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DESCRIPTION OF THE LARVAE OF TWO SPECIES OF *HEMIBEPLUS* LATREILLE¹
(COLEOPTERA:MYCTERIDAE)

M.C. Thomas² and R.E. Woodruff³

INTRODUCTION

The key description and illustrations of mouthparts, ocelli, and terminal abdominal segments by Bøving & Craighead (1931) have been the only information on the larval stages of the genus *Hemipeplus* Latreille, except for the observation by van Emden (1942) that individuals of the genus would not key properly in Bøving & Craighead's key. Their example was of an undescribed species from Cuba. The semidiagrammatic illustrations make it difficult to identify the species illustrated, although it may be *H. marginipennis* (LeConte).

This paper is based on larvae collected by the authors, in each case associated with adults.

From the family diagnosis of larval Mycteridae (Crowson & Viedma 1964), *Hemipeplus* larvae differ noticeably in the form of the sensorium, which Crowson & Viedma describe as "very short, dome-shaped"; in *Hemipeplus* it is elongate and conical. From the larva of *Mycterus* (described by Crowson & Viedma 1964) those of *Hemipeplus* also differ in having five ocelli on each side (cf. two), mala with an uncus and medial pit (cf. without uncus or medial pit), mola ridged (cf. not ridged), cardines not divided (cf. distinctly divided), labial palpi with only one distinct palpomere (cf. with two palpomeres), abdominal asperities absent (cf. asperities present), and different form of spiracle (compare fig. 13 with fig. 4 in Crowson & Viedma 1964).

Larvae of *Hemipeplus* are more similar to that of *Euryplus muelleri* Seidlitz (described by Costa & Vanin 1977) than to that of *Mycterus*. As in *Hemipeplus*, *Euryplus* larvae possess five ocelli arranged in rows of three and two on each side; two pairs of tubercles at posterior margin of abdominal sternite IX; mala with an uncus, and cardines divided. *Hemipeplus* larvae differ from those of *Mycterus* most notably in the form of abdominal tergite IX (see Costa & Vanin 1977:fig. 2). The uncus is located on the mesal margin of the mala in *Hemipeplus*, whereas it is located on the ventral aspect of the mala in *Euryplus*.

GENERIC DESCRIPTION

Form elongate (fig. 1), narrow, depressed; widest at about midpoint of abdomen; whitish in color, lightly sclerotized. The following are more heavily sclerotized and pigmented: mouthparts, parts of head capsule, pairs of small triangular marks medially at apical and posterior margins of prothorax, distal margin of coxa and proximal edge of trochanter, tarsunguli, two pairs of tubercles at posterior margin of abdominal sternite IX, and portions of the urogomphi.

Head subglobular, with a few setae anteriorly and laterally, similar in length to those on dorsum of abdomen; clypeus distinct, separated from frons by suture, without setae; labrum (fig. 2) subquadrate, somewhat narrowed anteriorly, more heavily sclerotized laterally and with a membranous strip basally, anterior to a transverse sclerotized bar from which tormae extend posteriorly; mandibles (fig. 3) massive, with two apical and two subapical teeth; mola heavily sclerotized and ridged, with two obtuse teeth anteriorly; ligula (fig. 4) mostly membranous, lightly sclerotized medially; prementum lightly sclerotized, labial palpi short, apparently with one palpomere (small conical process at apex may represent second palpomere); membranous area separating prementum from heavily sclerotized, crescent-shaped mentum; maxilla with large quadrate cardo (fig. 5); mala (fig. 6) broadly rounded with a mixture of fine, elongate setae and stout, clubbed setae; an acute uncus present at inner apical angle and a distinct, oblong pit medially near apex; apical palpomere longest; hypostomal rods heavily sclerotized, divergent basally (fig. 5); posterior tentorial pits distinct; submentum and gula not separated by suture, both membranous; antennae (fig. 7-8) with three antennomeres; antennal insertions not concealed; conical sensorium present at inner apical angle of antennomere II; antennae clothed with long and short setae, apical seta very long; five ocelli present on each side, arranged in an anterior row of three and a posterior row of two; head capsule lightly sclerotized anteriorly and along posterior margin, epicranial stem short, frontal arms lyriform but difficult to distinguish; a median sclerotized line extends anteriorly from near base of head capsule to about even with the antennal insertions, this line is the external manifestation of an internal keel.

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Prothorax with scattered long and short setae, longest setae at anterior angles; a pair of small, pigmented triangular marks located medially at anterior and posterior margins; meso- and metathorax with short discal setae but without longer lateral setae; all coxae widely separated, legs arising nearly laterally; legs (fig. 9) with scattered femoral and tibial setae; thoracic spiracle near anterior lateral margin of mesothorax, with a single large opening and numerous air tubes arranged mostly posterior to main opening.

Abdominal segments (fig. 1) gradually increasing in length and width through segment V, then gradually decreasing in length and width through segment VII; segment VIII longer; abdominal segments with long lateral setae and anterior and posterior rows of minute discal setae; urogomphi of tergite IX (fig. 10-11) with median suture, lobed laterally and with elongate lateral setae; sternite IX (fig. 12) surrounds segment X, which bears anus; two pairs of sclerotized tubercles are located at the apex of sternite IX (fig. 12); abdominal spiracles (fig. 13) similar to thoracic spiracle.

Hemipeplus marginipennis (LeConte)

MATURE LARVA: Length, 7.8-9.7mm. Head transverse, 1.9 times wider than long; antenna (fig. 7) equal in length to head; length ratios of antennomeres 1:1.5:0.88; antennomere I 1.6 times longer than wide; antennomeres II and III each four times longer than wide; sensorium about 0.19 times length of antennomere II. Length ratios of thoracic segments 1:1.05:0.9; prothorax 1.2 times wider than long; mesothorax 1.3 times wider than long; metathorax 1.5 times wider than long; the distance between mesal margins of each pair of coxae 0.68 times width of prothorax; 0.75 times width of mesothorax; and 0.76 times width of metathorax; length ratios of abdominal segments I-VIII 1:1.42:1.52:1.42:1.58:1.58:1.32:1.52; length/width ratios of same segments are I, 1.7; II, 1.4; III, 1.4; IV, 1.5; V, 1.3; VI, 1.2; VII, 1.3; VIII, 1.0; urogomphi (fig. 11) 1.68 times wider than long, wider than abdominal segment VIII at its widest; posterior margin of abdominal tergite IX straight medially, with an acute turn anteriorly before base of urogomphus.

Described from four larvae collected with adults and pupae from an unopened frond of *Sabal palmetto* (Walt.)Lodd., Florida: Dade Co., South Miami, 18-IV-1983, M.C. Thomas.

Hemipeplus microphthalmus (Schwarz)

MATURE LARVA: Length, 4.8-6.2mm. Head transverse, 1.46 times wider than long; antenna (fig. 8) 0.625 times length of head; length ratios of antennomeres

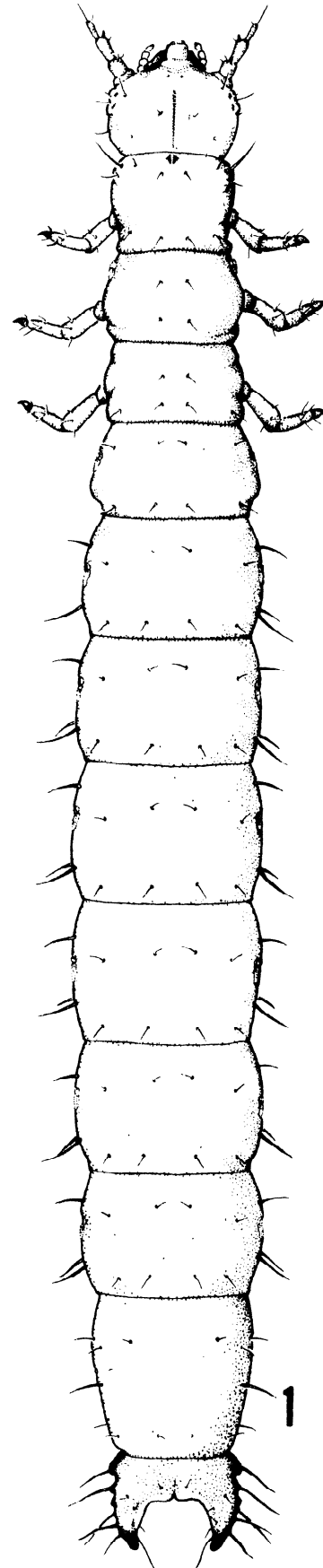


Fig. 1. *Hemipeplus microphthalmus* (Schwarz), dorsal habitus. Length, 4.8-6.2mm.

1:1.5:1.25; antennomere I as long as wide; antennomere II two times longer than wide; antennomere III 2.5 times longer than wide; sensorium 0.18 times length of antennomere II. Length ratios of thoracic segments 1:1.03:1; prothorax 1.38 times wider than long; mesothorax 1.41 times wider than long; metathorax 1.67 times wider than long; distance between mesal margins of procoxae 0.53 times width of prothorax; that of mesocoxae 0.63 times width of mesothorax; that of metacoxae 0.67 times width of metathorax; length ratios of abdominal segments I-VIII are 1:1.16:1.23:1.27:1.30:1.23:1.13:1.57; length/width ratios of same segments are: I, 1.83; II, 1.74; III, 1.73; IV, 1.68; V, 1.64; VI, 1.67; VII, 1.68; VIII, 1.02; urogomphi (fig. 10) 0.73 times width of abdominal segment VIII at its widest; posterior margin of abdominal tergite IX curved medially, without a straight margin.

Described from five slide-mounted larvae collected with numerous adults and several other larvae in leaf sheaths of *Andropogon virginianus* L., Florida: Alachua Co., Gainesville, 17-V-1962, R.E. Woodruff.

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ABSTRACT

Mature larvae of *Hemipeplus marginipennis* (LeConte) and *H. microphthalmus* (Schwarz) are described and illustrated for the first time.

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KEY TO THE KNOWN LARVAE OF *HEMPEPLUS* IN FLORIDA

1. Antennae elongate (fig. 7), equal in length to head; antennomeres II and III each four times longer than wide; urogomphi (fig. 11) wider than abdominal segment VIII; length of mature larvae 7.8-9.7mm.....*marginipennis* (LeConte)
- 1'. Antennae less elongate (fig. 8), slightly more than half length of head; antennomeres II and III each less than 2.5 times longer than wide; urogomphi (fig. 10) narrower than abdominal segment VIII; length of mature larvae 4.8-6.2mm.....*microphthalmus* (Schwarz)

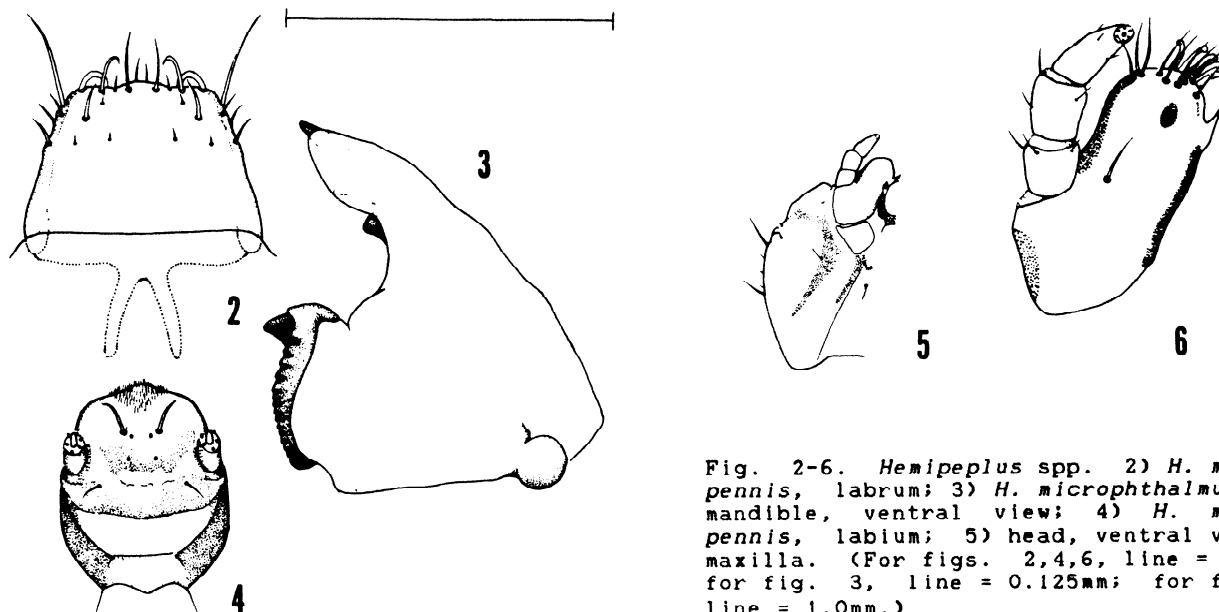


Fig. 2-6. *Hemipeplus* spp. 2) *H. marginipennis*, labrum; 3) *H. microphthalmus*, left mandible, ventral view; 4) *H. marginipennis*, labium; 5) head, ventral view; 6) maxilla. (For figs. 2,4,6, line = 0.25mm; for fig. 3, line = 0.125mm; for fig. 5, line = 1.0mm.)

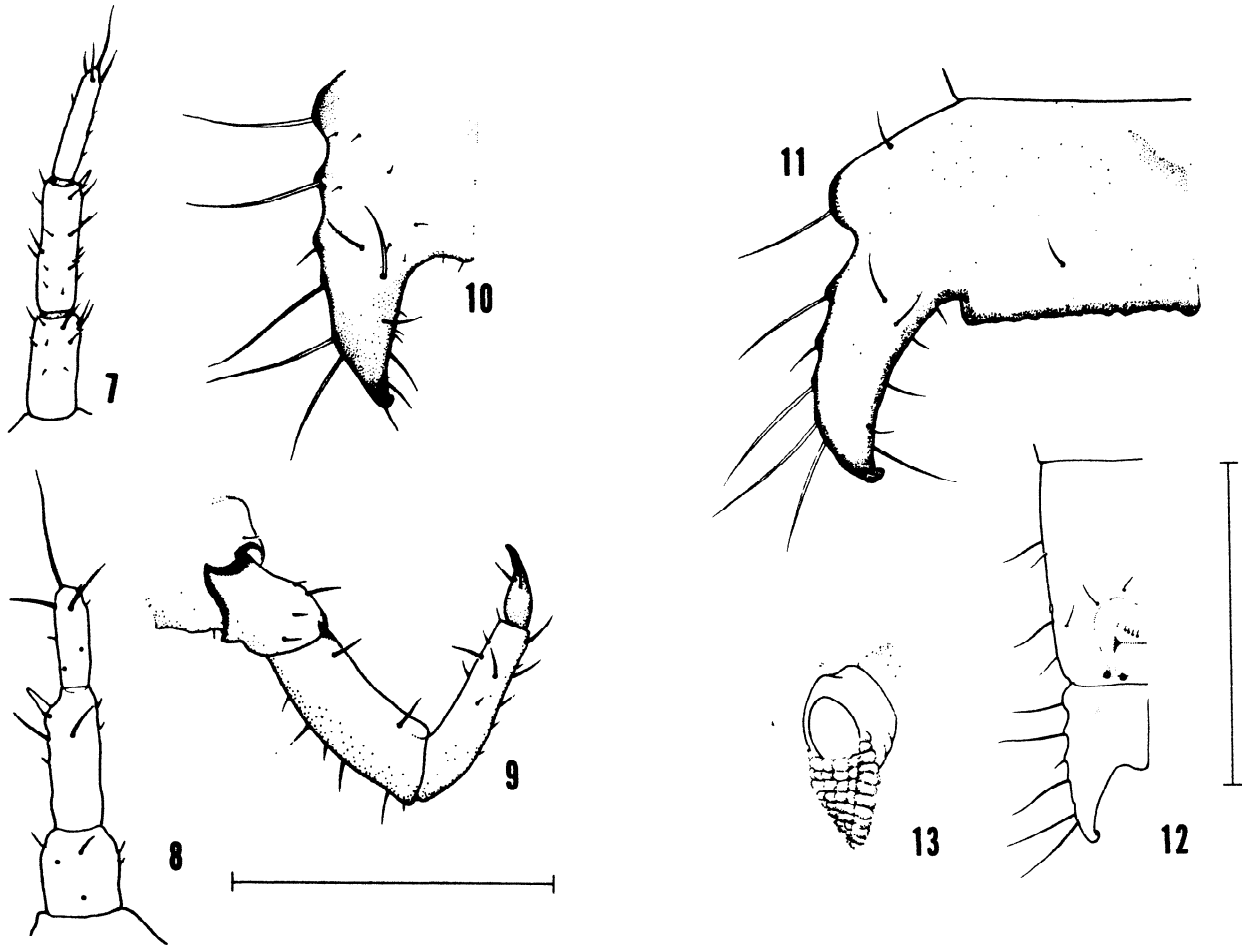


Fig. 7-10. *Hemipeplus* spp. 7) *H. marginipennis*, antenna; 8) *H. microphthalmus*, antenna; 9) *H. marginipennis*, left mesothoracic leg, posterior view; 10) *H. microphthalmus*, abdominal tergite IX, left side. (For figs. 7,9,10, line = 0.5mm; for fig. 8, line = 0.25mm.)

Fig. 11-13. *Hemipeplus* spp. 11) *H. marginipennis*, abdominal tergite IX, left side; 12) *H. microphthalmus*, abdominal segments VIII-X, ventral view; 13) *H. marginipennis*, spiracle. (For fig. 11, line = 1.0mm; for fig. 12, line = 0.1mm; for fig. 13, line = 0.125mm.)