

## OCCURRENCE OF THE GENUS *ELASMOSOMA* RUTHE (HYMENOPTERA: BRACONIDAE, EUPHORINAE) IN BRITAIN

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### ABSTRACT

Numerous adults of the distinctive braconid wasp *Elasmosoma berolinense* Ruthe, now generally regarded as belonging to the subfamily Euphorinae, were present in catches during July to September from just one of a series of Malaise traps operated at Burnham Beeches, Buckinghamshire in 1996. The means to recognise this genus and species, which are new to Britain, are given.

### BRITISH OCCURRENCE

During a survey at Burnham Beeches, Buckinghamshire, sponsored by the City of London, Malaise traps were sited at several locations during 1996 by J. W. Ismay, and I was much later able to go through the residual portions of the catches, still containing parasitic Hymenoptera, through the kindness of him, H. Read and P. J. Chandler. In samples from just one of the sites, at SU 946956 and labelled "moat", a large number of specimens of the small but distinctive braconid *Elasmosoma berolinense* Ruthe, were present, with date ranges as follows: 8–22.vii.1996 (4 ♀ 10 ♂); 22.vii–5.viii.1996 (31 ♂); 5–13.viii.1996 (1 ♂); 31.viii–13.ix.1996 (4 ♂) and 13–25.ix.1996 (4 ♂). [It is possible that I did not see the sample(s) for the period 13–31.vii.1996]. It is of interest, but unknown significance, that females were present in only the first sample, in which they were quite well represented, and that males were more abundant just afterwards and continued to occur for the next two months. This is the most widespread and least rare of the three European species of *Elasmosoma*, but the species are always local and the genus has not previously been found in the British Isles.

According to Helen Read (*in litt.*) the Malaise trap at the "moat" site was positioned just outside a medieval moat (a scheduled ancient monument) in a relatively moist area with ground flora dominated by *Calluna*, *Molinia* and *Pteridium* and a peaty soil overlaying the acidic gravels typical of the wider area. The trap was sited in a small clearing very close to ancient beech pollards, which are scattered across the historical wood pasture that constitutes this part of the site.

### RECOGNITION

*Elasmosoma berolinense* is a small dark insect, ca 2 mm long, with highly characteristic wing venation (Fig. 1). It should key satisfactorily to 'Neoneurinae' in either Shaw & Huddleston (1991) or van Achterberg (1993). It can be distinguished from European species of the related genus *Neoneurus*, of which at least one uncommon species also occurs in Britain, as follows:

1. Antenna shorter than length of head plus mesosoma (in ♀ considerably so: Fig. 1), with 13 segments in ♀ and 14 in ♂; marginal cell of fore wing only

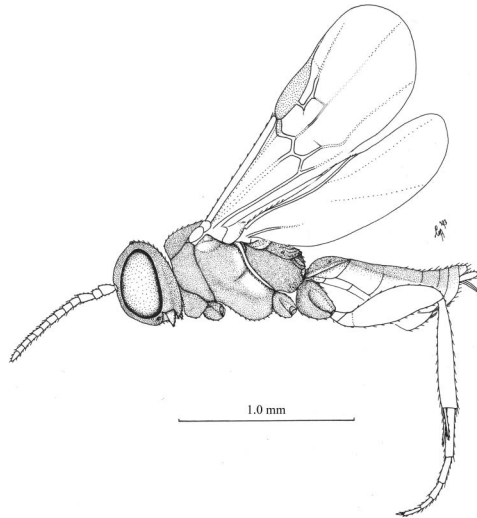


Fig. 1. Female *Elasmosoma berlinense* Ruthe, habitus (front and middle legs not shown). Courtesy of C. van Achterberg.

indicated, not closed by a fully pigmented radius, its cross-vein scarcely discernible; hind wing without closed cells; squat, length under 2.5 mm

..... *Elasmosoma*  
 — Antenna clearly longer than length of head and mesosoma, with 16 segments in both sexes; marginal cell of fore wing well defined and with a pigmented cross-vein; hind wing with two closed cells; more elongate, length ca 3.5 mm

..... *Neoneurus*

The three known European species of *Elasmosoma*, which are only easily separable in the female sex, are keyed and illustrated by van Achterberg & Koponen (2003). The present females, when still in alcohol, had the hypopygial branches splayed and thus resembled their Fig. 17 of *E. depressum* van Achterberg & Koponen, but after the specimens were dried these long branches curved inwards and tended to cross posteriorly, in the manner characteristic of *E. berlinense* (and no other European species). This change in appearance should be borne in mind if material is first examined in alcohol.

#### SYSTEMATIC PLACEMENT AND BIOLOGY

*Elasmosoma* and related genera had for some time been treated as the subfamily Neoneurinae, but molecular genetic evidence (e.g. Belshaw *et al.*, 2000; Belshaw & Quicke, 2002; Shi, Chen & van Achterberg, 2005; Pitz *et al.*, 2006) has increasingly strongly identified this group's position as a tribe Neoneurini within the subfamily Euphorinae, a diverse subfamily containing several genera exhibiting extreme morphological adaptations for parasitizing adult insects. This vindicates Tobias's (1966) earlier view, which was to an extent supported by Čapek (1970), that had subsequently been widely rejected until recently.

Females of *Elasmosoma* species have been known for over a hundred years to oviposit into the abdomens of worker ants of the genus *Formica* (cf. Tobias, 1966; Shaw & Huddleston, 1991) but it is only recently that the biology and immature stages (of a N. American species) have been described in detail (Poinar, 2004). Peter Chandler and Helen Read (*in litt.*) inform me that the wood ant *Formica rufa* L. is abundant more or less throughout the northern part of Burnham Beeches, including the moat site but also several other areas (perhaps drier and less open) in which Malaise traps had not collected *E. berolinense*. The occurrence of this parasitoid apparently in only one area (and there in some numbers) is difficult to explain, and merits further investigation.

Except that 3 ♂ have been donated to the Natural History Museum, London, and 1 ♂ to the Nationaal Natuurhistorisch Museum, Leiden, the above material is deposited in the National Museums of Scotland.

#### ACKNOWLEDGEMENTS

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