

DYTISCIDAE:

VIII. New records of *Rhantus suturalis* (MACLEAY) from China, and report of a melanistic form from Thailand

(Coleoptera)

M. BALKE & P. MAZZOLDI

Abstract

New Chinese localities of the widespread *Rhantus suturalis* s.l. (Coleoptera: Dytiscidae) are provided, and the first melanistic form of that species, which was discovered in northern Thailand, is reported.

Key words: Coleoptera, Dytiscidae, *Rhantus suturalis*, faunistics, China, Thailand, melanistic form.

Introduction

Rhantus suturalis (MACLEAY, 1825) as currently delimited is a widespread species. Its range spans most of the Palearctic realm from the Azores to Japan, and northern Europe to Mediterranean Egypt. It occurs in the Middle East, the Himalayas and SE Asia, all over Indonesia, New Guinea, Australia, New Caledonia and New Zealand (BALKE 1992b, 1993, 1998, 2001, NILSSON & HOLMEN 1995). It is the type species of the genus and was described from Java. Despite its wide distribution in Southeast Asia and New Guinea, the distribution of *R. suturalis* is rather patchy in these regions as the species only occurs under more temperate climate (higher elevations) (BALKE 1998, 2001).

Here we provide several Chinese localities which are mainly the result of the China Water Beetle Survey. Besides that, we report the discovery of the first melanistic form of *R. suturalis*, which was discovered in Thailand recently.

Acronyms & CWBS localities:

CPM Collection Paolo Mazzoldi, Brescia, Italy

CWBS China Water Beetle Survey

NMW Naturhistorisches Museum Wien, Austria

RMBR The Raffles Museum of Biodiversity Research, Singapore

ZMUC Zoological Museum, University of Copenhagen, Denmark

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. 77: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Changbai Shan Biosphere Reserve; springfed pool, ca. 50 m from CWBS loc. 76, unshaded; 17.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 14].

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. 89: **Jilin Province**; Yanbian Korean Autonomous Prefecture; Antu County; Baihe City, Baohujū 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. M.A. Jäch; [locality number on label: 25].
- CWBS loc. 99: **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulū 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. 100: **Liaoning Province**; Jinzhou City Region; Beizhen County; Yiwulū Shan, ca. 10 km W Beizhen City; Erdao Gou He (= 2nd Valley River), ca. 20 m wide, unshaded, slowly flowing through plain, shallow, sandy bottom and margin; 23.VIII.1994; leg. M.A. Jäch, L. Ji & M. Wang; [locality number on label: 36].
- 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. 114: **Liaoning Province**; Dandong City Region; Fengcheng County; Fenghuang Shan; near loc. 113; ground water pool, small and shallow, margins with stones and mud, ca. 20°C; 24.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 50].
- CWBS loc. 116: **Liaoning Province**; Dandong City Region; Fengcheng County; ca. 100 km NW Dandong City; 40 km NW Fengcheng City; 7 km SE Liujiahe Village; small stream, ca. 1 - 1.5 m wide, slowly flowing, granite, unshaded, gravel and mud, including gravel pools, unpolluted, ca. 18°C, vegetation mainly composed of *Larix* sp., *Rosa* sp., *Quercus* sp., ca. 100 m a.s.l.; 25.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 52].
- CWBS loc. 121: **Liaoning Province**; Benxi City Region; Benxi County; ca. 92 km SE Benxi City; 5 km SE Caohekou Town; tributary of Cao He (= Grass River); small stream, 1 m wide, slowly flowing, unshaded, gravel, sand and mud, unpolluted, 20°C, ca. 200 m a.s.l.; 26.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 57].
- 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: shrubs, ca. 200 m a.s.l.; 26.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 58].
- CWBS loc. 124: **Liaoning Province**; Benxi City Region; Benxi County; ca. 50 km SE Benxi City; 5 km S Xiamatang Village; near Aiguo Village; branch of an unnamed river, 3 - 4 m wide, slowly flowing, limestone, unshaded, gravel, mud, including rock pools, slightly polluted, 20°C, vegetation mainly composed of *Quercus* sp., *Robinia* sp. and *Salix* sp.; 26.IX.1994; leg. L. Ji & M. Wang; [locality number on label: 60].
- CWBS loc. 127: **Shandong Province**; Yantai Prefecture; Muping County; 45 km SE Yantai City; Kunyū Shan National Park; near Laokuang Village; ground water pool, ca. 8 m long, 3 m wide, 0.8 m deep, granite, margin with stones, mud and decaying plant material, ca. 20°C, surrounding vegetation: *Quercus* sp., *Firmiana* sp., *Pinus* sp., *Maackia* sp., ca. 80 m a.s.l.; 13.X.1994; leg. L. Ji & M. Wang; [locality number on label: 63].
- CWBS loc. 128: **Shandong Province**; Yantai Prefecture; Muping County; 45 km SE Yantai City; Kunyū Shan National Park; 500 m upstream of CWBS loc. 127, small stream, ca. 3 m wide, slowly flowing, unshaded, margin with stones and gravel, including rock pools, some stones with moss, ca. 18°C, surrounding vegetation: *Pinus* sp., *Maackia* sp., *Quercus* sp., ca. 90 m a.s.l.; 13.X.1994; leg. L. Ji & M. Wang; [locality number on label: 64].
- CWBS loc. 147: **Liaoning Province**; Anshan City Region; Qian Shan Forest Park; ca. 15 km SE Anshan City, ca. 10 km from park main gate; Xihai Lake, ca. 80 m wide, slightly eutrophic, 350 m a.s.l.; 4.V.1995; leg. M. Wang [locality number on label: 10].

- CWBS loc. 158: **Liaoning Province**; Dandong City Region; Kuandian County; Baishila Natural Reserve; ca. 35 km NE Kuandian City; small stream near the Village, ca. 0.5 m wide, slowly flowing, unshaded, mud and gravel, gravel pools, 400 m a.s.l.; 30.VIII.1995; leg. L. Ji & M. Wang.
- CWBS loc. 160: **Liaoning Province**; Dandong City Region; Kuandian County; Baishila Natural Reserve; ca. 35 km NE Kuandian City; 10 km N of Baishila Village; rain and ground water pool (ca. 3 m²), surrounded by forest, 500 m a.s.l.; 30.VIII.1995; leg. L. Ji & M. Wang.
- CWBS loc. 165: **Liaoning Province**; Dandong City Region; Kuandian County; Qingshangou Forest Park; ca. 50 km NE Kuandian City; small stream (Beigou (= North Valley)), ca. 0.5 m wide, very cold and fast flowing, shaded and unpolluted, with rocks and gravel, limestone, 300 m a.s.l.; 1.IX.1995; leg. L. Ji & M. Wang.
- CWBS loc. 348: **Yunnan 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, muddy pools; 2.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei (see JÄCH & JI 2003: Fig. 4).
- CWBS loc. 351: **Yunnan Province**, Qüjing Prefecture, near road Songming - Yangjie, ca. 60 km NNE Kunming, altitude not recorded, 25°23'16"N 103°05'24"E; pond, size: ca. 50 x 100 m; 3.XI.1999; leg. M.A. Jäch, H. Schönmann, M. Wang & Y. Wei.
- CWBS loc. 352: **Yunnan Province**, Kunming City Region, northern part of Kunming City, Botanical Gardens at South China Institute of Botany, ca. 1800 m a.s.l.; artificial ponds; 4.XI.1999; leg. M.A. Jäch, M. Wang & Y. Wei.
- CWBS loc. 383: **Yunnan Province**, Kunming City Region, few km SW Chengjiang, ca. 1600 m a.s.l.; several streams, ca. 2 - 3 m wide, flowing into Fuxian Lake, through terraced, cultivated (mainly vegetables) land; 14.XI.1999; leg. M.A. Jäch & Y. Wei.
- CWBS loc. 384: **Yunnan Province**, Kunming City Region, ca. 1600 m a.s.l.; several small pools (roadside ditches, rain pools, mud pools, springfed pools) around CWBS loc. 383; 14.XI.1999; leg. M.A. Jäch & Y. Wei.
- CWBS loc. 386: **Yunnan Province**, Yuxi Prefecture, Chengjiang County, near CWBS loc. 385, ca. 1600 m a.s.l.; shaded pool, size: ca. 50 x 10 m; 14.XI.1999; leg. M.A. Jäch & Y. Wei.
- CWBS loc. 402: **Yunnan Province**, Gejiu Prefecture, Gejiu City, 5 km W Gejiu, ca. 1900 m a.s.l.; springfed karst pool, with rich aquatic vegetation, in *Cunninghamia* forest; 24.XI.1999; leg. H. Schönmann & M. Wang.
- CWBS loc. 406: **Yunnan Province**, Chuxiong Prefecture, Lufeng City, Wu Tai Shan Forest Park, 30 km N Lufeng, ca. 2100 m a.s.l.; man made lake; 26.XI.1999; leg. H. Schönmann & M. Wang.
- CWBS loc. 407: **Yunnan Province**, Chuxiong Prefecture, Lufeng City, Wu Tai Shan Forest Park, 30 km N Lufeng, ca. 2150 m a.s.l.; stream, ca. 1 - 2 m wide, substrate: sandstone gravel, plant debris, flowing through forest; 26.XI.1999; leg. H. Schönmann & M. Wang.
- CWBS loc. 410: **Yunnan Province**, Chuxiong Prefecture, 25 km N Yipinglang, near Gao Feng, ca. 2100 m a.s.l.; small springfed pools on meadow, and man made lake; 27.XI.1999; leg. H. Schönmann & M. Wang.
- CWBS loc. 452: **Guangdong Province**, Zhaoqing Prefecture, Zhaoqing County, southeastern margin of Dinghu Nature Reserve, near Zhuzhai Village, NE of Dinghu Town, near rock quarry (sandstone), ca. 20 - 40 m a.s.l., 23°11'03"N 112°33'06"E; small, several shallow insolated pools with mud and grass, pools fed by rain water and partly by leaking pipe; 29.X.2001; leg. M.A. Jäch & A. Komarek.



Fig. 1: Habitus of *Rhantus suturalis*, melanistic form, dorsolateral [photograph by H. Schillhammer].



Fig. 2: Habitat of *Rhantus suturalis*, melanistic form. View of Ano Dat pond with the tributary entering it and pine trees in background. The specimens were collected near the spot from where the photograph was taken [photograph by P. Mazzoldi].

***Rhantus suturalis* (MACLEAY, 1833) s.lat.**

ADDITIONAL RECORDS FROM CHINA:

JILIN: CWBS loc. 67 (3 exs. NMW); CWBS loc. 77 (1 ex. NMW); CWBS loc. 82 (3 exs. NMW); CWBS loc. 89 (14 exs. NMW).

LIAONING: CWBS loc. 64 (2 exs. NMW); CWBS loc. 99 (1 ex. NMW); CWBS loc. 100 (1 ex. NMW); CWBS loc. 113 (1 ex. NMW); CWBS loc. 114 (2 exs. NMW); CWBS loc. 116 (1 ex. NMW); CWBS loc. 121 (3 exs. NMW); CWBS loc. 122 (6 exs. NMW); CWBS loc. 124 (1 ex. NMW); CWBS loc. 147 (2 exs. NMW); CWBS loc. 158 (2 exs. NMW); CWBS loc. 160 (1 ex. NMW); CWBS loc. 165 (1 ex. NMW).

SHANDONG: CWBS loc. 127 (5 exs. NMW); CWBS loc. 128 (1 ex. NMW).

TIBET: 1 ex. E Tibet, N of Brahmaputra great bend, 2050 - 2400 m a.s.l., 20.VII.1992, leg. L. & R. Businsky (NMW).

YÜNNAN: CWBS loc. 15 (1 ex. NMW); CWBS loc. 62 (7 exs. NMW); CWBS loc. 63 (5 exs. NMW); CWBS loc. 348 (36 exs. NMW); CWBS loc. 351 (9 exs. NMW); CWBS loc. 352 (4 exs. NMW); CWBS loc. 383 (1 ex. NMW); CWBS loc. 384 (1 ex. NMW); CWBS loc. 386 (1 ex. NMW); CWBS loc. 402 (2 exs. NMW); CWBS loc. 406 (21 exs. NMW); CWBS loc. 407 (2 exs. NMW); CWBS loc. 410 (8 exs. NMW); 2 exs. Yünnan, Ninglang env., 6.-10.VII.1992, leg. E. Jendek (NMW); 4 exs., Jinghong, 1993, leg. G. de Rougemont (NMW); 2 ♂♂ 3 ♀♀, Simao, Mekong basin, 20 km from Simao to Pu'er, 20.V.2000, leg. H.H. Tan (RMBR).

GUANGDONG: CWBS loc. 452 (3 exs. NMW).

MELANISTIC FORM:

T H A I L A N D: 4 ♂♂, 5 ♀♀, Phu Kradung National Park, small stream (tributary of Ano Dat pond) flowing slowly on level ground in a subalpine steppe, with *Sphagnum* moss at the margins, partially shaded by pine trees, 1250 m a.s.l., 28.XII.1999, leg. P. Mazzoldi (CPM, NMW). The beetles were collected 10-20 meters from the point where the stream enters the pond (see Fig. 2); 1 ♂, Phu Kradung National Park, upstream from Pen Pob Waterfall, small pool with moss, 28.XII.1999, leg. P. Mazzoldi (CPM). This beetle was collected in a small pool with moss on the gravelly and rocky bed of a stream upstream of Pen Pob Waterfall at 1150 m a.s.l. in montane evergreen forest, in a partially shaded situation.

Discussion: Although we have seen many specimens of *R. suturalis* from locations all over the Palearctic, Oriental and Australian regions (BALKE 1992b, 1993), these are the first darkened individuals we have encountered.

The melanistic beetles discovered agree well in morphological aspects with *R. suturalis* from other localities. The striking difference is the much darker coloration of pronotum and elytron. Usually, the pronotum is testaceous to rufous, with a black or piceous median spot. The elytron is also testaceous to rufous, irrorate with black spots. In the melanistic form, pronotum and elytron are mostly black. Both are rufous laterally and along their foremargins (Fig. 1). Ten specimens of this remarkable form were collected from two localities. All specimens are very uniform in their very dark coloration, which indicates that this is a well characterized, isolated population.

The North and Central American *R. gutticollis* (SAY) (ZIMMERMAN & SMITH 1975) as well as the South American *R. luederwaldti* ZIMMERMANN (BALKE 1992a) are other *Rhantus* DEJEAN of which pale (yellow with black spots) as well as melanistic forms are known.

Phu Kradung National Park is situated in a distinctly temperate environment. The park is a table-shaped mountain whose almost flat summit is etched by small canyons formed by several streams; the flat summit, swept by cold winds during the dry season, is occupied by a subalpine steppe with scattered pine thickets and peat bogs. Descending only 7 - 8 m of altitudinal difference into the stream valleys one finds an evergreen montane forest.

Finally, we also studied 1 ♂ and 1 ♀ of non-melanistic *R. suturalis* from Thailand (Chiang Mai Province, Doi Pha Hom Pok, NW of Fang, 1550 - 1660 m a.s.l., 21.X.1981, ZMUC).

Acknowledgements

Thanks are due to Dr. M.A. Jäch (NMW) for useful comments on the manuscript and Dr. H. Schillhammer (NMW) for the photograph of the melanistic form from Thailand. Cheers to Mrs. Yang Chang Man (RMBR) for sending specimens for examination. Michael Balke thanks the FAZIT-Foundation (Frankfurt/Main) for generous financial support of this research; and the European Community – ARI action of the IHP Programme for enabling a visit to ZMUC (COBICE Program).

This research has been supported by a Marie Curie Fellowship of the European Community programme IHP (IHP-MCFI-99-1) under contract number HPMF-CT-2001-01365.

References

- BALKE, M. 1992a: Taxonomische Untersuchungen an neotropischen Wasserkäfern der Gattung *Rhantus* Dejean. - Reichenbachia 29 (6): 27-39.
- BALKE, M. 1992b: Systematische und faunistische Untersuchungen an paläarktischen, orientalischen und afrotropischen Arten von *Rhantus* Dejean. - Mitteilungen der Schweizerischen entomologischen Gesellschaft 65: 283-296.
- BALKE, M. 1993: Taxonomische Revision der pazifischen, australischen und indonesischen Arten der Gattung *Rhantus* Dejean, 1833 (Coleoptera: Dytiscidae). - Koleopterologische Rundschau 63: 39-84.
- BALKE, M. 1998: Updating the Pacific, Indomalayan and Neotropical *Rhantus*-fauna (Coleoptera: Dytiscidae). - Koleopterologische Rundschau 68: 71-79.
- BALKE, M. 2001: Biogeography and classification of New Guinea Colymbetini (Coleoptera: Dytiscidae). - Invertebrate Taxonomy 15 (2): 259-275.
- 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. 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.
- NILSSON, A.N. & HOLMEN, M. 1995: The aquatic adepaga (Coleoptera) of Fennoscandia and Denmark. II. Dytiscidae. - Fauna entomologica scandinavica 32: 1-188.
- ZIMMERMAN, J.R. & SMITH, R.L. 1975: The genus *Rhantus* (Coleoptera: Dytiscidae) in North America. Part I. General account of the species. - Transactions of the American entomological Society 101: 33-123.

Dr. Michael BALKE

Zoologische Staatssammlung München, Münchhausenstr. 21, D - 81247 München, Germany

Present address: The Natural History Museum, Department of Entomology, Cromwell Road, London SW7 5BD, UK (michael_balke@yahoo.de)

Paolo MAZZOLDI

Via Galilei 87, I - 25128 Brescia, Italy (paolo.mazzoldi@tin.it)

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): Balke Michael, Mazzoldi Paolo

Artikel/Article: [Dytiscidae: VIII. New records of *Rhantus suturalis* \(Macleay\) from China, and report of a melanistic form from Thailand \(Coleoptera\) 205-210](#)