

NOTES ON BRITISH PIMPLINAE AND POEMENIINAE (HYMENOPTERA: ICHNEUMONIDAE), WITH ADDITIONS TO THE BRITISH LIST

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ABSTRACT

British (*sensu* British Isles) species of two ichneumonid subfamilies, Pimplinae and Poemeniinae, treated as “Pimplinae” in a Royal Entomological Society Handbook for the Identification of British Insects (Fitton, Shaw & Gauld, 1988), are reviewed. Taxonomic and nomenclatural changes are indicated, and means to identify the ten additional species found to occur in Britain since the latter publication are given. Significant new data on distribution and/or host associations are given for a total of over 50 species, four of which are here recorded from Britain for the first time.

INTRODUCTION

The main purpose of this paper is to update the Royal Entomological Society’s Handbook for the Identification of British Insects on “Pimpline ichneumon-flies” (Fitton, Shaw & Gauld, 1988; henceforth FSG) as, in the period since the publication of that work, the higher classification of the group treated has been radically revised, ten additional species have been found in the British fauna and, for some species, misinformation needs correcting and/or significant additional information of various kinds can be given. It is timely to do this because the long-standing problem of keying subfamilies of British Ichneumonidae has been largely overcome in a new key drafted by Gavin Broad (http://www.brc.ac.uk/downloads/Ichneumonidae_subfamily-key.pdf), which is further supported by his revised check list of the entire British ichneumonid fauna (http://www.brc.ac.uk/downloads/Ichneumonidae_checklist.pdf) that, of course, gives current perceptions of subfamily content and placements for all taxa.

Unless indicated otherwise, the specimens on which the new (i.e. hitherto unpublished) data are based are deposited in the National Museums of Scotland (NMS). Copious new material and notable data have come especially from various large surveys led in the 1980s or early 1990s by Keith Porter and Peter Holmes (both for the former Nature Conservancy Council) in respectively S. England and Wales, Iain MacGowan for Scottish Natural Heritage in Scottish native pinewoods, Jeremy Field at particularly rich sites in East Anglia (Chippenham Fen and Santon Downham), the late David Phillips in deciduous woodland in the extreme south of Perthshire and, in 2003 and 2004, by Sally Fraser in small woods near York (cited below as “N. Yorkshire” but not necessarily to be taken as Watsonian North Yorkshire). The last two donated processed specimens to NMS while the first four passed their unsorted (or semi-sorted, to parasitic wasps) samples to me for specimen selection and processing (most of which happened too late for inclusion in FSG).

Several species regarded as “rare” by FSG have proved to be reasonably widespread and frequent in suitable habitat within (or somewhat beyond) the area of distribution indicated (e.g. in reedbeds and fens *Fredegunda diluta* (Ratzeburg), *Endromopoda phragmitidis* (Perkins), *Clistopyga rufator* Holmgren and *Itopectis melanocephala* (Gravenhorst); in (especially old) woodland *Dolichomitus agnosceus* (Roman), *Townesia tenuiventris* (Holmgren), *Scambus calobatus* (Gravenhorst),

S. planatus (Hartig), *Sinarachna pallipes* (Holmgren), *Zatypota albicoxa* (Walker), *Poemenia collaris* (Haupt), *P. hectica* (Gravenhorst), *P. notata* Holmgren and *Deuteroxorides elevator* (Panzer); in grassland and scrub *Acropimpla didyma* (Gravenhorst), *Gregopimpla inquisitor* (Scopoli) and *Delomerista mandibularis* (Gravenhorst)), but specific entries usually are not provided for them here unless there is more to say. On the other hand, in addition to there being no further sightings of *Delomerista laevis* (Gravenhorst) (see later) and the species suggested by FSG as being probably extinct (*Pimpla aethiops* Curtis and *Theronia atalantae* (Poda)) or possibly never really British (*Liotryphon strobilellae* (Linnaeus)), it is a matter of concern that no recent British specimens of *Dolichomitus diversicostae* (Perkins), *D. messor* (Gravenhorst), *Paraperithous gnathaulax* (Thomson), *Afrehialtes cicatricosus* (Ratzeburg) and *Pimpla arctica* Zetterstedt have come to light, despite extensive Malaise trapping programmes and considerable attention having been paid to this group of ichneumonids.

Because many Pimplinae are conspicuous and fairly large insects they were much collected (and described) by early entomologists. Klaus Horstmann's researches on the correct interpretation of valid names in the older literature has sometimes been aided by the long series present in the NMS collection, and has resulted in the elucidation of species limits of several pimpline taxa since FSG, as well as some necessary nomenclatural changes.

The 108 British species treated by FSG as "Pimplinae" are now classified in the four separate subfamilies Pimplinae, Poemeniinae, Rhyssinae and Diacritinae (cf. Gauld, Wahl & Broad, 2002). For the last two (corresponding to Rhyssini and Diacritini in FSG) there is nothing substantive to add: except to say that *Diacritus aciculatus* (Vollenhoven) is much commoner than is suggested by FSG, they are not treated further here. Pimplinae and Poemeniinae (the latter corresponding to part of Poemeniini in FSG) are dealt with below.

Only the species for which a significant change is needed to the entry provided by FSG are dealt with. New distributional records at the country level (treating the whole of Ireland as one) and other major additions are included, but usually extra host records that fall within the summary host range given previously are not. When wider distributions than those given in FSG are indicated it should not generally be taken as evidence of recent range extension, but rather be seen as a consequence of an enlarged range of collecting sites and methods.

CHANGES AND ADDITIONS TO HANDBOOK

In the following treatment the order of taxa follows that given in FSG, except when changes in the higher classification prevent it. To facilitate cross-reference, FSG page numbers are given against species entries below. Terminology and methods of measurement follow FSG, except that metasoma is used instead of gaster. It should be noted that counts of segments of the flagellum and the antenna will differ (flagellum + 2 = antenna): both are used here because sometimes direct citation is involved.

PIMPLINAE

The genera classified by FGS in the tribes Ephialtini and Polysphinctini are all treated as Ephialtini by Gauld, Wahl & Broad (2002), because to recognise the tribe Polysphinctini would leave the remainder of Ephialtini paraphyletic (nevertheless, the informal term "polysphinctines" remains useful). Two of the genera previously placed in Delomeristini by FSG have been transferred to other groups: *Theronia* to

Pimplini and *Pseudorhyssa* to the subfamily Poemeniinae. The groups treated by FSG as the tribes Rhyssini and Diacritini have each been excluded from the Pimplinae following their elevation to subfamily rank.

Ephialtini

Ephialtes manifestator (Linnaeus, 1758) (FSG: 35)

Additional English record: N. Yorkshire (*S. Fraser*).

Additional rearings: 8 ♂ reared in v and vi.1985 from trap-nests consisting of cut stems of *Phragmites australis* set up for the period 19.vii–26.ix.1984 at Chippenham Fen, Cambridgeshire, from which *Trypoxylon attenuatum* (Smith) (Hymenoptera: Sphecidae) was the most numerous aculeate to emerge, but *Passaloecus clypealis* Faester (Sphecidae), the parasitoid *Trichrysis cyanea* (Linnaeus) (Hymenoptera: Chrysididae) and the chrysomelid beetle *Oulema melanopa* (Linnaeus) were also present (*J. Field*); 1 ♂ reared 9/10.viii.1985 from trap-nest in *Sambucus nigra* stems set up for the period 16.vi–8.vii.1985 at the same place, that also produced *Ancistrocerus nigricornis* (Curtis) (Hymenoptera: Vespidae: Eumeninae) and the parasitoid *Hoplocryptus confector* (Gravenhorst) (Hymenoptera: Ichneumonidae) (*J. Field*). These records tend to confirm aculeate Hymenoptera as hosts (see also Matsumoto, 2005) and that *E. manifestator* can be plurivoltine, and show that the winter is passed in the site of development. No females were reared, and indeed the above hosts are not large enough to support normal-sized females of *E. manifestator* (unless the content of more than one host cell were to be consumed). However, 1 ♀ has been reared 8.v.2003 from a trap-nest occupied by the bee *Megachile centuncularis* (Linnaeus) at Broadstone, Dorset (*A. J. Philpott*).

Dolichomitus* and *Liotryphon (FSG: 36)

In addition to those given by FSG, a useful character for the generic placement of males is that, certainly in most cases, the underside of the scape and pedicel is dark in *Dolichomitus*, but pale in *Liotryphon*. Exceptions sometimes (but ?rarely) arise in *D. agnoscendus* (Roman) which, as FSG remark, is rather *Liotryphon*-like in certain other respects as well, and in *Liotryphon punctulatus* (Ratzeburg). (All British species except *D. pterelas* (Say) have been seen).

Dolichomitus agnoscendus (Roman, 1939) (FSG: 38)

Additional English record: N. Yorkshire (*S. Fraser*).

Additional rearings: 2 ♀, 3 ♂ from dead stems of *Rubus fruticosus* agg. containing *Gracilia minuta* (Fabricius) (Coleoptera: Cerambycidae) (*E. S. Bradford*); 9 ♀, 4 ♂ from fallen dead *Ilex aquifolium* branches with many *Grammoptera ruficornis* (Fabricius) and a few *Pogonocherus hispidus* (Linnaeus) (both Coleoptera: Cerambycidae) (*M. R. Shaw*); 2 ♂ from twigs of *Malus* with *P. hispidus* and *Ptinomorphus imperialis* (Linnaeus) (Coleoptera: Anobiidae) (*A. P. Fowles*).

Dolichomitus imperator (Kriechbaumer, 1854) (FSG: 38)

This predominantly Scottish species has proved to be more widespread in England than indicated by FSG (several additional records: Oxfordshire and Wiltshire). The suggestion (FSG) that hosts in long-dead timber are used is supported by Stuart Taylor's observation (pers. comm.) of a female (now in NMS) apparently ovipositing into a half-fallen 16 years dead *Pinus sylvestris* log on 26.vii.1992 at Loch Garten, Inverness-shire.

Dolichomitus mesocentrus (Gravenhorst, 1829) (FSG: 38)

Rearing record: 1 ♂ from an oak gall of *Andricus kollari* (Hartig) (Hymenoptera: Cynipidae), secondarily occupied by an unknown host, coll. 13.i.2001, em. v/vi.2001, Shorn, Kent (*M. Jennings*).

This species is close to *D. messor* (Gravenhorst), and females of the two are not easy to separate unless specimens of both are available for comparison. In addition to the characters given by FSG, *D. mesocentrus* is on the whole a slenderer insect (second tergite of metasoma ca 1.5–2.1 times as long as wide, as opposed to ca 1.1–1.6 in *D. messor*), but there is substantial variation in both species and small specimens (as judged by fore wing length), especially, are liable to have markedly broader tergites in comparison to their length. The separation of males is easy as only *D. mesocentrus* has a thorn-like projection on the outer side of the mid coxa.

Dolichomitus messor (Gravenhorst, 1829) (FSG: 38)

See under *D. mesocentrus* for notes on separation from that species.

Dolichomitus pterelas (Say, 1829) (FSG: 40)

Additional English record: N. Yorkshire (*S. Fraser*)

Dolichomitus tuberculatus (Geoffroy, 1785) (FSG: 40)

A confirmed rearing from the sesiid moth *Synanthedon culiciformis* (Linnaeus) was obtained by Roy Leverton at Speybridge, Morayshire. Several solitary cocoons were removed 13.iv.1997 from workings of this moth in cut *Betula* stumps, although only 1 ♀ *D. tuberculatus* emerged (4.v.1997).

Townesia tenuiventris (Holmgren, 1860) (FSG: 40)

Scottish record: 4 ♀, Paddockmuir Wood, Errol, Perthshire, Malaise trap, vii.1989 (*D. S. Phillips*).

Liotryphon ascaniae (Rudow, 1883) (= *ruficollis* (Desvignes), invalid) (FSG: 44)

The name *Ephialtes ruficollis* Desvignes, 1856 is invalid (cf. Perkins, 1940, 1943; Yu & Horstmann, 1997, following ICZN Code, 1985 Arts 59b, 60a).

Scottish record: 2 ♀, Paddockmuir Wood, Errol, Tayside, Malaise trap, vii and viii.1989 (*D. S. Phillips*).

Liotryphon caudatus (Ratzeburg, 1848) (FSG: 42)

Scottish record: 3 ♀, Paddockmuir Wood, Errol, Perthshire, Malaise trap ix.1987 and viii.1989 (*D. S. Phillips*).

Liotryphon punctulatus (Ratzeburg, 1848) (FSG: 42)

Rearing record: 1 ♀ from the fungus *Daldinia concentrica* with the pyralid moth *Apomyelois biastriatella subcognata* (Ragonot), on burnt *Ulex*, coll. 4.iv.1992, em. 13.iv.1992, Handy Cross Plain, New Forest, Hampshire (*D. H. Sterling*).

Exeristes ruficollis (Gravenhorst, 1829) (FSG: 44)

Although it is relevant to the behaviour of females of *E. ruficollis*, the reference given (twice) by FSG to Thorpe & Caudle (1938) was a mistake: the intended reference is Thorpe (1930).

Afrephialtes cicatricosus (Ratzeburg, 1848) (FSG:44)

Amended ending of specific epithet (cf. Yu & Horstmann, 1997).

Recorded from Ireland by O'Connor & Shaw (2004), but from a 50 years old specimen.

Fredegunda diluta (Ratzeburg, 1852) (FSG: 45)

Welsh record: 1 ♀, Cors Penally, Pembrokeshire, SM1198, 22.vii.1987 (*P. Holmes*). (The rejection in FSG of a rearing record from a nymphalid butterfly depended more on the highly improbable host than its supposed Welsh provenance).

Endromopoda detrita (Holmgren, 1860) (FSG: 46)

Males of this species can be hard to separate from males of *Scambus nigricans*

(Thomson). However, the underside of the pedicel is usually pale in *E. detrita* but dark in *S. nigricans*.

Endromopoda nitida (Brauns, 1898) (FSG: 47)

Welsh record: 1 ♂, Llyn Ystumlyn, Carnaerfon, SH5238, 12–26.vii.1988 (*P. Holmes*).

Endromopoda phragmitidis (Perkins, 1957) (FSG: 47)

Further rearings from England (*J. W. Ismay*; *M. Jennings*) strongly support the contention that *E. phragmitidis* is primarily a parasitoid of the chloropid fly *Lipara rufitarsis* (Loew) rather than *L. lucens* Meigen, though one specimen apparently from a certain *L. lucens* gall has been obtained (*A. Godfrey*).

Scambus brevicornis (Gravenhorst, 1829) (FSG: 52)

Hosts such as *Hadena* species (Lepidoptera: Noctuidae) in seed capsules of Caryophyllaceae are frequently attacked (19 rearings; many sources); an addition to the host range expressed in FSG.

Scambus calobatus (Gravenhorst, 1829) (FSG: 53)

Several rearings (*M. Jennings*; *M. R. Shaw*) from the workings of *Acrobasis* spp. (Lepidoptera: Pyralidae) on *Quercus* have demonstrated that *S. calobatus* is regularly (though not exclusively) a pseudohyperparasitoid; e.g. attacking cocoons of the braconid *Microtypus wesmaellii* Ratzeburg. It has also been reared from several cocoons in a batch of the gregarious braconid *Macrocentrus linearis* (Nees) in Turkey (*M. R. Shaw*).

Scambus cincticarpus (Kriechbaumer, 1895) (FSG: 53)

As noted under *S. nigricans*, the ecological separation between these two species may not be as strong as supposed by FSG.

Scambus eucosmidarum (Perkins, 1957) (FSG: 54)

Host records from *Cydia aurana* (Fabricius) given by FSG are in error: the relevant specimens are in poor condition but probably belong to *S. signatus* (Pfeffer).

Welsh records: several specimens from eight sites (Carnaerfon, Ceredigion, Denbighshire, Merionethshire, West Glamorgan) collected during a survey of Welsh peatlands (*P. Holmes*) suggests that this species is widespread in Wales.

Recorded from Ireland by O'Connor & Butler (1992).

Scambus foliae (Cushman, 1938) (FSG: 54)

Isle of Man record: 1 ♀, Laxey, Croften, ex mine *Heterarthrus aceris* (Kaltenbach) (Hymenoptera: Tenthredinidae) in *Acer pseudoplatanus*, coll. 1.viii.2000, em. 26.viii.2000 (*F. D. Bennett*). These data show that this species is plurivoltine.

English record: 2 ♀♀, New Covert, Melbourne, N. Yorkshire, Malaise trap 5–12.viii.2003 and 15–29.vii.2004 (*S. Fraser*).

Scambus inanis (Schrank, 1802) (= *annulatus* (Kiss), s. str.) (FSG: 50)

The “species” treated as *S. annulatus* (Kiss) by FSG was recognised as probably representing an aggregate, with nomenclatural problems requiring resolution. Partly on the basis of his examination of material in NMS, Horstmann (2005) has now separated two species (*S. inanis* (= *annulatus* (Kiss), s. str.) and *S. signatus* (Pfeffer)) that FSG had treated together as *S. annulatus*, and (see also Horstmann, 2003) recognised a further species (*S. tenthredinum* (Goeze)), apparently related to these two, that FSG had compounded with the seemingly less closely related *S. vesicarius* (Ratzeburg). As all of this material will key to couplet 14 (the last couplet) of the key to *Scambus* given in FSG, that couplet needs replacing with the notes on separation provided below. Furthermore, the distribution and host data needs revision for all of these species.

The characters to separate *S. vesicarius* from the “*annulatus*-group” are straightforward but the separation of *S. inanis*, *S. signatus* and *S. tenthredinum* is difficult as the characters overlap:

S. vesicarius. Female: the somewhat depressed saddle-like area immediately distad of nodus of upper valve of ovipositor bordered laterally by weak carinae; proximal teeth of lower valve of ovipositor well developed, somewhat produced laterally; hind tibia reddish brown, more or less weakly infusate subproximally and apically. Male: fore femur flattened ventrally (hind tibia often coloured as in males of “*annulatus*-group”).

S. “annulatus-group”. Female: the somewhat depressed saddle-like area immediately distad of nodus of upper valve of ovipositor not bordered laterally, rounded; proximal teeth of lower valve of ovipositor poorly developed, not produced laterally; hind tibia subproximally and apically infusate with central area broadly yellow or whitish. Male: fore femur with a double concavity ventrally.

According to Horstmann (2005), 80–90% of specimens of the three species in the “*annulatus*-group” can be separated from the following (overlapping) characters:

<i>S. inanis</i>	<i>S. signatus</i>	<i>S. tenthredinum</i>
Head strongly narrowed behind eyes, tangents to eyes and temples converging on mesosoma (includes propodeum).	Head less narrowed behind eyes, tangents to eyes and temples converging on propodeum or metasoma.	Head as <i>S. signatus</i> . [Although Horstmann’s (2005) figure shows temple longer, it reflects only infraspecific variation].
♀: 2nd flagellar segment 3.0–3.6 × width.	♀: 2nd = 2.6–3.0	♀: 2nd = 2.8–3.0
6th flagellar segment 2.3–2.7 × width.	6th = 2.0–2.3	6th = 2.2–2.3
1st metasomal tergite 0.9–1.1 × width.	1st tergite 0.8–0.9	1st tergite 0.8–0.9
Ovipositor 2.3–2.5 × hind tibia.	Ovipositor 2.4–2.6	Ovipositor 2.5–2.7
♂: 2nd flagellar segment 2.6–3.0 × width.	♂: 2nd = 2.2–2.6	♂: 2nd = 2.5–2.6
6th flagellar segment 1.9–2.3 × width.	6th = 1.7–2.0	6th = 1.8–1.9
Front femur weakly to strongly granulate in ventral concavity.	Front femur in ventral concavity shiny, rarely weakly granulate.	Front femur weakly to strongly granulate in ventral concavity.
1st metasomal tergite 1.3–1.6 × width.	1st tergite 1.1–1.5	1st tergite 1.1–1.5

Scambus inanis is a common and widespread parasitoid of fairly small arboreal hosts, especially lepidopterous leaf-miners and rollers, such as Gracillariidae and Tortricidae. It also commonly behaves as a facultative pseudohyperparasitoid (as do *S. signatus* and *S. vesicarius*). Material in NMS has been reared from the following hosts: Lepidoptera: *Eriocrania* sp. (1) (Eriocraniidae), *Tischeria angusticollella* (Duponchel) (5), *T. ekebladella* (Bjerkander) (4) (Tischeriidae), *Caloptilia alchimella* (Scopoli) (14), *C. betulicola* (Hering) (7), *C. elongella* (Linnaeus) (2), *C. populetorum* (Zeller) (2), *C. rufipennella* (Hübner) (3), *C. stigmatella* (Fabricius) (6), *C. syringella* (Fabricius) (14), *C. alchimella* or *robustella* Jäckh (15), *Callisto denticulella* (Thunberg) (1), *Parornix betulae* (Stainton) (4), *P. devoniella* (Stainton) (1),

P. scoticella (Stainton) (1), *P. torquillella* (Zeller) (3), *Phyllonorycter coryli* (Nicelli) (1), *P. corylifoliella* (Hübner) (2), *P. emberizaepenella* (Bouché) (1), *P. lautella* (Zeller) (1), *P. maestigella* (Müller) (2), *P. nicellii* (Stainton) (4), *P. platani* (Staudinger) (2), *P. quercifoliella* (Zeller) (3), *P. salicicolella* (Sircom) (1), *P. spinolella* (Duponchel) (1), *P. trifasciella* (Haworth) (1), *P. ulmifoliella* (Hübner) (2), *Phyllonorycter* sp. on *Alnus* (1) (Gracillariidae), *Atemelia torquatella* (Zeller) (3) (Yponomeutidae), *Coleophora alticolella* Zeller (9), *C. ardeaepennella* Scott (1), *C. binderella* (Kollar) (1), *Coleophora* sp. on *Malus* (1), *Coleophora* sp. on *Quercus* (1) (Coleophoridae), *Perittia obscurepunctella* (Stainton) (1) (Elachistidae), *Mompha conturbatella* (Hübner) (9) (Momphidae), *Acleris schalleriana* (Linnaeus) (3), *Ancylic paludana* Barrett (2), *Epinotia immundana* (Fischer von Röslerstamm) (1), *Pandemis cerasana* (Hübner) (1), tortricid sp. on *Betula* (2) (Tortricidae), *Alucita hexadactyla* (Linnaeus) (2) (Alucitidae). Additionally as a pseudohyperparasitoid from cocoons of *Apanteles* (sensu lato)/*Caloptilia* (13), *Macrocentrus*/indet. tortricid (1), *Rhysipolis/Caloptilia* (8), *Meteorus*/indet. tortricid (1) (Hymenoptera: Braconidae), *Phytodietus*/indet. tortricid (1) and ?*Zaglyptus/Clubiona* (1) (Hymenoptera: Ichneumonidae). Also reared from leaf-mines and leaf-rolls of other orders: *Zeugophora* sp. (Coleoptera: Chrysomelidae) (1), *Deporaus betulae* (Linnaeus) (Coleoptera: Attelabidae) (2), *Scolioneura betuleti* (Kug) (Hymenoptera: Tenthredinidae) (1), and “sawfly mining *Acer* or *Tilia*” (1).

Scambus nigricans (Thomson, 1877) (FSG:54)

A note on the separation of males of *S. nigricans* and *Endromopoda detrita* is given under the latter species.

Several specimens reared from stem-inhabiting sawflies, including *Heptamelus* and *Hartigia* spp. at various sites in England appear to belong to *S. nigricans* rather than to the anticipated *S. cincticarpus*. This makes the host range distinction between the two species expressed by FSG (under *S. cincticarpus*) less clear.

Scambus planatus (Hartig, 1838) (FSG: 54)

Additional rearing records: 1 ♀ from acorns with *Andricus quercuscalicis* (Burgsdorf) (Hymenoptera: Cynipidae), which unfortunately does not necessarily reflect the true host. Specimens reared from acorns isolated by Malcolm Jennings show that *Cydia* spp. (Lepidoptera: Tortricidae) (2) as well as *Curculio* spp. (Coleoptera: Curculionidae) (8) serve as host. He has also repeated the rearing from the twig-galling cephid sawfly *Janus femoratus* (Curtis) (3).

Scambus pomorum (Ratzeburg, 1848) (FSG: 55)

Zijp & Blommers (2002) have elucidated the life-history of this univoltine parasitoid of *Anthonomus pomorum* (Linnaeus) (Coleoptera: Curculionidae) in the Netherlands. Adult females emerging in early summer mate and then feed extensively on the larvae of various leaf-mining (and probably other) insects before overwintering as adults. Interestingly, Westwood (1833) long ago recounted observations by E. W. Lewis on adult females of what was probably a *Scambus* species feeding voraciously on the larvae of what was clearly *Caloptilia syringella* (Fabricius) (Lepidoptera: Gracillariidae).

Scambus signatus (Pfeffer, 1913) (FSG: 50)

See also under *S. inanis*. *Scambus signatus* is a common and widespread species (seen from England and Scotland): it usually parasitises hosts in the field layer, including tortricids feeding in the seed pods of Fabaceae and the seed heads of Apiaceae. Material in NMS has been reared from the following hosts: Lepidoptera: *Yponomeuta sedella* Treitschke (1) (Yponomeutidae), *Caryocolum blandella* (Douglas)

(1) (Gelechiidae), *Cydia aurana* (Fabricius) (112, from a large collection of *Heracleum sphondylium* seed heads), *C. nigricana* (Fabricius) (1), *Cydia* sp. in *Vicia sativa* pods (7), [*Cydia* sp. in] *Lathyrus pratensis* pods (5), [*Cydia* sp. in] *Astragalus glycyphyllos* pods (2), [*Cydia* sp. in] *Genista anglica* pods (3), [*Cydia* sp. in] *Ulex* pods (3) (Tortricidae); Coleoptera: cocooned *Cionus scrophulariae* (Linnaeus) (1) (Curculionidae). Additionally as a pseudohyperparasitoid from cocoon of *?Phytodietus* sp./indet. ?tortricid (1) (Hymenoptera: Ichneumonidae).

Scambus tenthredinum (Goeze, 1776) (FSG: cf. 50, 55)

See also under *S. inanis*. *Scambus tenthredinum* appears to be a rare species, and possibly a specialist parasitoid of the stem-galling tenthredinid sawfly *Euura amerinae* (Linnaeus) (but note that the common species *S. vesicarius* is very much more regularly reared from that host). All material in NMS is reared from *E. amerinae* on *Salix pentandra*: 3 ♀ [1 now in Horstmann collection, Würzburg], Scotland, Linlithgo, West Lothian, coll. 2.i.1983, em. 14-18.vi.1983 (*A.D. Liston*) – these host records were included in error with others that were correctly attributed to *S. vesicarius* by FSG. Horstmann (2005) also cites a specimen in Manchester Museum: 1 ♂, from the same host, England, Bredbury, Cheshire, em. 3.v.1928 (*H. Britten*) – this host record was incorrectly attributed to *S. "annulatus"* by FSG. For non-reared material, only series containing both sexes can reliably be determined (Klaus Horstmann, pers. comm.).

Scambus vesicarius (Ratzeburg, 1844) (FSG: 55)

See also under *S. inanis*. *Scambus vesicarius* is a moderately common and widespread species (England, Scotland, Ireland), especially where *Salix* is plentiful. It specialises on *Pontania* leaf-galls and *Euura* stem-galls (including *E. amerinae*) (Hymenoptera: Tenthredinidae), but sometimes uses other hosts on *Salix*. Some of the hosts given by FSG are rendered unreliable as a result of many nomenclatural confusions in the genus *Pontania* (at least some of the records given for *P. dolichura* (Thomson) should be attributed to *P. nigratarsis* Kopelke, and those for *P. viminalis* (Linnaeus) to *P. aestiva* (Thomson) according to Andrew Liston (pers. comm.)). Three of the 14 records given by FSG for *Euura amerinae* really belong to *Scambus tenthredinum*, but the others are valid.

Tromatobia lineatoria (Villers, 1789) (= *oculatoria* misident.) (FSG: 58)

Horstmann (2001a) has found that the type of *Ichneumon oculatorius* Fabricius, 1798 is a species of *Lissonota* (Ichneumonidae: Banchinae), and that the earliest available name for the pimpline taxon previously known as *T. oculatoria* is *T. lineatoria* (Villers).

Tromatobia ornata (Gravenhorst, 1829) (FSG: 58)

The characters given by FSG to separate this species from *T. ovivora* are by themselves unreliable. The two species may most reliably be separated on the form of the occipital carina: in *T. ornata* it is raised to form a definite flange (seen in dorsal view the flange at the side of the head is ca 0.2 times the width of the fourth antennal segment), whereas the occipital carina is unmodified in *T. ovivora*. Males can also be distinguished on face colour: yellow in *T. ovivora*, but black centrally with yellow orbits in *T. ornata*. In both sexes the mesoscutum of *T. ovivora* is usually entirely black, but in *T. ornata* there is usually a more or less distinct pair of reddish stripes or sometimes more extensive red colouration.

Jim Brock has collected four females of this species by Malaise trapping at two sites in Surrey (Ashted Common in (vii)viii(ix).1993 and 1994, and Thursley Common in vii/viii.1996) (one in NMS; the remaining specimens in Brock collection, Horniman

Museum). Its known host on the continent is the araneid spider *Argiope bruennichi* (Scopoli) (e.g. Sacher, 2001) but, despite several populations of this colourful spider being established in the extreme south of Britain (Smithers, 2002), it seems improbable that either of the above sites supported an overlooked population at that time. Specimens of *T. ornata* have been reared from a spider's egg sac very different from that of *A. bruennichi* and considered to be *Agalenatea redii* (Scopoli) (Araneidae) collected in 2001 in Hungary (*M. R. Shaw*), suggesting a possible host for the Surrey populations.

Tromatobia ovivora (Boheman, 1821) (FSG: 58)

Welsh record: 1 ♀, Longstone Meadows, Gwent, 23.ix–12.x.1988 (*P. Holmes*).

Characters to separate *T. ovivora* from *T. ornata* are discussed under the latter species.

Tromatobia variabilis (Holmgren, 1856) (FSG: 58)

Several broods have been reared from egg sacs of the araneid spider *Larinioides cornutus* (Clerck) in East Anglia (*M. R. Shaw*), and this seems likely to be its most regular host in Britain.

Clistopyga incitator (Fabricius, 1793) (FSG: 60)

Townes (in Owen *et al.*, 1982) published his view that the series of a *Clistopyga* species collected by Malaise trapping in a Leicestershire garden in 1972–1974 represents an undescribed species close to *C. incitator*. The material is in the American Entomological Institute, Gainesville and, through the kindness of David Wahl, I have been able to examine 3 ♀, 4 ♂ from this series (labelled with various dates from 18 June to September in 1972, 1973 and 1974), and I believe them to be merely rather small examples of *C. incitator*, towards the dark end of the wide spectrum of colour variation seen in British specimens of this species. J.-F. Aubert had previously added (undated) determination labels (as *C. incitator*) to 1 ♀, 2 ♂ of the specimens I saw. One male is labelled “*Clistopyga* 19 Tow. 1975”.

Dreischachia pictifrons (Thompson, 1877) (FSG: 62)

Gauld & Dubois (2006) discussed the equivocal status of the genus *Dreischachia*, and somewhat tentatively (though formally) synonymised it under *Schizopyga*. However, this is not followed here in recognition of the different egg-placement strategy (where known): *Dreischachia pictifrons* on the side of the host's cephalothorax, above the middle two pairs of coxae, and *Schizopyga* species transversely and dorsally on the posterior face of the cephalothorax (see FSG).

Schizopyga circulator (Panzer, 1801) (FSG: 63)

Welsh records: many specimens from 12 sites (Anglesey, Carmarthen, Carnaerfon, Ceredigion, Denbighshire, Merionethshire, Pembrokeshire, West Glamorgan) collected during a survey of Welsh peatlands (*P. Holmes*) suggest that this species is widespread in Wales.

Schizopyga podagrica Gravenhorst, 1829 (FSG: 63)

FSG remarked that probably no male had been seen, and failed to distinguish the male of this species from that of *S. circulator*. One male *S. podagrica* has now been seen, reared from the clubionid spider *Cheiracanthium erraticum* (Walckenaer) at Horsell Common, Surrey, em. ix.2000 (*M. Edwards*), from which it is clear that indeed no male had been available to FSG (see key, below).

Schizopyga varipes Holmgren, 1856 (FSG: cf. 17, 62)

Schizopyga varipes was listed as a valid species by Oehlke (1967) but as a probable junior synonym of *S. podagrica* (Gravenhorst) by Aubert (1969). Yu & Horstmann

(1997) list it as a junior synonym of *S. podagrica* without reservation. In older literature (e.g. Schmiedeknecht, 1907) it is treated and characterised as a distinct species, which seems undoubtedly to be the case. Hedström (1990) correctly pointed out the error that FSG regarded the two yellow-faced species of *Schizopyga* in Europe, *S. flavifrons* Holmgren and *S. varipes* Holmgren, as the same (neither had been found in Britain at that time: *S. varipes* was deleted from the British list (Fitton *et al.*, 1978) by FSG on the grounds that all available specimens purporting to be it had been misidentified).

New to Britain (sensu British Isles). Two females and two males (one male now in National Museum of Ireland; the rest in NMS) reared by Colm Ronayne in spring 1999 from trap-nests (*Rubus idaeus* stems) placed the previous summer in *Quercus* trees at the edge of a raised bog in Ireland: Derry Hills, Co Laois, and a further male from trap nests in 1999/2000 but without unquestionable locality data (though certainly Ireland) have been seen. Cocoons were recovered from the trap-nests, but there were no host remains: there was no evidence that aculeate Hymenoptera had been involved, although the traps concerned had been occupied by *Ectemnius* (Sphecidae) in one case and *Ancistrocerus* (Vespidae: Eumeninae) in another. The less well-provenanced trap-nest was probably occupied by *Passaloeus* (Sphecidae). Most surprisingly, one stem contained three adjacent cocoons. It was concluded that probably parasitised spiders had entered the trap-nests and that the host remains had been scavenged subsequently (or conceivably pushed out by the parasitoid larva, or even the emerging adult), though positive evidence for this is lacking and it is based entirely on the assumption that *S. varipes*, like its congeners, is a parasitoid of spiders. The presence of three cocoons close together in one trap-stem also requires further explanation.

Key to British *Schizopyga*

- 1. Female (ovipositor–hind tibia index about 0.1-0.2; metasoma black or in one species red and black) 2
 - Male (metasoma usually black, rarely marked with red in one species). 5
- 2. Face and clypeus yellow; trochanters mostly ivory (at least below); hind femur dark brown or black (except extreme base and apex ivory). (*Tegula ivory*; *metasoma black*; *hind tibia black, banded with yellow or white centrally and basally*; *antenna with about 21 segments*) *varipes* Holmgren
 - Face and clypeus dark brown (sometimes partly faintly reddish) or black; trochanters black or red (or both); hind femur red, apically darkened 3
- 3. Metasoma with tergites 4 and 5 usually wholly, and tergites 2 and 3 (often also 1) partly, red (the remainder black). (*Antenna with about 23–24 segments*).
 - *circulator* (Panzer)
 - Metasoma black or dark brown 4
- 4. Tegula yellowish or pale red; tergite 2 at least 1.2 times as long as broad; middle femur usually wholly reddish. (*Antenna with 23–26 segments*) *frigida* Cresson
 - Tegula blackish; tergite 2 less than 1.2 times as long as broad; middle femur reddish but apically darkened. (*Antenna with about 22 segments*) . . . *podagrica* Gravenhorst
- 5. Face and clypeus almost wholly yellowish; mandible more or less yellow basally; hind femur black, except sometimes at extreme base and apex. (*Tegula mostly yellow*; *antenna with about 20–22 segments*). *varipes* Holmgren
 - Face and clypeus usually uniformly brown or black, sometimes (*podagrica*) partly dirty yellowish white; mandible wholly black; hind femur reddish with the apex darkened. 6

6. Mid femur usually entirely red; tegula mostly yellowish. (*Antenna with 23–26 segments*) *frigida* Cresson
 – Mid femur red but blackish at apex; tegula mostly brown or black 7
7. Metapleuron rather closely punctate and appearing somewhat matt, its sculpture contrasting with the shiny adjacent area of the mesopleuron; pale parts of hind tibia often somewhat reddish; temples rather rounded behind eyes. (*Antenna with 23–25 segments [21 in one exceptionally small specimen]; metasoma usually black but occasionally marked with red*). *circulator* (Panzer)
 – Metapleuron, although sparsely and shallowly punctured, strongly shining like the adjacent area of the mesopleuron; pale parts of hind tibia yellowish white; temples converging behind eyes linearly. (*Antenna with ca 22 segments*)
 *podagrica* Gravenhorst

***Piogaster albina* Perkins, 1958 (FSG: 64)**

FSG gave only two British records (both from England). A further female was reared by Dave Gibbs on 6.iv.2000 from an oak marble gall (*Andricus kollari* (Hartig) (Hymenoptera: Cynipidae)) collected at Goblin Combe, Somerset (ST4765) on 5.iii.2000. The presumption is that a parasitised spider host had entered the (?vacated) gall to die, but unfortunately host remains could not be sought as the gall was not retained.

Polysphinctine larvae on the posterior of the cephalothorax of salticid spiders have been seen by me on two occasions (once in Britain; once in France) but neither could be reared. The suspicion (Shaw, 1998a) that these may have been *Piogaster* (whose biology has remained unknown) is supported by the mention by Gauld & Dubois (2006) of a specimen of a N. American species of *Piogaster* supposedly reared from a salticid. If *Piogaster* does indeed develop on the cephalothorax of the host, the phylogeny of polysphinctines proposed by Gauld & Dubois (2006) would indicate that egg placement on the cephalothorax is plesiomorphic, with abdominal placement on more exposed hosts associated with webs the derived condition. A rearing of any *Piogaster* species, including observation of the precise position of the parasitoid larva on the host, would therefore be of particular interest.

***Piogaster punctulata* Perkins, 1958 (FSG: 64)**

Additional English males have been collected in Malaise traps, on heathland at Santon Downham, Norfolk 2–11.vi.1983 (*J. Field*); and in chalk grassland/scrub at Folkstone Warren, Kent, 4.vi–6.vii.1996 and Banstead Down, Surrey, 15.v–1.vi.2000 (both *J. P. Brock*: specimens in Brock collection, Horniman Museum).

***Reclinervellus nielsenii* (Roman, 1923) (FSG: 65)**

Gauld & Dubois (2006) transferred *Polysphincta nielsenii* Roman to the genus *Reclinervellus* He & Ye, 1998.

Further British specimens, reared in *vi* from the araneid spider *Cyclosa conica* (Pallas) coll. in *v*, have been obtained (in NMS: Monks Wood, Huntingdonshire, 1988 (*D. Beaumont*), and Hartslock, Oxfordshire, 2000 (*C.M.T. Raper/D. Blench*); in BMNH: Burnham Beeches, Buckinghamshire, 1990 (*H. Read*)). Host remains associated with the single British specimen noted in FSG have been examined and appear to be compatible with *C. conica* (cf. Badmin, 1987).

The reference given as Nielsen (1982) in FSG should read Nielsen (1923): the entry in the list of references is correct.

***Polysphincta vexator* Fitton, Shaw & Gauld, 1988 (FSG: 65)**

Recorded from Ireland by O'Connor & Butler (1992).

Oxyrrhexis carbonator (Gravenhorst, 1807) (FSG: cf. 17)

This species had previously been regarded as British (Fitton *et al.*, 1978) but was deleted from the British list by FSG on the grounds that no material could be found and the examined British specimen determined as *O. carbonator* had been misidentified. In 1998 Gavin Broad picked a female of this species out of an unlabelled Malaise trap sample being used for practice identification by students at Silwood Park, Ascot, Berkshire (England). There is now no real doubt that the trap had been run locally at Silwood Park, probably in 1996 or 1997, as had been asserted at the time (Donald Quicke, pers. comm.), since further investigation of the catch has shown it to be characteristic of this site. The specific name *carbonator* has been widely misapplied, with the result that supposed host records for this species are very diverse (cf. Shaw, 1994), but in fact *O. carbonator* is a parasitoid of spiders in the genus *Steatoda* (Theridiidae), to which it is probably restricted. The Silwood specimen was drawn to the attention of arachnologists (Shaw, 1998b), but so far no further British specimens have been seen.

In FSG *O. carbonator* will run to *Polysphincta* in the key to genera. It will not run at couplet one in the key to species of *Polysphincta* because it has the metasomal (=gastral) tergites strongly and coarsely punctured *and* the scutellum black. The only other British species place by FSG in *Polysphincta* with strongly punctured tergites is *Reclinervellus nielseni*, which is much slenderer and more brightly coloured: *O. carbonator* is largely black (but clypeus reddish brown; hind corner of pronotum and sometimes subtegular ridge marked with yellow or red) with mostly red legs (first segment of hind tarsus and hind tibia basally, and hind tibia sometimes centrally, whitish); submetapleural carina strongly developed; mesoscutum rather evenly hairy (thinning posteriorly on lateral lobes in some specimens); ovipositor–hind tibia index about 0.5.

Megaetaira madida (Haliday, 1838) (FSG: 67)

Gauld & Dubois (2006) erected the new monobasic genus *Megaetaira* Gauld & Dubois to receive *Pimpla (Acrodactyla) madida* Haliday, which had been treated by FSG as a somewhat isolated species of *Acrodactyla*.

Acrodactyla carinator (Aubert, 1965) (FSG: cf. 68)

New to Britain. Niclas Fritzen (*in lit.*) suggested the possibility that *Acrodactyla carinator* might have been overlooked as a British species among the *A. quadrisculpta* (Gravenhorst) recorded by FSG, and this has indeed proved to be the case. Of 58 ♀, 35 ♂ British specimens in the species group now present in the NMS collection, 25 ♀, 13 ♂ proved to belong to *A. carinator*, and a further three English specimens are present in BMNH. The two species are fairly easily separated by the pattern of carinae on the posterior half of the propodeum: although somewhat variable in both species, in *A. carinator* (fig. 1) there is a more or less closed apparent area superomedia, with division of the region posterior to it into three subrectangular areas because the paired submedian carinae remain separated to the posterior margin of the propodeum; but a simpler arrangement with less heavy sculpture in *A. quadrisculpta* (fig. 2), in which the strongest carina is arched forward, the carina that might have closed an apparent area superomedia posteriorly is hardly indicated, and the region posterior to it is less evidently divided, with the paired submedian carinae (when present) converging in front of the posterior margin of the propodeum. The more robust ovipositor of *A. carinator* (fig. 3) in comparison with *A. quadrisculpta* (fig. 4) is also a reliable character, though easiest to appreciate when both species are present. *A. carinator* has fewer antennal segments (specimens from all sources in NMS: ♀=23(8), 24(15), 25(3); ♂=21(3), 22(5), 23(5)) than



Fig. 1.

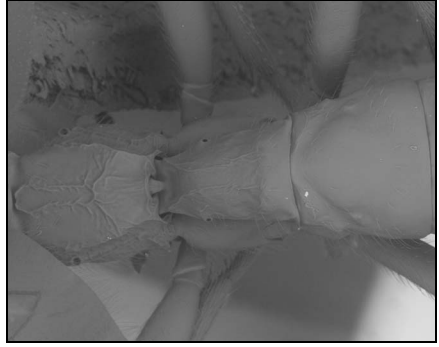


Fig. 2.

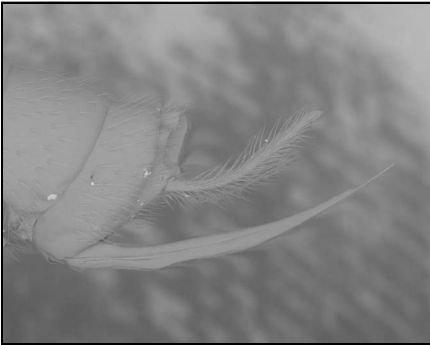


Fig. 3.

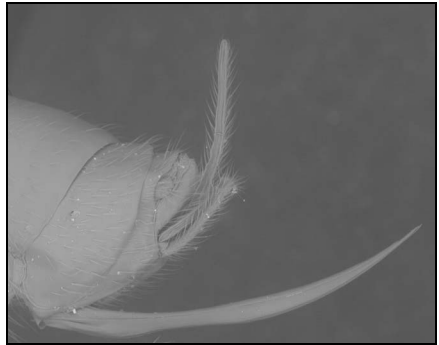


Fig. 4.

Figures 1–4. *Acrodactyla* species.

1, 2 Propodeum and basal tergites of metasoma. 1 *A. carinator* (Aubert), 2 *A. quadrisculpta* (Gravenhorst). 3, 4 Ovipositor. 3 *A. carinator*, 4 *A. quadrisculpta*.

A. quadrisculpta (♀ = 24(1), 25(1), 26(9), 27(14), 28(5), 29(1); ♂ = 23(3), 24(8), 25(11), 26(1)), but with a small overlap in both sexes. In all specimens of *A. carinator* seen the central area of tergite 2 is at least weakly granular or coriaceous, while in most females of *A. quadrisculpta* it is completely smooth (but often weakly granular in males). The colour of the hind leg in *A. carinator* is a little more starkly blackish and whitish than in *A. quadrisculpta* (having more redish and yellowish tinges), and *A. carinator* is a generally somewhat more robust species than *A. quadrisculpta*.

Acrodactyla carinator is widely distributed in England north to Yorkshire, and also occurs in Wales (Mid Glamorgan, *S. Warmingham*). It seems to be commonest in wetlands and waterside habitats. It sometimes co-occurs with *A. quadrisculpta* (e.g. at Chippenham Fen, Cambridgeshire, where both are common). Rearing records from specimens in NMS are (all Araneae: Tetragnathidae): *Tetragnatha* sp. (6), *T. ?montana* Simon (1), *T. ?obtusa* C.L. Koch (1). There is also a specimen labelled as from ?*Meta* sp., but this should be regarded as dubious. See also under *A. quadrisculpta*.

Acrodactyla degener (Haliday, 1839) (FSG: 66)

It has become clearer (Klaus Horstmann, *in lit.*; Niclas Fritzén, *in lit.*) that more than one species is present among British specimens hitherto identified as *A. degener*, as was suggested by FSG, but the issue (though under active investigation by Niclas Fritzén) remains unresolved.

Acrodactyla quadrisculpta (Gravenhorst, 1820) (FSG: 68)

See above under *A. carinator*. Even after the removal of the latter, the widespread distribution of *A. quadrisculpta* in Britain (including Wales and the Isle of Man) continues to be as expressed in FSG, except that its occurrence in Ireland now requires confirmation. Some of the rearing records given by FSG were in error (really belonging to *A. carinator*), but there are many new ones to add and (from the NMS collection alone) the following rearing records can be given (all Araneae: Tetragnathidae): *Tetragnatha* sp. (13), *T. extensa* (Linnaeus) (14), *T. montana* Simon (1), *T. obtusa* C. L. Koch (5). From these data and those given for *A. carinator* there would appear to be little separation in the host ranges of the two species (especially as practically all rearings from *T. extensa* resulted from persistent sampling of this host in Scotland, where *A. carinator* appears not to occur): however, Niclas Fritzén (*pers. comm.*) finds evidence of strong specialisation of the two species within the more extensive *Tetragnatha* fauna of Finland, and the possibility of species-level misidentifications in the British host data should not be ruled out.

Zatypota albicoxa (Walker, 1874) (FSG: 69)

Additional English records: five sites in N. Yorkshire (*S. Fraser*).

Zatypota bohemani (Holmgren, 1860) (FSG: 69)

Welsh record: 1 ♂, Cors Erdreiniog, ex *Theridion mystaceum* L. Koch (Araneae: Theridiidae), coll. 23.v.1997, em. 25.vi.1997 (*M. R. Shaw*).

Zatypota percontatoria (Müller, 1776) (FSG: 69)

Horstmann (2000) has designated a neotype for *Ichneumon percontatorius* Müller, thereby stabilising the use of the name *Zatypota percontatoria* in the sense of FSG.

Pimplini

Itoplectis clavicornis (Thomson, 1889) (FSG: 73)

Additional Scottish records: 2 ♀, Paddockmuir Wood, Errol, Perthshire, Malaise trap, vi(vii).1989 (*D. S. Phillips*); 1 ♀, Killearn, Stirlingshire, 6.vii.1990 (*J. P. Brock*; in Brock collection, Horniman Museum).

Itopectis enslini (Ulbricht, 1911) (= *griseanae* Perkins) (FSG: 73)

This species was misidentified as *Itopectis insignis* Perkins by FSG, as became clear when additional British specimens (7 ♀, 4 ♂) became available. These were collected in northern Scotland (in native stands of *Pinus sylvestris*, and in a plantation of *Pinus contorta*) and in England (Santon Downham, Norfolk, at the edge of a *Pinus nigra* plantation), mostly by Malaise trapping. Most were collected in viii-ix(x), but one male was collected in v in Scotland, which (taken with data in FSG) suggests that *I. enslini* is plurivoltine and overwinters in a pre-adult stage. Its association with conifers is clear.

In the key to species of *Itopectis* in FSG it is suggested that females may lack the minute tooth on the fore tarsal claw: however, this was inserted to take account of the (Swiss) specimens of the true *I. insignis* that had been examined, and the tooth in all British females of *I. enslini* so far seen is distinct (though minute). *Itopectis insignis* and *I. griseanae* (a junior synonym of *I. enslini*) were both described from Swiss specimens by Perkins (1957).

Itopectis melanocephala (Gravenhorst, 1829) (FSG: 74)

Welsh records: 1 ♂, St. Davids Airfield, Pembrokeshire, vii.1987 (*P. Holmes*); 1 ♂, Magor Marsh, Gwent, vii.1988 (*P. Holmes*).

Itopectis viduata (Gravenhorst, 1829)

New to Britain. Graham Collins collected one female by the Channel Tunnel Rail Link at Gravesend, Kent, TQ 646708 on 26.v 2005, which he kindly donated to NMS. *Itopectis viduata* is widespread in Europe, where it has regularly been reared as a primary parasitoid of many species of *Zygaena* (Lepidoptera: Zygaenidae), emerging the same summer. Although it is not clear how it overwinters, a range of other hosts are given in the literature and it seems likely to do so in a pre-adult (probably prepupal) stage.

Itopectis viduata will run to *Itopectis* in the key to genera in FSG, although the front claw of the female has a distinct tooth rather than a basal lobe. It will not run at the first couplet of the key to species because its metasoma (= gaster) is blackish and its hind tibia is red (sometimes faintly yellowish subapically), the combination of which will distinguish it at once from other British *Itopectis*. (Ovipositor–hind tibia index about 1.0). The British specimen is rather smaller (fore wing 7mm) and much more shiny and less strongly punctured (e.g. on mesopleuron) than continental specimens I have seen reared from *Zygaena* (in NMS ex *Z. lonicerae* (Scheven) (2), *Z. lonicerae* or *Z. viciae* (Denis & Schiffeumüller) (3), *Z. ephialtes* (Linnaeus) (1)), but this may be a seasonal difference as unlike them the British specimen seems likely to have overwintered in a pre-adult stage.

Pimpla contemplator (Müller, 1776) (FSG: 78)

Scottish records: 23 ♀, 14 ♂, Paddockmuir Wood, Errol, Perthshire, Malaise trap v–vii and ix.1987–1989 (*D. S. Phillips*); 1 ♀, Dalry Park, Midlothian, 30.vi.2001 (*B. Saville*). Despite its abundance in the Perthshire locality (on the Tay estuary) and further south in Britain, this species seems to be rather local in Scotland.

Recorded from Ireland by O'Connor & Butler (1992).

An additional character (e.g. Kasparyan, 1974) for separating females of this species from *P. spuria* Gravenhorst is that the length of the third+fourth antennal segments combined is only ca 0.8 times the maximum length of the eye combined in *P. contemplator*, but ca 1.0 in *P. spuria* (the character works less well for males).

Pimpla flavicoxis Thomson, 1877 (FSG: 78)

From an examination of material in NMS, Horstmann (2000) established *P. insignatoria* (Gravenhorst) (= *conmixta* Kiss) as British. This showed that FSG had compounded two species, *P. flavicoxis* and *P. insignatoria*, under the name *P. flavicoxis*. The second species had been overlooked despite its abundance in Britain and although some of the previous literature on European Pimplinae (e.g. Kasparyan, 1974) had keyed the two species separately.

Males are fairly easy to separate provided the antennae are present, as *P. insignatoria* has tyloids on the outer side of flagellar segments (6)7–8(9). Although small, these are normally clear if present, and *P. flavicoxis* lacks them completely. (The scutellum can sometimes be whitish in both species). Most females can be separated by antennal colour: in *P. flavicoxis* the flagellum (especially the underside) is paler basally, changing in colour (from somewhat reddish yellow – though the contrast is not always strong) over a small number of segments to a darker (brown or blackish) apical half (or more); while in *P. insignatoria* the flagellum is uniformly blackish or (reddish) brown for its whole length. Useful supporting characters are the usually longer malar space of *P. flavicoxis* (0.9–1.0 times basal width of mandible, compared to ca 0.8 in *P. insignatoria*), and to a lesser extent the usually darker hind corner of the pronotum and minute sclerite preceding the tegula in *P. flavicoxis*. Some females are intermediate and might not be identifiable with certainty from these characters, and especially in some northern specimens of *P. flavicoxis* the flagellum is scarcely paler basally.

Pimpla flavicoxis is common and widespread in the British Isles (as stated in FSG). The rearing records in FSG should be discounted, but from material in NMS the following (all Lepidoptera pupae) can be given: noctuid under moss (1), indet in moss (1), geometrid under *Quercus* (1), *Thera juniperata* (Linnaeus) (Geometridae) in *Juniperus* [at about 1 m] (5), indet. (1). This suggests that hosts are sought relatively low down (see also *P. insignatoria*)

Pimpla insignatoria (Gravenhorst, 1807) (= *conmixta* Kiss)

See entry under *P. flavicoxis* Thomson. *Pimpla insignatoria* is at least as common over much of Britain as *P. flavicoxis*, especially in deciduous woodland, though its presence in Ireland needs investigation. Rearing records (material in NMS) are all from Lepidoptera pupae: *Agonopteryx nervosa* (Haworth) (Oecophoridae) on *Ulex europaeus* (1), tortricid on *Betula* (1), geometrid on *Betula* (1), indet. on *Sorbus aucuparia* (1), indet. on *Malus* (1) and indet. (1). Additionally 1 ♀, 3 ♂ reared from experimentally exposed *Thera obeliscata* (Hübner) (Geometridae) pupae (*M. R. Shaw*). The five hosts for which the location was recorded were all on exposed shrubs or on deciduous trees, and *P. insignatoria* was fogged in good numbers (about 15 specimens) from *Quercus* canopy in S. England (*N. E. Stork*) in the absence of *P. flavicoxis*. This, and the rearings of *P. flavicoxis* from Lepidoptera pupae at ground level (3) or in understorey shrubs (5) might suggest an ecological difference between the two species.

Pimpla melanacrias Perkins, 1941 (FSG: 80)

Welsh records: 1 ♂, Llyn Ystumlllyn, Carnaerfon, vii.1988 (*P. Holmes*); 1 ♀, Gors Maen Llwyd, Denbighshire, vi/vii.1988 (*P. Holmes*).

Rearing record: 1 ♂ ex pupa of *Acleris* sp. (Lepidoptera: Tortricidae) in *Alchemilla alpina* spinning (*K. P. Bland*).

Pimpla rufipes (Miller, 1759) (= *hypochondriaca* (Retzius)) (FSG: 79)

Horstmann (1999) established that *Ichneumon rufipes* Miller is an earlier available name than *Ichneumon hypochondriacus* Retzius for this species.

Pimpla sodalis Ruthe, 1859 (FSG: 81)

Additional Scottish record: 2 ♀, Beinn Dearg, Easter Ross, on 17.vi.1988 at 730m and on 7.vii.1988 at 655m (*I. MacGowan*).

Pimpla spuria Gravenhorst, 1829 (FSG: 81)

See note under *Pimpla contemplator* for an additional character to separate the two species.

Pimpla wilchristi Fitton, Shaw & Gauld, 1988 (FSG: 81)

Hedström (1990) synonymised *Pimpla wilchristi* under *Pimpla strigipleuris* Thomson, 1877, and this position was followed by Yu & Horstmann (1997). However, Hedström had not examined type material of either nominal species, and subsequently Shaw (2006) has designated a lectotype for *Pimpla strigipleuris* and synonymised it under *Pimpla spuria* Gravenhorst, 1829, as had been the view of Perkins (1941), Aubert (1969) and Fitton (1982), as well as earlier authors. This action resurrected *P. wilchristi* as a valid name.

FSG were unable to give host data, but *P. wilchristi* has now been reared on two occasions from pupae of the oecophorid moth *Depressaria pastinacella* (Duponchel) collected in autumn/winter in *Heracleum sphondylium* stems: 1 ♂, Peebles-shire, em. iv.1997 [?forced] (*K. P. Bland*); 2 ♀, 1 ♂, Isle of Man (two sites), em. vi.2005 (*F. D. Bennett*). Further British material of *P. wilchristi* has been collected in England (Cumbria, as long ago as 1952 (*H. Britten*), and two sites in Oxfordshire (*K. Porter*)), in July and August.

Delomeristini***Delomerista laevis*** (Gravenhorst, 1829)

Horstmann (2001b) has identified the type of the nominal taxon *Lissonota suborbitalis* Gravenhorst, 1829, which was collected in England, as *D. laevis*. Therefore, although no further British material has been seen, *D. laevis* should be added to the British list. In the key to *Delomerista* species in FSG females would run to *D. mandibularis*, from which they can be distinguished by having a longer malar space (1.0–1.2 times as long as basal width of mandible, as opposed to 0.5 in *D. mandibularis*) and also an almost unpunctured face (weakly punctured in *D. mandibularis*). Males would also run to *D. mandibularis*, but differ in having a centrally black face marked with white at the sides (wholly yellowish or whitish in *D. mandibularis*) as well as a longer malar space (0.8 times basal width of mandible, as opposed to 0.3–0.4 in *D. mandibularis*). The characters for *D. laevis* are taken from Gupta (1982).

Delomerista novita (Cresson, 1870) (FSG: 86)

Phillips (1997) recorded a series of this species from a deciduous wood in Perthshire, Scotland (the specimens are now in NMS). The several additional specimens seen from England support the notion of two annual generations centered on v–vi and ix–x, though it has also been collected in vii–viii.

Delomerista pfankuchi (Brauns, 1905) (FSG: 86)

Phillips (1997) recorded this species from a native *Pinus sylvestris* wood in Inverness-shire, Scotland (the single specimen is now in NMS). Several other specimens from native and plantation (both *P. sylvestris* and *P. contorta*) pine stands in Scotland have also occurred, as well as specimens from predominantly deciduous woodland sites in S. England. Specimens have been collected in vi–vii and in viii/ix.

Perithous albicinctus (Gravenhorst, 1829) (FSG: cf. 17)

Added to the British list by Brock & Shaw (1997). It appears to have become well established in S. England, now extending north to N. Yorkshire (1 ♀, New Covert, Melbourn, 15–29.vii.2003, *S. Fraser*).

Perithous scurra (Panzer, 1804) (FSG: 87)

Recorded from Wales by Formstone (1999).

Perithous septemcinctorius (Thunberg, 1824) (FSG: 88)

This had been treated by FSG under the generic name *Hybomischos*, which was synonymised under *Perithous* by Wahl & Gauld (1998).

Additional English records: two sites in N. Yorkshire (*S. Fraser*).

Since FSG four British specimens have been reared from unknown hosts (possibly aculeate Hymenoptera) in long-dead or rotten twigs, suggesting that hosts in such substrates indeed are regularly used (see FSG). In three of the cases it was clear that the parasitoid had overwintered in that situation.

Perithous speculator Haupt, 1954

New to Britain. 1 ♀, England: Richmond Park, Surrey, fogged ex *Quercus robur* canopy, 26.vi.1984 (*N. E. Stork*). This is a rarely collected yet moderately widespread species in Europe, and it would be interesting to know if this might be because it is strongly associated with the canopy (where dead wood is often plentiful). This speculation is supported (*K. Horstmann*, pers. comm.) by a further female (in *Horstmann* collection, Würzburg) fogged ex *Quercus* canopy in Poland.

Key to British *Perithous*

1. Mesosoma mostly black (streak at upper hind corner of pronotum, scutellum posteriorly, postscutellum, and subalar ridge more or less, yellowish). (*Propodeum black. Fairly large species. Female: forewing ca 12mm, inner and frontal orbits yellow, legs mostly reddish with hind tibia and tarsus darker, ovipositor–hind tibia index ca 4.5; male: face, clypeus and frontal orbits yellow, fore and mid legs mostly yellow*) *albicinctus* (Gravenhorst)
–Mesoscutum and mesopleuron mostly red. 2
2. Propodeum and tergite 1 matt, with granular sculpture strongly contrasting with the more shiny tergite 2. [*Additional features cf. FSG*] . *septemcinctorius* (Thunberg)
– Propodeum and tergite 1 shiny and more or less punctured, like tergite 2. . . . 3
3. Tergite 2 with a distinct median longitudinal keel anteriorly. [*Additional features cf. FSG*] *scurra* (Panzer)
– Tergite 2 anteriorly with a small median depression (sometimes bordered by weak lateromedian keels). 4
4. Metasoma with tergites (after tergite 1) reddish brown, bordered with a thin darker and then yellowish band posteriorly; hind coxa red with a white fleck dorsoapically; female ovipositor–hind tibia index ca 4. (*Female: forewing ca 7mm, most of mandible, upper margin of clypeus, inner and frontal orbits yellowish white, rest of clypeus reddish brown, head otherwise black; upper lateral margin of pronotum, subalar prominence, scutellum posteriorly and laterally, postscutellum, and a broad arch on the propodeum yellowish white; legs mostly red and white, middle and hind tarsal segments apically darkened, hind tibia ringed brown at extreme base and apex but dorsally white along the rest of its length and this bordered brownish; male similar to female but all of face, clypeus and vertical orbits yellowish white*). . *speculator* Haupt
– Metasoma black (sometimes tergites narrowly reddish or yellowish apically); hind coxa red (sometimes suffused blackish on inner face); female ovipositor–hind tibia index 2.5–3.2. [*Additional features cf. FSG*] *divinator* (Rossius)

POEMENIINAE**Poemeniini*****Poemenia collaris*** Haupt, 1917 (FSG: 89)

Rather than being as rare as suggested in FSG, this species has proved to be widespread and sometimes abundant in southern England. The furthest north records are from N. Yorkshire (*S. Fraser*), where it was collected rather commonly in a total of nine small woods in 2003 and 2004. Specimens collected in Malaise traps, vii–viii(ix), are almost invariably females, but the only two reared British specimens seen have been male. In addition to that cited in FSG, one was reared vi.1995 from a rotten branch of *Corylus avellana* collected at Chippenham Fen, Cambridge in v.1995 (*M. R. Shaw*), but no candidate host was reared with it. In Sweden a further male was reared vi.1998 from a dead *Acer platanoides* branch with the cerambycid beetle *Leioderes kollari* Redtenbacher (a non-British species as well as being an improbable host), and the two sphecid wasps *Rhopalum clavipes* (Linnaeus) and *Psenulus concolor* (Dahlbom) (*C. U. Eliasson*).

Horstmann (1998) gives additional characters to separate the males of *P. collaris* and *P. hectica* (Gravenhorst). In *P. collaris* the third antennal segment (inclusive of annellus) is 4.0–4.4 times as long as wide, tyloids are present on segments (3)4–9(10) (those on the proximal segments are very elongate and relatively indistinct), and the posterior edge of the subgenital plate is evenly rounded over its whole width with the genital claspers relatively slender. In *P. hectica* the third antennal segment is 4.9–5.3 times as long as wide, tyloids are restricted to segments 8–10(11), and the subgenital plate is centrally produced posteriorly with the genital claspers relatively broad. Horstmann (1998) figures the male terminalia of the two species.

Poemenia hectica (Gravenhorst, 1829) (FSG: 89)

Additional English records: 11 sites in N. Yorkshire (*S. Fraser*); Cumbria (*P. Summers*).

Colm Ronayne has reared 2 ♀, 1 ♂ of this species in v.1999 from separate trap nests placed in trees in Ireland (Thomastown Bog, Co. Meath) during 1998. The traps had been occupied by the sphecid wasp *Passaloecus monilicornis* Dahlbom, and in each case the parasitoid larva was seen to have consumed the content of several (up to 4) cells. One female is in the National Museum of Ireland; the other two specimens are in NMS.

See notes under *P. collaris* Haupt for the separation of males of *P. collaris* and *P. hectica*.

Poemenia notata Holmgren, 1859 (FSG: 89)

Several additional specimens of this species have been found in England, mainly in woodland habitats. The furthest north are from two woods in N. Yorkshire in 2003 (*S. Fraser*).

It seems probable that the recent spread and growing abundance of the sphecid wasp *Passaloecus eremita* Kohl in Britain (Else, 1997; Baldock, 2001) has enabled *P. notata* to increase similarly. Additional rearings (all from *P. eremita*) are 1 ♀ (in BMNH) from *Pinus* bark, Wiltshire, viii.1994 (Else, 1997); 1 ♂ from bark, W. Sussex, v.1991 (*R. K. Morris*) and 2 ♀, 1 ♂ from dead *Carpinus*, Berkshire, v–vi.2001 (*M. R. Shaw*). A further male was reared in v.1995 from dead *Corylus arellana*, Cambridgeshire (*M. R. Shaw*) but no candidate host accompanied it. It has also been collected in Malaise traps in vii–viii which, together with George Else's record, suggests that it may be plurivoltine.

Deuteroxorides elevator (Panzer, 1799) (FSG: 90)

Additional English records: nine sites in N. Yorkshire (*S. Fraser*).

Pseudorhyssini***Pseudorhyssa alpestris*** (Holmgren, 1859) (FSG: 88)

Pseudorhyssa was transferred to the subfamily Poemeniinae by Wahl & Gauld (1998).

Recorded from Wales by Formstone (1999).

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SHORT COMMUNICATIONS

***Iassus scutellaris* (Fieber) (Hemiptera: Auchenorrhyncha) new to Berkshire**—A single female *I. scutellaris* was swept from a 2m high *Ulmus procera* on 12.ix.06 at the edge of a mixed deciduous woodland at Reading University campus, Reading, Berkshire (SU741715). Identity was confirmed following dissection using Wilson (1981). No further examples were found. *Iassus scutellaris* has been recorded from Middlesex, Surrey, Kent and Essex (Kirby, 1992) with recent records from Suffolk and Cambridgeshire (Kirby, 2004), suggesting that it is actively spreading in Britain. It is extremely likely that *I. scutellaris* is already well established in Berkshire and has merely been overlooked, as the Berkshire locality is less than 50 miles west from Mitcham Common where *I. scutellaris* was first discovered in the UK (Wilson, 1981).—ALEX J. RAMSAY, Centre for Agri-Environmental Research, School of Agriculture, Policy and Development, University of Reading, Reading RG6 6AR.

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Two new predatory insects reach Perry Woods, Selling, Kent.—The hornet *Vespa crabro* L. has been spreading eastwards and northwards across Kent (VCs 15 & 16) in recent years. The first sighting locally was of adults and a nest of this species in an old cherry tree on the southern edge of Fridhill Wood in 2005, but the nest was completely destroyed by ?woodpeckers during the winter of 2005/06. I received reports of adult workers in various localities around Perry Woods during the summer of 2006. The very first workers captured in the Rothamsted trap in my garden were recorded on 20.ix.2006, and the odd specimen or two have appeared nightly since then, though not on rainy nights.

The first adult harlequin beetle, *Harmonia axyridis* Pallas appeared in the light-trap on 21.ix.2006. This species appears to be established in an area east of Faversham (Mervyn Crow, pers. comm.) but until now has not reached the surrounding wooded countryside. No other adults have been found locally despite a fortnightly sampling regime of trees and shrubs in Perry Woods. — J. S. BADMIN, Coppice Place, Selling, Kent ME13 9RP.