

# Description of the second and third instar larva of *Haliplus varius* with notes on the subgeneric status (Coleoptera: Haliplidae)

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**Abstract:** The second and third instar larva of *Haliplus varius* are described from The Netherlands. The possession of protibial lobes may indicate that this species does not belong to the subgenus *Halipolidius*.

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## Introduction

During the period 1984-1987 the water beetle fauna of the nature reserve Het Hol near Kortenhoef in the province of Noord-Holland was examined. Most of the 25 sample locations were visited more than once. On two locations I found adults of *Haliplus varius* Nicolai. One of these locations, a 3 m wide ditch, was visited nine times in the months April to August. Apart from *H. varius* four other *Haliplus* species were collected here: *H. ruficollis* (Degeer), *H. heydeni* Wehncke, *H. immaculatus* Gerhardt and *H. flavicollis* Sturm, together with a number of larvae. As the larva of *H. varius* was still undescribed I brought adults home for rearing experiments, which finally resulted in one second instar larva. Checking the larvae which were collected in the field, one type of larva did not fit the descriptions of the other species known to occur in the area. Moreover the larvae of the latter species are known as a result of my own rearing experiments.

## *Haliplus varius* Nicolai (figs 1-8)

### Material

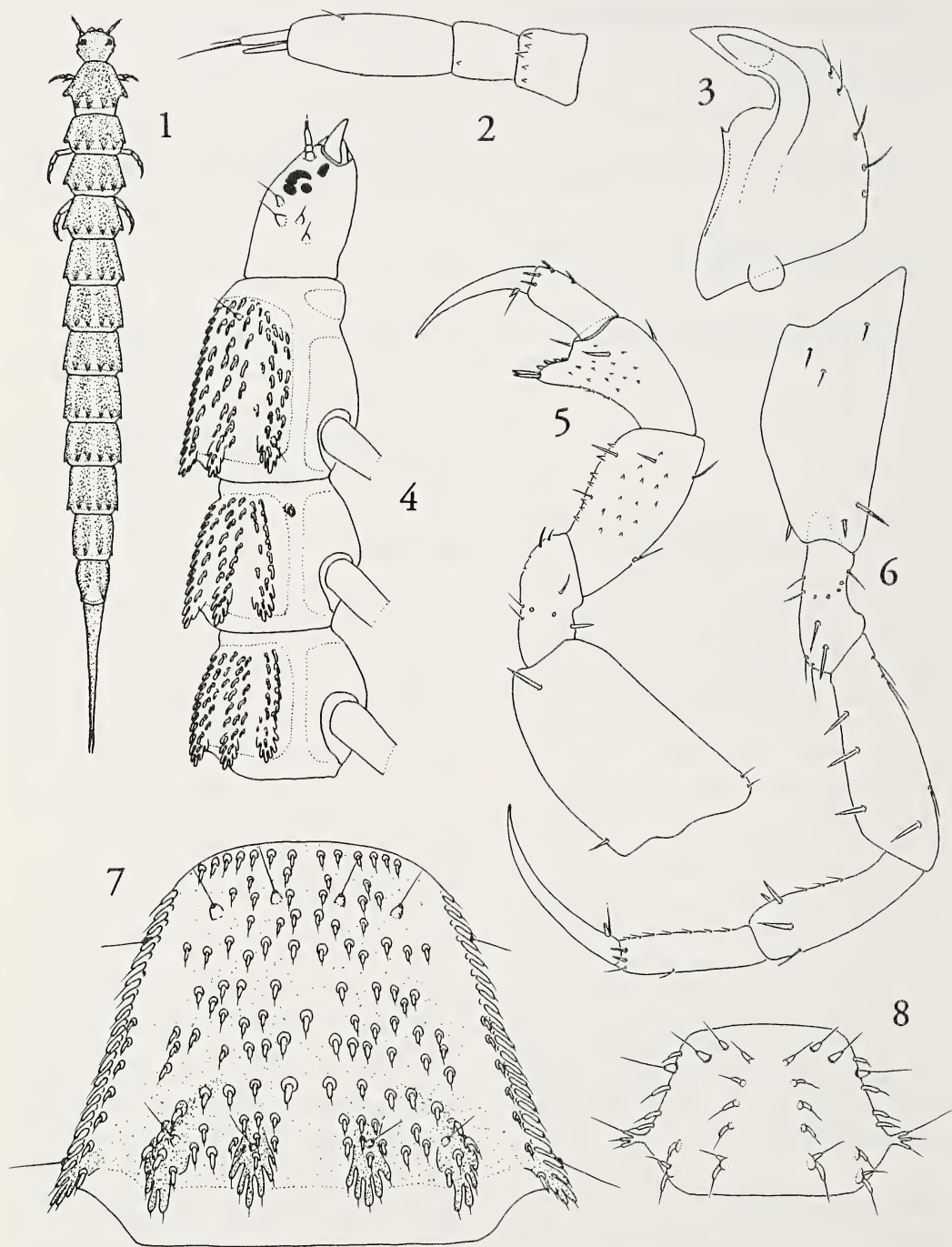
Second instar larva: 1 ex., 26.vi.1987, reared from adults col-

lected 11.iv.1987 in Het Hol, Kortenhoef (Noord-Holland), leg. van Vondel. Third instar larvae: 4 ex., 24.viii.1985, Het Hol, Kortenhoef (Noord-Holland), leg. van Vondel.

## Description

Body of second and third instar larva slender (fig. 1), dorsally yellow-brown and vaguely maculated.

Diagnosis of third instar larva. - Head approximately round. Mandible with strong sharp point, 4-5 spines on outer margin and small sharp tooth on inner margin (fig. 3). Eyes consisting of 4 or 5 ocelli grouped together and one below the antenna (fig. 4). Antenna with segment 1 and 2 of same length and segment 3 about 2 x as long as segment 2 (fig. 2). Thoracic and abdominal segments dorsally with many tubercles, posteriorly grouped together in four dorsal and two lateral branched extensions (fig. 7). Dorsally at most vaguely maculated, although the darkened posterior extensions may suggest a rather strong maculation. Pronotum clearly widened posteriorly, lateral sides straight or even concave before hind corners (fig. 7). Forelegs with a strong tibial lobe with two apical spines (fig. 5). All tarsi with one long claw (figs 5-6). Tenth (last) abdominal segment with backwards directed, for the greater part fused, urogomphi (fig. 1).



Figs 1-8. *Haliplus varius*. 1-7, third instar larva; 8, second instar larva. 1, habitus; 2, antenna; 3, mandible; 4, head and thoracic segments in lateral view; 5, foreleg; 6, midleg; 7-8, pronotum.

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

	2nd instar (n=1)	3rd instar (n=4)
Length from mandible to end of 12th segment	2.8	7.5 - 8.1
Length of 13th segment including urogomphi	0.8	2.2 - 2.7
Length of head	0.30	0.50- 0.55
Width of head including eyes	0.35	0.50- 0.55
Antenna		
length of 2nd segment	0.03	0.04- 0.05
length of 3rd segment	0.06	0.08- 0.10
ratio 3rd to 2nd segment	2:1	2:1
Mandible		
length from point to hind lobe	0.10	0.17
spines on outer margin	?	4-5
Pronotum, length	0.30	0.60- 0.70
width	0.45	0.80- 1.00
Mesonotum, length	0.22	0.50- 0.55
width	0.41	0.80- 0.90
Metanotum, length	0.20	0.50- 0.55
width	0.41	0.80-0.90

The second instar larva differs from the third instar in some aspects. The tubercles on the dorsal side of the thoracic and abdominal segments are less numerous (fig. 8). The head is more darkened than the body. The urogomphi are less fused.

Measurements are given in table 1.

The third instar larva can be distinguished from other *Haliplus* species by the combination of the following characters:

- Protibia distally dilated.
- Dorsal thoracic and abdominal processes in lateral view well developed, not standing at a strong angle with longitudinal axis of body, processes with branched tubercles.
- Lateral borders of pronotum straight to slightly concave, strongly diverging posteriorly.

For a complete key to the third instar larvae of Central European Haliplidae I refer to Van Vondel (in press).

Subgeneric status of *Haliplus varius*

The larvae of *Haliplus* species can be divided into two functional morphological groups.

The first group (in Europe subgenera *Neohaliplus* Netolitzky and *Haliplus* s.str. Latreille) has forelegs with thumb-like tibial lobes, while the second group (in Europe subgenera *Haliplidius* Guignot and *Liaphlus* Guignot) lacks such lobes. *Haliplus varius* is untill now placed in the subgenus *Haliplidius*. The other Palaearctic species in this subgenus, *H. confinis* Stephens and *H. obliquus* (Fabricius), have forelegs without tibial lobes. The protibial lobe of *H. varius* suggests that this species is less related to *H. confinis* and *H. obliquus* than is assumed so far. However without further study it remains uncertain to which subgenus *H. varius* must belong.

Acknowledgements

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References

VONDEL, B.J. VAN, in press. Insecta Coleoptera Haliplidae. In: *Süßwasserfauna von Mitteleuropa. Band 20/2-4* (J. Schwoerbel & P. Zwick eds). Gustav Fischer Verlag, Stuttgart.

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