GYRINIDAE: Rediscovery of *Metagyrinus sinensis* (OCHS) and taxonomic notes on the genus (Coleoptera)

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Abstract

The rediscovery of *Metagyrinus sinensis* (OCHS, 1924) (Coleoptera: Gyrinidae) after 70 years is reported. Problems concerning the interpretation of the type locality of *M. sinensis* are discussed. Female characters are described for the first time. Some taxonomic considerations on the genus are briefly presented.

Key words: Coleoptera, Gyrinidae, *Metagyrinus sinensis*, China, Guangdong.

Introduction

Metagyrinus sinensis (Fig. 1) was described from Guangdong (southeastern China) by OCHS (1924); it had been assigned by the same author to the new genus *Paragyrinus* together with two other species, previously attributed to *Aulonogyrus*: *P. arrowi* (RÉGIMBART, 1907) from the Himalayan region and *P. vitalisi* (PESCHET, 1923) from Laos; subsequently, BRINCK (1955) introduced the replacement name *Metagyrinus*, since the generic name was preoccupied by a fossil genus, *Paragyrinus* HANDLIRSCH, 1908. Besides the type specimens (2 ♂♂, deposited in the Forschungsinstitut Senckenberg, Frankfurt/Main) we know of only one additional record for this species, published by OCHS (1936), who mentions its presence in the collection of Yenching University, Amoy [= Xiamen, Fujian], without specifying exact locality, or number and sex of specimens.

For about 70 years *Metagyrinus sinensis* had not been collected. An expedition of the China Water Beetle Survey (CWBS) to Guangdong Province carried out in 2001 was aimed at solving several questions concerning habitat preferences, distribution and present conservational status of this enigmatic species.

CWBS locality:

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 (Fig. 2).

Metagyrinus sinensis (OCHS, 1924)

TYPE LOCALITY: In the original description OCHS (1924) did not provide precise data on the type locality of *Metagyrinus sinensis*: "China, Prov. Kanton [= Guangdong]". However, more

details became available a few years later in OCHS (1929): "Tsha-Jiu-San, ca. 1400 m. in bamboo forest, VIII 1919 (Mell coll., in my collection)". It is evident, that OCHS (1929) referred to the two type specimens, the only specimens known at that time; therefore, "Tsha-Jiu-San" (a mountain in northern Guangdong; "san" or "shan" in Chinese means mountain) must be considered the type locality of *M. sinensis*. Furthermore, "Tsha-Jiu-San" also happens to be the type locality of several other water beetles collected by R.E. Mell, e.g. Gyrinidae (*Orectochilus marginepennis parvilimbus* OCHS, 1925, *O. melli* OCHS, 1925, *O. chalceus* OCHS, 1936, and *O. assequens* OCHS, 1936) and Elmidae (*Stenelmis kuntzeni* BOLLOW, 1941); the original labels of the gyrinids are written in German: "China, Tsha-Jiu-San, VIII-10, Mell S.V. / Berggebiet i.N.v. Kuangtung, Bambuswald, ca. 1400 m hoch [= mountain area in the north of Guangdong, bamboo forest, ca. 1400 m high]" and in the original description of *Stenelmis kuntzeni* the type locality is spelled as "Tsha-jin-shan" (BOLLOW 1941).

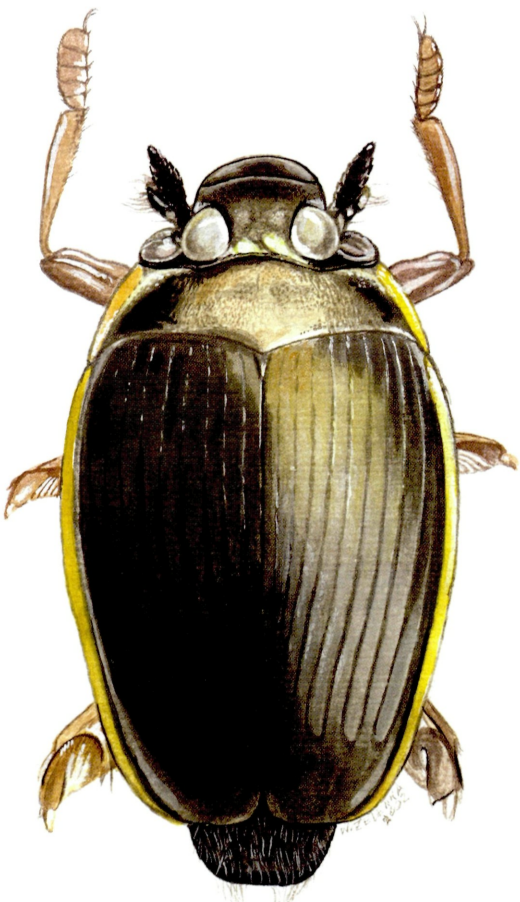

Fig. 1: Habitus of *Metagyrinus sinensis*.

Fig. 2: Habitat of *Metagyrinus sinensis*; CWBS loc. 463 [photograph by A. Komarek].

Attempts to locate "Tsha-Jiu-San" or "Tsha-jin-shan" proved to be quite difficult, because these names could not be traced on any Chinese map. Furthermore, the elevation of 1400 m, attributed to the type locality, must be regarded as erroneous; in Guangdong there is only one mountain which considerably surpasses 1400 m (i.e., Shikengkong Mountain, with a maximum elevation of 1902 m a.s.l.), and on that mountain, which was visited during the CWBS-expedition in 2001, there seem to be no streams suitable for Gyrinidae at 1400 m a.s.l.

The collector of the type specimens of *Metagyrinus sinensis*, Rudolf Emil Mell (1878 – 1970) of Germany, was head of the German-Chinese secondary school in Guangzhou during the first decades of the 20th century. He was primarily a specialist of Lepidoptera (especially Sphingidae) and carried out several expeditions into the interior of Guangdong. In his numerous publications on the Lepidoptera of China, the names "Tsha-jiu-san" and "Tsha-jin-shan" are not found at all. Instead, one finds "Tshayuenshan" (e.g., MELL 1937, 1938) or "Tsha yün shan" (e.g., MELL 1929, 1943), both names definitely are to be regarded as more correct spellings of "Tsha-jiu-san" and "Tsha-jin-shan".

According to the map and notes provided by MELL (1922, 1938) "Tshayuenshan" (German: "Tee-Wolken-Berg"; English: "Tea Cloud Mountain") is located northeast of Shaoguan, about halfway between Shaoguan and Shixing (= Taiping). The geographical coordinates should be approximately 24°53' N, 113°50' E (coordinates, "24,9° N, 113,2° E", given by MELL 1938 for the "Fungwahn Plain" at the foot of "Tshayuenshan", must be regarded as incorrect). A short description of "Tshayuenshan", including photographs of the mountainous landscape and the bamboo forest, was published by MELL (1938: 229, pl. 6).

According to MELL (1938: 229) the elevation of the highest peak of the area is 1170 m a.s.l.; therefore, the summit of "Tshayuenshan" must be lower than that. According to modern maps, the highest peak of the entire mountain range (today called Huashi Shan) reaches 1353 m a.s.l. and lies further east. The mistake in the altitude data on the type labels might be due to a confusion between feet and meters or - more probably - just due to inaccurate hand writing. Elevation records given for Lepidoptera collected on "Tshayuenshan" are ranging usually between 400 and 900 m a.s.l. (see MELL 1943: 55, 68). The actual elevation of the type locality of *M. sinensis* might well correspond to 400 m a.s.l., since all taxa, which Ochs had recorded from "Tsha-jiu-san", were collected during the CWBS-expedition at altitudes between 50 and 950 m a.s.l. (the great majority of specimens was collected between 200 and 640 m a.s.l.).

MATERIAL EXAMINED:
C H I N A: GUANGDONG: 5 ♂♂ + 6 ♀♀: CWBS loc. 463.

DISCUSSION: A taxonomic revision of the three species of the genus should be carried out and their relationship to *Aulonogyrus* should be studied in future. Here we present a few preliminary considerations: 1) the female of *Metagyrinus sinensis* hitherto was unknown; there seems to be very little sexual dimorphism, except for the front tarsi which are very strongly dilated in the male and very narrow and parallel-sided in the female; in all other characters examined the female is practically indistinguishable from the male; 2) the main character upon which the separation from *Aulonogyrus* is based (i.e., scutellum longer than wide) does not seem to be very strong, because in *Aulonogyrus* too, there is variation and some species have scutella which are less wide and more elongated, becoming almost equilateral. A better character seems to be provided by the shape of striae and interstriae, because in *Aulonogyrus* at least some of the striae, generally the external ones, are widened, while in *Metagyrinus* they are always narrow; at the same time at least some of the interstriae in *Aulonogyrus*, again the external ones, are convex, forming more or less pronounced ribs, while in *Metagyrinus* all the interstriae are completely flat. Whether these characters are enough to separate these as two genera remains in doubt and further studies of these taxa will be necessary.

HABITAT (see Fig. 2): All specimens were collected in unpolluted small pools fed by springs, situated in a swampy riverside meadow. The pools were muddy, with grassy edges.

Such conditions are quite rare in China nowadays, because swampy riverside meadows frequently are used for paddy fields and mud pools are generally the preferred habitat of domestic water buffalo.

Metagyrinus sinensis has not been collected for about 70 years. Obviously, it requires clean stagnant or very slowly flowing water; and therefore it can be regarded as endangered.

DISTRIBUTION: *Metagyrinus sinensis* is so far known only from two localities in Guangdong (southeastern China): 1) CWBS loc. 463, ca. 35 km NE of Huaiji (= Huaicheng), 24°00'25"N 112°26'09"E in northwestern Guangdong; 2) "Tshayuenshan" ("Teeberg" sensu MELL 1922, 1938), northeast of Shaoguan, ca. 24°53' N, 113°50' E, northern Guangdong.

The distance between these two localities is about 150 km.

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