

## LARVAE OF NEOTROPICAL COLEOPTERA V: CARABIDAE, MORIONINI

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### ABSTRACT

*The larva and pupa of Morion brasiliense Dejean, 1825, and the pupa of M. cordatus Chaudoir, 1837, are described and figured based on specimens reared in part in the laboratory. Larvae were collected from decayed logs in southern Brazil (São Paulo: Salésópolis, Santa Adélia, Peruíbe). A comparison of described larvae of the the genus Morion shows that the specimens previously described as Morion orientalis do not belong to "Morion" in the New World sense of that genus.*

### INTRODUCTION

Larval stages of the tribe Morionini are still poorly known and all descriptions to date have been based on larval materials found associated with adults.

Two among the 10 genera of the tribe Morionini, occur in the New World. The genus *Morion*, worldwide, includes seven species, four of which are recorded from Brazil (Allen, 1968: 151).

The larva of *M. cordatus* Chaudoir was described by Van Emden (1942, 1953) and redescribed by Thompson (1977); that of *M. orientalis* Dejean was figured by Gressitt (1953).

Reichardt (1977: 405) stated that he had reared the larva of *Morion brasiliense* Dejean; we have found out that he did not publish a description.

Larvae reared to adults by us in the laboratory made possible the following identification and descriptions, and permitted us to observe pupation.

### *Morion brasiliense* Dejean, 1825

(Figs. 1-12)

Mature larva: length, 17.0 mm; width, 3.0 mm. Campodeiform, yellowish, head capsule dark-brown, prothorax, legs and urogomphi brownish-yellow.

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Head capsule prognathous, deeply pigmented, depressed and with subparallel sides. Epicranial suture present, epicranial stem short, 3,8 times as long as head. Frontal arms U-shaped. Two ocelli laterally placed, the anterior large, the posterior small. Fronto-clypeal plate gently sloping from frontal arms to nasale, with two slightly longitudinal median grooves and a lateral short carina on each side. Nasale present, very broadly and rather strongly emarginate over its width. Antennae (fig. 10) 4-segmented, third segment with flat sensorium and without appendage. Mandibles (figs. 9) moveable, symmetrical, falcate, with 2 lateral setae and fixed retinaculum. Maxillae (figs. 6-7) long, moveable; palpi 3-segmented, palpifer of the shape of a palpal segment; galea 2-jointed and lacinia reduced, unisetose; stipes more or less rectangular; cardo very short, formed by two half-rings. Labium (figs. 4-5a) with 2-segmented palpus, apical segment with special dorsal structures near base; mentum triangularly excised at apex, ligula absent.

Thorax: length of segments: 2,3: 1,3: 1,4 mm; width of segments 3,0: 2,9 mm, and with a few setae. Cervical area with eversible membrane. Thoracic spiracle large, ovoid, on mesothorax. Legs (fig. 8, 8a) short, trochanter with short and long setae; femur of equal length to length of tibia and tarsus together; two claws of unequal length, posterior one shorter than the anterior.

Abdomen depressed, 10-segmented; eighth pair of spiracles subequal in size to the others. Ventrites (figs. 2) on segments I-III fused with post-ventrites, bearing 4 setae and with 2 small median weakly sclerotized spots. Post-ventrites (fig. 2) on segments I-VI fused. Hypoventrites bearing two setae. Epipleurites (figs. 2-3) undivided and with 5 setae. Segment VII with only one pair of distinct post ventrites and segment VIII without visible post-ventrites and with smaller and triangularly shaped ventrite.

Urogomphi fused to segment IX, fixed, nodose, 8 prominent setae on each urogomphus. Segment X, caudal, tubular, truncate at apex, bearing a few setae.

Pupa (Figs. 11-12): 10,3 mm. Aedeicous, exarate. Color cream-white, dorsal surface covered with very long setae. Lateral margin of tergites II-V with small tubercles bisetose at apices. Gin-traps absent.

Material examined: Brazil. São Paulo, Salesópolis, Estação Biológica de Boracéia, 16.xi.1977, E. X. Rabello col., 1 larva; 16-18.i.1980 Exp. MZUSP col., 1 larva; 20-21.v.1980 Exp. MZUSP col., 2 larvae reared to adult and 1 larva fixed. Peruíbe, 24-25.vi.1980, Exp. MZUSP col., 1 larva reared to pupa.

### ***Morion cordatus* Chaudoir, 1837**

(Figs. 13-15)

Mature larva: fits well Thompson's 1977 redescription, except for the pygopod, which is not covered with microcrochets.

Pupa: Aedeicous, exarate. Closely resembling the pupa of *M. brasiliense*, differing by the less pronounced tubercles on the lateral margin on tergites II-V.

Material examined: Brazil. São Paulo, Santa Adélia, 05.x.1980, S. A. Casari Chen col., 1 pupa and 1 larva reared to adult.

### **DISCUSSION**

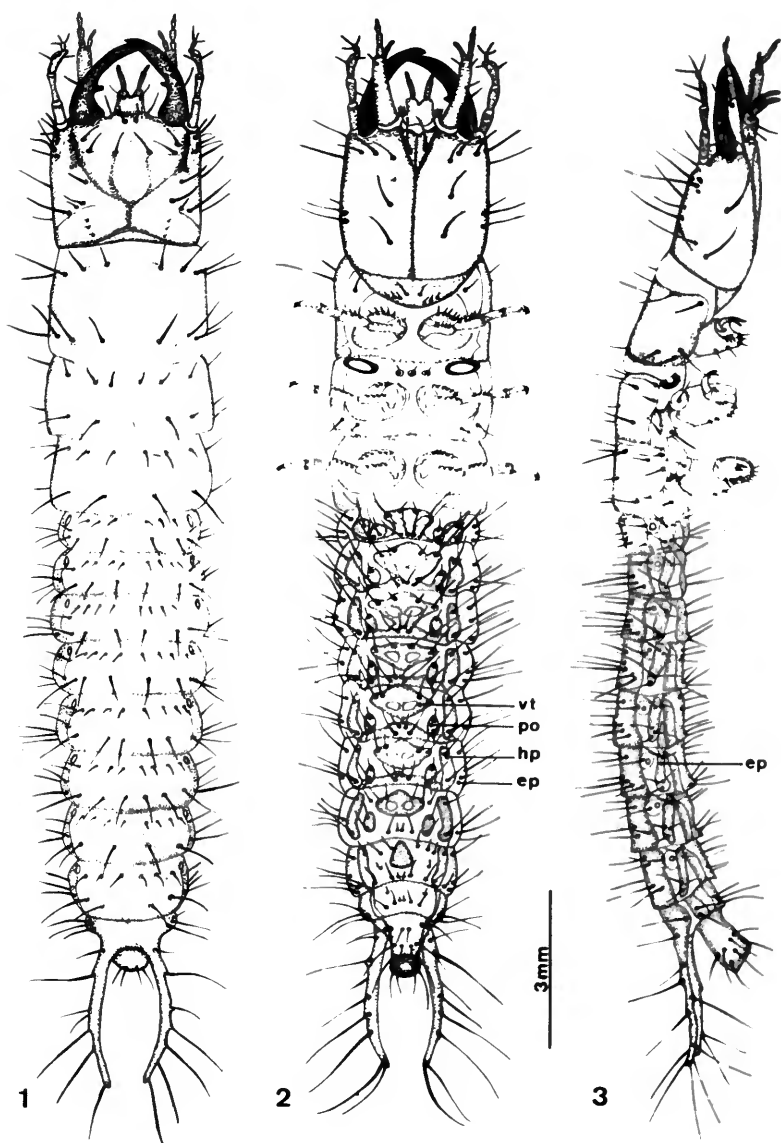
Van Emden (1953: 51) gives the following diagnosis of *Morion*: "two claws, absence of an appendage from third antennal segment, subequal antennal segments 1-3; shorter first segment of maxillary palpi; nodose cerci; complete sclerites; undivided epipleurites; apical part of the maxillary stipes being divided

Table 1. Comparison of the pertinent characters of two Brazilian species of *Morion* with those of the Van Emden's 1953 paper.

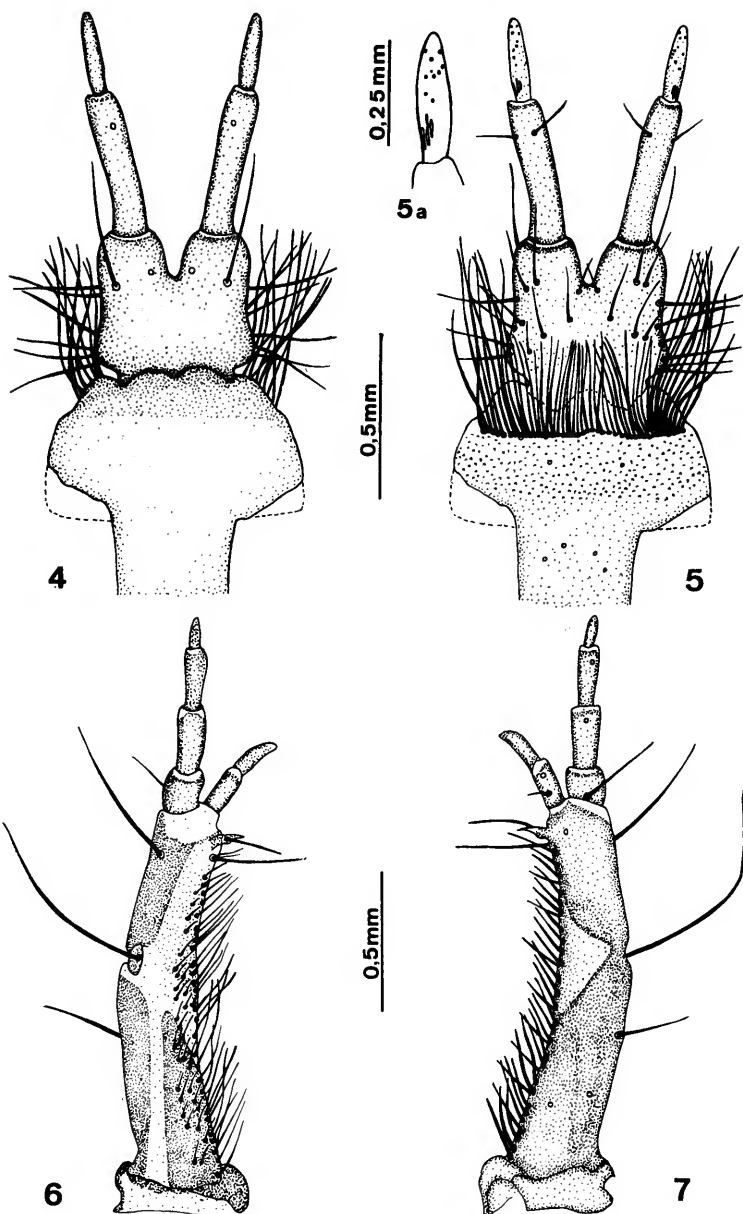
	<i>Morion molinicornis</i>	<i>M. orientalis</i>	<i>M. cordatus</i>	<i>M. brasiliense</i>
1. length of posterior claw	slightly shorter	hardly half as long as anterior	slightly shorter	slightly shorter
2. head capsule	hardly constricted	conspicuously constricted	not constricted	not constricted
3. lateral keel of head	not reaching cervical furrow	reaching cervical furrow	not reaching	not reaching
4. ventral furrow	deep running from fore margin almost of hind end	vestigial, shallow present only on intermediate third	absent	absent
5. first segment of maxillary palpi	equal length of second	distinctly shorter than second	almost equal length of second	almost equal length of second
6. second segment of labial palpi	more than one half of the first	a third length of the first	one half of the first	one half of the first
7. cerci	rounded on inner surface, very strongly converging at apex	longer than head capsule, strongly nodose and only moderately converging at apex	slightly longer than head capsule, strongly converging at apex	longer than head capsule, moderately converging at apex

## Synopsis of bionomic data

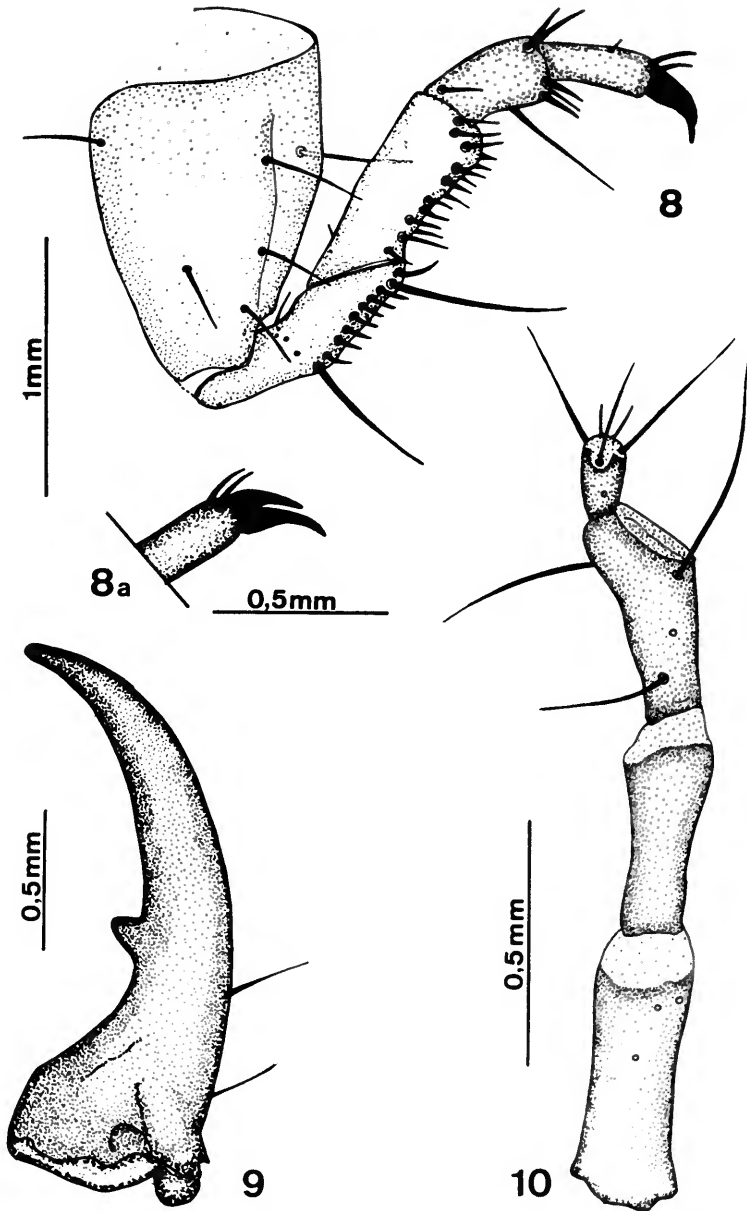
Species	Locality	Larvae caged date	Penultimate moult - date	Motionless date	days	Pupa date	days	Adult date
<i>M. brasiliense</i>	Estação biológica de Boracéia, Salesópolis, SP.	20/21.05.80	02.06.80	25.07.80	21	04.08.80	17	21.08.80
		20/21.05.80	-	29.07.80	24	11.08.80	14	25.08.80
		20/21.05.80	17.07.80	21.08.80	-	larva fixed		
	Peruibe, SP.	24/25.06.80	-	08.07.80	-	09.07.80	-	pupa died
<i>M. cordatus</i>	Santa Adélia, SP.	05.10.80	-	04.11.80	07	11.11.80	13	24.11.80
		-	-	-	-	04.10.80	-	05.10.80



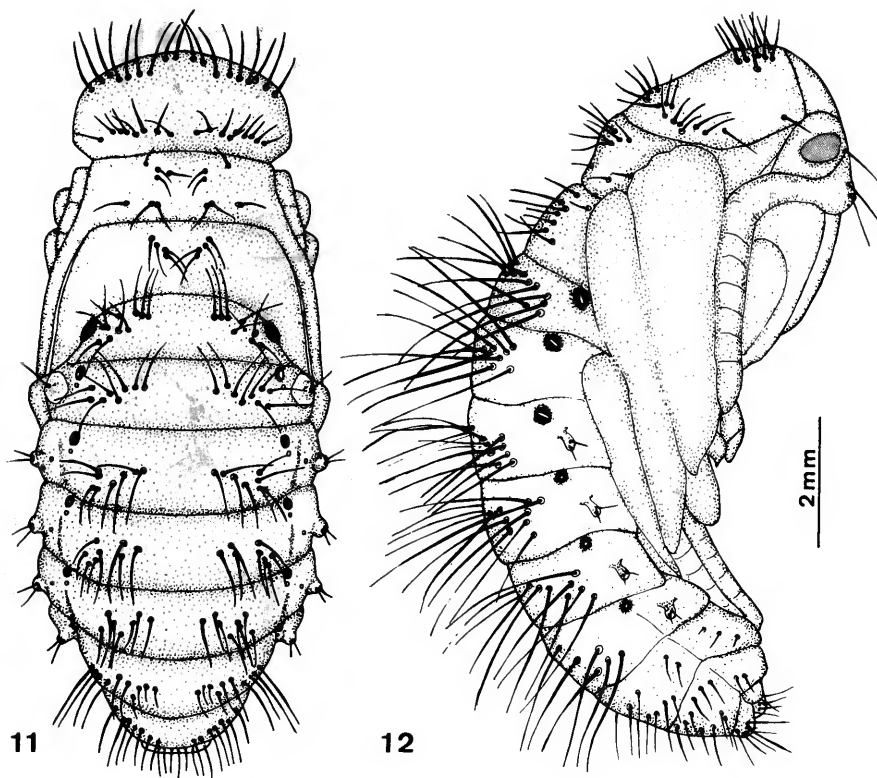
*Morion brasiliense*, last larval instar: fig. 1, dorsal view; fig. 2, ventral view; fig. 3, lateral view; vt, ventrite; po, post-ventrite; hp, hipoventrite; ep, epi-pleurite.



*Morion brasiliense*, labium, fig. 4, ventral view; fig. 5, dorsal view; fig. 5a, second segment of palp. Right maxila, fig. 6, ventral view; fig. 7, dorsal view.



*Morion brasiliense*. Metathoracic leg, fig. 8, dorsal view; fig. 8a, length of claws. Right mandible, dorsal view, fig. 9. Right antenna, dorsal view, fig. 10.

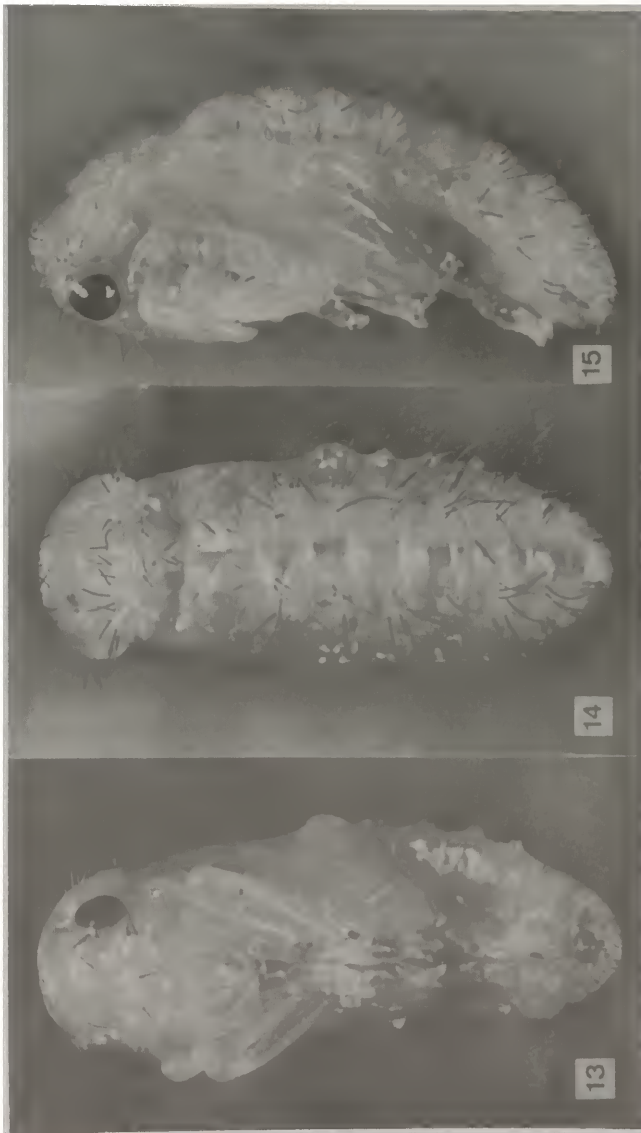


*Morion brasiliense* pupa, fig. 11, dorsal view; fig. 12, lateral view.

from the basal part by a membranous band; presence of a small maxillary inner lobe (lacinia); the complete absence of the ligula; the apex of the prementum being triangularly excised, etc." He also compares *M. cordatus* and *M. orientalis*. The larvae here described fit all the characters listed above as typical for the genus *Morion*.

From table 1 it is quite evident that *M. orientalis* differs in many characters from the three New World species which are very closely related among themselves. It therefore seems possible that New World "*Morion*" belong to a different group (? genus) than *M. orientalis*. A study of adults with this possibility in mind may be rewarding.





*Morion cordatus* pupa, fig. 13, ventral view; fig. 14, dorsal view; fig. 15 lateral view.

## BIOLOGICAL DATA

All records of the habitat, including ours, indicate that the larvae of *Morion* occur in decayed logs. Our larvae were transferred to a small container filled with wet sand, and covered with pieces of moss-covered bark. The larvae were very active and were fed with Isoptera (workers) and with larvae of Tenebrionidae. An oval pupal cell is formed by the larva with fragments of wood and sand (glued together with saliva) prior to pupation. The pupal phase took an average of 14 days.

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