

## Two new species of the hygropetric genus *Oocyclus* from eastern India (Coleoptera: Hydrophilidae)

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**Abstract.** Two new species of the water scavenger beetle genus *Oocyclus* Sharp, 1882 are described from the Khasi Hills of India. *Oocyclus armstrongorum* sp. nov. and *O. madidus* sp. nov. were both collected from hygropetric habitats, consistent with other species of the genus.

**Keywords.** Coleoptera, Hydrophilidae, *Oocyclus*, hygropetric habitats, India, Oriental Region

### Introduction

The genus *Oocyclus* Sharp, 1882 is a diverse group of small to medium ovoid hydrophilid beetles that are common inhabitants of rock face seeps, waterfalls, and other hygropetric habitats in much of the Asian and New World tropics. With 33 species, it is the largest of the five genera that comprise the ‘*Oocyclus*-group’, which also includes *Beralitra* d’Orchymont, 1919 (central South America), *Scolipsis* d’Orchymont, 1919 (Sri Lanka), *Ophthalmocyclus* Komarek, 2003 (southern India), and *Tritonus* Mulsant, 1844 (Madagascar and surrounding Islands) (HANSEN 1999, SHORT & HEBAUER 2006, SHORT 2008). The Old World *Oocyclus* fauna, including the Indian taxa, was treated by HEBAUER & WANG (1998); additional Thai and Laotian species have been added by SHORT & SWANSON (2005) and MINOSHIMA (2009) respectively. Here, two new species are described from eastern India.

### Materials and methods

Specimens were examined using an Olympus SZX16 light microscope to 150× magnification. Terminology largely follows Hansen (1991) with the exception of the terms ‘mesoventrite’ for ‘mesosternum’ and ‘process of the mesoventrite’ for ‘mesosternal process’.

Quoting the labels of type specimens, a slash (/) is used to divide data on different rows of one label, a double slash (//) is used to divide data on different labels. The material examined is deposited in following collections:

- KSEM Natural History Museum, University of Kansas, Lawrence, USA (A. Short);  
NHMW Naturhistorisches Museum, Wien, Austria (M. Jäch);  
NMPC National Museum, Praha, Czech Republic (M. Fikáček);  
USNM United States National Museum, Washington DC, USA (W. Steiner).

## Taxonomy

### *Oocyclus armstrongorum* sp. nov.

(Figs. 1, 3)

**Type material.** HOLOTYPE: male, 'INDIA, Meghalaya State (10) / E Khasi Hills, 11km SW Cherra- / punjee, Laitkynsew, 21-24.iv. / 2008, 25°13'N 91°39'E, 810m / Fikáček, Podskalská, Šípek lgt.' // 'seepage: wet rocks algae / blue algae/moss ca. 1.5-2 km / via rd. from 'Cherrapunjee Holid. / Resort' in direct. Cherrapunjee, / exposed' (NMPC). PARATYPES: 16 spec., same data as holotype (KSEM, NHMW, NMPC, USNM).

**Diagnosis.** Posterolateral corners of pronotum angulate. Procoxae distinctly spinose. Raised medial glabrous region of the metaventrite extended along its entire length. Abdominal ventrites dark brown to black; finely and evenly pubescent. Elytra with detectable but often obscured rows of systematic punctures. This species shares many diagnostic characters with *O. melinoventris* Short & Swanson, 2005 (currently only known from Thailand), and the extended glabrous region of the metaventrite is currently known only from these two species (see SHORT & SWANSON 2005, Fig. 11). However, they are easily distinguished by the color of the ventrites, which is bright yellow in *O. melinoventris* while nearly black in *O. armstrongorum* sp. nov. *Oocyclus melinoventris* is also smaller in size, never exceeding 5.0 mm, while the smallest individuals of *O. armstrongorum* sp. nov. are 5.2 mm.

**Description.** Size and form. Total body length = 5.2–5.6 mm. Broadly oval, moderately convex. Elytra slightly longer than wide.

Color. Dorsum black, without any distinct colored iridescence. Maxillary palps yellow except apex of the apical segment, which is slightly darkened. Labial palps yellow. Mentum and stipes dark brown to black, the same color as ventral surface of head. Pseudoepipleura and tarsi reddish brown, with the remainder of the sternum and legs very dark brown to black. Ventrites uniformly dark brown, similar in color as the sternum.

Head. General punctation on labrum, clypeus and frons variable in size from almost very fine to moderately coarse; dense, distance between punctures 0.5–1.0× the width of one puncture. Systematic row of punctures on labrum composed of coarse, setiferous punctures laterally with center row appearing absent or with punctures reduced in size or density. Frons with an irregular row of systematic punctures mesad of each eye, bearing fine recumbent to erect setae. Clypeal systematic punctures not apparent, blending with the surrounding coarse ground punctation. Antennae with scape subequal to slightly longer in length to segments 2–5; first two segments of club subequal in length and apical segment slightly shorter than two preceding segments combined. Maxillary palps short, as long to slightly longer in length than width of labrum; apical segment ca. 1.5× as long as penultimate. Labial palps three-fourths as long as width of mentum. Mentum quadrate, anterior margin slightly convex; bearing distinct scattered punctures on anterior two-thirds, some of which bear fine setae.

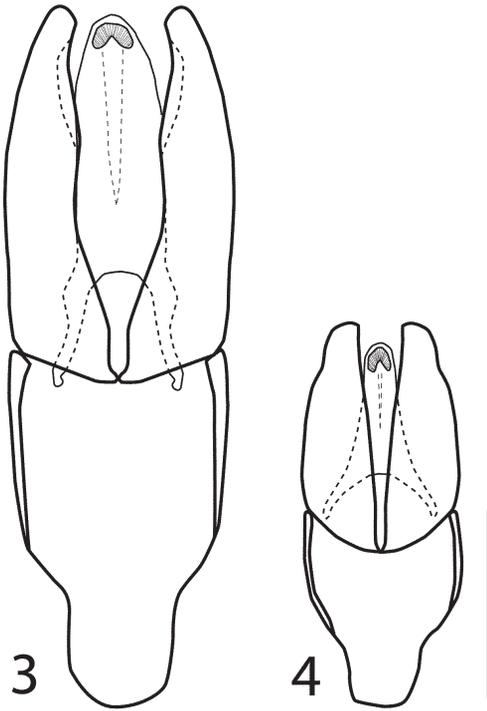
Thorax. General punctation on elytra very dense, distance between punctures absent to 1.0× the width of one puncture, composed of punctures of varying size, from very fine to very



Figs. 1–2. Dorsal habitus. 1 – *O. armstrongorum* sp. nov., 2 – *O. madidus* sp. nov.

coarse; becoming extremely dense posteriorly, making elytra appear almost rugose. Pronotal punctation similar but distinctly less impressed. Pronotal systematic punctures distinct, 1.5–2.0× the size of larger general punctation punctures and set with a fine recumbent seta; anterior and posterior series each forming an irregular row. Lateral margins of pronotum with a sparse row of setiferous punctures. Posterolateral corners of pronotum angulate, but not spinose. Sutural punctation on elytra unmodified from general punctation. Elytra with five diffuse rows of systematic punctures, which are mostly obscured by the larger ground punctures, but generally detectable. Prosternum with fine median carina along entire length, without a tooth or long setae anteriorly. Process of the mesoventrite with lateral extensions sloping evenly downward; apex set with a few fine setae. Mesoventrite with glabrous area extending to entire length, slightly narrower than width of process of the mesoventrite anteriorly, becoming evenly narrowed anteriorly. Procoxae covered with short spines and coarse long setae; mesocoxae without spines, at most with a few coarse, long setae. Protibiae with 9–11 spines on dorsal face. Protarsal segments 1–4 small, subequal in length; apical segment ca. as long as segments 1–4 combined.

Abdomen. Ventrites with moderately dense pubescence, the longest setae shorter to subequal in length to longest setae around mesosternal glabrous area. Fifth ventrite entire,



Figs. 3–4. Aedeagus, dorsal view. 3 – *Oocyclus armstrongorum* sp. nov., 4 – *O. madidus* sp. nov. Scale bar = 0.33 mm.

with pubescence slightly denser than ventrites 1–4. Aedeagus (Fig. 3) with parameres evenly curved along outer margin, slightly curving inwards apically; inner margins bisinuate. Apex of median lobe nearly subequal with apex of parameres.

**Etymology.** It is my pleasure to name this species after my friends Dr. Andrew Armstrong and Ms. Christina Lamneck in honor of their recent marriage.

**Biology.** As is typical for nearly all members of the genus, the examined specimens of *O. armstrongorum* sp. nov. were collected on a rock seepage habitat that was covered in algae. A detailed account of that locality is provided by FIKÁČEK & ŠÍPKOVÁ (2009) and GENTILI & FIKÁČEK (2009).

**Distribution.** Known only from the type locality in Meghalaya State of India.

### *Oocyclus madidus* sp. nov.

(Figs. 2, 4)

**Type material.** HOLOTYPE: male, 'INDIA, Meghalaya State (10) / E Khasi Hills, 11km SW Cherra- / punjee, Laitkyn-sew, 21-24.iv. / 2008, 25°13'N 91°39'E, 810m / Fikáček, Podskalská, Šípek lgt.' // 'seepage: wet rocks algae / blue algae/moss ca. 1.5-2 km / via rd. from 'Cherrapunjee Holid. / Resort' in direct. Cherrapunjee, / exposed' (NMPC). PARATYPES: 24 spec., same data as holotype (KSEM, NHMW, NMPC, USNM).

**Diagnosis.** Posterolateral corners of pronotum evenly rounded. Procoxae without distinct spines. Abdominal ventrites finely and evenly pubescent. Elytra without detectable rows of

systematic punctures. This species is externally very similar to *O. bhutanicus* SATÔ, 1979 but differs in several subtle characters: although the dorsal punctation on the elytra of both species consists of punctures of mixed sizes, in *O. madidus* sp. nov. the smallest punctures are much finer and smaller than the smallest punctures seen on *O. bhutanicus*. The largest punctures on both species are relatively similar in size. Consequently, the size range of the punctures observed in *O. madidus* sp. nov. is more extensive. In addition, the meta-femora in *O. madidus* sp. nov. are slightly broader (ca.  $2.1\times$  as long as wide, compared to ca.  $2.3\times$  for *O. bhutanicus*). Additionally, the anteromedial tooth of the prosternal carina, while still small in *O. madidus* sp. nov., is larger than in the holotype of *O. bhutanicus*. Unfortunately, the aedeagus of the holotype of *O. bhutanicus* has been missing for more than 25 years (see SHORT & SWANSON 2005 for discussion) and so I was not able to compare these structures directly; based on the figure by SATÔ (1979: Fig. 16), the inner margin of the parameres are sinuate in that species (straight in *O. madidus*). SATÔ's (1979) drawing is not symmetrical, with the left paramere indicating a small apical constriction and the right evenly rounded; thus, I cannot determine which is correct for comparison with *O. madidus* sp. nov., which is closer to the former condition.

**Description.** Size and form. Total body length = 3.7–4.2 mm. Oval, moderately convex. Elytra longer than wide.

Color. Dorsum black; head, pronotum, and elytra with distinct greenish sheen. Maxillary and labial palps yellow; apex of maxillary palps dark brown. Mentum and stipes light to reddish brown, distinctly paler than ventral face of head. Legs, epipleura, lateral margins of prosternum, and posterior margin of each ventrite yellow to light brown, with remainder of venter slightly to moderately darker reddish brown.

Head. General punctation on labrum, clypeus and frons slightly variable in size from very fine to moderately fine; densely distributed, distance between punctures  $1.0\text{--}1.5\times$  the width of one puncture. Systematic row of punctures on labrum moderately dense, forming a nearly continuous lateral row set with moderately long setae, but each puncture still fairly distinguishable, not forming a groove. Frons with an irregular row of systematic punctures mesad of each eye, bearing fine erect setae. Clypeus with a few very indistinct systematic punctures along anterolateral margins, slightly larger than surrounding punctation and bearing short setae. Antennae with scape subequal in length to segments 2–5; first two segments of club subequal in length and apical segment subequal in length to the two preceding segments combined. Maxillary palps short, about as long as width of labrum; segment 2 slightly bulbous, apical segment slightly longer than penultimate. Labial palps one-half to three-fourths as long as width of mentum. Mentum quadrate, anterior margin slightly convex, bearing very fine and scattered punctures.

Thorax. General punctation on pronotum and elytra composed of extremely fine and coarse punctures, evenly mixed and distributed. Pronotal systematic punctures present, ca.  $1.5\times$  the size of general punctation and set with a fine seta, sometimes partially blending with larger general punctures; anterior and posterior series each forming an irregular row. Lateral margins of pronotum set with a few sparsely distributed setiferous punctures; with punctures very small as to almost appear absent. Posterolateral corners of pronotum evenly rounded. Sutural punctation on elytra absent or unmodified from general punctation. Elytra without distinct rows of larger punctures, as they blend uniformly with general punctation;

some of these rows (of systematic punctures) can be detected by the presence of fine, short setae. Prosternum with median carina along entire length, with small anteromedial tooth; without long spines or hairs anteriorly. Process of the mesoventrite with lateral extensions sloping evenly downward; apex set with a few long fine setae. Metaventrite with small oval glabrous area posteromedially, slightly longer than wide, length of glabrous area about half the total length of metaventrite. Pro- and mesocoxae densely pubescent; without distinct spines. Protibiae with 10 spines on dorsal face. Protarsal segments 1–4 small, subequal in length; apical segment ca. as long as segments 1–4 combined.

**Abdomen.** Ventrites 1–5 with uniform pubescence, longest setae about as long as the setae around the metasternal glabrous area. Fifth ventrite entire. Aedeagus with parameres slightly attenuated apically; inner margins straight. Median lobe (Fig. 4) not reaching the apex of the parameres.

**Etymology.** *Madidus*, Latin, meaning soaked or drenched, referring to the wet habitats of the species.

**Biology.** Collected with and presumed identical to *O. armstrongorum* sp. nov. (see above).

**Distribution.** Known only from the type locality in Meghalaya state of India.

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