

# Review of the Central American species of *Hydrobiomorpha* BLACKBURN (Coleoptera: Hydrophilidae)

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## Abstract

The Central American species of *Hydrobiomorpha* BLACKBURN (Coleoptera: Hydrophilidae) are reviewed. The recorded fauna includes *Hydrobiomorpha casta* (SAY), *H. phallica* (d'ORCHYMONT), and *H. naviga* sp.n., which is described and illustrated from Costa Rica. A key is provided to allow identification of the three New World species of the genus exclusive of South America.

**Key words:** Coleoptera, Hydrophilidae, Hydrophilini, *Hydrobiomorpha*, Central America, Costa Rica, new species.

## Introduction

*Hydrobiomorpha* BLACKBURN is the second most speciose genus of the five genera that comprise the subtribe Hydrophilina (Hydrophilinae: Hydrophilini) with 53 species distributed primarily in tropical and subtropical regions (HANSEN 1999). More than half of the described species occur in the Neotropics. The New World members of the genus were revised by BACHMANN (1988). Of these, only one species, *H. casta* (SAY), has hitherto been recorded from North and Central America and an additional species, *H. phallica* (d'ORCHYMONT), was recorded from the West Indies and Venezuela. Here, *H. phallica* is first recorded from Central America (Panama) and a third Central American species, *H. naviga* sp.n., is described from south-central Costa Rica.

## Material and Methods

All specimens were examined using a binocular Wild M-5 microscope to 100x magnification. Measurements were taken with the aid of an ocular micrometer. Drawings were made with the help of an ocular grid and camera lucida.

Collections in which specimens are deposited are indicated with the following abbreviations:

AEZS	Coll. Andrew E.Z. Short, Ithaca, New York, USA
CUIC	Cornell University Insect Collection, Ithaca, New York, USA
INBIO	Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica
NMNH	National Museum of Natural History, Washington, DC, USA
NMW	Naturhistorisches Museum Wien, Austria

## *Hydrobiomorpha casta* (SAY)

*Hydrophilus castus* SAY 1835:170.

*Hydrous tenebrioides* DU VAL 1857: 50. – Syn. d'ORCHYMONT 1928: 167.

*Hydrocharis perfectus* SHARP 1882: 61. – Syn. d'ORCHYMONT 1928: 167.

*Hydrobiomorpha casta* (SAY) – MOUCHAMPS 1959: 328.

MATERIAL EXAMINED: BELIZE: Orange Walk District, Gallon Jug, 30.XI.1992, B.W. Miller (3 NMNH), same locality but 20.V.1993, at light (1 NMNH), 30.V.1993 (1 NMNH). COSTA RICA: Alajuela Prov.: Caño Negro National Wildlife Refuge, 20 m elev., 6.-26.III.1994, K. Martinez (1 INBIO); same location but 19.-24.IV.1993, K.F. Flores (1 INBIO), 18.-30.IX.1992, K.F. Flores (1 INBIO), 10.-29.III.1993 K.F. Flores (2), 10.-29.III.1993, K. Martinez (3 INBIO), 2.-23.IV.1995, R. Villalobos (2 INBIO); San Ramon Station, 620 m elev., 3.-19.III.1994, C. Cano (1 INBIO). Guanacaste Prov., Barra Honda National Park, 100 m elev., II.1995, M. Reyes (2 INBIO), same location but 13.-30.XI.1992, M. Reyes (1 INBIO); Barra Honda N.P., 3 km NW of Nacaome, 100 m elev., I.1993, M. Reyes (2 INBIO), Barra Honda N.P., Los Mesones, 100 m elev., III.1995, at lights, M. Reyes (1 INBIO), Guanacaste National Park, Agua Buena, 200 m elev., II.1992 (4 INBIO), Guanacaste N.P., Los Almendros, 17.-21.XII.1992, E. Lopez (1 INBIO); Palo Verde National Park, 0-50 m elev., 25.VIII.1999, W. Porras (1 INBIO), same location but 15.IV.2000, at lights (2 INBIO); Palo Verde National Park, Palo Verde Station, 10 m elev., 10.-20.II.1993, R.U. Chavarría (1 INBIO). Heredia Prov.: Los Arbolitos, 30 m elev., 20.-25.III.1993, F. Araya (2 INBIO). Limon Prov.: Rio Sardinias, 10 m elev., Barra del Colorado National Wildlife Refuge, 21.-24.IV.1993, F. Araya (1 INBIO); Sector Cerro Cocori, "Farm of E. Rojas", 150 m elev., F.A. Quesada, 26.III.-24.VI.1992 (1 NMNH). GUATEMALA: Peten, Tikal, 28.VI.1974, W.E. Steiner (1 NMNH).

DIAGNOSIS: Posterior projection of prosternum flat, not bent ventrad. Metasternal projection extended posteriorly at least two-thirds over first visible ventrite. Posteromedial glabrous portion of fifth visible ventrite not extended anteriorly more than one fourth the wide of the ventrite.

DISTRIBUTION: Widespread: Central America, Mexico, the West Indies and the Gulf and Atlantic Coasts of the United States as far north as Virginia (STEINER 1996). Here, it is newly recorded from Belize and Costa Rica.

REMARKS: Larva described by SPANGLER (1973).

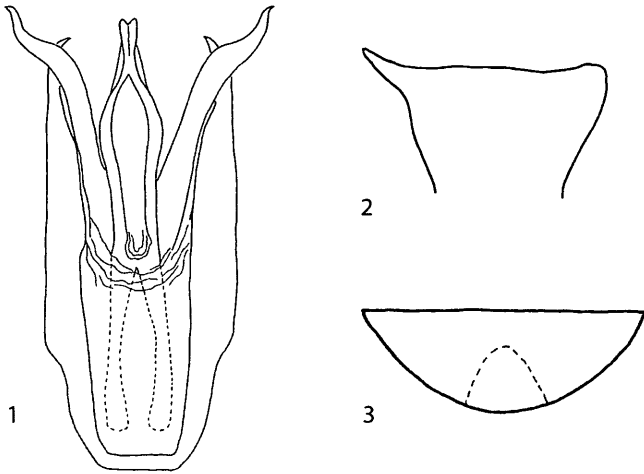
***Hydrobiomorpha naviga* sp.n.**  
Figs. 1-3

TYPE LOCALITY: Barbilla Station, Barbilla National Park, Cartago Province, Costa Rica.

MATERIAL EXAMINED: HOLOTYPE ♂: "COSTA RICA. Prov. Cartago, / Turrialba, P. N. Barbilla, Est. Barbilla./ 600 m. 11 FEB 2001. W. Arana. Col./ Acuatica. L\_N\_596387\_218279 #61580", "HOLOTYPE/Hydrobiomorpha/ naviga/ A. E. Z. Short 2004" (INBIO). PARATYPES (11): COSTA RICA: Cartago Prov.: Barbilla National Park, Rio Pacuare, 15.VII.2001, W. Arana (1 INBIO); same data but 15.III.2001 (1 INBIO); same data but 14.III.2001 (1 AEZS); same data but 20.IV.2001 (1 NMW); Barbilla National Park, Rio Barbilla, 300m elev., 20.V.2001, W. Arana (1 INBIO, 1 CUIC); Cartago Prov., Barbilla National Park, Barbilla Station, 19.XI.2000, W. Arana (1 AEZS); Cartago Prov., Turrialba, 0.2 km E. Barbilla Station, 17.I.2001, W. Arana (1 INBIO); Turrialba, 150m N. Barbilla Station, 20.XI.2000, W. Arana (1 INBIO); Limon Prov., Sector Cerro Cocori, Farm of E. Rojas, 1.1993 [no exact date], E. Rojas (1 INBIO); Limon Prov., Barbilla National Park, Siquierres, Rio Dantas, 22.XI.2000, W. Arana (1 INBIO).

DIAGNOSIS: 17.9 - 20.3 mm. Posterior projection of prosternum slightly bent ventrad (Fig. 2). Metasternal projection short, not extended posteriorly past one third over first visible ventrite. Posteromedial glabrous portion of fifth visible ventrite extended anteriorly one half to two-thirds the width of the ventrite (Fig. 3).

DESCRIPTION: Head. Black. Labrum with two distinct systematic punctures medially; clypeus broadly emarginate anteriorly, exposing trapezoidal gap with the clypeus and labrum; clypeus with semicircles of irregularly spaced systematic punctures laterally. Frons with field of systematic punctures interior to each eye. Punctuation on labrum, head and frons present but very fine and indistinct. Maxillary palpi evenly yellow and slightly longer than the width of the head. Gula densely pubescent and distinctly impressed from the surrounding glabrous temples. Antenna with nine segments; scape strongly compressed dorsoventrally; pedicel about as long as segments 3-5.



Figs. 1 - 3: *Hydrobiomorpha naviga* sp.n. 1) aedeagus, ventral view showing basal piece, parameres, and median lobe; 2) prosternum, lateral view (anterior on right); 3) fifth visible ventrite, showing posteromedial glabrous area.

Thorax. Dorsum black. Pronotum with distinct lateral bead; anterolateral series of systematic punctures in more or less irregularly spaced linear row, and posterolateral series placed in an irregularly spaced scattered field. Prosternum elevated into high crest with centrally raised portion glabrous; anterior end bluntly rounded with posterior end projected into sharp point which is slightly bowed ventrad (Fig. 2). Elytra with five rows of irregularly spaced systematic punctures. Serial punctures reduced but still visible, appearing as finely etched scratches. Lateral margin of elytra set with a more or less single, irregular row of unequally sized setiferous punctures. Meso- and metasternum fused and elevated to form a common sternal keel; anterior end with slight indentation; keel slightly dilated on metasternal portion. Metasternal posterior projection extended not more than one third the width into the first visible ventrite. Hind femora glabrous. Tarsal claws of males enlarged.

Abdomen. Ventrites 1-4 densely and evenly covered with fine pubescence. Fifth visible ventrite with posteromedial glabrous area extending anteriorly about one half to two-thirds the width of the ventrite (Fig. 3). Aedeagus with opening of gonopore large (Fig. 1), nearly half the length of the aedeagus; tip of median lobe slightly bifurcate.

DISTRIBUTION: Recorded from Cartago and Limon Provinces of Costa Rica.

ETYMOLOGY: Named *naviga* from the Latin *navigo*, meaning sailor.

REMARKS: Immature stages and biology unknown. Despite extensive collecting efforts by INBIO and the author, this species has only been collected in watersheds in and around Barbilla National Park suggesting it may have a highly localized range.

### ***Hydrobiomorpha phallica* (d'ORCHYMONT)**

*Neohydrophilus phallicus* d'ORCHYMONT 1928: 165.

*Hydrobiomorpha phallica* (d'ORCHYMONT) – MOUCHAMPS 1959: 331.

MATERIAL EXAMINED: PANAMA: Cocle, 5.3 miles E Anton, grassy pond, 6.VII.1967, P. Spangler (8 AEZS, 2 CUC, 45 NMNH, 2 NMW); Cocle, 13 km SW Penonome, 6.VI.1983, Rio Cocle Auxiliar (1 NMNH). HAITI: Bayeux, 17.IX.1925, W.A. Hoffman, Paratype, *Neohydrophilus phallicus*, A. d'Orchymont (1 NMNH).

DOMINICAN REPUBLIC: Samana, "San Domingo", "Abbot, coll.", Paratype, *Neohydrophilus phallicus*, A. d'Orchymont (1 NMNH).

DIAGNOSIS: Distinguished from other Central American species by the anterior margin of the prosternal crest not prolonged into an acute spine. The parameres of the aedeagus are also distinctive in that the apices are bluntly clubbed (see BACHMANN 1988).

DISTRIBUTION: Dominican Republic, Haiti, Lesser Antilles, Puerto Rico, Venezuela (HANSEN 1999) and Panama.

REMARKS: The Central American specimens agreed well with paratypes of *H. phallica* from the West Indies. Immature stages and biology unknown.

### Key to the species of *Hydrobiomorpha* BLACKBURN of the New World exclusive of South America

- 1 Posterior margin of prosternal crest distinctly prolonged into acute spine; glabrous portion of fifth visible ventrite of various size or apparently absent ..... 2
- Posterior margin of prosternal crest sometimes pointed, but never prolonged into a spine; glabrous portion of fifth ventrite always extending anteriorly not more than one third the width of the ventrite (West Indies, Panama, Venezuela) ..... *phallica*
- 2 Glabrous portion of fifth ventrite extending anteriorly at least one half the width of the ventrite (Costa Rica) ..... *naviga*
- Glabrous portion of fifth ventrite extending anteriorly not more than one third the width of the ventrite or apparently absent (North and Central America, West Indies)..... *casta*

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