Anthrenus (anthrenus) augustefasciatus (coleoptera: dermstidae), a species new to Britain

ANTHRENUS (*ANTHRENUS*) *ANGUSTEFASCIATUS* (COLEOPTERA: DERMESTIDAE), A SPECIES NEW TO BRITAIN

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ABSTRACT

An account of the discovery of a dermestid beetle new to Britain, *Anthrenus* (*A.*) *angustefasciatus* (Ganglebauer), is described. Three individuals were found on Oxeye daisy at Holme Green, Berkshire in May 2014. A brief description of the features separating *A. angustefasciatus* from *A. pimpinellae* (F.) is given. Morphological measurements of the specimens were taken and compared with similar measurements of *A. angustefasciatus* from the Mediterranean region. The possible modes of entry into the country are discussed along with the likelihood of finding further populations of *A. angustefasciatus* occurring in Britain.

INTRODUCTION

The family Dermestidae contains around 1200 species worldwide (Dermestidae World, 2012) but rather few of them exist in Britain. The Checklist of Beetles of the British Isles (Duff, 2012) contains 40 British species of Dermestidae, although probably fewer than 20 regularly occur outdoors in Britain. Several species of Dermestidae are closely associated with man as a result of their ability to feed on dried animal products such as hair, feathers, skin and meat. Some of the most familiar species fall within the genus *Anthrenus*. The species found regularly in Britain are: *A. verbasci* (L.), *A. fuscus* (Olivier), *A. museorum* (L.) and *A. sarnicus* (Mroczkowski). *Anthrenus verbasci*, the varied carpet beetle, is well known to many people as it breeds readily inside houses and other types of properties. The larvae feed on shed skin and hair to emerge as adults during the following spring and early summer. The emergent adults are frequently found on windows and windowsills attempting to escape outdoors to feed on pollen and nectar as a precursor to oviposition. Due to their ability to feed on dried animal products, *A. verbasci* is the scourge of museum collections worldwide, in particular those of natural history. *Anthrenus sarnicus* is another major pest species in museums and is expanding its range in Britain, but unlike *A.verbasci* it is only rarely found out-of-doors. *Anthrenus fuscus* is another common species that can be found in association with, but heavily outnumbered by, *A. verbasci*, often feeding on umbellifers and other spring flowers. The final species, *A. museorum*, is less frequently recorded in Britain.

On 19th May 2014 CWF collected three specimens of *Anthrenus* from a clump of Oxeye daisy (*Leucanthemum vulgare*) near Holme Green in Berkshire (SU828677, VC22). The insects did not belong to one of the species regularly recorded in the UK, so their identity was investigated.

RESULTS AND DISCUSSION

Anthrenus is one of the bigger genera within the Dermestidae, totalling in excess of 220 species worldwide (Háva, 2003). Within the genus *Anthrenus*, four informal species complexes have been proposed: *flavipes, parvus, pimpinellae* and *scrophulariae* (Kadej, 2005). It was clear that the specimens found belonged to the *pimpinellae*

group, which is currently thought to contain 17 species plus one sub-species (Háva, 2007). These are listed in Table 1 (adapted from Kadej, Háva & Kalik, 2007). The group is characterised by the presence of a white, sub-basal elytral band, the shape and size of which can be a good diagnostic feature as it varies considerably among species. Two of the specimens discovered in the UK are shown in Figure 1. The white elytral band is evident, placing them within the *pimpinellae* complex. A second feature that can be useful in species diagnosis is the presence or absence of dark spots on the outer edges of the first sternite (Fig. 1). Kadej *et al*. (2007) note that *Anthrenus oceanicus* (Fauvel) has been recorded in the UK as an introduced species, though it is not on the British checklist (Duff, 2012). *Athrenus oceanicus* does indeed possess a broad elytral band but lacks the dark spots on the outer edge of sternite 1 (Kadej *et al*., 2007). In fact, a further 15 species listed in Table 1 can be eliminated as candidates on the basis of inappropriate elytral colour pattern and/or lack of spots on sternite 1. Only two species, *A. angustefasciatus* (Ganglbauer) and *A. pimpinellae pimpinellae* (F.), possess both a clear white elytral band and black spots on the outer edge of sternite 1. Háva and Zahradnik (2011) provide a comparison of *A. angustefasciatus* with *A. pimpinellae*. The white elytral band on *A. angustefasciatus* is narrow and usually breached whilst in *A. pimpinellae* this band is broad and unbroken. The elytral band in the specimens shown in Figure 1 is not broad, particularly towards the elytral suture, and is broken. It is therefore concluded that the specimens in Figure 1 are thus *A. angustefasciatus*.

The body dimensions of the three specimens were as follows: body length (BL, clypeus to pygidium) and body width (BW), respectively: 3.55 mm and 2.5 mm, 3.7 mm and 2.5 mm, 2.6 mm and 1.85 mm. The values lie outside of the ranges recorded by Kadej *et al*. (2007), two being larger and one being smaller. Kadej *et al*. (2007) gathered their specimens from the Mediterranean. GJH collected five adult

Table 1. *Anthrenus* species belonging to the *pimpinellae* complex within the family Dermestidae and their global ranges (adapted from Kadej, Háva & Kalik, 2007).

Species	Natural Range
A. hoberlandti Kadej, 2007	Iran
A. similaris Kadej, 2007	Iran
A. warchalowskii Kadej, 2007	Iran
A. angustefasciatus Ganglbauer, 1904	Eastern Europe, Mediterranean
A. delicatus Kiesenwetter, 1951	Eastern Europe, Middle East, Mediterranean
A. dorsatus Mulsant et Roy, 1868	Southern Mediterranean
A. flavidulus Reitter, 1889	Middle East
A. goliath Saulcy in Mulsant et Roy, 1868	Eastern Europe, Mediterranean
A. indicus Kadej, Háva et Kalík, 2007	Northern India
A. latefasciatus Reitter, 1892	Middle East, China
A. mesopotamicus Háva, 2001	Middle East
A. mroczkowskii Kalík, 1954 stat. n.	Middle East, Eastern Mediterranean
A. munroi Hinton, 1943	Eastern Europe, Middle East, Mediterranean
A. nipponensis Kalík et Ohbayashi, 1985	Far eastern Palaearctic
A. oceanicus Fauvel, 1903	Indian subcontinent, Indonesia, China, Oceania
A. pfefferi Kalík, 1954	Crete and Greece
A. p. pimpinellae (Fabricius, 1775)	Nearly cosmopolitan
A. p. isabellinus Küster, 1848	Western Mediterranean

A. angustefasciatus from Majorca in 2012 on marguerites (*Leucanthemum* sp). The mean dimensions of these *A. angustefasciatus* were BL = 3.1 mm and BW = 2.3 mm, with one small individual falling outside the range recorded by Kadej *et al*. (2007). When back in the UK, the adult *A. angustefasciatus* from Majorca were placed on feathers and allowed to lay eggs. Thirteen F_1 developed into adult beetles with mean BL = 3.1 mm and mean BW = 2.4; three small individuals fell outside of the range reported by Kadej *et al*. (2007). Kadej *et al*. (2007) examined 100 examples from 'the Mediterranean' but it is not known from where in the Mediterranean region the specimens were collected. It is possible that there is size variation across the natural range of *A. angustefasciatus*, which accounts for the range of body sizes in the adults collected from Berkshire.

Anthrenus pimpinellae was last recorded in the UK in 1895 (Beaumont, 1895) and is referred to as a 'lost' species by Natural England (2010). However, in the nineteenth century the *A. pimpinellae* group was regarded as monospecific, so it is not clear whether Beaumont's record definitely concerns *Anthrenus pimpinellae pimpinellae*. *Anthrenus pimpinellae* ssp. *angustefasciatus* was described in 1904 but was not raised to species status until 2003 (Háva, 2003). The beetles from Beaumont's collections are held by Glasgow Museums, and contain two species labelled *A. pimpinellae*. Based on inspection of images, one is likely to be *Anthrenus pimpinellae pimpinellae* and the other resembles *Anthrenus delicatus* (Kiesenwetter), a widespread species with a mostly Mediterranean distribution. Neither has a traceable location label, and since they are of different species it seems unlikely that these are the British specimens of '*A. pimpinellae*' reared from a fallen maple branch by Beaumont (1895). In the absence of any further information the Berkshire specimens of *Anthrenus angustefasciatus* discussed here should therefore be regarded as the first recorded individuals of this species in the British Isles.

Unlike *A. verbasci* and *A. sarnicus*, *A. angustefasciatus* is not considered a significant pest in museum collections so is unlikely to have found its way into the UK on items transferred between museums. It might be associated with birds' nests

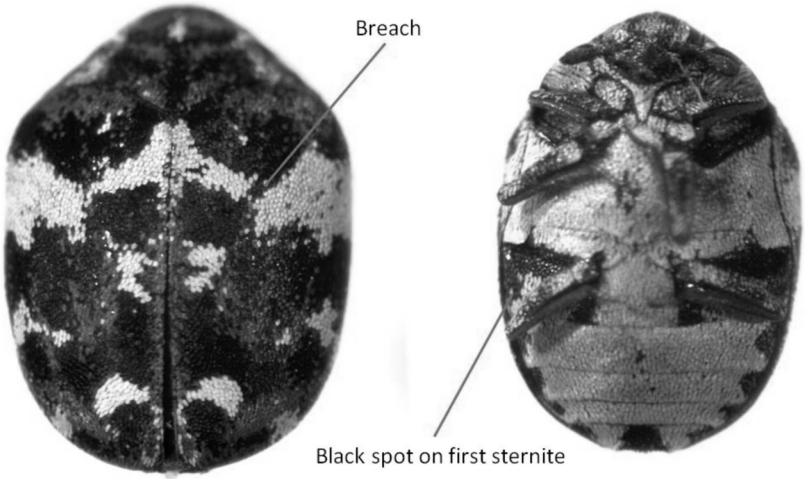

Fig. 1 *Anthrenus angustefasciatus* discovered in the UK on the 19th May 2014 at Holme Green, Berkshire (VC22). The breach in the white elytral band and the black lateral spot on sternite 1 (both illustrated) are useful identification features.

feeding on discarded feathers (the common name of *A. pimpinellae* is the 'Birds Nest Carpet Beetle') and one of us (GJH) has reared *A. angustefasciatus* from Majorca on feathers in enclosed laboratory conditions. *Anthrenus angustefasciatus* has recently been recorded from northern Italy and France (Nardi & Háva, 2013), the Czech Republic (Háva & Zahradnik, 2011), Switzerland (Hava, Herrmann & Kadej, 2013) and Germany (Hava & Herrmann, 2014). The current known distribution of *A. angustefasciatus* is shown in Figure 2. The recent records might suggest that *A. angustefasciatus* is extending its range. If *A. angustefasciatus* has spread north under its own volition and colonized the UK, it is possible that there are more individuals breeding in the UK since the site where it was found, Holme Green, Berkshire is 70km from the coast. Many dermestid species are synanthropic, extending their range via the activities of humans. For example, *A. pimpinellae* was first noticed in the US in 1984 (Hoebeke, Wheeler & Beal, 1985) and is now almost cosmopolitan despite being essentially a Palaearctic species. Presumably its propensity to being spread around the world is due to the ability that many Dermestidae have of subsisting on dry proteinaceous materials shipped between continents as stored product commodities. If *A. angustefasciatus* entered the UK this way, the collection point is a long way from the nearest possible port of entry. If the beetles found in Berkshire were introduced directly to the locale on imported materials, this is unlikely to have been a unique event. Further occurrences of *Anthrenus angustefasciatus* in the UK should be expected.

The National Dermestidae Recording Scheme is run through Biological Sciences at the University of Reading. Records should be submitted via iRecord with attached images for verification but GJH would be very happy to assist with identification of

Fig. 2 Current known distribution of *Anthrenus angustefasciatus*. ● = data from Kadej *et al.* (2007), ◉ = data published since Kadej *et al.* (2007), ● = additions from the current study.

material if required. We would be most grateful for specimens of any species of Dermestidae, not just *Anthrenus*, to be sent to GJH at the above address.

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SHORT COMMUNICATION

Further observations of some Cypress feeding Hemiptera. – I recently reported finding *Megacoelum beckeri* (Fieber) (Miridae) (Hemiptera) associated with cypress trees (Denton, 2011). Further records of this association were made in 2014, including records from North Hampshire (VC12) where adults were frequent on cypress in Aldershot Military Cemetery (SU8751) on 13th August, and Badshot Lea graveyard, Surrey (SU8648) on 15th August. Other cypress feeders at both sites included *Orthotylus junipericola* Linnavouri (Miridae), *Orsillus depressus* Dallas (Lygaeidae) and *Liguropia juniperi* (Lethierry) (Cicadellidae). The last was also taken in Oxfordshire (VC23) on 12th September, when I beat several adults from a cypress tree in the graveyard in Bampton, Oxfordshire (SP3103) the first for the county? – JONTY DENTON, 31 Thorn Lane, Four Marks, Hants GU34 5BX.

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