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THE LARVA OF *HELIOCHARIS AMAZONA* SELYS, 1853 (ZYGOPTERA: HELIOCHARITIDAE)

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The larval stage is described and figured from exuviae, and from the ultimate and younger instars, collected mainly in Chapada dos Guimarães, Mato Grosso, and from the states of Minas Gerais and Goiás Brazil, and the systematic position of the genus is briefly discussed.

INTRODUCTION

The species of *Heliocharis* are not frequently encountered in the collections, though they cannot be considered rare. They live in rivers and in small or medium creeks, where we always find *Argia* and *Hetaerina;* from the latter they are hard to distinguish and the preferred habitat of *Heliocharis* is not known. The larvae resemble *Hetaerina,* they are slender and larger, and inhabit usually the marginal area of a creek.

An imago and its exuviae, collected in Minas Gerais, were received from Dr Angelo Machado. This circumstance enabled us to identify the species.

MATERIAL EXAMINED

Goiás: Sapesal River, s. Libanise leg., 14-VII-1976, 1 ♀; — Mato Grosso: Chapada dos Guimarães, Véu de Noiva River (bush bordered), H. Mesquita leg., 26-I-1983, 1 ♂, 1 ♀; — Coxipó River (arboreal bordered), L.F. Netto leg., 4 ♂, 4 ♀, no date; — an unnamed creek (open field), N. Santos & J. Ulisses leg., X-1983, 5 ♂, 5 ♀; — Campus of the Evangelic School at Buriti, a creek forming a small dam, N. Santos & J. Ulisses leg., X-1983, 1 ♂; — Monjolinho Creek (bush

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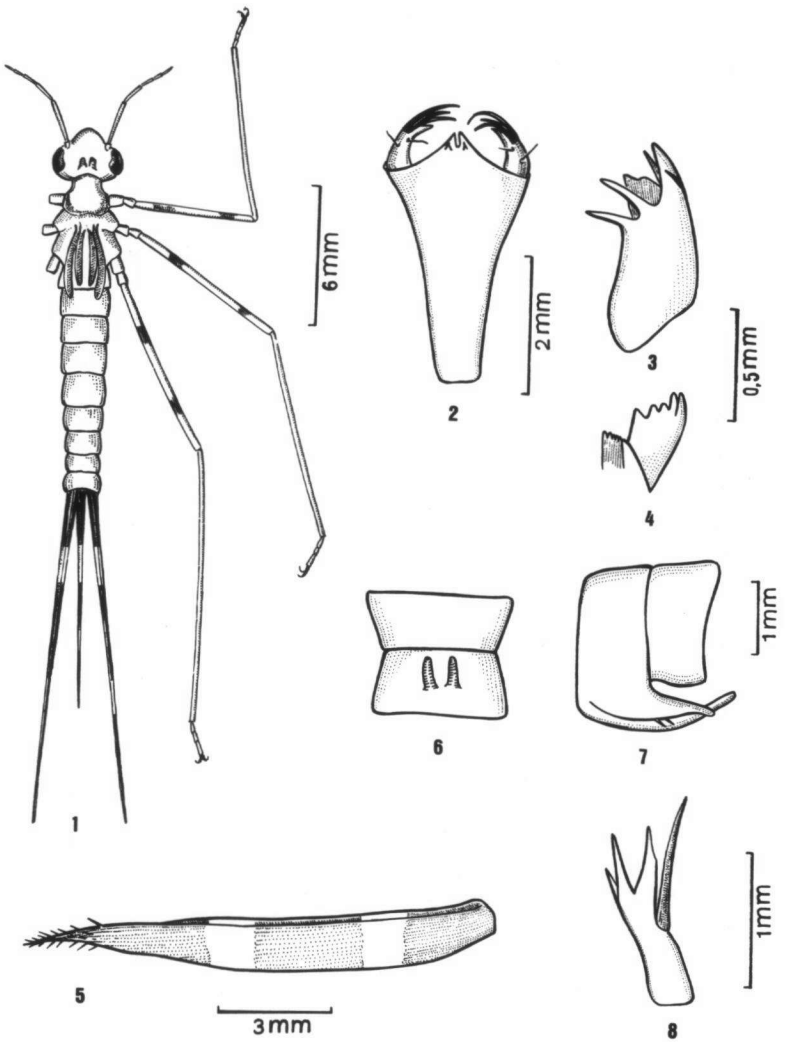

Figs 1-8. The larva of *Heliocharis amazona* Selys: (1) Dorsal view of a young female from the Sapesal River (in ultimate instar the wingpads are larger and divaricate as in *cothurnata);* — (2) Labium, dorsal view (same specimen); — (3) Right maxilla, inner side (ultimate instar, Chapada, Oct., 1983); — (4) Ventral view of the left mandible (same specimen); — (5) Lateral view of middorsal caudal appendage (same specimen); — (6) Ventral view of the male eighth and ninth abdominal segments (ultimate instar, Veu da Noiva River, Febr. 1983); — (7) Lateral view of the female ninth and tenth abdominal segments (ultimate instar, Veu da Noiva River); — (8) External view of the left lateral lobe (ultimate instar, Chapada, Oct. 1983).

bordered), N. Santos & J. Ulisses leg., X-1983, 1 ♂; — affluent of the Coxipó River (semiarboreal bordered), near its mouth, N. Santos & J. Ulisses leg., X-1983, 1 ♂, 1 ♀; — Minas Gerais: Belo Horizonte, Florestal Hortus, A.B.M. Machado leg., 10-X-1982, 2 ♂ (emergence on 20-X-1982).

DESCRIPTION OF THE ULTIMATE INSTAR

General aspect similar to *Hetaerina* but with longer legs and caudal appendages (Fig. 1). Total length, including antennae and appendages, about 45 mm. Lateral caudal appendages 19 mm, longer than the median, 12 mm, slightly longer than the body, 17 mm (antennae not included). The larvae are slender and move slowly. General coloration brown, eyes black, areas of antennae, labrum, front, clypeus, occipital space and wingpads pale.

Head globoid, with occipital border slightly concave. Antennae like *Hetaerina,* but the second segment (2.50 mm) shorter than half its total length (6.19 mm); length of segments measuring from base (in mm): 0.30 — 2.50 — 1.23 — 0.80 — 0.70 — 0.36 — 0.30. Second segment with many bristles, third to fifth with few hairs, sixth and seventh with two groups of bristles. Vertex between eyes with two conical tubercles. Labium as in Figure 2, the median lobe split (more than a notch), with one short spine on each side of the cleft; lateral lobes on distal end divided in to three long teeth of different sizes (Fig. 8) with two setae underneath the base; the movable hook longer than the teeth. Maxillae with five teeth on the inner side and a tooth on the outer side (Fig. 3). Mandibles stout, as usual, but two-branched, with five teeth on the outer branch and a plate on the inner branch (Fig. 4), slightly crenate on the distal border and one short spine on each corner.

Thorax with prothorax hexagonal, shorter (1.5 mm) than broad (3.0 mm), with one small tubercle at the anterior upper-side corners. Wingpads reaching near half the fifth abdominal segment. Femur, tibia and tarsus with the following measurements (in mm): first leg (8-8-2), second (9-11-2), third (10-14-2).

Abdomen long (11 mm), more or less cylindrical, tapering from the base (2.5 mm) to the tenth segment (2 mm), without lateral spines. Lateral caudal appendages long (19 mm) and thin, tapering to the end, triquetral, with a transversal section as an equilateral triangle, with a few short spines on the inferior borders, but without them on the dorsal border. Median caudal appendage as long as the body (12 mm), dorsally as thin as the lateral, but enlarged ventrally, leaf-shaped in lateral view, with short spines and setae distally (Fig. 5). Cerci short, cylindrical, tapering to the end, and slightly longer than half of the tenth segment.

The developing male genitalia at the abdominal segment 8 (Fig. 7), with two cylindrical horns not reaching the base of segment 9. The female valvae (Fig. 7) at the abdominal segment 9, tapering from base to end, reaching the end of segment 10, the gonapophyses longer than the valvae, going beyond the end of segment 10.

DISCUSSION

The first mention of a heliocharitid larva came from SANTOS (1981). His first attempt to find a larva was made in the river Mestre d'Armas, between Brasilia and Planaltina, where seventeen years earlier he had collected many adults. Nowadays, however, the vegetation on the banks is destroyed. Consequently, a single adult female was seen and, after more than one hour of hard sifting, the present senior author succeeded in picking up one larva, similar to a large *Hetaerina,* but with much longer legs. Unfortunately, this specimen, although so carefully cared for, in a moment of distraction at the laboratory, ran away and was not recovered. Subsequently, in the same year, we received a small lot of larvae from the state of Goiás, collected by Miss Silva Libanise, and, what a surprise, one was with no doubt a *Heliocharis.* This specimen was studied, drawn, and a paper on it was presented at the VIIIth Brazilian Congress on Zoology, at Brasilia, 1981.

On that opportunity the identification was made by supposition, but two years later we collected many adults and larvae, although without any emergence. Fortunately, our colleague and friend, Dr Angelo Machado, put in our hands two eclosed specimens and their exuviae, both belonging to *Heliocharis amazona.* Recently, the late Dr GEIJSKES (1986) described and figured the larva of *Dicterias cothurnata* (Förster). Like Geijskes, we think, this larva is more related to *Hetaerina* than to any other group, therefore it will be very hard to cope with the suggestion of FRASER (1957), who assumed Heliocharitidae to be a derivative of Amphipterygidae and a bridge to the Polythoridae, on account of differences in the larvae and in venation.

This larva is so like *Dicterias cothurnata* that we could think of both as the same genus. It would be important to find the larvae of *D. atroterminata* Selys in order to ascertain the generic affiliation of *cothurnata;* the opinion of CALVERT (1948) may be contested. We have a male specimen from Surinam, labelled by Geijskes *Neocharis cothurnata,* but it looks like a *Heliocharis.* This genus is larger and stouter than the known *Dicterias.* In our opinion, a revision of the imagoes is necessary.

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