

Description of the second and third-instar larvae of *Haliplus laminatus* (Schaller) with notes on the subgeneric status (Coleoptera: Haliplidae)

by

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ABSTRACT. — The second and third-instar larvae of *Haliplus laminatus* (Schaller, 1783) are described from The Netherlands. The possession of tibial lobes leads to the conclusion that *H. laminatus* belongs to the subgenus *Haliplus* Guignot, 1939 and not to *Liaphlus* Guignot, 1928.

The Haliplidae-fauna of waterbodies usually consists of two or more species and pools and ditches with five or more species are not rare. The composition of the fauna can vary through the year and it can happen that larvae are collected without finding adults of the same species. This makes that correlation of adults and larvae has to be effectuated by rearing, which is why data on larval characters of many species are absent or incomplete.

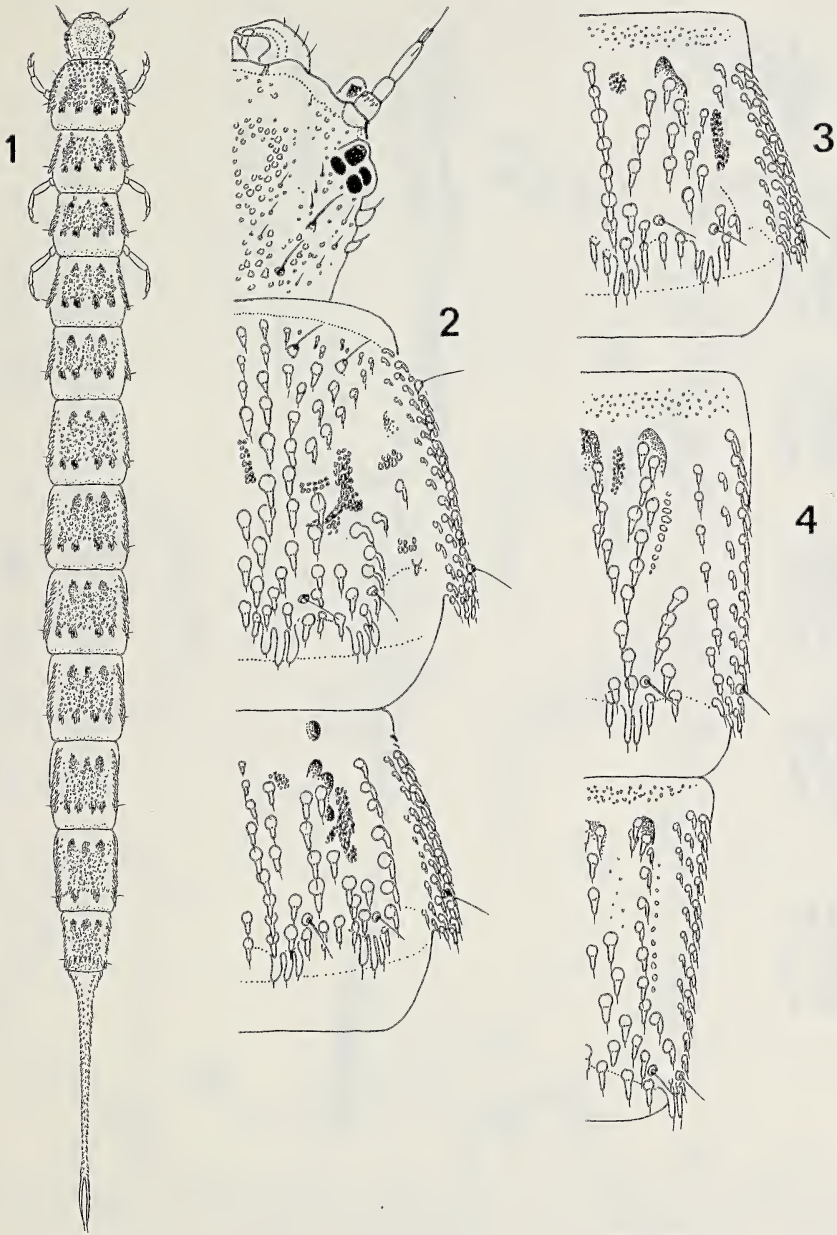
The larvae of *Haliplus laminatus* have not been described yet, except the foreleg and the mandible of the third instar (Holmen, 1981). To confirm Holmen's description I collected adults of *H. laminatus* in the spring of 1985. They were put in some bowls, together with water from the sample-place and some filamentous algae from an aquarium in which Haliplidae are absent. Almost too late I realized that animal food is essential for the sexual development of the adults. Most of the beetles in the rearing-bowls died within a month, till I started feeding with animal food, mostly freshly killed *Asellus aquaticus* (Linnaeus). In August, 1985 I found 14 larvae (2nd and 3rd instar) in one of the bowls. Probably I missed the first instar because of my absence the month before.

Material examined: The Netherlands (province of Gelderland), Zetten, slow-running watercourse. Adults collected 20.IV.1985, rearing result: two 2nd instar and twelve 3rd instar larvae (13.VIII.1985). Larvae in the authors collection.

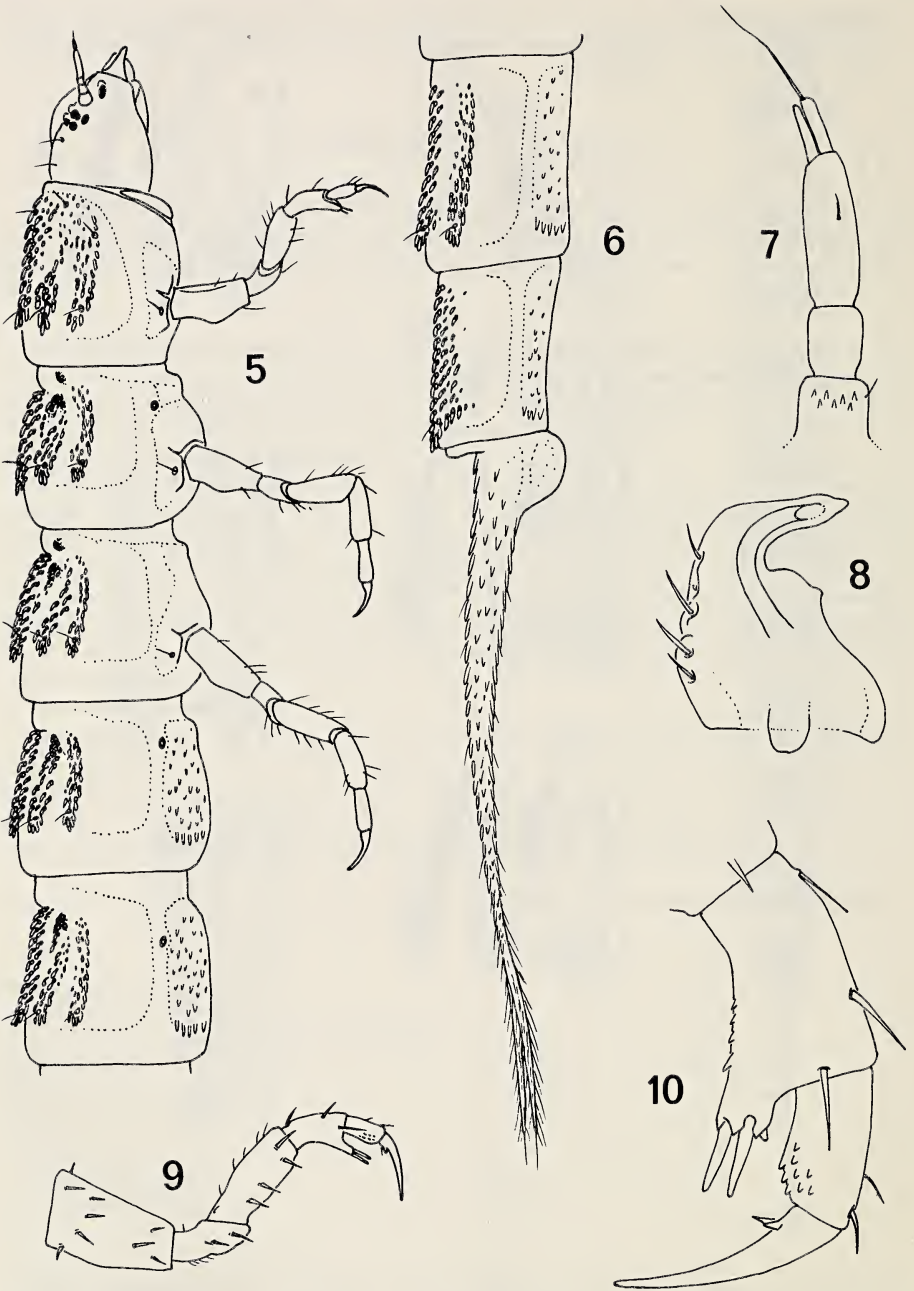
Habitat. — *Haliplus laminatus* is a West- and Central European species which is not rare in rather large stagnant but especial slow-running waters with a good water-quality.

Table 1. Measurements of the second and third instar larvae of *Haliplus laminatus* (in mm)

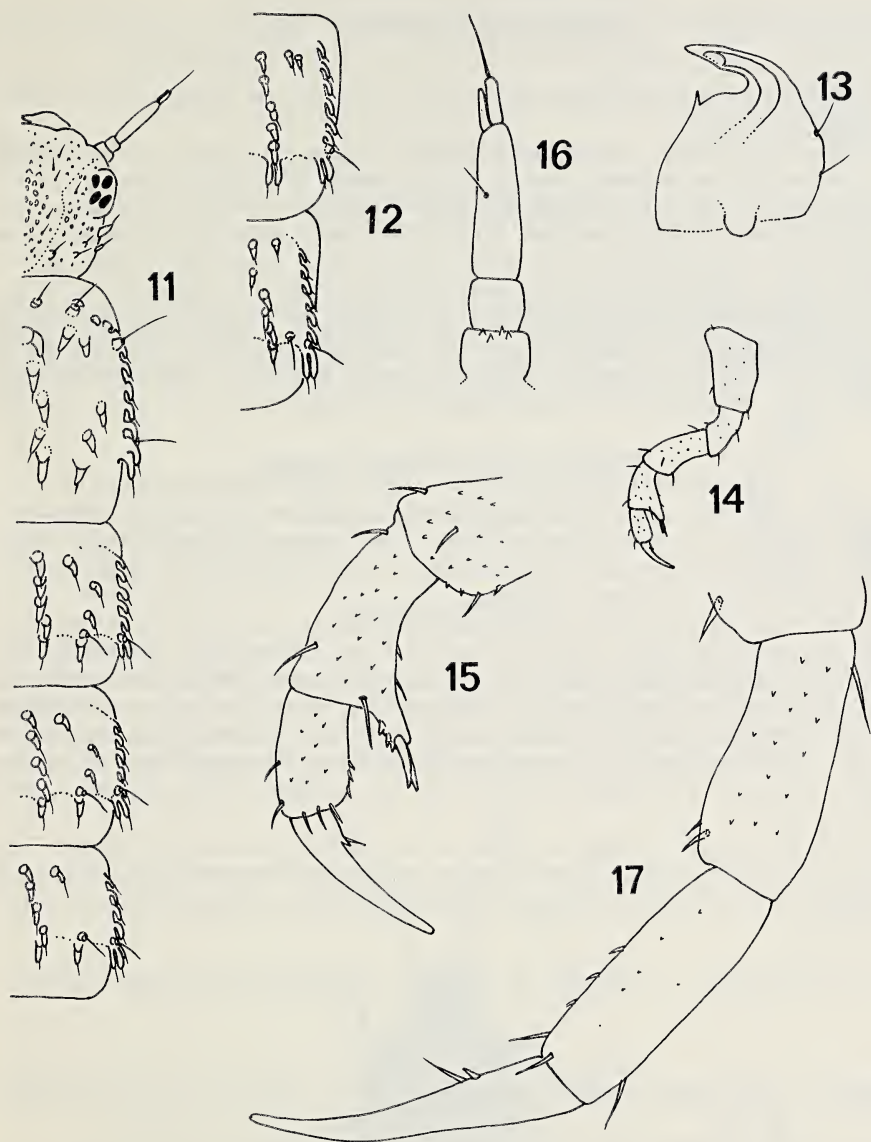
	2nd instar	3rd instar
Number of observations	2	12
Length from mandible to end of 12th segment	4.0-4.2	6.5-7.8
Length of 13th segment including appendices	1.0	2.2
Length of head	0.31-0.35	0.38-0.42
Width of head including eyes	0.35-0.38	0.41-0.45
Antenna		
length of 2nd segment	0.03	0.04
length of 3rd segment	0.09	0.10
ratio 3rd to 2nd segment	3.0-1	2.5-1
Mandible		
length from point to hind-lobe	0.11	0.15
spines on outer margin	2-3	4-5
Pronotum, length	0.42-0.43	0.56-0.63
width	0.44-0.45	0.68-0.74
Mesonotum, length	0.32	0.45-0.51
width	0.44-0.45	0.65-0.74
Metanotum, length	0.32	0.45-0.51
width	0.44	0.65-0.74



Figs 1-4. Larva of *Haliplus laminatus* (third instar). 1, habitus; 2, head, pronotum and mesonotum; 3, first abdominal segment; 4, eighth and ninth abdominal segment.



Figs 5-10. Larva of *Haliplus laminatus* (third instar). 5, lateral view of head and first 5 segments; 6, lateral view of last 3 segments; 7, right antenna; 8, left mandible; 9, inner side of left foreleg; 10, inner side of tibia and tarsus of left foreleg.



Figs 11-16. Larva of *Haliplus laminatus* (second instar). 11, head and first 4 segments; 12, eighth and ninth abdominal segment; 13, right mandible; 14, outer side of left foreleg; 15, outer side of tibia and tarsus of left foreleg; 16, right antenna.

Fig. 17. Larva of *Haliplus flavicollis* Sturm (third instar), tibia and tarsus of foreleg.

Haliplus laminatus (Schaller, 1783)

Figs 1-15.

Bodies of 2nd and 3rd larval instar slender (fig. 1); dorsally pale yellow-brown with darker unsharp colour-pattern.

Diagnosis of 3rd instar. — Head rounded (fig. 2). Mandible sharp pointed with spines along the outer margin and an unsharp tooth on the inner margin (fig. 8). Eyes consisting of 4 or 5 ocelli grouped together and one below the antenna (figs 2 and 5). Thoracic and abdominal tergites with many rather long tubercles, between which areas with a reticulate structure are found (figs 2, 3 and 4). Forelegs with strong tibial lobe with 2 spines (figs 9 and 10). All tarsi with one claw. 13th segment (= 10th abdominal segment) long with 2 appendices (fig. 6).

The 2nd instar differs from the 3rd instar in some aspects. The mandible has a sharp tooth on the inner margin (fig. 13). The tubercles on the tergites are less numerous and there are no reticulate areas in between (figs 11 and 12). Other smaller differences are shown in the figures. Measurements and some other characteristics are given in table 1.

Subgeneric status of *Haliplus laminatus*

Since Guignot (1928) described the subgenus *Liaphlus*, *H. laminatus* has been attributed to that subgenus as the pronotum lacks the plicae of the subgenus *Haliplus* Guignot (1939). However, Guignot noticed that *H. laminatus* was not a good *Liaphlus*-species in all characters and saw this species as a bridge to *Haliplus*.

Seeger (1971) stated that the larvae of the *Haliplus*-species can be divided into two functional-morphological groups. The first group, the so-called "Hangeltyp", has forelegs with thumb-like tibial lobes (figs 10 and 15). While feeding these larvae hardly move forward, but draw the algal threads to the mandibles by means of the forelegs. The subgenera *Neohaliplus* Netolitzky (1911) and *Haliplus* belong to this group. The second group, the so-called "Klettertyp", has no tibial lobes on the forelegs (fig. 17). These larvae climb along the stems of mainly Charophyta. The subgenera *Haliplus* s. str. (sensu Guignot, 1955) and *Liaphlus* belong to this group.

The description of *H. laminatus* shows that the larva of this species is of the "Hangeltyp" and so does not fit in the subgenus *Liaphlus*. In fact it has very much in common with the larvae of *Haliplus*. So in my opinion *H. laminatus* belongs to *Haliplus*, although the adult has no pronotal plicae.

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