

Description of larval instars of *Neodryinus typhlocybae* (Ashmead, 1893) (Hymenoptera Dryinidae), with remarks on its biology

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With 10 figures

Abstract

Larval instars III (immature) and IV (mature) of *Neodryinus typhlocybae* (Ashmead) are described for the first time. Besides, some data on other aspects of the postembryonic development are provided. The affinities among the immature and mature larvae of *N. typhlocybae* and corresponding instars of other species of the same subfamily are discussed.

Key words: Chrysidoidea, Gonatopodinae, Homoptera, Fulgoromorpha, development, morphology, parasitism.

Introduction

Dryinidae is a family of Hymenoptera Aculeata including ten subfamilies. As parasitoids of Homoptera Auchenorrhyncha, they are effective for the biological control of plant pests.

Unfortunately the knowledge on the biology and particularly on the postembryonic development of this interesting group of insects is scarce (Olmi 1994). Hypermetamorphosis occurs with two types of larvae differing in morphology, physiology and ethology: larvae of the first 3–4 instars are called 'immature', larva of the last instar 'mature'.

The few, and often uncomplete, available descriptions of both types of larvae are based on one species of the subfamily Aphelopinae (*Aphelopus indivisus* Kieffer), two species of Dryininae (*Dryinus poecilopterae* (Richards), *D. stantoni* Ashmead) and seven species of Gonatopodinae (*G. peculiaris* Brues, *G. americanae* Olmi, *G. caraibicus* (Olmi), *G. lunatus* Klug, *G. chilensis* (Olmi), *Haplogonatopus hernandezae* Olmi, *H. oratorius* (Westwood)).

Among the Dryinidae, Gonatopodinae is one of the subfamilies most rich in species (470), distributed with 12 genera in all biogeographic regions. In the palaearctic region the genera *Echthrodelpfax*,

Gonatopus, *Neodryinus* and *Haplogonatopus* are recorded.

The genus *Neodryinus* includes 37 species worldwide. Two of them, *Neodryinus somniiatus* Brues, 1933, a fossil species found in baltic amber, and *N. typhlocybae* (Ashmead, 1893), imported in order to biological control, are recorded in the palaearctic region.

N. typhlocybae, a nearctic species, is a parasitoid of Fulgoromorpha species belonging to the family Flatidae: *Ormenis septentrionalis* (Spinola), *Anormenis chloris* (Melichar), *Metcalfa pruinosa* (Say), *M. regularis* (Fowler) (Guglielmino & Olmi 1997). This species has been recently introduced to Italy (Girolami & Camporese 1994), France (Malaus 1999), Slovenia (Sala & Foschi 2000) and Switzerland (Jermini, Brunetti, Bonavia 2000) in the course of programmes addressed to the biological control of *Metcalfa pruinosa* (Say), a nearctic Flatid recorded in Europe since the late 1970ies.

Some aspects of the biology of *N. typhlocybae* have been described, but the larval instars are not known for any species of this genus. In this contribution we describe the larval instars III (immature) and IV (mature) of this interesting parasitoid. Besides, some data on other aspects of the postembryonic development are provided.

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