

## Rearing records of two species of Hymenoptera: Braconidae (Macrocentrinae and Orgilinae) new to Britain

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### Abstract

From material now in the National Museums of Scotland, the braconids *Macrocentrus flavus* Snellen van Vollenhoven, 1878 and *Orgilus anurus* Thomson, 1895 are recorded from Britain for the first time, based on reared material, and notes for their identification are given. The first of these is also recorded from Spain, again from reared specimens. Details of British specimens in NMS of *Orgilus rugosus* are also given.

**Key words:** *Macrocentrus flavus*, *Orgilus anurus*, *Orgilus rugosus*, *Acrobasis suavella*, *Coleophora spinella*, Spain.

### Introduction

Comprising around a quarter of the entire British insect fauna, parasitoid Hymenoptera are arguably its most threatened category, in part because of the often extreme specialization and high trophic level of its species, but also to a considerable extent because we know far too little about them to approach their conservation needs from an informed base (Shaw & Hochberg, 2001). In order to see parasitoid species in their ecological context, host range information is vital (cf. Shaw, 2017), and the many entomologists interested in other groups who have over the past half-century passed on to me, for eventual incorporation into the National Museums of Scotland (NMS) collection, the unwanted parasitoids they rear – with all-important biological data – have made an immense and enduring contribution to our knowledge of the host associations of these remarkable insects.

From one batch of rearings recently received from regular contributors Bob Heckford and Stella Beavan, who habitually do fieldwork together, two species of Braconidae reared by Stella as a result of a brief period of joint fieldwork in Kent proved to be new to the British fauna. They are dealt with in this paper.

### Material reared and notes

#### *Macrocentrus flavus* Snellen van Vollenhoven, 1878 (Macrocentrinae)

(Fig. 1)

3♀, 2♂ ex probably *Acrobasis suavella* (Zincken) on *Cotoneaster* sp., coll. 30.v.2019, em. 15–22.vii.2019, Dover, East Kent (V.C. 15), on National Trust land at TR3342 (S. D. Beavan). In NMS.

No adult moth was concurrently reared. Although *A. suavella* (Lepidoptera, Pyralidae) is usually associated with *Prunus spinosa*, it has been reared also from *Cotoneaster* in contrast to the only other close relative, *Acrobasis marmorea* (Haworth), with which the distinctive larval workings might be confused (Langmaid, Palmer & Young, 2018; R. J. Heckford, pers. comm.).



**Fig. 1.** *Macrocentrus flavus*, habitus dorsal. (Dover).

*Macrocentrus flavus* is a solitary parasitoid and widespread in continental Europe (cf. *Fauna Europaea*) where it is known to attack phycitine Pyralidae, including *Acrobasis* species on *Quercus* (van Achterberg, 1993a). The elongate, closely spun and rather shiny brown cocoon is formed in the pupation site of the host, after the initially endoparasitoid larva has completed its feeding externally (deduced from the known biology of congeners: Shaw & Huddleston, 1991). In NMS there is a series of 6♀, 8♂ reared on various dates from several sites in Spain (Madrid, Vallecos and Ciempozuelos; Zaragoza, Juslibol) from the phycitine pyralid *Bazaria ruscionella* Ragonot feeding on *Salsola vermiculata* (all G. E. King), 1♀, 1♂ Spain (Lelida, Montoliu) reared from an unidentified host on the same plant (*A. Ribes*) and 1♀ also from Spain (Ibiza) from *Acrobasis* sp. on *Quercus* (J. L. Gregory). *Fauna Europaea* suggests that these constitute new faunal records of *M. flavus* for Spain.

It seems highly improbable that *M. flavus*, which is a rather distinctive species and clearly has quite well-collected hosts, has been widespread in Britain but overlooked: it seems more likely that it is a recent arrival from the continent that may spread, though this is to be seen. The subfamily Macrocentrinae can easily be recognized from the key in Shaw & Huddleston (1991), as an out of print Handbook available as a free download from the Royal Entomological Society website ([www.royensoc.co.uk](http://www.royensoc.co.uk)), or from the more reliable and up to date key given, but with much less biological information, by van Achterberg (1993b), and *M. flavus* can be readily identified to species from van Achterberg (1993a). Both of the works by van Achterberg are available as free downloads from the Naturalis Biodiversity Centre website ([www.repository.naturalis.nl](http://www.repository.naturalis.nl)). In practice *M. flavus* is the only fully (including head) yellowish-orange European species of *Macrocentrus* having its relatively large size (body length 5–6 mm, including head but neither antenna nor ovipositor), although a very widespread and common but smaller (ca 4–4.5 mm) orange gregarious species that parasitises largely arboreal Tortricidae, *Macrocentrus linearis* (Nees), might cause confusion. However, of these only *M. flavus* has tarsal claws with a toothed lobe (though this is sometimes

not easy to see). In common with other yellowish-orange ichneumonoids, it is likely to be mainly crepuscular or nocturnal and is attracted to light (specimens in NMS from Bulgaria, S. Beshkov & A. Nahirnić).

***Orgilus anurus* Thomson, 1895 (Orgilinae)**

(Figs 2, 3)

3♂ ex probably *Coleophora spinella* (Schrank) on *Crataegus monogyna*, coll. 1.vi.2019, em. 7–8.vii.2019, Temple Ewell, East Kent (V.C. 15), TR286447 (S. D. Beavan). In NMS.

No adult moth was reared concurrently, and there is just a possibility that the host might have been *Coleophora coracipennella* (Hübner) (Coleophoridae), which has an indistinguishable case and is known sometimes to feed on *Crataegus*



**Figs 2, 3.** *Orgilus anurus*. 2, Habitus lateral. 3, Anterior of metasoma, dorso-lateral. (Temple Ewell).

though it is less common than *C. spinella* and normally feeds on *Prunus* (Langmaid, Palmer & Young, 2018; R. J. Heckford, pers. comm.). Two of the reared parasitoids have at least one intact antenna, with 30 and 32 segments (28 and 30 flagellomeres), and they are *ca* 3.5 mm in body length.

*Orgilus anurus* is widespread in continental Europe (cf. *Fauna Europaea*). In his revision of the Palaearctic *Orgilus*, Taeger (1989) records this solitary endoparasitoid from several species of arboreal Coleophoridae on the continent: *C. alnifoliae* Barasch (an NMS specimen from Switzerland, S. E. Whitebread), *C. serratella* (Linnaeus), *C. ?spinella* (as *?cerasivorella* Packard) and *Coleophora* sp. on *Carpinus betulus*. The cocoon forms inside the case of the fully fed host, following an external feeding phase by the final instar parasitoid larva (deduced from the known biology of congeners: Shaw & Huddleston, 1991). Arboreal Coleophoridae are reared with considerable regularity in Britain and the lack of previous material may suggest that *O. anurus* is another recent arrival in our fauna, but again time will tell whether it becomes widespread.

The subfamily Orgilinae can be recognized from the two keywords referenced above. Without too much difficulty the species can be identified using Taeger (1989, in German), and falls into his *rugosus*-group of species having strong sculpture, fore wing vein 2+3-M relatively long (as long as or longer than 2-SR+M), and a roundly domed metasoma with the 5th tergite (T5) sharply margined. It differs from other members of this group that have the metasoma beyond the first (black) tergite partly or completely orange, by its almost smooth and shining upper part of the head, its coriaceous (not rugose or strongly punctured) hind coxa, mesosoma more than 1.8× as long as high, mesopleuron largely smooth and shining both above and below the foveolate precoxal area, very prominent dorsolateral carinae on T1 (Fig. 3), and hind femur reddish. Body length 3–4 mm. The Swiss female in NMS has the ovipositor about 1.1× hind tibia. In the key given by Tobias (1986, translated 1995) the British specimens run to couplet 59 but a female would founder there because *O. anurus* is (incorrectly) said to have the ovipositor not or only slightly exerted beyond the apex of the metasoma. Because the British specimens are (by comparison with material in NMS determined by Taeger) much less strongly sculptured than *O. rugosus* (Nees), the default would be *O. grunini* Tobias, described in that work with the host given as the arboreal *C. ibipennella* Zeller. Taeger (1989) separates *O. anurus* and *O. grunini* on leg colour: hind femur yellow-brown to reddish for *O. anurus*, but dark brown to black for *O. grunini*. He further states that metasomal colour varies; although *O. anurus* is normally darker than *O. grunini* the former can have from tergite 2 onwards completely orange (as in two of the three British males detailed above). Taeger (1989: 89) draws attention to the similarity of the two species, differing only in (variable!) colour, and lists a rather similar set of arboreal *Coleophora* as hosts to those he gives for *O. anurus*. Far be it for me to synonymise the two, but it seems safe to record the 3 males, with clearly reddish as opposed to blackish hind femur, as *O. anurus* (which, if ever the two species are synonymized, is the older name).

In the checklist of British Braconidae (Broad, Shaw & Godfray, 2016) *O. rugosus* was added on the basis of material in NMS determined by Taeger (but evidently too late to be included in his revision). I take this opportunity to give details of the specimen involved and to add a further record from another NMS specimen:

1 ♀ ex *Coleophora conspicuella* Zeller on *Centaurea nigra*, em. vi.1985, Benfleet, Essex (P. A. Sokoloff) + *Orgilus rugosus* (Nees) det A. Taeger [no date]; 1 ♂ ex *Coleophora pennella* (Denis & Schiffermüller) [as *onosemella* (Brahm)], coll. vii.1965, em. 31.vii.1965, Dungeness, Kent (J. M. Chalmers-Hunt) + *Orgilus rugosus* Nees (sic) det. J. W. J. Clark, 1965 [teste MRS].

Taeger (1989) gives rearing records only from *C. conspicuella*, but it evidently also parasitises *Coleophora* species feeding on at least one other prominent field-layer plant.

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