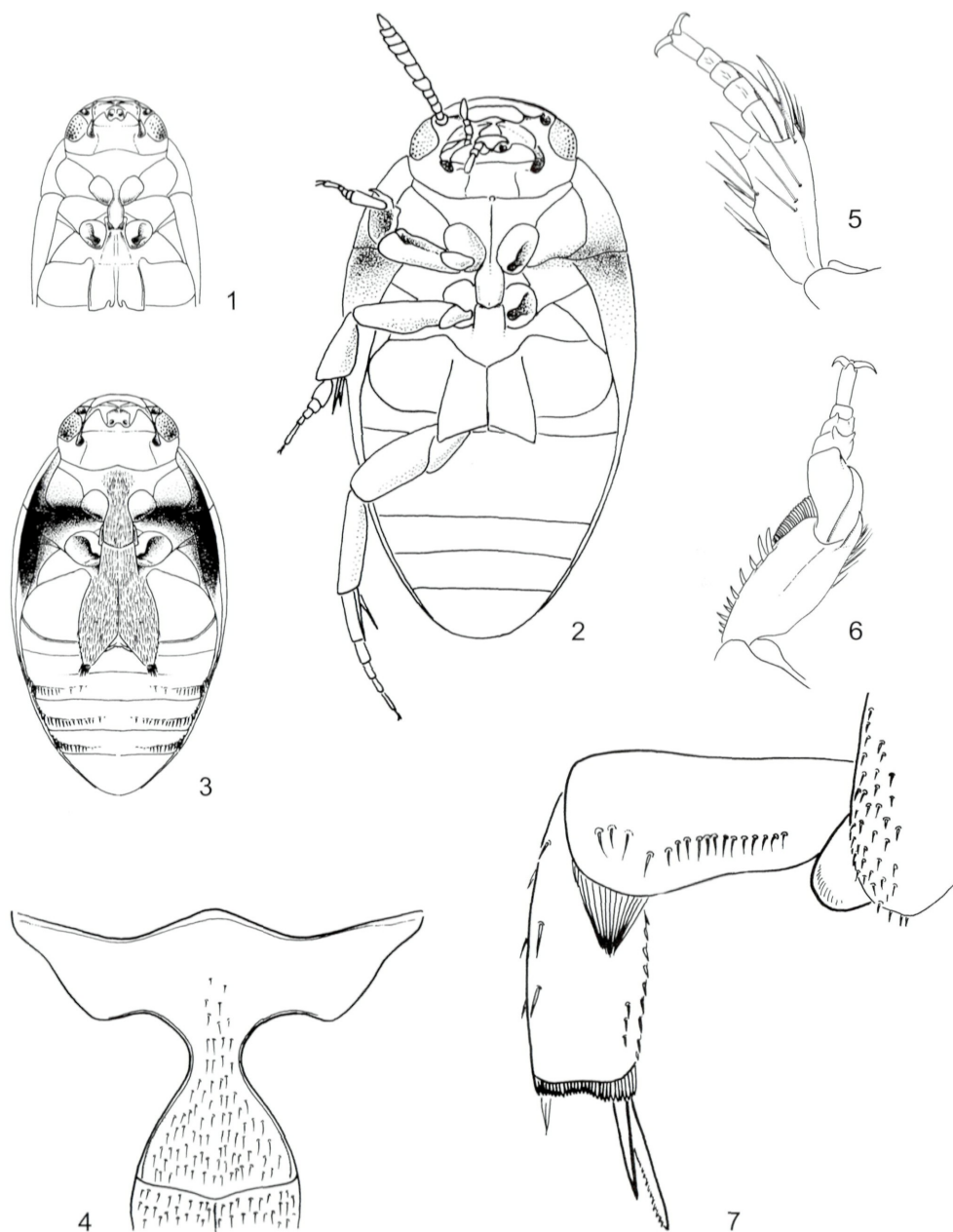
TYPE LOCALITY: China, Yünnan, Xishuangbanna; Menglun; Botanical Garden; ca. 500 m a.s.l. (CWBS loc. 356).

TYPE MATERIAL: **Holotype** ♂ (CASS) dissected "CHINA: Yünnan, Xishuangbanna, Menglun, Trop. Bot. Garden; ca.500 m; 6.XI.1999, Jäch & Schönmann (CWBS loc. 356)". **Paratypes**: CHINA: same data (20 exs. in NMW, MTB, CASS); "Yünnan, Xishuangbanna, ca. 50 km SSE Menglun, Mengyüan, ca. 700 m, 8.XI.1999, leg. Jäch et al. (CWBS loc. 362)"(1 ex. in NMW); "Yünnan, Xishuangbanna, near Mengla, ca. 700 m, 9.XI.1999, leg. Jäch et al. (CWBS loc. 366)"(1 ex. in NMW); "Yünnan, Xishuangbanna, ca. 12 km NW Menghai, ca. 1000 m, 11.XI.1999, leg. Jäch et al (CWBS loc. 376)" (7 exs. in NMW).

DESCRIPTION: Habitus (see JÄCH & BALKE 2003: Fig. 24). Length 3.3 – 3.5 mm; maximum width: 1.6 – 1.8 mm. Oval, tapering posteriorly, convex. Shining. Coloration black, except on head, lateral margins of pronotum and a submedian, lateral spot on elytra.

Head dorsally covered with a fine network of small polygonal cells; coloration reddish-yellow, paler on clypeus and labrum, gradually darkened on epistome, around the eyes. Underside reddish-yellow, a little darker on genae. Mouthparts testaceous; antennae testaceous, darkened on last article.

Pronotum black, with reddish-yellow band along lateral margins somewhat thin, slightly expanded on hind angles. Lateral bead strong. Microreticulation fine, shagreened, composed of hardly discernable polygonal cells; a few scattered, fine, small dots are visible also. Proepimera, proepisterna, hypomera and part of prosternum yellow-reddish; prosternal process black.



Figs. 1-3: Underside of 1) *Neohydrocoptus* (without abdominal sternites); 2) *Noterus*; 3) *Canthydrus*.
 Fig. 4: Prosternal process of *Hydrocanthus indicus*.
 Figs. 5 - 6: Protibia and protarsus (ventral side) of 5) *Neohydrocoptus*; 6) *Noterus*.
 Fig. 7: Hind leg (without metatarsus) of *Hydrocanthus indicus*.

Elytra almost pointed apically; maximum width just behind the shoulders. In lateral view the lateral margins are moderately arcuate. Microreticulation as on pronotum or even finer; a somewhat irregular longitudinal row of dots is visible on the disc: these dots become deeper and much more scattered on the last third. Coloration black; each elytron constantly with a reddish, irregularly circular, submedial spot, close to the lateral margin.

Underside pitch-black, except on mesoepimera, epipleura and apical margin of metacoxal process, which are reddish-brown. Surface covered by a fine reticulation of deep, and small rounded cells, which become less incised on sternites 4-6 and the hind portion of 3, giving a more smooth and shining appearance to their surface.

Legs uniformly reddish-yellow; metatibiae slightly darkened.

Male: Lateral lobe of aedeagus clearly angulate between dorsal portion and basal portion (ca. 120°); apex broad and rounded dorsally, straight ventrally. Right paramere truncate apically. Left paramere triangular as in figure.

TAXONOMIC REMARKS: Among the Asian species of *Canthydrus* with a black pronotum, *C. antonellae* clearly looks close to *C. luctuosus* (AUBÉ, 1838; Figs. 12, 32; type locality: Bombay) and *C. semperi* (WEHNCKE, 1876; Figs. 13, 33; type locality: Philippines); all these species are more convex, with margins of elytra, in lateral view, moderately arcuate or almost straight. *C. luctuosus* normally has three pale spots, more or less developed, on elytra: two basally and one submedially, and is more regularly oval in outline. *Canthydrus semperi* constantly has completely black elytra. In any case the shape of the median lobe of the aedeagus and right paramere is distinctive in the new species.

DISTRIBUTION: Known only for Southern China (Yunnan).

DERIVATIO NOMINIS: Species dedicated to my wife, Antonella.

Canthydrus politus (SHARP) (Figs. 14, 34)

Hydrocanthus politus SHARP 1873: 51 (orig. descr.).

Canthydrus politus SHARP: NILSSON 1995: 39.

MATERIAL EXAMINED:

C H I N A: GUIZHOU: CWBS loc. 275 (1 ex.); CWBS loc. 276 (4 exs.); CWBS loc. 277 (1 ex.); HUNAN: CWBS loc. 28 (1 ex.); CWBS loc. 33 (5 exs.); CWBS loc. 35 (1 ex.); "China \ Sharp coll. 1905-313. \ Kin Kiang [= Xin Jiang, Jiangxi]" (2 exs in NHML).

Among the species with a reddish pronotum and spotted elytra, *C. politus* is recognizable readily by the yellow apex of its elytra. A chiefly East-Palearctic species known from Japan (type locality), China and Korea. In China obviously widespread, especially in the Eastern part, and recorded from Shanghai, Sichuan, Liaoning, Beijing, Shandong, Jiangsu, Hubei, Jiangxi, Fujian, Hebei (see NILSSON 1995). First record for Hunan, Jiangxi and Guizhou. Two historical specimens from the Sharp collection (NHML), labelled "Kin Kiang" [= Xin Jiang, Jiangxi], have the dark patterns on elytra extremely reduced (see Fig. 12b) and have been figured by FENG (1933b).

***Canthydrus nitidulus* SHARP**
(Figs. 15, 35)

Canthydrus nitidulus SHARP 1882: 278 (orig. descr.). - NILSSON 1995: 39.

MATERIAL EXAMINED:

CHINA: GUANGDONG: CWBS loc. 479 (11 exs.); CWBS loc. 480 (1 ex.); HONG KONG: Tai Po Kau, 12-13.IV.1984, leg. D. Dudgeon (1 ex. in NMW); TAIWAN: "Formosa, Takao, Sauter 19.III.07 \ *Canthydrus nitidulus* Sharp Mouchamps det. '56" (5 exs. in NMW).

The large size makes the identification of this species easy in China. Known from Japan, China, Taiwan, Cambodia and Vietnam. In China it is recorded from the provinces of Sichuan, Beijing, Jiangsu, Hubei, Zhejiang, Jiangxi, Fujian, Guangdong and Hainan. First record for Hong Kong.

***Canthydrus* sp.**
(Figs. 16, 36)

?*Canthydrus proximus* SHARP 1882 - RÉGIMBART 1889: 147 (partim) - FENG 1932: 18, 1933b: 87 (misident.) - VAZIRANI 1977: 7 (misident.).

Canthydrus sp.: JÄCH & EASTON 1998: 43 (Macao).

MATERIAL EXAMINED:

CHINA: MACAO: Colôane Island, Siac Pai Van, pond near rock quarry, 21.X.1997, leg. E. Easton (3 exs. in NMW); HONG KONG: Pak Long, 11.VII.1995, leg. D. Dudgeon (1 ex. in NMW).

The three specimens from Macao, already recorded by JÄCH & EASTON (1998), and the specimens from Hong Kong are the same size as *C. politus*, but they are more elongate, the elytral apex black, and a black spot is constantly visible close to the anterior margin of pronotum; the male genitalia are also very different. I have seen also a few examples of this beetle from northern Vietnam (different localities near Hanoi) in NMW and LHB, and with great probability the record of *C. proximus* for Annam (Vietnam), in RÉGIMBART (1899), should be referred to this species, also judging by the brief diagnosis given in the paper. These data were used by FENG (1932, 1933). After having seen the unique type specimen standing in NHML (with probability the holotype) of *C. proximus* SHARP (type-locality: Bangkok), it is clear to me that Régimbart's and Feng's concept of *C. proximus* is wrong. Their diagnosis does not match the characteristics of the type specimen but is closer to the description given in RÉGIMBART (1899: 250, 251) for *C. flammulatus* SHARP, 1882 and *C. weisei* (WEHNCKE, 1876). The examination of syntypes of *C. flammulatus* held in the NHML (type-locality: Bangkok) confirmed that this species is widespread in most of tropical Asia, from southern Vietnam to Borneo, close to the above specimens from Hong-Kong and Macao, but with some differences in coloration and in the male genitalia. *Canthydrus weisei* was described from Cochinchina (Vietnam) and subsequently recorded from southern India (RÉGIMBART 1903: 333); the status of this latter taxon still is unclear, but most probably it is close to *C. flammulatus*. The question can be resolved only with the examination of the type.

Check list of Noteridae recorded from China

According to NILSSON (1995) and in view of the present paper, a total of 19 species of Noteridae, belonging to four genera, are recorded from China. However, only 16 of these species are known to occur in this country with certainty.

Neohydrocoptus bivittis (MOTSCHULSKY) (Hainan, Guangdong)

Neohydrocoptus subvittulus (MOTSCHULSKY) (Fujian, Yunnan)

Neohydrocoptus sp. (Hainan)

Noterus angustulus ZAITZEV (Beijing, Jilin, Nei Mongol)

Noterus clavicornis (DE GEER) (Xinjiang, Shaanxi, Heilongjiang)

[*Noterus crassicornis* (MÜLLER)] (Beijing, Jilin: misidentification)

Noterus granulatus RÉGIMBART ("Ch'ufu")

Noterus japonicus SHARP (Heilongjiang, Nei Mongol, Jilin, Liaoning, Hebei, Beijing, Shaanxi, Shandong, Jiangsu, Hubei, Jiangxi, Fujian, Yunnan, Guizhou, Hainan, Hong Kong)

Hydrocanthus indicus WEHNCKE (Hong Kong)

Canthydrus antonellae sp.n. (Yunnan)

[*Canthydrus bakeri* PESCIET] (Taiwan: ? misspelling, ? misidentification)

Canthydrus flavus (MOTSCHULSKY) (Hubei, Fujian, Yunnan, Guangdong, Hainan, Hong Kong, Taiwan)

Canthydrus morsbachi (WEHNCKE) (Yunnan)

Canthydrus nitidulus SHARP (Sichuan, Beijing, Jiangsu, Hubei, Zhejiang, Jiangxi, Fujian, Guangdong, Hainan, Hong Kong)

Canthydrus politus (SHARP) (Shanghai, Sichuan, Liaoning, Beijing, Shandong, Jiangsu, Hubei, Hebei, Hunan, Jiangxi, Fujian, Guizhou)

[*Canthydrus proximus* SHARP] (China: misidentification)

Canthydrus ritsemae (RÉGIMBART) (Hainan, Hong Kong)

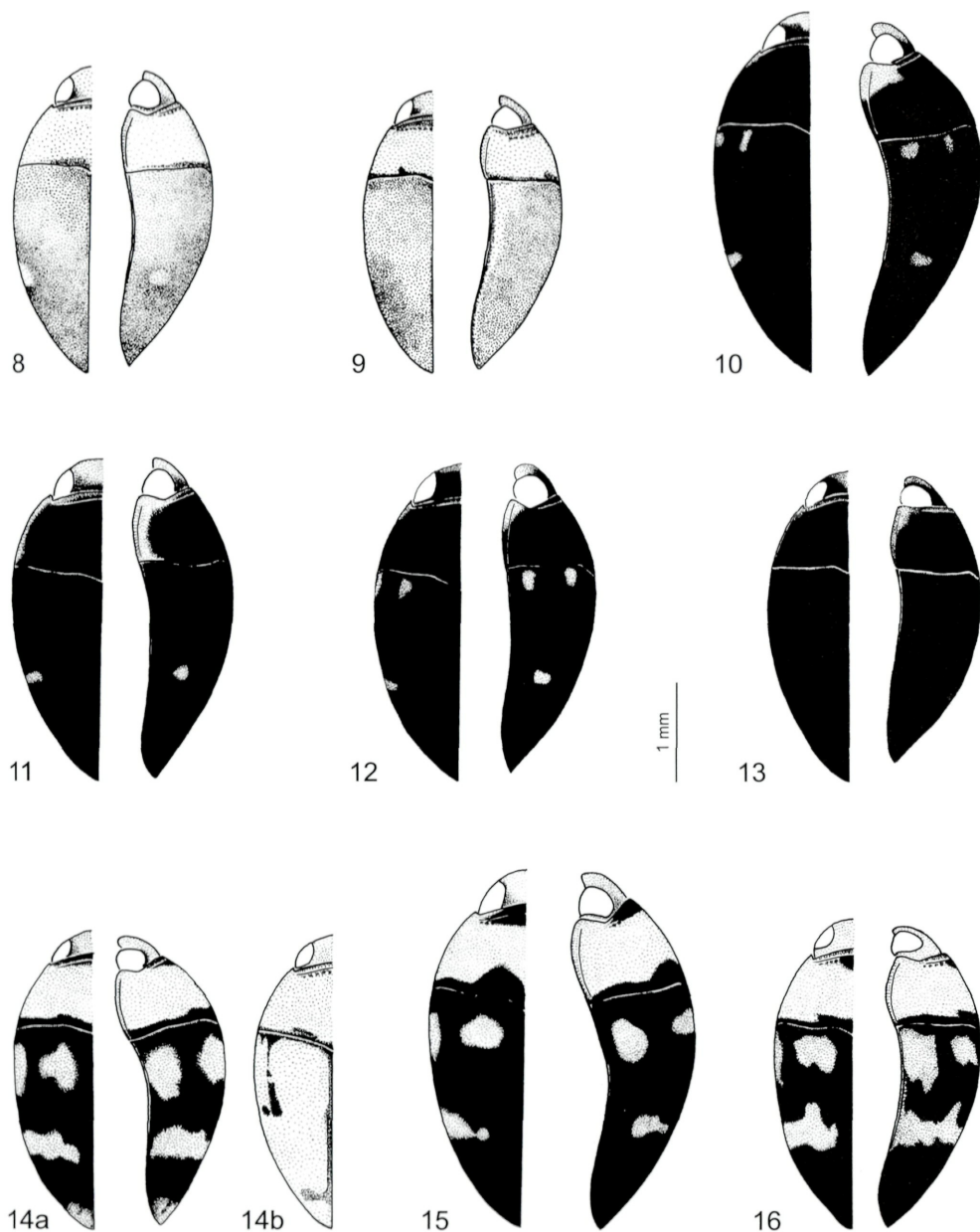
Canthydrus testaceus (BOHEMAN) (China)

Canthydrus sp. (Macao, Hong Kong)

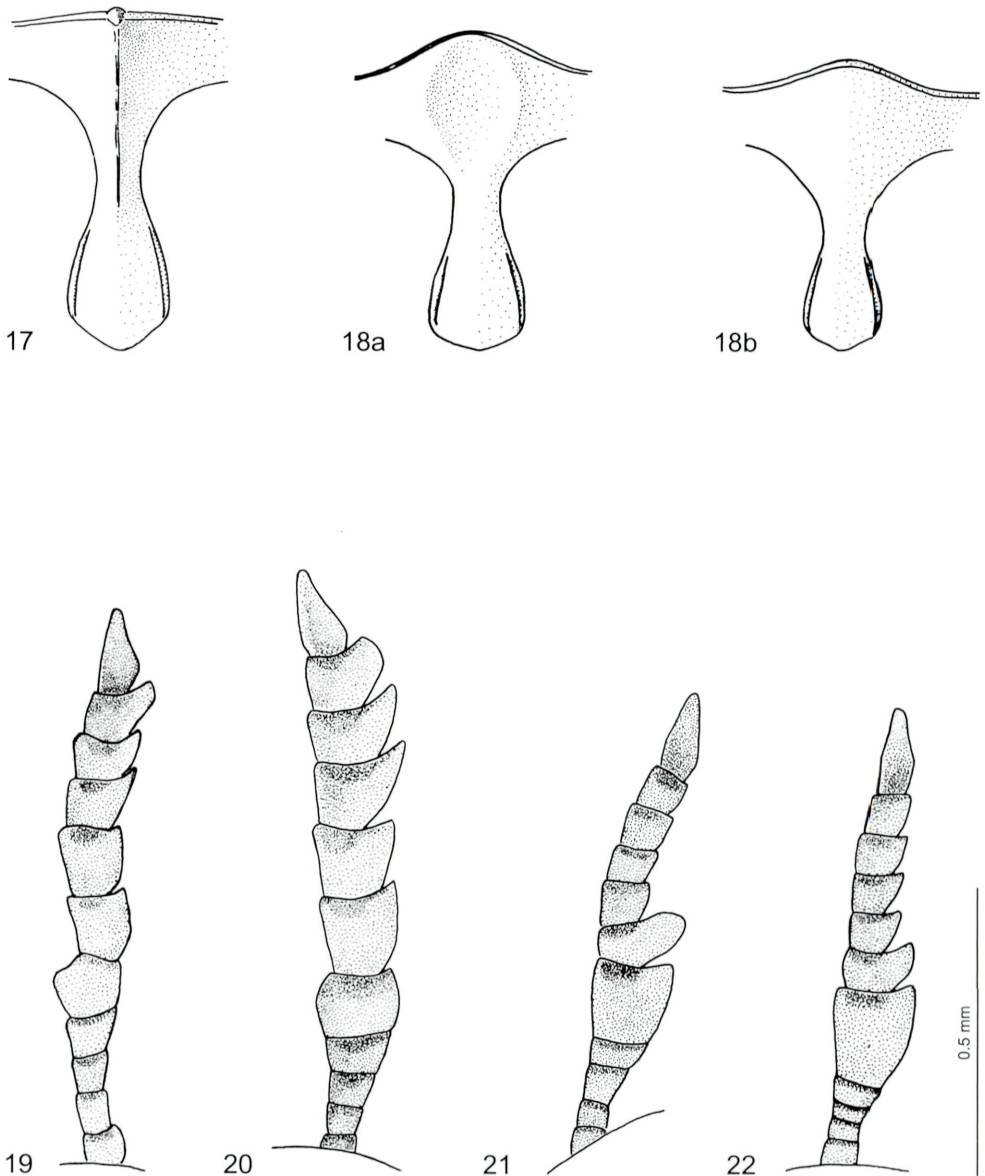
Discussion

Three of the 19 species listed above, *Noterus crassicornis*, *Canthydrus bakeri*, and *C. proximus* almost surely do not occur in this country and with all probability are the result of misidentifications. Two species, *Noterus granulatus* and *Canthydrus testaceus*, still have unclear status. Two species, *Neohydrocoptus* sp. and *Canthydrus* sp., are awaiting a name, and, finally, the occurrence of *Noterus clavicornis* in China (Xinjiang, Shaanxi, Heilongjiang) needs confirmation, especially in Heilongjiang (NILSSON 1995: 40), although its presence is probable at least in the northwestern part of the country. In any case, the number of species of Noteridae occurring in China is relatively high for a family of this size, and in most cases their identification does not provide particular problems.

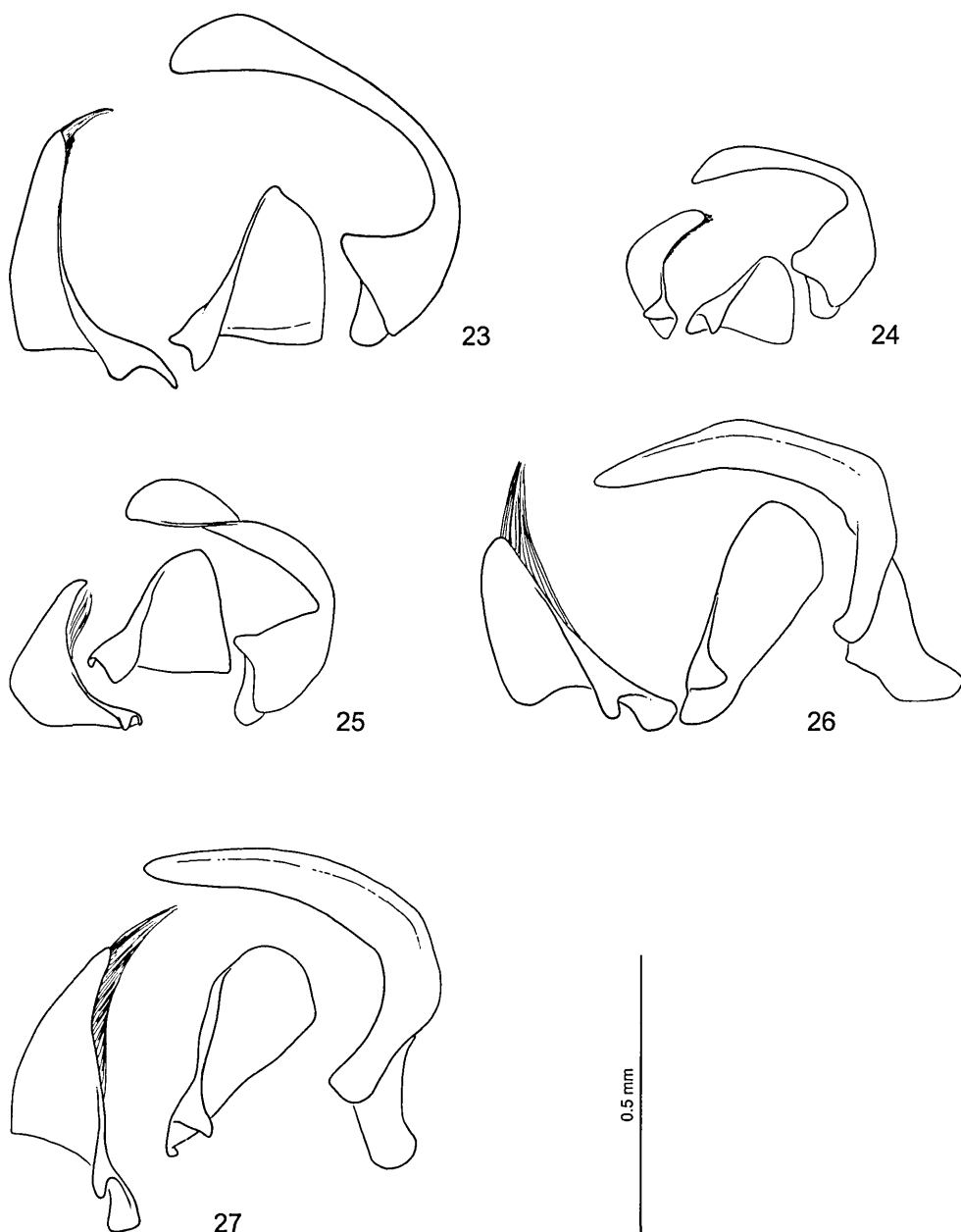
For the East Asian Noteridae, the Chinese territory is an important region of transition: Palearctic elements (represented by the genus *Noterus* alone) come into contact with tropical elements, in most cases coexisting in the same area. Together with southern Japan, southern China is the only place in which *Noterus* has crossed the Palearctic border. *Canthydrus*, on the contrary, is a tropical genus; in China it is represented by a number of strictly tropical species – including the new species described herein – inhabiting the southern provinces, plus *C. politus* and *C. nitidulus* which penetrate into the Palearctic, reaching the northeastern provinces of Liaoning and Beijing. In contrast to *Noterus*, *Canthydrus* is known to cross its zoogeographical border also in the western Palearctic, as *C. diophthalmus* (REICHE) and *C. ornatus* SHARP do in North Africa, southern Europe and the Middle East. *Neohydrocoptus*, finally, remains exclusively tropical in eastern Asia, although one species of this genus is known from Israel (WEWALKA 1989). The Asian species of *Neohydrocoptus*, in most cases, are small, very similar externally and a number of taxa have been described in the past, the status of which is unclear. As pointed out above, for both the *Canthydrus* and *Neohydrocoptus* of the Oriental Realm a thorough revision is needed.



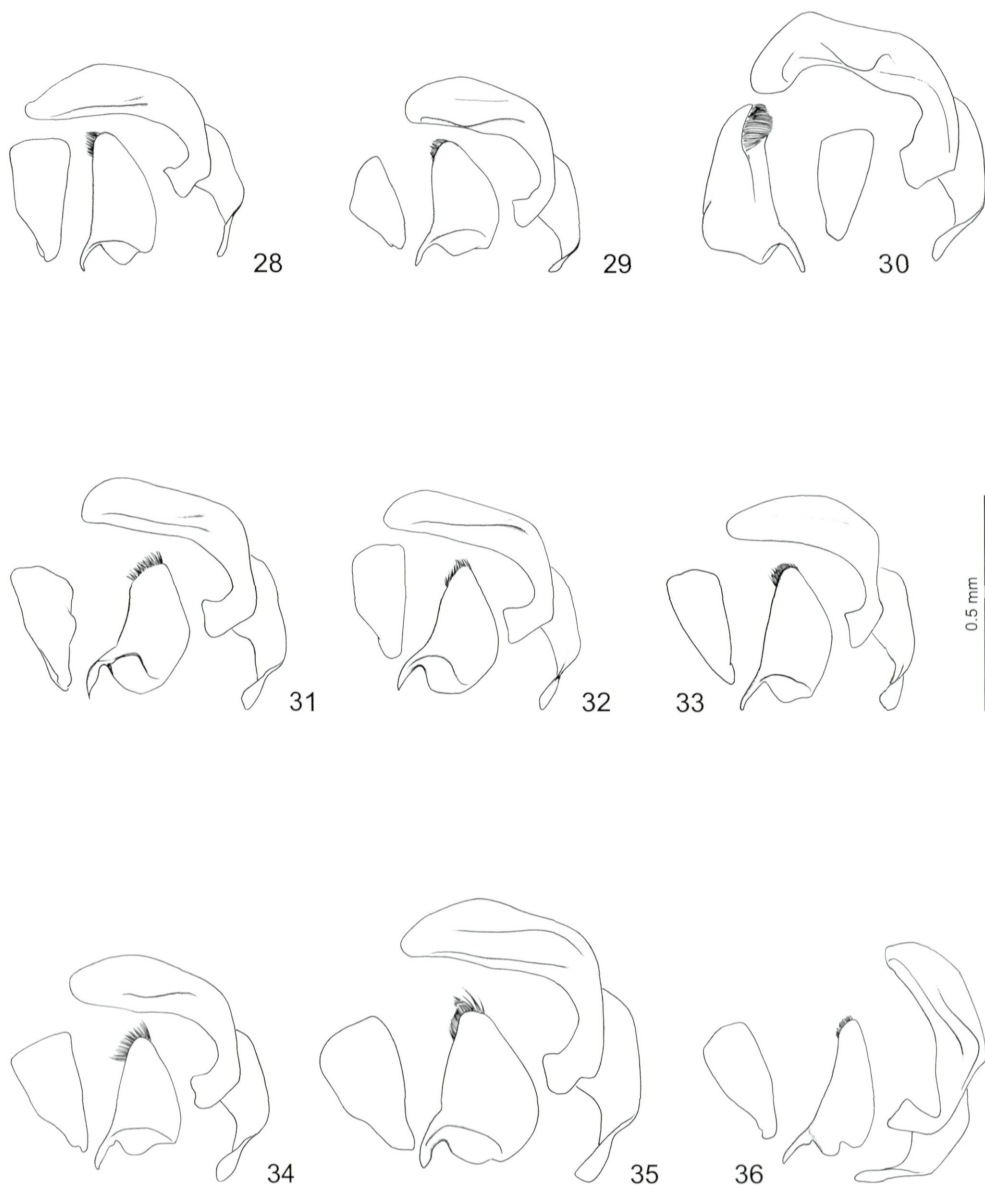
Figs. 8 - 16: Habitus of *Canthydrus* species, dorsal view (left half) and lateral view of 8) *C. flavus*; 9) *C. ritsemae*; 10) *C. morsbachi*; 11) *C. antonellae*; 12) *C. luctuosus* (specimen from Sri Lanka); 13) *C. semperi* (specimen from the Philippines); 14) *C. politus*: a) specimen from Guizhou, b) specimen from Jiangxi (Xin Jiang); 15) *C. nitidulus*; 16) *Canthydrus* sp. from Hong Kong.



Figs. 17 – 18: Prosternum of: 17) *Noterus clavicornis*; 18) *N. crassicornis* male (left) and female (right).
 Figs. 19 – 22: Male right antenna of *Noterus*: 19) *N. japonicus*; 20) *N. clavicornis* (specimen from Italy);
 21) *N. angustulus* (specimen from Russian Far East); 22) *N. crassicornis* (specimen from Italy).



Figs. 23 – 27: Median lobe of aedeagus and parameres of: 23) *Neohydrocoptus bivittis*; 24) *N. subvittulus* (specimen from Sri Lanka); 25) *Neohydrocoptus* sp. from Hainan; 26) *Noterus japonicus*; 27) *N. angustulus* (specimen from Russian Far East).



Figs. 28 – 36: Median lobe of aedeagus and parameres of *Canthydrus* species: 28) *C. flavus*; 29) *C. ritsemae*; 30) *C. morsbachi* (specimen from Vietnam); 31) *C. antonellae*; 32) *C. luctuosus* (specimen from Sri Lanka); 33) *C. semperi* (specimen from the Philippines); 34) *C. politus*; 35) *C. nidulus*; 36) *Canthydrus* sp. from Hong Kong.

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