

**A CONTRIBUTION TO THE KNOWLEDGE OF THE WATER
BEETLE FAUNA (COL. HYDRADEPHAGA, HYDROPHILOIDEA
AND STAPHYLINOIDEA) OF A TROPICAL FRESHWATER
LAKE: TASEK CINI, PAHANG, WEST MALAYSIA**

Franz Hebauer

Ulrichsberg 7, D-94539 Grafing, Germany

Lars Hendrich

*Berlin-Forschung, Freie Universität Berlin, Gärtnerstraße 3, D-12207 Berlin,
Germany (e-mail <hendrich1@aol.com.>)*

Michael Balke

*Evolutionsbiologie, Institut für Zoologie, Freie Universität Berlin, Königin-Luise-Straße 1-3, D-14195 Berlin,
Germany (e-mail <mbalke@zedat.fu-berlin.de>)*

ABSTRACT. - A recent survey of the water beetle fauna of the alluvial riparian swamp system Tasek Cini in West Malaysia revealed a total of 21 species representing the families Noteridae, Dytiscidae, Hydrophilidae, Hydraenidae and Hydrochidae. The Hydrophilidae *Helochares ciniensis*, *H. discus*, *H. yangae* and *H. lacustris* are described as new, and the male genitalia are figured. The distributional range and ecology are discussed for each species. We here prove that swamp systems such as Tasek Cini hold a comparably rich water beetle fauna adapted to shaded, mesotrophic habitats. Similar ecosystems should be studied elsewhere in Southeast Asia to elucidate actual species ranges and endemism rates.

KEY WORDS. - Aquatic Coleoptera, Lake Cini, West Malaysia, new species, distribution, ecology.

INTRODUCTION

The tropical lowland lake Tasek Cini lies 60 km westsouthwest of Kuantan in the State of Pahang (Fig. 1). Besides Tasek Bera it is the only natural, unaltered lake surviving on the Malaysian Peninsula. Thus Tasek Cini represents a type of ecosystem that is most endangered in Malaysia, and also in the southeast Asian humid tropics elsewhere. However, both are in reality alluvial riparian swamp systems, and not true lakes in a strict sense (Furtado & Mori, 1982). The swamp system occupies a large area of the lake shores and is essentially

forested. The open water and channels are covered with large stands of lotus (*Nelumbo nucifera*) and "islands" of *Pandanus helicopus*. Both areas are an important refuge for the false gharial (*Tomistoma schlegelii*), 215 species of birds, more than 144 species of fishes and about 40 species of dragonfly (Furtado & Mori, 1982).

With the exception of Furtado & Mori (1982), who recorded only "Dytiscid nymphs" for Tasek Bera, and Ng et al. (1992) who listed some aquatic Coleoptera of the North Selangor Peat Swamp forest, nothing has previously been published about the aquatic beetle fauna of Malaysian freshwater lakes and swamps yet.

During the dry season in April 1997, M. Balke, L. Hendrich and K. L. Yeo visited Tasek Cini for three days and collected extensively mainly 600 m along the shoreline near Rimba Resort at Laut Gumum in the southwestern part of the lake. In addition, P. Mazzoldi surveyed the same area for three days, during the wet season, in December 1995 and January 1996. The two field trips were carried out to promote knowledge of the water beetle fauna of primary freshwater swamps of Peninsular Malaysia.

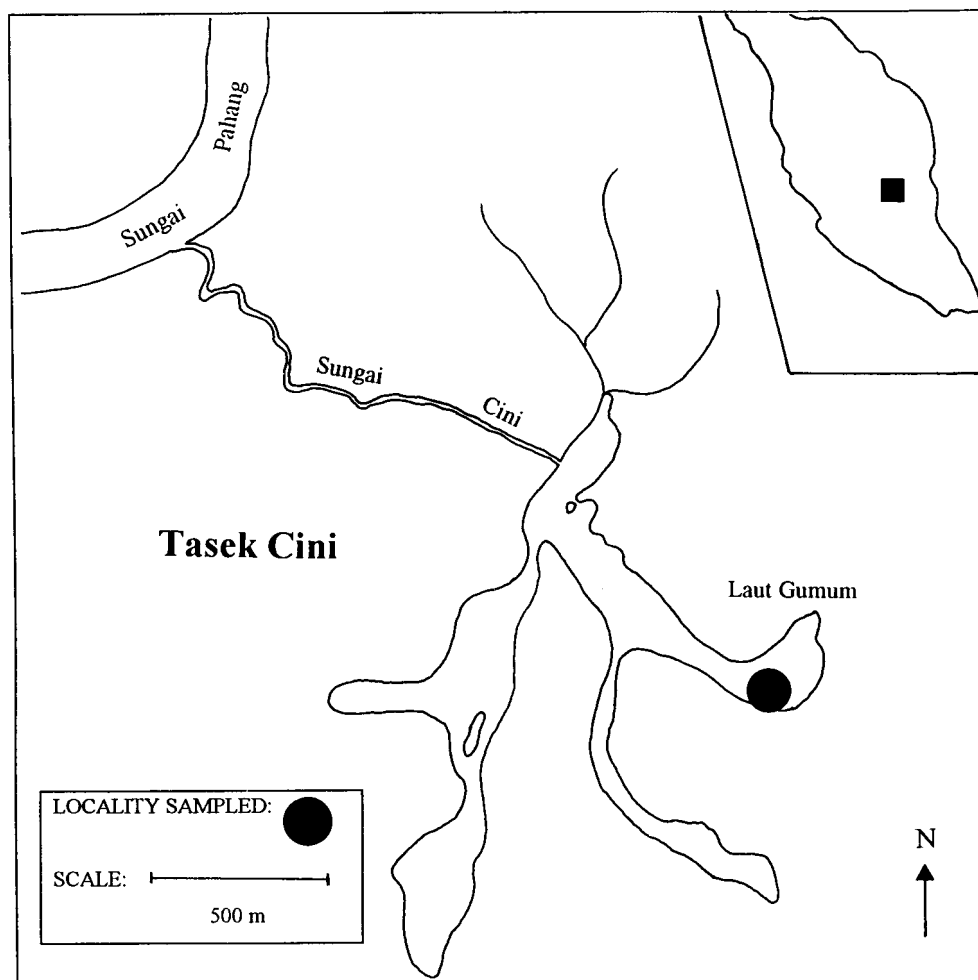


Fig. 1. Map of Tasek Cini, showing locus typicus of the new *Helochares* (s. str.).

The purpose of this paper is to give a review of all water beetle species known from Tasek Cini so far. Four new species are described and for each species the distribution range and the ecology are discussed. Descriptions and photographs of the localities sampled by Michael Balke and Lars Hendrich are provided.

MATERIALS AND METHODS

Most specimens have been collected using a small aquatic dip net with a triangular frame, various small metal kitchen sieves and an aquarium net. The Hydrochidae and Hydraenidae were picked up with a forceps directly from the water surface or substratum. For collecting in the open water of the lake a small rowing boat was hired.

Altogether 451 water beetles have been examined for this study. The specimens are deposited in the following institutions:

- CBH Collection of M. Balke and L. Hendrich, Berlin, Germany.
- CFH Collection of F. Hebauer, Grafing, Germany.
- CPM Collection of P. Mazzoldi, Brescia, Italy.
- NMW Naturhistorisches Museum Wien, Austria.
- ZRC Zoological Reference Collection, National University of Singapore, Republic of Singapore.

LOCALITIES SAMPLED

Locality 1. - West Malaysia, Pahang, Lake Cini, Laut Gumum, west of Rimba Resort, 200 m along a shaded or semi-shaded part of the shoreline, 17-19 April 1997, Balke, Hendrich & Yeo leg. All beetles were collected from shallow water (up to 10 cm depth), under rotten wood, mats of *Utricularia* sp. and submerged grasses, or within the layer of fallen leaves.

Locality 2 (Fig. 2). - West Malaysia, Pahang, Lake Cini, Laut Gumum, east of Rimba Resort, 400 m along a shaded part of the lakeshore, 17-19 April 1997, Balke, Hendrich & Yeo leg. All beetles were collected in protected embayments of the lake, under rotten wood and among densely packed rotten leaves in very shallow water (up to 10 cm depth).

Locality 3. - Almost the same locality as locality 2 but in the flood-zone of the lake during the wet season 1-3 January 1996. In isolated, temporary small pools (around 1 sqm), probably formed by wild pigs, packed with rotten leaves.

Locality 4 (Fig. 3). - West Malaysia, Pahang, Lake Cini, Laut Gumum, exposed open water NW of Rimba Resort, 18 April 1997, Balke, Hendrich & Yeo leg. All insects (mainly aquatic bugs) were collected with a net from a boat among the leaves of *Eleocharis* sp., lotus and stands of *Pandanus helicopus*.



Fig. 2. Tasek Cini, Laut Gumum (loc.2). Shaded shallow water zone at the lakeshore.



Fig. 3. Tasek Cini, Laut Gumum (loc.4). View over the lake with lotus (*Nelumbo nucifera*) and *Pandanus helicopus*.

FAUNISTICS AND TAXONOMY

FAMILY NOTERIDAE

Neohydrocoptus bivittis (Motschulsky, 1859)

Hydrocoptus bivittis Motschulsky, 1859: 44; Vazirani, 1969: 224.

Hydrocoptus (*Neohydrocoptus*) *bivittis*: Sâto, 1972: 143; Vazirani, 1977: 2.

Neohydrocoptus bivittis: Nilsson et al., 1989: 313; Nilsson, 1995: 39.

Distribution. - China (Hainan), India, Malaysia, Myanmar, Sri Lanka, Singapore (Vazirani, 1977; Nilsson, 1995).

Tasek Cini. - 1 ex., loc. 1 (CHB).

Ecology. - An inhabitant of shallow, densely vegetated, open or semi-shaded primary swamps, lakesides, artificial ponds, and slow flowing ditches or streams. The species is also attracted by light.

Notomicrus tenellus (Clark, 1863)

Hydrocoptus tenellus Clark, 1863: 427.

Hydroporus politus MacLeay, 1871: 124.

Notomicrus laevigatus Sharp, 1882: 260-261.

Notomicrus punctulatus Fauvel, 1903: 245.

Notomicrus tenellus: Balfour-Browne, 1939: 97-98; Vazirani, 1977: 2; Balke et al., 1998: 73.

Distribution. - West Malaysia, Indonesia: Java, Philippines, Papua New Guinea, Salomon Islands and Australia (Balfour-Browne, 1939; Vazirani, 1977).

Tasek Cini. - 84 ex., loc. 2 (CHB, ZRC).

Ecology. - A lentic species which occurs in various types of habitats such as pools, ponds and swamps (Larson, 1993). The beetles generally occur in very shallow water among packs of rotten leaves adjacent to the shoreline. Because of the small size (1.3 mm) the beetles may be overlooked in the field when using a large aquatic dip net instead of a small sieve.

FAMILY DYTISCIDAE

Leiodytes nicobaricus (Redtenbacher, 1867)

Hydroporus nicobaricus Redtenbacher, 1867: 21; Sharp, 1882: 802.

Bidessus nicobaricus: Régimbart, 1899: 228.

Bidessus (s.str.) *nicobaricus*: Zimmermann, 1920: 55.

Guignotus nicobaricus: Vazirani, 1977: 34.

Leiodytes nicobaricus: Biström, 1988: 27.

Distribution. - India: Nicobar Islands (Vazirani, 1977); Thailand, Malaysia, Vietnam. A revision of the genus in Southeast Asia is in preparation (Wang in litt.).

Tasek Cini. - 10 ex., loc. 1; 11 ex., loc. 2 (CHB, ZRC).

Ecology. - *Leiodytes nicobaricus* is a common species in exposed or semi-shaded, temporary and permanent water bodies rich in vegetation and plant debris, such as ponds, pools and drainage ditches in primary and cultivated areas. The species occupies the very shallow zone just at the edge of the water bodies.

***Derovatellus orientalis* Wehncke, 1883**

(Fig. 4)

Derovatellus orientalis Wehncke, 1883: 149; Zimmermann, 1920: 30; Balke et al., 1998: 73.

Distribution. - Indonesia: Sumatra, Kalimantan (Mazzoldi in litt.). First record for the Malaysian Peninsula (Balke et al., 1998).

Tasek Cini. - 24 ex., loc. 3 (CHB, CPM, ZRC).

Remarks. - This interesting species belongs to a genus which is widely distributed in Africa and America, containing some 30 species. *Derovatellus orientalis* is the only species of the whole tribe Vatellini Sharp, 1882 which occurs in the Oriental Region (Biström, 1979).

Ecology. - *Derovatellus orientalis* is a rarely collected species restricted to small pools and puddles at the edge of primary, partly forested freshwater swamps at the edge of permanent rivers and lakes. At Lake Cini the species was exclusively collected during the wet season when all the pools and puddles formed by wild pigs were filled up with water.

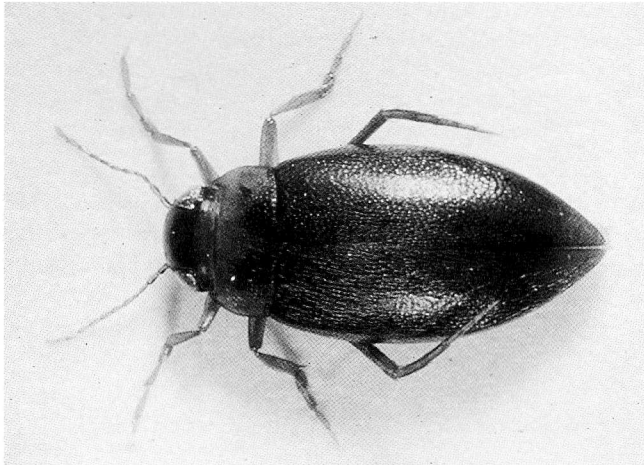


Fig. 4. *Derovatellus orientalis* Wehncke, 1863. The species is restricted to primary freshwater swamps and lakes.

***Laccophilus cini* Balke, Mazzoldi & Hendrich, 1998**

Laccophilus cini Balke et al., 1998: 72-73.

Distribution. - Southern Vietnam, Malaysia: Pahang, Sabah (Balke et al., 1998).

Tasek Cini. - 3 ex., loc. 3 (CPM).

Ecology. - At lake Cini, *L. cini* was collected from the very shoreline of the lake. Beetles were hiding within the layer of fallen leaves. In Sabah the species was collected from leaf litter in medium flow, murky water on the forest floor connected to a stream (Balke et al., 1998).

***Laccophilus siamensis siamensis* Sharp, 1882**

Laccophilus siamensis siamensis Sharp, 1882: 306; Brancucci, 1983: 299; Balke et al., 1998: 75-76.

Distribution. - Myanmar, Vietnam, Thailand, Laos, Cambodia, Malaysia (Peninsular Malaysia), Indonesia (Sumatra, Java, Kalimantan), (Brancucci, 1983).

Tasek Cini. - 50 ex., loc.1; 48 ex., loc. 2 (CHB, ZRC).

Ecology. - *Laccophilus siamensis siamensis* inhabits shallow, well vegetated, open or semi-shaded primary swamps, lakesides, artificial ponds, and slow flowing ditches or streams. The species is also attracted to light.

***Copelatus* sp.**

Tasek Cini. - 1 female, loc. 2 (CHB).

Remarks. - The Southeast Asian species of *Copelatus* are in greatest need for revision. The single female reported here probably belongs to an hitherto undescribed species.

***Hydaticus pacificus*-group (sensu Balke & Hendrich, 1992)**

Tasek Cini. - 1 ex., loc. 2 (CHB).

Remarks. - The species of the *H. pacificus*-group are in greatest need for revision. The single male collected here probably belongs to an hitherto undescribed species (Wewalka in litt).

***Cybister dahaani* Aubé, 1838**

Cybister dahaani Aubé, 1838: 101; Sharp, 1882: 726; Régimbart, 1899: 356; Zimmermann, 1920: 259; Guignot, 1956: 397; Vazirani, 1969: 286; Vazirani, 1977: 88; Balke et al., 1998: 73.

Distribution. - India: West Bengal (Vazirani, 1977), Indonesia: Sumatra, Kalimantan (Régimbart, 1899), Singapore (Guignot, 1956), West Malaysia.

Tasek Cini. - 1 ex., loc. 2, K.L. Yeo leg. (ZRC).

Ecology. - The species inhabits permanent water bodies of forested freshwater swamps and shallow lakes. In general the water is shaded and rich in plant debris such as leaf litter and rotten trunks. *Cybister dehaani* is less frequently attracted to light than other species of the genus and is quite rare in collections.

FAMILY HYDROPHILIDAE

The Oriental species of the genus *Chasmogenus* Sharp, 1882 and some selected species of the genera *Helochaeres* (*Hydrobaticus*), *Helochaeres* (s. str.), *Enochrus* (*Hydatotrepis*) and *Enochrus* (*Methyrus*) have partly been revised by Hebauer (1992, 1995). The Oriental species of the genus *Enochrus* are under revision by Schödl (NMW). Here we describe four new well characterised species of the genus *Helochaeres* (s. str.). However, many groups of the Hydrophiloidea need to be revised and many additional species are expected. This is especially true for primary swamp systems rich in aquatic vegetation.

Anacaena mista d'Orchymont, 1932

Anacaena mista d'Orchymont, 1932: 683.

Distribution. - Indonesia: Sumatra, Java (d'Orchymont, 1932), West Malaysia.

Tasek Cini. - 21 ex., loc. 1; 29 ex., loc. 2 (CBH, ZRC).

Ecology. - *Anacaena mista* is a lentic species and inhabits permanent water bodies. The species was found in the very shallow zone just at the edge of the lake. The beetles were crawling among plant debris such as accumulations of rotten leaves and twigs.

Helochaeres (*Hydrobaticus*) *yangae*, new species

(Fig. 5e)

Material examined. - Holotype, male - MALAYSIA, Pahang, Lake Cini, lakeside near Rimba Resort, 17 Apr.1997, 50 m, loc. 2, Balke & Hendrich leg. (ZRC).

Paratypes. - 9 males, 13 females, same data as holotype (ZRC, CBH, CFH).

Diagnosis. - From other members of the subgenus *Hydrobaticus*, partly revised by Hebauer (1995), the females of this species can be differentiated from only by combination of the small size and nearly wanted elytral series.

Description. - Length: 4.0 - 4.3 mm. - Body shape oval, moderately convex; uniformly yellowish, shining.

Head moderately fine, densely punctate; clypeus broadly emarginate anteriorly; labrum and postfrons darkened; maxillary palpi long and slender, yellow.

Pronotum rather coarsely densely punctate, shining.

Elytra punctate like pronotum; punctural series hardly to distinguish from the interval punctation; irregular series of larger punctures hardly evident.

Aedeagus relatively large, more than half of elytral length, characterised by a long flagellum of the median lobe. (Fig. 5e).

Etymology. - Named for our colleague Mrs Chang Man Yang of NUS/ZRC.

Distribution. - Only known from the type locality.

Ecology. - See *Anacaena mista*.

***Helochaeres* (s. str.) *ciniensis*, new species**
(Fig. 5b)

Material examined. - Holotype, male - MALAYSIA, Pahang, Lake Cini, lakeside near Rimba Resort, 17 Apr.1997, 50 m, loc. 2, Balke & Hendrich leg. (ZRC).

Paratypes. - 6 males, 11 females, same data as holotype (CFH, CBH, ZRC).

Diagnosis. - The females of this new species differ little from those of *H. lacustris*, new species (described below), but clearly differ from *H. taprobanicus* Sharp, 1890 in their black maxillary palpi and their narrowly yellow-margined pronotum and elytra. In general specimens of *H. ciniensis* are larger in size than *H. lacustris*.

Remarks. - D'Orchymont (1932) recorded *H. taprobanicus* from central Sumatra, but pointed out that misidentification may have resulted in a falsely wide range of distribution. Indeed the supposed occurrence of *H. taprobanicus* in Papua New Guinea brought to light the new species *H. papuensis* Hebauer, 1995. Here we can add two further new species hard to separate from the latter.

Description. - Length 7.4 - 8.0 mm. Body elongate oval, rather flat; entirely black, shining; finely densely punctate on surface.

Head moderately finely, very densely punctate; clypeus deeply triangulate excavated at anterior margin. Maxillary palpi very long and slender, 2nd and 3rd joint black, except base, 4th joint red.

Pronotum less densely punctate than head, entirely black; sides widely rounded; antero-lateral rows of systematic punctures rugosely confluent, curved backwards insides, postero-lateral rows short and straight.

Elytra with distinctly finer and less dense punctation. Series of larger punctures coarse. Black, apically flattened.

Underside and legs black, only tarsi red.

Aedeagus short and stout; parameres shorter than basal piece, at base wing-shaped bent outwards, terminally strongly narrowed, tips converging; median lobe narrow, apically pointed. (Fig. 5b).

Etymology. - The species is named after Lake Cini, the mystery lake.

Distribution. - Only known from type locality.

Ecology. - See *Anacaena mista*.

***Helochaeres* (s. str.) *discus*, new species**

(Fig. 5d, 6)

Material examined. - Holotype, male - MALAYSIA, Pahang, Lake Cini, lakeside near Rimba Resort, 17 Apr.1997, 50 m, loc. 2, Balke & Hendrich leg. (ZRC).

Paratypes. - 2 females - same data as holotype (CBH). — 1 female, Sumatra, Dolok Merangir, 180 m, Aug.1981, coll. E. Diehl (CFH).

Diagnosis. - This species is not likely to be confused with any other Oriental *Helochaeres* by its characteristic disc-shaped body (Fig. 6) and by the large size (see Hebauer, 1995). It is nearest to the African *Helochaeres* (s. str.) *longipalpis* Murray, 1859 which is completely black on pronotum and has a more elongate shaped body.

Description. - Length: 8.5 - 8.7 mm.- Body disk-shaped, widened posteriorly, flat, black, shining, fore and hind angles of pronotum red; maxillary palpi black.

Head very finely punctate, except sutural clypeo-frontalis; eyes prominent, clypeus broadly emarginate at anterior margin; labrum reddish; maxillary palpi extremely long and slender; all joints black, except their bases and ends.

Pronotum more than two times as wide as long, very flat, strongly widened to base, microscopically punctate, black; anterior angle and outer third of base red. Antero-lateral rows of systematic punctures short and close to anterior margin, postero-lateral rows crowded and situated within a shagreened depression.

Elytra about as wide as long, flat, extremely finely punctate, completely finely shagreened; irregular series of larger punctures scattered and situated in a distinct longitudinal depression at outer third; traces of about 8 very fine series of punctures resemble the subgenus *Hydrobaticus*.

Underside and femora black, tibiae and tarsi castaneous.

Aedeagus relatively small, subparallel; parameres apically bifid, converging and pointed; median lobe narrow spine-like, surpassing widely the parameres. (Fig. 5d).

Etymology. - Body almost disc-shaped.

Distribution. - West Malaysia and Indonesia: Sumatra.

Ecology. - See *Anacaena mista*.

Helochares (s. str.) *lacustris*, new species

(Fig. 5a)

Material examined. - Holotype, male - MALAYSIA, Pahang, Lake Cini, lakeside near Rimba Resort, 17 Apr.1997, 50 m, loc. 2, Balke & Hendrich leg. (ZRC).

Paratypes. - 3 male, 10 females, same data as holotype (ZRC, CBH). — 1 female, Sumatra, Medan, Hayek leg. (CFH). — 1 male, Sumatra, Tebing-Marau (CFH).— 2 male, 1 female, West Malaysia, Pahang, Kuala Lipis, small pools in secondary forest, 13 Apr.1997, 60 m, Balke & Hendrich leg. (ZRC).

Diagnosis. - The females of this species differ little from those of *H. ciniensis*. In general specimens of *H. lacustris* are smaller in size than *H. ciniensis*. From *H. taprobanicus* both species differ in the black maxillary palpi and entirely black body margin.

Description. - Length: 6.3 - 7.1 mm.- Body shape oblong oval, rather flat, entirely black, shining, moderately fine punctate, with blackish maxillary palpi.

Head moderately finely, very densely punctate; clypeus reddish, broadly emarginate at anterior margin, maxillary palpi very long and slender, 2nd and 3rd joint black at middle, last joint reddish.

Pronotum a little less densely, moderately coarsely punctate, shining black, margins only narrowly dark reddish; antero-lateral rows of systematic punctures indistinct, crowded and short, postero-lateral rows short and horizontal, rugose.

Elytra 1 1/2 as long as wide; punctate as pronotum, irregular series of larger punctures evident, black, shining, only extreme margin slightly dark reddish.

Underside and legs black, tarsi reddish.

Aedeagus with wide cylindrical basal piece and parameres basally strongly narrowed and apically pointed; median lobe spine-like, as long as parameres. (Fig. 5a).

Etymology. - Latin: lacus = lake (referring to the type locality).

Distribution. - West Malaysia, Indonesia: Sumatra.

Ecology. - See *Anacaena mista*.

Helochares (*Hydrobaticus*) spp.

Tasek Cini. - 2 females, loc. 2 (ZRC).

Remarks. - Without a male these two females of *Helochares* pr. *lentus* Sharp cannot be identified with certainty.

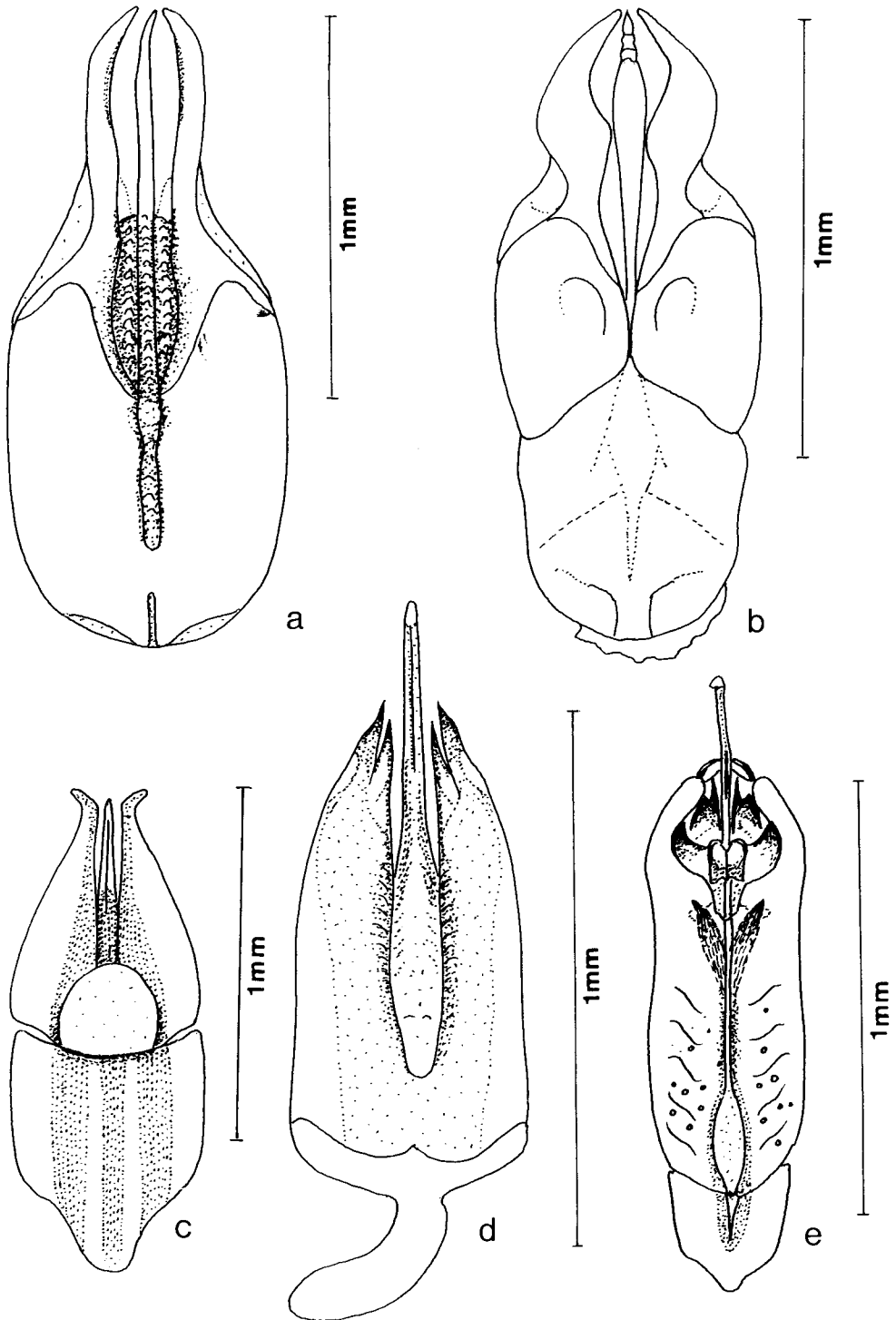


Fig. 5. a. *Helochares* (s.str.) *lacustris*, new species, aedeagus, dorsal view. b. *Helochares* (s.str.) *ciniensis*, new species, aedeagus, dorsal view. c. *Enochrus* (*Methydrus*) *iteratus*, (Sharp), aedeagus, dorsal view. d. *Helochares* (s.str.) *discus*, new species, aedeagus, dorsal view. e. *Helochares* (*Hydrobaticus*) *yangae*, new species, aedeagus, dorsal view.

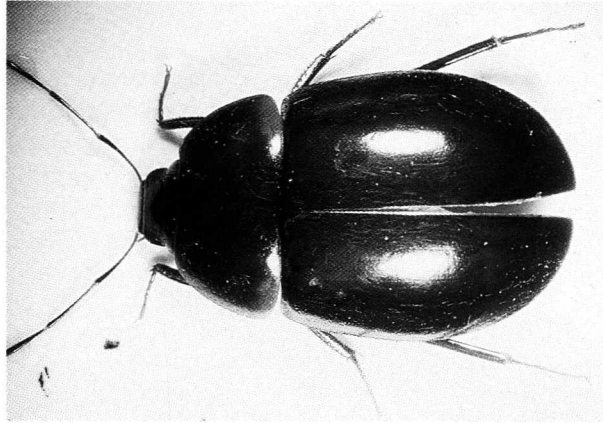


Fig. 6. *Helochares discus*, new species.

***Chasmogenus (Crephelochares) rubricollis* Régimbart, 1903**

Philhydrus rubricollis Régimbart, 1903: 58.

Chasmogenus (Crephelochares) rubricollis: Hebauer, 1992: 79-80, and references therein.

Distribution. - West Malaysia, Indonesia: Sumatra and Kalimantan (Hebauer, 1992).

Tasek Cini. - 3 males, 5 females, loc. 2 (ZRC, CBH).

Ecology. - See *Anacaena mista*.

***Enochrus (Methydrus) iteratus* (Sharp, 1890)**

(Fig. 5c)

Philydrus iteratus Sharp, 1890: 349.

Distribution. - Sri Lanka (Sharp, 1890), West Malaysia.

Tasek Cini. - 1 male, loc. 2 (ZRC).

Remarks. - This problematic species, close to *E. japonicus* and *E. haroldi* is characterised by the male genitalia, with a characteristic large disc of median lobe in dorsal view. (Fig. 5c).

Ecology. - See *Anacaena mista*.

***Enochrus (Methydrus) pileti* Hebauer, 1995**

Enochrus (Methydrus) pileti Hebauer, 1995: 11.

Distribution. - West Malaysia (Hebauer, 1995).

Tasek Cini. - 9 ex., loc. 2 (ZRC, CBH, CFH).

Remarks. - This is an interesting species with a cone-shaped mesosternal process and a very variable colour-pattern, sometimes with bright yellow, sometimes totally black pronotum, while in both cases head and elytra can be castaneous or entirely black.

Ecology. - See *Anacaena mista*.

Amphiops mater Sharp, 1873

Amphiops mater Sharp, 1873: 62.

Distribution. - Japan, Korea, China, Vietnam, Indonesia, Malaysia and Sri Lanka.

Remarks. - Owing to the lack of a suitable modern taxonomic revision the specimens have not yet been identified to subspecies level. They may belong to one of the four subspecies mentioned in Balfour-Browne (1937).

Tasek Cini. - 10 ex., loc. 1; 6 ex., loc. 2 (ZRC, CBH).

Ecology. - See *Anacaena mista*.

FAMILY HYDRAENIDAE

Hydraena spp.

Tasek Cini. - 10 ex., loc.1; 3 ex., loc. 2 (CBH, ZRC).

Remarks. - Owing to the lack of a suitable revision the specimens have not yet been identified to species level. They may belong to one or more new species.

FAMILY HYDROCHIDAE

Hydrochus sp.

Tasek Cini. - 33 ex., loc. 1; 50 ex., loc. 2 (CBH, ZRC).

Remarks. - See *Hydraena* spp. After M. Satô (in litt.) probably *H. japonicus* Sharp, 1873. The Southeast Asian species of the genus are in current need for a comprehensive revision.

DISCUSSION

The present survey of water beetles of the Malaysian freshwater lake "Tasek Cini" revealed 21 species of the families Noteridae (2 spp.), Dytiscidae (7 spp.), Hydrophilidae (10 spp.), Hydraenidae (1 sp.) and Hydrochidae (1 sp.). Together with one undescribed species of the genus *Enochrus* (Schödl pers. com.) a total of 22 species is known from the area. The species

of *Hydraena* and *Hydrochus* have not yet been identified and may belong to some undescribed species.

Two of the newly described species (*Helochaeres ciniensis* and *H. yangae*) are so far only known from Tasek Cini. The other new species (*H. discus* and *H. lacustris*) and the remarkable dytiscid *Derovatellus orientalis* are also known from Sumatra and Borneo where there are recorded only from primary freshwater swamps. Seven of the identified species seems to be restricted to primary lowland freshwater swamps and lakes. Fourteen species are widely distributed in lowland areas of Southeast Asia.

Occurrence of adult Dytiscidae species appears to be seasonal to some degree. *Derovatellus orientalis* and *Laccophilus cini* were only collected during the rainy season in January. Both inhabit small, isolated water holes at the edge of the lake but were absent when they dry up in April.

While the swampy edges of the lake have a comparably rich water beetle coenosis, we have not yet collected species in the open water zone, the *Nelumbo* zone, and the *Pandanus* stands. Only aquatic Heteroptera were taken there.

Due to their sampling methods Furtado & Mori (1982, p. 289) only reported few dytiscid nymphs from Tasek Bera. We suggest many species can be found when adequate sites are being sampled carefully. We here suggest that such sites are most endangered but hardly investigated yet. For sure, more studies in Malaysia, Sumatra, and Borneo will reveal exciting news.

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