

First record for Belgium of *Eurytoma longipennis* Walker, 1832 (Hymenoptera: Chalcidoidea), a gall-forming wasp on *Ammophila arenaria* (L.)

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Abstract

The gall-forming wasp *Eurytoma longipennis* Walker, 1832 is reported for the first time from Belgium. Galls of this species were found on the dune grass *Ammophila arenaria* (L.). The wasp is found to be widespread along the Belgian coast. General aspects of its ecology are discussed.

Keywords: New Belgian species, coastal dunes, gall wasp.

Résumé

La guêpe cécidogène *Eurytoma longipennis* Walker, 1832 est trouvée pour la première fois en Belgique. Les galles de cette espèce ont été trouvées sur *Ammophila arenaria* (L.). Cette espèce s'est révélée être commune le long de la côte belge. L'écologie et l'occurrence en Belgique sont discutées.

Samenvatting

De galvormende wesp *Eurytoma longipennis* Walker, 1832 wordt voor het eerst gerapporteerd voor België. Gallen werden gevonden op helmgras *Ammophila arenaria* (L.). De soort bleek wijdverspreid te zijn langs de Belgische kust. Algemene aspecten van haar ecologie worden hier besproken.

Introduction

The Belgian coastal dunes are, despite a severe anthropogenic pressure, a very biodiverse area harboring many rare and specialized species (PROVOOST & BONTE, 2004). The foredunes, where wind dynamics play an important role, are dominated by the grass species *Ammophila arenaria* (L.). This species tolerates an extreme microclimate and the frequent burial by windblown sand (HUISKES, 1979).

A. arenaria has a diverse associated fauna with many specialized herbivores (WEEDE *et al.*, 1991). Especially the underground interactions between this grass and several nematode species has received much scientific interest (e.g. DE ROOIJ-VANDER GOES & VAN DER PUTTEN, 1995, DE LA PEÑA *et al.*, 2009). Recently, *A. arenaria* has been used as a model system to study the interactions between above ground and underground herbivores (VANDEGEHUCHTE *et al.*, 2010a, VANDEGEHUCHTE *et al.*, 2011). Additionally, during the course of this research three aphid species were recorded for the first time in Belgium (VANDEGEHUCHTE *et al.*, 2010b).



Fig. 1. Gall of *Eurytoma longipennis* found on the 19.X.2012 in Duinen Fort Napoleon, Ostend (photograph W. Decock).



Fig. 2. Map of the records of *Eurytoma longipennis* in Belgium.

Eurytoma longipennis Walker, 1832

MATERIAL EXAMINED. 11.X.2012, 1 gall, det. leg. Dekeukeleire D. Mortelmans J., van de Loock, D., Sercu B., Schipgatduinen. 19.X.2012, 1 gall, det. leg. Mortelmans J., Duinen Fort Napoleon. 10.XI.2012, 1 gall, det. leg. Mortelmans J. Dekeukeleire D., Duinen Het Zwin. 19.IX.2013, 1 gall, det. leg. Decock W., Duinen Fort Napoleon. 26.IX.2013, 1 gall, det. leg. Mees J., Duinen Fort Napoleon. 28.IX.2013, 1 gall, det. leg. Dekeukeleire D., Tamsyn W., de Fonteintjes. 9.X.2013, 1 gall, det. leg. Mortelmans J., Spanjaerdduinen. 12.X.2013, 1 gall, det. leg. Dekeukeleire D., De Westhoek, 14.X.2013, 1 gall, det. leg. Mortelmans J., Duinen Raversijde.

Discussion

In autumn 2012, a first gall of *E. longipennis* Walker, 1832 was found on *A. arenaria* (Fig. 1). The galls were inhabited by a single white-yellowish larva and could be identified using the key in VAN LEEUWEN (2009). Specific surveys for these galls were conducted in consecutive months, resulting in many new locations, typically in the fore dunes, along the entire Belgian coastline (Fig. 2). This indicates that the species is common and widespread within this habitat in Belgium. *E. longipennis* was known to occur in France, The Netherlands and the United Kingdom, but not in Belgium (MIRCEA-DAN, 2013, NOYES *et al.*, 2011; WEYENBERGH, 1870).

The Eurytomidae are a large, species-rich family, with a remarkable variation in feeding strategies (NOYES, 2012). Most species are parasites on the larvae of Diptera (especially Tephritidae), Coleoptera, Lepidoptera and Hymenoptera living in green plant tissues. The hosts are often gall formers, and some Eurytomid species feed on gall-tissue as well as the inhabiting larvae. Other species are phytophagous, or may switch to phytophagy during their life cycle. Some phytophagous species (e.g. genus *Systole*) develop on the endosperm and are considered agricultural pests, while the larvae of other species live in the central cavity of grass stems, but then, generally without forming galls.

The ecology of *E. longipennis* is not well studied. WEYENBERGH (1870) found galls from August to April, which fits our observations. This author reports imagoes emerging around the mid of April. Behavioural observations revealed that imagoes are rather immobile, and tend to stay at the same spot for multiple days. WEYENBERGH (1870) also found *Bracon caudiger* (Nees, 1834) (Hymenoptera: Braconidae) parasiting on *E. longipennis*. This species is host unspecific, and is already known for Belgium (PAPP, 2012). A second notable observation by WEYENBERGH (1870) was the presence of *Psilothrix viridicoerulea* (Geoffroy, 1785) (Coleoptera, Dasytidae) reared from the galls. This author considers that this beetle could be a parasite on *E. longipennis*. However its presence in galls could also be coincidental. The larvae of *P. viridicoerulea* are known to feed on dead insects and, later in its development, they bore galleries in the stem of annual weeds (LIBERTI, 2009).

Conclusion

The presence of *E. longipennis* in Belgium has certainly gone unnoticed for a long time. Moreover, it is likely that some unidentified material is present in the collections of the RBINS, although the immature stages are found and identified much easier. The species appears to be common and widespread in the dunes along the entire Belgian coast, as its host. This discovery is most likely a consequence of the increased number of people studying gall-forming insects since the publication of VAN LEEUWEN (2009).

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