

Western Palaearctic Cryptinae (Hymenoptera: Ichneumonidae) in the National Museums of Scotland, with nomenclatural changes, taxonomic notes, rearing records and special reference to the British check list. Part 4. Tribe Phygadeuontini, subtribes Mastrina, Ethelurgina, Endaseina (excluding *Endasys*), Bathythrichina and Cremnodina

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Synopsis

Distributional, phenological and, in many cases, rearing data are given for 81 species of particular groups of western Palaearctic Phygadeuontini (Hymenoptera: Ichneumonidae, Cryptinae) based on about 2860 specimens in the National Museums of Scotland. Nineteen species are recorded from Britain for the first time.

Key words: Cryptinae, Phygadeuontini, British Isles, western Palaearctic region, distribution, host associations, phenology.

Introduction

The first part of this series on the holdings of western Palaearctic Cryptinae (Hymenoptera: Ichneumonidae) in the National Museums of Scotland (NMS) (Schwarz & Shaw, 1998) outlines the general rationale for the work, our approaches to it, and the sources of material. Subsequent parts (Schwarz & Shaw, 1999; 2000) addressed elements of the tribe Phygadeuontini, and that process is continued here. The present paper gives an account of around 2860 specimens of western Palaearctic species of the subtribes (as recognized by Townes, 1970) Mastrina, Ethelurgina, Endaseina (except *Endasys*), Bathythrichina and Cremnodina in NMS. We omit *Endasys* because the key to European species presented by Sawoniewicz & Luhman (1992) has not fully resolved the taxonomy of this difficult genus. As Sawoniewicz (pers. comm.) intends to publish on the genus again, we decided to postpone our analysis of the ca 300 specimens in NMS, but hope to cover this genus in a future paper.

Of the 81 species in the collection, 74 are represented by British specimens. In all, 19 species are recorded from Britain for the first time and additional British records for some of these from the BMNH collection are added by G. R. Broad (as pers. comms). Because an up to date checklist of British

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Ichneumonidae is given by Broad (<http://www.nhm.ac.uk/resources-rx/files/ichneumonidae-checklist-for-web-27752.pdf>), we have not provided a checklist with this paper. Awareness is needed that our treatment follows Townes's (1970) subtribal classification and generic sequence, unlike Broad's checklist in which genera are arranged alphabetically within tribes. The two treatments are otherwise compatible.

As far as we know, the great majority of the species treated in this paper are solitary parasitoids. They mostly attack small cocoons and similar structures, either more or less exposed or within plant tissue, and many species probably develop as idiobiont ectoparasitoids. However, in some cases cocooned host Microlepidoptera pupae appear to have been endoparasitized. This is perhaps not surprising as several genera of Phygadeuontini parasitize cyclorrhaphous Diptera, emerging as adults from the host's puparium and in some cases are definitely known to have parasitized the host as a larva. In contrast to these koinobiont endoparasitoids, however, the majority have generally been regarded as idiobionts, although their rather high degree of host specialisation could possibly indicate that koinobiont development occurs more widely. The genus *Bathythrix*, in which we are able to present a reasonably large number of rearing records, demonstrates the use of a remarkably wide span of host groups overall, yet a strong fidelity to narrow host ranges at the species level. While most other genera appear to have a narrower host spectrum, the situation seen in *Bathythrix* perhaps suggests that surprises may come to light elsewhere. *Bathythrix* also contains at least one gregarious species.

In the presentation of records, 'several' refers to 4–10 specimens, 'many' to 11–25, and 'numerous' to more than that. Rearing records are given in condensed form such that a number in brackets indicates the number of rearings (i.e. host mortalities) concerned. If gregarious hosts, such as a batch of microgastrine braconid cocoons, are involved the number of rearings is followed by a colon and the numeral 1 if only a single brood was involved, or else the numbers emerging from two or more batches are separated by commas. Unless otherwise indicated, rearing records are from the British Isles. The British Isles Vice County (V.C.) numbers referred to in the text correspond to those mapped in Fig. 1.

Material in NMS and taxonomic notes

MASTRINA

Pygocryptus brevicornis (Brischke, 1881) (= *grandis* (Thomson, 1884))

Townes (1983) recorded this species from England.

England: 2 ♀ 2 ♂, Herefordshire, Moccas Park NNR (V.C. 36), mature deciduous woodland, 20–24.v.1992 (1 ♂), 24–30.v.1992 (1 ♀ 1 ♂), 9–13.vi.1992 (1 ♀) (♂: Cooter).

Isadelphus Foerster, 1869

Isadelphus was listed as a synonym of *Mastrus* Foerster by Fitton *et al.* (1978), but was raised from synonymy by Horstmann (1978).

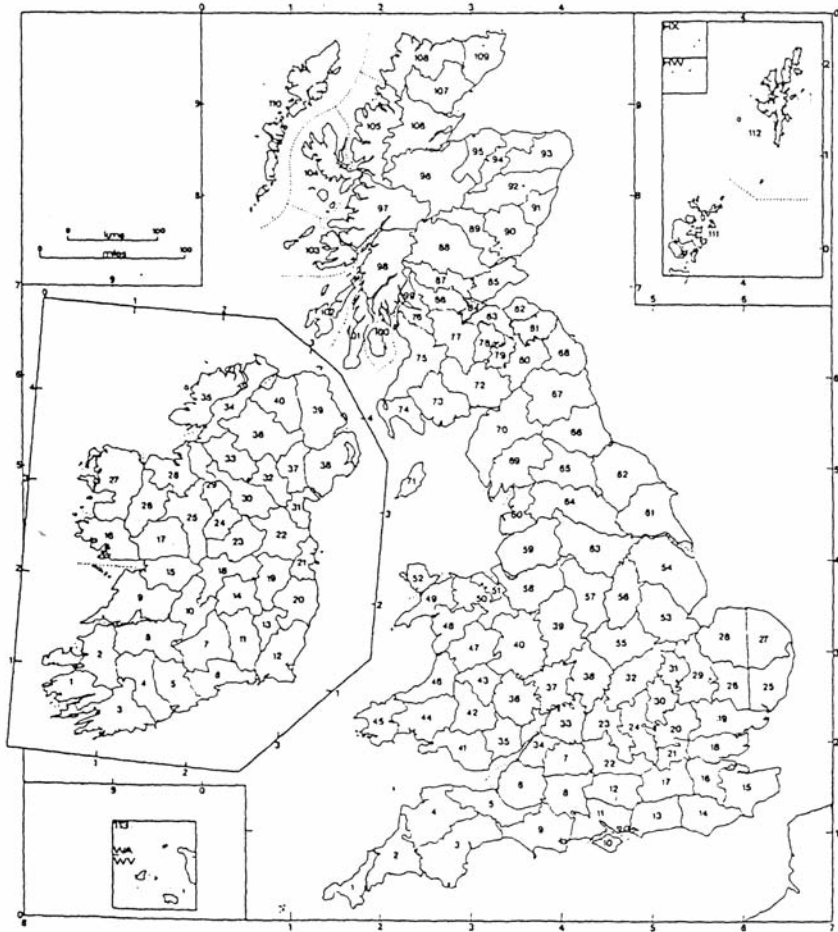


Fig. 1. Vice counties of Great Britain and Ireland. The Irish series is prefixed 'H' when referred to in the text.

Isadelphus armatus (Gravenhorst, 1829)

Many specimens. **England:** V.C.s 9, 11, 25, 27, 29. **Wales:** V.C. 45. **France:** Dordogne. Specimens collected from vi–x, mostly in reed beds. Reared from a cocoon of *Listrognathus obnoxius* (Gravenhorst) (Hymenoptera: Ichneumonidae) in that of *Zygaena filipendulae* (Linnaeus) (Lepidoptera: Zygaenidae), coll. viii, em. ix of the same year (J. H. Payne) (1), from an unknown host in an excavated dead *Rubus* stem, coll. i, em. ii (?forced) of the

same year (*G. R. Else*) (1), and from unknown hosts in twigs of *Fraxinus* bored as trap-nests, exposed in the field vi–ix, em. the following vi (*J. Field*) (2). It is probable that apocritan Hymenoptera were the hosts in each case, and conceivable that *I. armatus* is a specialist pseudohyperparasitoid attacking ichneumonoid cocoons in rather hard substrates. It is evidently a plurivoltine species that overwinters in its cocoon.

Isadelphus coriarius (Taschenberg, 1865)

France: 4 ♀, Dordogne, St. Alvère, iv.1999, 1–15.ix.2000, 1–17.ix.2001 and 13–25.vi.2002 (*R. R. Askew*); 1 ♀, Lot-et-Garonne, Bernac, 3–23.viii.1997 (*R. R. Askew*).

Isadelphus gallicola (Bridgman, 1880) (= *nigriventris* (Thomson, 1884))

Numerous specimens. **England:** V.C.s 17, 22, 23, 28, 58. **Scotland:** V.C.s 83, 89, 95, 96. Specimens collected from vi–ix, in wooded habitats.

Isadelphus inimicus (Gravenhorst, 1829)

Numerous specimens. **England:** V.C.s 22, 23, 27, 28, 29, 58. **Wales:** V.C. 52. **Isle of Man:** V.C. 71. **Scotland:** V.C.s 72, 77, 82, 83, 88, 89, 95, 97, 99, 101, 105, 108. **Ireland:** V.C. H25. **France:** Dordogne, Lot-et-Garonne. **Turkey:** Bolu. Specimens collected from (?iv)v–x, mostly in deciduous woodland and sometimes on tree trunks. Reared from cocoons and pupae of Lepidoptera, apparently as a primary parasitoid, as follows. Yponomeutidae: *Argyresthia goedartella* (Linnaeus) (*K. P. Bland*) (1), *Ypsolopha vittella* (Linnaeus) cocoon under *Ulmus* bark (*M. R. Shaw*) (1); Tortricidae: unidentified cocoon under *Acer* bark (*M. R. Shaw*) (1, tentatively identified ♂). In contrast to these hosts concealed in bark, tentatively identified females (which are aberrant for *I. inimicus* and may be representatives of one or more undescribed species, K. Horstmann, pers. comm.) have been reared from an unidentified tortricid pupa (in which it had been an endoparasitoid) beaten from *Betula* (*K. P. Bland*) (1) and from a cocoon of *Pristiphora pallipes* Lepelletier (Hymenoptera: Tenthredinidae) collected on foliage of *Ribes uva-crispa* (*F. D. Bennett*) (1). The tentatively identified reared ♂ emerged 22.iv.1998 from a host collected and isolated the day before, suggesting that it may have overwintered in its cocoon.

Isadelphus longisetosus (Schmiedeknecht, 1897)

This species, which is not a synonym of *I. inimicus* (Gravenhorst) or of *I. obscuripes* (Thomson) (*K. Horstmann*, pers. comm.), is here recorded as British for the first time. Many specimens. **England:** V.C.s 7, 22, 28. **Scotland:** V.C.s 92, 96, 101. **Germany:** Bavaria. Specimens collected (iv)v–viii, mostly in native pinewoods or near conifer plantations. Reared from *Dahlia* sp. (Lepidoptera: Psychidae) (*N. Ryrholm*) (2, Germany). The specimens were all determined by *K. Horstmann*.

***Isadelphus* sp. A.** [new species]

This species, which will be formally described elsewhere (*K. Horstmann*, in prep.), is here recorded as British for the first time. **England:** 1 ♀, Wiltshire,

Savernake Forest, SU229656 (V.C.7), 2–22.v.1990 (*K. Porter*). **Scotland:** 1 ♀, Perthshire, Errol, Paddockmuir Wood (V.C. 89) 9–16.vii.1987 (*D. Phillips*).

Zoophthorus Foerster, 1869

Some males of this genus in NMS remain unidentified.

Zoophthorus anglicanus (Morley, 1907)

This species was listed by Fitton *et al.* (1978) in *Stiboscopus* Foerster.

Isle of Man: 1 ♀, The Curraghs, Goshan, SC359950 (V.C. 71), 25.vi–2.vii.1995 (*S. M. Crellin*) (det. K. Horstmann).

Zoophthorus bridgmani (Schmiedeknecht, 1897) (= *niger* (Bridgman, 1883), preocc.)

This species was listed by Fitton *et al.* (1978) in *Mastrus* Foerster.

Numerous specimens. **England:** V.C.s 7, 11, 22, 27, 28, 29, 58. **Scotland:** V.C.s 77, 82, 84, 86, 88, 89, 90, 92, 95, 96, 99, 101, 102, 104, 105. Specimens collected from (?iv)v–vii(?viii). Reared as an endoparasitoid of Microlepidoptera pupae as follows. Yponomeutidae: *Argyresthia goedartella* (Linnaeus) (*K. P. Bland*) (2), *Argyresthia* sp. in *Betula* bark (*K. P. Bland*) (1), *Argyresthia* sp. (1); Oecophoridae: *Amphisbatis incongruella* (Stainton) (*K. P. Bland*) (1, doubtfully identified ♂); indet. pupa in rotten *Betula* twigs (1). Additionally one specimen has been reared from 'dead wood'. This may be a specialist parasitoid of *Argyresthia* species, pupating in rotten wood and bark and the rearing data suggest that it overwinters inside the host pupa. The capture data strongly indicate that it is univoltine.

Zoophthorus cynipinus (Thomson, 1884)

This species was listed by Fitton *et al.* (1978) in *Charitopes* Foerster.

Numerous specimens. **England:** V.C.s 23, 61. **Scotland:** V.C.s 88, 89, 99, 101, 105. **France:** Dordogne, Lot-et-Garonne. Specimens collected from v–vii(?viii). Reared from cases of *Coleophora serratella* (Linnaeus) (Lepidoptera: Coleophoridae), coll. 24.vi.1986, em. 1987 (*B. A. Hawkins*) (3). Clearly a univoltine species, overwintering in the host case.

Zoophthorus dodecellae (Obrtel & Šedivý, 1960)

This species is here recorded as British for the first time. Several specimens.

England: V.C.s 28, 58. **Scotland:** V.C.s 88, 102, 104, 105. Specimens collected in vi(?vii).

Zoophthorus graculus (Gravenhorst, 1829) (= *auriculatus* (Thomson, 1884))

This species was listed by Fitton *et al.* (1978) in *Mastrus* Foerster.

England: 1 ♀, Oxfordshire, Hartslock NR (V.C. 23), ex cocoon of *Hypera* sp. (Coleoptera: Curculionidae) on *Lotus corniculatus*, coll. 17.vii.1978, em. 17.vii.1978 (!) (*M. R. Shaw*). **Isle of Man:** 1 ♀, The Curraghs, Goshan, SC361949 (V.C. 71), 6–13.viii.1995 (*S. M. Crellin*). **France:** 2 ♀, Lot-et-Garonne, Bernac, 26.vi–3.vii.1991 and 23–28.vi.1995 (*R. R. Askeew*); 1 ♀, Dordogne, St Marcel du Perigord, 16–26.vi.2007 (*R. R. Askeew*). A further ♀ from C. Morley's collection is probably British but lacks data.

Zoophthorus notaticrus (Thomson, 1888)

This species is here recorded as British for the first time. **England:** 1 ♀, Oxfordshire, Wychwood Forest, SP3417 (V.C. 23), 15.vi–17.vii.1990 (*K. Porter*). **Scotland:** 1 ♀, Dunbartonshire, Caldarvan, NS4483 (V.C. 99), 7–18.vii.1983 (*I. C. Christie*).

Zoophthorus palpator (Müller, 1776) (= *incisus* (Bridgman, 1883))

This species was listed by Fitton *et al.* (1978) in *Mastrus* Foerster.

Numerous specimens. **England:** V.C.s 7, 9, 22, 23, 27, 28, 29, 40, 58. **Wales:** V.C. 52. **Isle of Man:** V.C. 71. **Scotland:** V.C.s 78, 86, 88, 89, 92, 96, 97, 99, 101, 102, 105, 108. Specimens collected from v–ix(?x). Reared as an endoparasitoid of pupae of *Mompha* sp. (Lepidoptera: Momphidae) (*K. P. Bland*) (2, different sites), and from a Campopleginae (Hymenoptera: Ichneumonidae) cocoon within that of *Mompha locupletella* ([Denis & Schiffermüller]) (*M. R. Young*) (1). As these three specimens arose from independent sources, the apparent association with Momphidae may be significant, but a further specimen was reared from *Anthyllis vulnerator* flowerheads (on which Momphidae do not feed) harbouring *Cupido minimus* (Fuessly) (Lepidoptera: Lycaenidae) and numerous examples of its specialist campoplegine parasitoid *Diadegma aculeatum* (Bridgman). In all four cases emergence was in the year of collection.

Zoophthorus plumbeus (Thomson, 1884)

This species is here recorded as British for the first time. **England:** 1 ♀, 1 ♂, Kent, Nagden Marshes (V.C. 15), ex cases *Coleophora lynosyridella* Fuchs on *Aster tripolium*, coll. 11.vi.1996, em. vii.1996 (*J. R. Langmaid*).

***Zoophthorus* sp. A** [new species]

This species, which will be formally described elsewhere (Horstmann, in prep.), is here recorded as British for the first time. **England:** 1 ♀, Cheshire, Abbots Moss, SJ5868 (V.C. 58), 27.vi–23.vii.1986 (*R. R. Askew*).

***Zoophthorus* sp. B** [new species]

This species will be formally described elsewhere (Horstmann, in prep.). **France:** 2 ♀, 1 ♂, Lot-et-Garonne, Bernac, 27–31.v.1991 (*R. R. Askew*); 2 ♀, Dordogne, St Alèvre, 13–25.vi.2002 (1 ♀) and 13–25.vi.2003 (1 ♀) (*R. R. Askew*).

Micromonodon tener (Kriechbaumer, 1893)

This species is here recorded (adequately) as British for the first time (a 'U.K.' specimen was listed without further data in the appendix of Laurenne *et al.*, 2006). **England:** 1 ♀, Oxfordshire, Wychwood Forest, SP3417 (V.C. 23), 23.v–15.vi.1990 (*K. Porter*); 1 ♀, Cheshire, Abbots Moss, SJ5868 (V.C. 58), 7–27.vi.1986 (*R. R. Askew*). **France:** 3 ♀, Dordogne, St Alèvre, iv.1999 (1 ♀), 21.v–4.vi.1999 (1 ♀), 3–21.v.2004 (1 ♀) (*R. R. Askew*). **Greece:** 1 ♀, Rhodes, Falinraki-Ladiki, 1.v.2004 ex gall *Rhodus cyprius* (Houard) (Hymenoptera: Cynipidae) on *Salvia triloba* (*M. Boness*). There are further English specimens

in BMNH (G. R. Broad, pers. comm.): 1 ♂, Berkshire, Silwood Park (V.C. 22), ix.1989 (*R. Belshaw*); 1 ♀, Worcestershire, Bowcastle Farm, SO769750 (V.C. 37), 8–15.v.2004 (*R. Wimmall* & *J. Bingham*).

Clypeoteles distans (Thomson, 1884) (= *xylonomoides* (Morley, 1907))

This species was listed by Fitton *et al.* (1978) in *Acrolyta* Foerster.

England: 1 ♀, Norfolk, East Wretham NR (V.C. 28), 21.vi.2000 (*M. R. Shaw*). **Scotland:** 1 ♂, Inverness-shire, Laggan Bridge, NN6194 (V.C. 96), 19.vi–3.vii.1982 (*D. Horsfield*).

Mastrulus marshalli (Bridgman & Fitch, 1882)

This species was listed by Fitton *et al.* (1978) in *Theroscopus* Foerster.

Numerous specimens. **England:** V.C.s 7, 23, 36. **Scotland:** V.C. 97. **France:** Dordogne. Specimens collected from v–vi(?vii). Reared from the loose subspherical cocoons of *Scirtetes robustus* (Woldstedt) (Hymenoptera: Ichneumonidae, Campopleginae) that had resulted from *Orthosia gracilis* ([Denis & Schiffermüller]) (Lepidoptera: Noctuidae), cocoons swept from *Myrica gale* 4.vii.1992, em. vi–vii.1993 (*M. R. Shaw*) (18, one site). Clearly a univoltine species, overwintering in the host cocoon. Both its phenology and the sites from which it has been collected suggest that it may be a specialist parasitoid of *S. robustus* cocoons. Some habitual pseudohyperparasitoids seem unable to penetrate the loose, rolling cocoons constructed by certain campoplegine genera, including *Scirtetes*, possibly allowing others to specialise on them (Shaw, 2009).

Odontoneura annulicornis (Thomson, 1884)

This species was listed by Fitton *et al.* (1978) in *Theroscopus* Foerster.

Many specimens. **England:** V.C.s 22, 36, 58. **Scotland:** V.C.s 77, 92, 95, 96, 101, 102. Specimens collected from (?v)vi–vii(?viii).

***Odontoneura* sp. A** [new species]

This species, which will be formally described elsewhere (Horstmann, in prep.), is here recorded as British for the first time. **Scotland:** 1 ♀, Inverness-shire, Cairngorms, NH993003 (V.C. 96), immobilised on snow 1.vi.1982 (*N. P. Ashmole*).

Mastrus Foerster, 1869

Some males of this genus in NMS remain unidentified.

Mastrus albobasalis (Schmiedeknecht, 1933)

This species is here recorded as British for the first time. **England:** 1 ♀, Norfolk, Catfield Fen, TG366210 (V.C. 27), 20–27.vi.2005 (*G. Nobes*). **France:** 2 ♀, Lot-et-Garonne, Bernac, Malaise trap beside *Quercus* log pile, 20–30.v.1987 (*R. R. Askew*). **Hungary:** 1 ♀, Vas, Köszeg, 17.v.2001 (*R. R. Askew*). There is a further English specimen in BMNH (G. R. Broad, pers. comm.): 1 ♀, Herefordshire, Fownhope (V.C. 36), 30.v.1936 (*E. B. Benson*. & *J. F. Perkins*) (det. K. Horstmann). All specimens in NMS were also determined by K. Horstmann.

Mastrus boreaphilus (Roman, 1939)

This species is here recorded as British for the first time. Several specimens. **Scotland:** V.C.s 88, 92, 95, 96, 105. Specimens collected from vii–viii(?ix), in native pinewoods.

Mastrus costalis (Thomson, 1884)

This species is here recorded as British for the first time. **England:** 1 ♀, Berkshire, Dinton Pastures (V.C. 22), 17.x.1998 (*P. J. Chandler*). **Scotland:** 1 ♀, Wester Ross, Beinn Eighe NNR, NH0064 (V.C. 105), native pinewood, vi.1989 (*I. MacGowan*). Both specimens were determined by K. Horstmann.

Mastrus deminuens (Hartig, 1838) (= *castaneus* (Taschenberg, 1865))

Numerous specimens. **England:** V.C.s 7, 12, 17, 23, 24, 28, 34, 58. **Scotland:** V.C.s 80, 82, 89, 99, 103, 106, 111. **France:** Corsica. **Germany:** Baden-Württemberg. Specimens collected from v–ix(?x). Reared from a case of *Incurvaria pectinea* Haworth (Lepidoptera: Incurvariidae) in leaf-litter, coll. and em. v (*K. P. Bland*) (1), as an endoparasitoid from a pupa of indet. Tortricidae (Lepidoptera) in spun *Betula*, coll. vii, em. viii (*M. R. Shaw*) (1), as a pseudohyperparasitoid em. vii from a single cocoon of *Saturnia pavonia* (Linnaeus) (Lepidoptera: Saturniidae) coll. vi containing cocoons of the gregarious primary parasitoid *Agrothereutes saturniae* (Boie) (Hymenoptera: Ichneumonidae), some of which gave rise to adults of that species in late vi (*K. P. Bland*) (9:1), and from a collection of several cocoons of *S. pavonia* made iv from which many *A. saturniae* also em. v (*M. T. Jennings*) (1). We have also seen in BMNH male specimens of an unidentified *Mastrus* (that might or might not be this species) reared from a *S. pavonia* cocoon.

Mastrus parviceps (Hellén, 1967)

This species is here recorded as British for the first time. **Scotland:** 2 ♀, Inverness-shire, Creag Meagaidh NNR (V.C. 97), 18.vi–19.vii.1983, NN4185, 790 m, *Deschampsia* grassland (1 ♀), NN4386, 1000 m, *Rhacomitrium* heath (1 ♀) (*D. Horsfield*); 1 ♀, Wester Ross, Rassal NNR, NG8443 (V.C. 105), 15–31.v.1991 (*P. W. Brown*) (teste K. Horstmann).

Mastrus ridibundus (Gravenhorst, 1829)

This was listed by Fitton *et al.* (1978) as a doubtfully placed species of *Hemiteles* Gravenhorst.

England: 1 ♀, Norfolk, Santon Downham, TL8188 (V.C. 28), 27.viii–27.ix.1984 (*J. Field*) (det. K. Horstmann).

Mastrus rufobasalis (Habermehl, 1920)

This species is tentatively here recorded as British for the first time. **Isle of Man:** 1 ♀, Goshan, The Currags, SC359950 (V.C. 71), 25.vi–2.vii.1995 (*S. M. Crellin*). The specimen was tentatively determined by K. Horstmann.

Mastrus rufulus (Thomson, 1884)

This was listed by Fitton *et al.* (1978) as a doubtfully placed species of *Hemiteles* Gravenhorst.

Numerous specimens. **England:** V.C.s 7, 14, 22, 23, 28, 58. **Ireland:** V.C. H20. **France:** Dordogne, Lot-et-Garonne. **Netherlands:** Haalem. **Denmark:** Mon, Sjaelland, Lolland. Specimens collected from (?iv)v–vii(?viii) and (?viii)ix–x(?xi), with clear evidence of two main periods of flight. Almost all specimens are from ancient deciduous woodland.

Mastrus sanguinatorius (Habermehl, 1920)

France: 1 ♂, Lot-et-Garonne, Bernac, 3–27.ix.1993 (R. R. Askew) (det. K. Horstmann).

Mastrus silbernageli (Kiss, 1929)

This species is here recorded as British for the first time. Numerous specimens. **England:** V.C.s 7, 11, ?15, 20, 22, 23, 27, 28, 29, 36, 38, 54, 58. **Wales:** V.C. 52. **Scotland:** V.C.s 81, 83, 86, ?88, 89, 91, 92, 95, 96, 99, 101, 105, 106. **France:** Lot-et-Garonne. Specimens collected from v–x(?xi), in several cases associated with dead *Quercus* and also dead *Pinus*, from both of which it has been reared. The only specimens reared from a named host are one very small ♀ supposedly from *Diplodoma herminata* (Geoffroy) (Lepidoptera: Psychidae) (B. R. Baker) which, however, lacks the host remains, and one tentatively identified ♂ from an unspecified fungus fruiting on *Pinus* that contained *Nemapogon cloacella* (Haworth) (Lepidoptera: Tineidae) (K. P. Bland). There is also 1 ♀ reared from the cocooned pupa of an unidentified tineid in dead wood, the parasitoid cocoon having been formed more or less within the shattered host pupa (M. R. Young).

Mastrus sordipes (Gravenhorst, 1829)

This was listed by Fitton *et al.* (1978) as a doubtfully placed species of *Hemiteles* Gravenhorst.

Many specimens. **England:** V.C.s 7, 22, 28, 58. **Scotland:** V.C.s ?88, 92, 96, 105. Specimens collected from vi–ix(?x) in wooded habitats. Reared from a neuropterous ‘pupa’ under *Acer campestre* bark (M. F. V. Corley) (1, host remains absent).

Mastrus tenuicosta (Thomson, 1884)

This species is here recorded as British for the first time. Many specimens. **England:** V.C.s 7, 15, 22, 23, 36, 58. **Scotland:** V.C. 101. Specimens collected from v–vi in ancient deciduous woodland. One specimen emerged v from dead wood collected from leaf-litter.

Mastrus varicoxis (Taschenberg, 1865)

This was listed by Fitton *et al.* (1978) as a doubtfully placed species of *Hemiteles* Gravenhorst.

Many specimens. **England:** V.C.s 7, 17, 29, 34. **Scotland:** V.C.s 86, 89. **France:** Dordogne. Specimens collected from vii–ix(?x). Reared from bark of *Crataegus* containing cocoons of *Pammene rhediella* (Clerck) and *Grapholita janthinana* (Duponchel) (Lepidoptera: Tortricidae), coll. iii, em iv [?forced] (♀. R. Langmaid) (1).

***Mastrus* sp. A** [new species]

This species will be formally described elsewhere (Horstmann, in prep.).

France: 1 ♀, Dordogne, St Alvère, 1–21.ix.1999 (*R. R. Askeew*).

Helcostizus restaurator (Fabricius, 1775)

Broad <http://www.nhm.ac.uk/resources-rx/files/ichneumonidae-checklist-for-web-27752> lists this in Cryptini, following the molecular phylogeny of Laurene *et al.* (2006).

Many specimens. **England:** V.C.s 23, 29, 36, 58. **Hungary:** Vas. **Poland:** Silesia. Specimens collected from (?iv)v–vii(?viii) and (?viii)ix, the British ones in ancient and largely deciduous woodland, though the Hungarian specimens were on coniferous woodpiles and the Polish one was reared from *Picea abies* infested with *Molorchus minor* (Linnaeus) (Coleoptera: Cerambycidae) (*Ź. Hilszczanski*). It is evidently plurivoltine.

Lochetica westoni (Bridgman, 1880)

This species was listed by Fitton *et al.* (1978) in *Mastrus* Foerster.

Numerous specimens. **England:** V.C.s 7, 15, 22, 23, 25, 27, 28, 29, 58. **Scotland:** V.C. 101. **France:** Dordogne, Lot-et-Garonne. **Italy:** Toscana. Specimens collected from (?v)vi–ix(?x), mostly in ancient deciduous woodland. Three specimens (including a male) reared in vi from dead wood (including dead twigs on living *Quercus*) collected early in the year suggest that it attacks wood-inhabiting hosts and overwinters as a pre-adult stage. This is borne out by a female specimen in BMNH reared in iv from *Passaloeus insignis* (Vander Linden) (Hymenoptera: Crabronidae) in a trap nest collected in ix the previous year (*C. R. Vardy*) (G. Broad, pers. comm.).

***Lochetica* sp. A** [new species]

This species will be formally described elsewhere (Sawoniewicz, in prep.).

Sweden: 1 ♀, Västerbotten, Romelsön, RN7208/1759, 21.vi–29.viii.2003 (*R. Petterson*).

Charitopes Foerster, 1869

Townes (1983) transferred *Charitopes* to *Mastrina*, and said that his earlier (Townes, 1970) inclusion of it in *Endaseina* was a mistake. Some males of this genus in NMS remain unidentified.

Charitopes areolaris (Thomson, 1884) (= *brunneus* (Morley, 1907))

This species was listed twice by Fitton *et al.* (1978), once in *Mastrus* Foerster.

Numerous specimens. **England:** V.C. 29. **Scotland:** V.C.s 81, 89, 92, 96, 105. Specimens collected in v–viii, almost always in pine forest. One, however, is labelled as reared from *Acer pseudoplatanus* seeds containing the tortricid moth *Pammene regiana* (Zeller) (*A. M. Emmet*) (which, however, was perhaps not the host), and another was collected on *Juniperus*. One specimen was reared in v from a Hemerobiidae (Neuroptera) cocoon collected a few days earlier in *Pinus* leaf-litter.

Charitopes carri (Roman, 1923) (= *hemerobii* (Pfankuch, 1914), preocc.; = *londinensis* (Morley, 1947))

This species was listed three times by Fitton *et al.* (1978), once each in *Theroscopus* Foerster and as a doubtfully placed species of *Hemiteles* Gravenhorst.

Many specimens. **England:** V.C.s 22, 28, 29, 38, 58, 64. **Isle of Man:** V.C. 71. **Scotland:** V.C. 89, 100, 101. **Madeira.** Specimens collected in iv (Madeira), (?vi)vii–ix and x/xi. Reared from cocoons of Hemerobiidae (Neuroptera) (2), including one collected in iv in an old beetle emergence hole in a dead *Corylus* twig in which the winter had probably been passed.

Charitopes clausus (Thomson, 1888)

Townes (1983) recorded this species from England, Scotland and Ireland.

Numerous specimens. **England:** V.C.s 7, 15, 17, 22, 23, 27, 28, 29, 57, 58, 59, 64. **Isle of Man:** V.C. 71. **Scotland:** V.C.s 82, 83, 88, 89, 95, 96, 99, 105, 106, 108. **France:** Lot-et-Garonne, Vaucluse. **Spain:** Zaragoza. Specimens collected from (?iv)v–ix(?x), and frequently hibernating under bark of *Pinus*, *Quercus* and *Fagus* from xii–iii (♀). Reared from the cocoons of unidentified species of Hemerobiidae (Neuroptera) (12), both in or under bark and among *Pinus* needles.

Charitopes gastricus (Holmgren, 1868) (= *chrysopae* (Brischke, 1890))

Numerous specimens. **England:** V.C.s 7, 17, 23, 27, 28, 29, 58, 59. **Wales:** V.C. 52. **Scotland:** V.C.s 72, 77, 81, 84, 86, 88, 89, 92, 95, 96, 97, 98, 99, 101, 102, 105, 108. **France:** Lot-et-Garonne. Specimens collected from v–ix(?x) and in xi/x. One is labelled 'winter'.

Charitopes pallicoxator (Aubert, 1966)

France: 1 ♀, Corsica, Corte, Val de Restonica, 500 m, at light 29.vii–3.viii.2001 (*M. R. Shaw*). The specimen is only doubtfully determined.

Charitopes wesmaeliicida (Roman, 1934)

England: 1 ♀, Berkshire, Burghfield Common (V.C. 22), ex cocoon of Hemerobiidae (Neuroptera) coll. 19.v.1979 on *Pinus*, em 8.v.1980 (!) (*M. R. Shaw*); 1 ♀, Cheshire, Abbots Moss (V.C. 58), ex cocoon of Hemerobiidae (Neuroptera) coll. 31.xi.1975 on *Pinus*, em 8.v.1976 (*M. R. Shaw*). **Scotland:** 1 ♀, Fife, Tentsmuir NNR (V.C. 85), 10.v.1987 (*M. R. Shaw*). A further ♀ from England, Norfolk, Santon Downham, TL8188 (V.C. 28), 2–11.vi.1983 (*J. Field*) has been transferred to coll. Schwarz. All four sites were at least locally dominated by *Pinus*. This appears to be a univoltine species that overwinters in the exposed and rather open cocoons of its host among *Pinus* needles. The cocoon of the parasitoid inside that of the host is thick and tough.

ETHELURGINA

Rhembobius bifrons (Gmelin, 1790)

This species was listed by Fitton *et al.* (1978) in *Aptesis* Foerster.

Several specimens. **England:** V.C.s 6, 22. **Wales:** V.C.s 46, 52. **Scotland:** V.C.s 83, 96. Specimens collected from (?vi)vii–viii. Reared from a puparium of *Melanogaster hirtella* (Loew) (Diptera: Syrphidae), coll. 8.v.1993 in a stem of *Caltha palustris*, em. 13.vi.1993 (*G. E. Rotheray*) (1).

Rhembobius perscrutator (Thunberg, 1822)

Numerous specimens. **England:** V.C.s 7, 11, 12, 17, 22, 23, 28, 29, 36, 54, 64. **Wales:** V.C. 46. **Scotland:** V.C.s 89, 90, 95, 96. **France:** Dordogne. **Germany:** Baden-Württemberg. Specimens collected from v–vii(?viii) and in ix/x. Reared from puparia of Syrphidae (Diptera) as follows. *Callicera rufa* Schummel (*G. E. Rotheray*) (2), *Myathropa florea* (Linnaeus) (*D. Horsfield*; *G. E. Rotheray*) (2). The available data suggest that this may be a partly plurivoltine species, but possibly overwintering as an adult.

Rhembobius quadrispinus (Gravenhorst, 1829)

Many specimens. **England:** V.C.s 6, 22, 27, 29, 71. **Wales:** V.C. 46. **Scotland:** V.C. 96. Specimens collected from vi–viii(?ix) and in xii. The two ♀ specimens collected in xii (one occasion) indicate that the winter is passed as an adult.

Ethelurgus sodalis (Taschenberg, 1865)

Numerous specimens. **England:** V.C.s 3, 7, 16, 21, 22, 23, 27, 28, 29, 64. **Isle of Man:** V.C. 71. **Wales:** V.C. 45. **Scotland:** V.C.s 77, 83, 86, 89, 92, 95, 99, 102, 104, 106. **France:** Dordogne. Specimens collected from v–viii(?ix) and in ix/x. Reared from puparia of Syrphidae (Diptera) as follows. *Syrphus ribesii* (Linnaeus) (*R. H. L. Disney*) (1), *Chrysotoxum arcuatum* (Linnaeus) (*B. Barr*) (1), *Eupodes luniger* (Meigen) (*P. J. Chandler*) (1). This is probably a plurivoltine species and the winter is passed in the host puparium.

Ethelurgus vulnerator (Gravenhorst, 1829)

England: 1 ♀, Oxfordshire, Shepherd Green, Rocky Lane Farm, SU7183 (V.C. 23), ex puparium *Myathropa florea* (Linnaeus) (Diptera: Syrphidae) in rot-hole on *Malus*, coll. 25.vi.1999, opened i.2000 to reveal living adult (*M. N. Smith*); 1 ♂, Cambridgeshire, Gog Magog Hills, Wandlebury Common, TL4953 (V.C. 29), ex puparium *Pocata personata* (Harris) (Diptera: Syrphidae), dry upper layer of rot-hole on *Fagus*, coll. 13.v.1990, parasitoid larva seen feeding on dorsum of pharate adult host inside puparium, em. 1990 (*G. E. Rotheray*). **Scotland:** 1 ♂, Inverness-shire, Beauly (V.C. 96), ex puparium *Myathropa florea* in rot-hole on *Fagus*, coll. 24.ii.1990, em. vi.1990 (*B. Barr*). Voltinism is not clear from the rearing data: the first specimen listed must surely have been univoltine, but the second suggests plurivoltinism if the overwintering mode of the first is typical.

ENDASEINA (part, excluding *Endasys*)

Medophron Foerster, 1869

Some specimens of this genus in NMS remain unidentified.

Medophron afflictor (Gravenhorst, 1829)

Wales: 1 ♀, Cardiganshire, Cwm Ystwyth, SN8575 (V.C. 46), 3.ix.1986 (*P. Holmes*).

Medophron armatulus (Thomson, 1888)

This species is here recorded from Britain for the first time. Many specimens. **England:** V.C.s 12, 22, 23, 27, 69. **Isle of Man:** V.C. 71 (doubtfully determined male). **Scotland:** V.C.s 83, 96, 99, 103, 105. Specimens collected from v–viii. There are further English and Scottish specimens in BMNH (G. R. Broad, pers. comm.).

Medophron nitidus (Horstmann, 1976)

Horstmann (1998) recorded this species from England.

England: 2 ♀, Oxfordshire, Chimney Meadows Ditch, SU3599 (V.C. 22), 10.vii–9.viii.1991 (1 ♀) and 9.viii–6.ix.1991 (1 ♀) (*K. Porter*); 1 ♀, Herefordshire, Moccas Park NNR (V.C. 36), 14–20.vi.1992 (*J. Cooter*). In addition are two specimens from P. Cameron's collection that may have been collected in Scotland.

Medophron recurvus (Thomson, 1884)

This species is here recorded from Britain for the first time. Many specimens. **England:** V.C.s 7, 22, 23, 27. **Scotland:** V.C.s 85, 90, 95, 96, 99, 101. Specimens collected from v–vii. Probably univoltine. One specimen was reared iii (forced) from a cocoon (? of its host, ?Ichneumonidae) coll. i floating in a ditch (*G. B. Corbet*). There are further English and Scottish specimens in BMNH (G. R. Broad, pers. comm.).

Medophron setosus (Hellén, 1976) (= *crassicornis* (Ashmead, 1899), preocc.)

We follow Townes (1970, 1983) in placing the species he called *crassicornis* Ashmead (the type species of *Hedylus* Foerster) in *Medophron* Foerster, although subsequently Horstmann (1990) has followed Carlson (1979) in recognising *Hedylus* as a valid genus. Our decision is consistent with Horstmann's (1998) action in synonymising *Subhemiteles* Horstmann, 1976, with *Medophron* as the wing venational characters supposedly separating *Hedylus* from *Medophron* (Carlson, 1979) are to a large extent present in *Subhemiteles* or, in the case of absence of the discoidella, probably accounted for by reduction owing to the small size of the species. Other characters of *Hedylus* given by Carlson (1979) also apply to *Subhemiteles*. Our rejection of *Hedylus* does, however, create a secondary homonym in *Medophron* as *crassicornis* (Ashmead, 1899) is preoccupied by *crassicornis* (Gravenhorst, 1829). The species formerly known as *Hedylus crassicornis* Ashmead has now to be known as *Medophron setosus* (Hellén, 1967) (cf. Horstmann, 1990).

England: 1 ♀, Oxfordshire, Wychwood Forest, SP3417 (V.C. 23), 4–23.v.1990 (*K. Porter*). **Scotland:** 1 ♀, Inverness-shire, Loch Garten (V.C. 96), vii.1981 (*J. A. Owen*).

Glyphicnemis atrata (Strobl, 1901) (= *suffolciensis* (Morley, 1907)).

Numerous specimens. **England:** V.C.s 61, 64. **Wales:** V.C. 52. **Scotland:** V.C.s 72, 85, 86, 88, 89, 90, 96, 107, 111. Specimens collected from (?vi)vii–ix. Probably univoltine.

Glyphicnemis clypealis (Thomson, 1883)

England: 2 ♀, Oxfordshire, Taynton Fen, SP2314 (V.C. 23), 7–28.vii.1989 and 28.vii–16.viii.1989 (*K. Porter*); 1 ♂, Cambridgeshire, Chippenham Fen NNR, TL6569 (V.C. 29), 11–22.viii.1985 (*J. Field*). In addition is 1 ♂ from P. Cameron's collection without data.

Glyphicnemis profligator (Fabricius, 1775)

Numerous specimens. **England:** V.C.s 6, 7, 12, 16, 22, 23, 24, 25, 27, 28, 29, 59, 69. **Wales:** V.C.s 42, 52. **Isle of Man:** V. C. 71. **Scotland:** V.C.s 72, 73, 74, 75, 77, 78, 83, 99, 100, 108, 110, 112. **Ireland:** V.C.s H.12, H.27. Specimens collected from vi–viii(?ix) (mostly from vii–viii). Clearly a univoltine species.

Glyphicnemis vagabunda (Gravenhorst, 1829)

Many specimens. **England:** V.C.s 1, 9, 24. **France:** Alpes-de-Haute-Provence. **Hungary:** Simontornya. Specimens collected from vi–vii. Apparently univoltine.

Amphibulus gracilis Kriechbaumer, 1893

This species was listed by Fitton *et al.* (1978) in *Glyphicnemis* Foerster.

Several specimens, all ♂. **England:** V.C. 24. **Scotland:** V.C.s 78, 99, 105. Specimens collected from x–xi. Probably univoltine.

BATHYTHRICHINA***Bathythrix aerea*** (Gravenhorst, 1829) (= *brevis* (Thomson, 1884))

Numerous specimens. **England:** V.C.s 13, 22, 27, 28, 29, 40, 58, 67. **Wales:** V.C. 52. **Scotland:** V.C.s 89, 96, 99, 105. Specimens collected in vi and from viii–x. Reared from cocoons of gregarious species of Microgastrinae (Hymenoptera: Braconidae) as a pseudohyperparasitoid of Lepidoptera as follows. *Cotesia glomerata* (Linnaeus)/*Pieris brassicae* (Linnaeus) (*J. D. Bradley*; *S. C. Littlewood*) (7, 6), *Cotesia vanessae* (Reinhard)/*Aglais urticae* (Linnaeus) (*G. M. Haggatt*) (18:1), *C. vanessae*/*Vanessa atalanta* (Linnaeus) (*A. R. Cronin*) (2:1), *Glyptapanteles pallipes* (Reinhard) (*L. T. Rees*) (4:1), 'cocoons on *Juncus*' (4:1). In addition there is a solitary ♀ labelled as having been reared as a true hyperparasitoid in a gregarious brood of *Cotesia glomerata*/*Pieris brassicae* (*S. C. Littlewood*), but true hyperparasitism by this species seems highly unlikely. All reared specimens have emerged in the year of collection; while the data indicate that *B. aerea* is plurivoltine, how it passes the winter is unclear. The apparent restriction of host range to gregarious species of Microgastrinae makes this species an unusually specialised pseudohyperparasitoid.

Bathythrix alter (Kerrich, 1942)

Several specimens from 3 localities. **England:** 2 ♀, Norfolk, Brancaster, TF7644 (V.C. 28), < 2.ix.1988 (*A. P. Foster*); 2 ♀, Suffolk, Walberswick, TM4874 (V.C. 25), 11–25.viii.1988 (*A. P. Foster*); 1 ♀, 1 ♂ (part of a larger brood of unknown size), Warwickshire, Sutton Park (V.C. 38), ex cocoon *Euthrix potatoria* (Linnaeus) (Lepidoptera: Lasiocampidae), em. viii.1976 (*R. E. Evans*). A further 1 ♀, 1 ♂ (part of a larger brood of unknown size) from

Wales: Anglesey, Cors Goch NR (V.C. 52), ex cocoon *E. potatoaria*, coll. 5.vii.1976 (*M. J. Morgan*) (det. J. Sawoniewicz) have been transferred to coll. Sawoniewicz. At least three of the above four sites are reed beds, and this gregarious species may be specialised to *E. potatoaria*.

Bathythrix argentata (Gravenhorst, 1829) (= *lacustris* (Schmiedeknecht, 1905))

Many specimens. **England:** V.C.s 25, 27, 29. **Denmark:** Sjaelland. Specimens collected from (?vi)vii–ix. All five English sites represented are reed beds.

Bathythrix claviger (Taschenberg, 1865)

Numerous specimens. **England:** V.C.s 7, 9, 12, 17, 22, 23, 28, 29, 58. **Scotland:** V.C.s 77, 89, 95, 96, 97, 99, 101, 102, 105, 107. Specimens collected from (?iv)v–x(?xi). This is a woodland species.

Bathythrix collaris (Thomson, 1896)

England: 1 ♀, Herefordshire, Moccas Park NNR (V.C. 36), mature deciduous wood, 14–27.vii.1992 (*J. Cooter*). **Scotland:** 1 ♀, Dunbartonshire, Caldaran, NS4583 (V.C. 99), mixed wood by pond, 22.vi–7.vii.1983 (*I. C. Christie*); 3 ♀, Perthshire, Errol, Paddockmuir Wood (V.C. 89), 26.vi–3.vii.1987 (1 ♀), 3–9.vii.1987 (1 ♀), 13–21.viii.1987 (1 ♀) (*D. Phillips*); 1 ♂, Aberdeenshire, Braemar, Morrone Birkwood NNR (V.C. 92), birch, juniper and aspen wood, 27.vi–12.vii.1984 (*B. D. Batty*). This appears to be a woodland species.

Bathythrix decipiens (Gravenhorst, 1829) (= *gyrini* (Parfitt, 1881))

Fitton *et al.* (1978) listed this species twice, both times as doubtfully placed species of *Hemiteles* Gravenhorst.

England: 1 ♀, Isle of Man, The Curraghs, SC3694 (V.C. 71), 26.vi–2.vii.1986 (*R. S. George*).

Bathythrix formosa (Desvignes, 1860)

Horstmann (1998) has recognised this and the following as separate species.

Many specimens. **England:** V.C.s 11, 15, 22, 27, 28, 58. **France:** Dordogne. Specimens collected in v(?vi) and (?vii)viii. Reared from the mud-covered egg sacs of the liocranid spider genus *Agroeca* (17, mostly or possibly all *A. brunnea* (Blackwall)) (*R. E. Evans*; *R. Jones*; *D. Maylam*). Most have emerged the same year in late vi from sacs collected in v and early vi, but some have emerged in v of the year following collection in vi/vii, and the species thus appears to be plurivoltine, overwintering in the host sac.

Bathythrix fragilis (Gravenhorst, 1829) (= *bellula* (Kriechbaumer, 1892))

Horstmann (1998) has recognised this and the preceding as separate species.

Many specimens. **England:** V.C.s 9, 22, 23, 29, 58. **Wales:** V.C.s 45, 52. **Scotland:** V.C.s 85, 101. Specimens collected from v–viii(?ix) and in ix/x. Reared in spring from a nest of the eumenine wasp *Gynnomerus laevipes*

(Shuckard) (Hymenoptera: Vespidae) in a dead *Rubus* stem collected the previous autumn (1) (*S. P. M. Roberts*), and from cocoons (probably cells of aculeate Hymenoptera) in dead *Rosa pimpinellifolia* stems coll. and em iii (2) (*K. P. Bland*). Plurivoltine, overwintering in the host cell.

Bathythrix lamina (Thomson, 1884)

Numerous specimens. **England:** V.C.s 7, 17, 22, 28, 29, 38, 58, 69. **Isle of Man:** V.C. 71. **Wales:** V.C.s 41, 47, 52. **Scotland:** V.C.s 78, 83, 85, 87, 88, 89, 90, 92, 95, 96, 97, 98, 99, 101, 103, 105. **France:** Lot-et-Garonne. Specimens collected from v-x(?xi). Reared from cocoons of Hymenoptera (pseudohyperparasitoid of Lepidoptera and Coleoptera) as follows. Indet. Ichneumonoidea (2). Ichneumonidae: *Hyposoter tricolor* (Ratzeburg)/*Abraxas grossulariata* (Linnaeus) (*D. J. Jackson*) (1), *Casinaria* sp. (3), indet. Campopleginae (1). Braconidae: *Aleiodes rugulosus* (Nees)/*Acronicta menyanthidis* (Esper) (*W. A. Watson*) (1), *Aleiodes alternator* (Nees)/*Lasiocampa quercus* (Linnaeus) (*M. R. Shaw*) (1), *A. alternator* (Nees)/*Macrothylacia rubi* (Linnaeus) (*K. P. Bland*) (1), *Aleiodes* sp./indet. Noctuidae (1), ?*Meteorus* sp. (1), *Pygostolus ?otiorhynchi* (Boudier) (*K. P. Bland*) (1), *Distatrix formosus* (Wesmael)/*Abraxas sylvata* (Scopoli) (*F. D. Bennett*) (1), ?*Protapanteles immunis* (Haliday)/?*Agriopsis* sp. (*M. R. Shaw*) (1), indet. Microgastrinae (2). Most of the hosts were on trees and bushes, but some were in the field layer. This is a specialist parasitoid of various ichneumonoid cocoons, but apparently only using those of solitary parasitoids (contrast *B. aerea*) of a moderately large size.

Bathythrix linearis (Gravenhorst, 1829)

England: 1 ♂, Buckinghamshire, Burnham Beeches, SU951847 (V.C. 24), 1–8. vi.1999 (*J. W. Ismay*); 1 ♂, Cambridgeshire, Chippenham Fen NNR, TL6569 (V.C. 29), carr at reed bed edge, 25.vi–8.vii.1985 (*J. Field*); 2 ♂, Oxfordshire, Wychwood Forest, SP3317 (V.C. 23), 7.vi–4.vii.1991 (1 ♂) and 4.vii–7.viii.1991 (1 ♂) (*K. Porter*). **Denmark:** 1 ♂, Sjaelland, Vallo Slot park, 28.viii.2000 (*P. J. Chandler*).

Bathythrix margaretae Sawoniewicz, 1980

This species is here recorded as British for the first time. **England:** 1 ♀, Herefordshire, Moccas Park NNR (V.C. 36), mature deciduous wood, 22–28.vii.1992 (*J. Cooter*).

Bathythrix pellucidator (Gravenhorst, 1829) (= *ruficaudata* (Bridgman, 1883))

Numerous specimens. **England:** V.C.s 7, 11, 17, 21, 22, 23, 24, 28, 29, 58. **Wales:** V.C. 52. **Scotland:** V.C.s 75, 77, 83, 89, 96, 99, 105. **France:** Lot-et-Garonne, Dordogne. Specimens collected from (?v)vi–ix(?x). Reared as a solitary parasitoid from puparia of Syrphidae (Diptera) as follows. *Episyrphus balteatus* (De Geer) (*F. D. Bennett*; *P. J. Chandler*; *A. F. G. Dixon*; *D. Hackett*; *I. R. Hudson*; *G. E. Rotheray*) (7), *Eupeodes ?corollae* (Fabricius) (1), *Melanostoma* sp. (*R. P. Knill-Jones*) (1). This is a plurivoltine species, overwintering in the host puparium.

Bathythrix prominens (Strobl, 1901)

Sawoniewicz (1980) recorded this species from England and Ireland.

Numerous specimens. **England:** V.C.s 2, 18, 22, 23, 24, 27, 37, 58. **Isle of Man:** V.C. 71. **Wales:** V.C. 52. **Scotland:** V.C.s 89, 96, 99, 105, 111. **Ireland:** V.C. H27. **Netherlands:** Gelderland. Specimens collected from v-x(?xi). Reared from cocoons of Lepidoptera, apparently as a primary parasitoid, as follows. Gracillariidae: *Caloptilia elongella* (Linnaeus) (*R. I. Lorimer*; *H. N. Michaelis*) (2), *Caloptilia betulicola* (Hering) (*M. R. Shaw*) (1), *Caloptilia rufipennella* (Hübner) (*F. D. Bennett*) (1), *Eucalybites auroguttella* (Stephens) (*M. R. Shaw*) (2), *Phyllonorycter emberizaepennella* (Bouché) (*G. Bryan*) (1, Netherlands); Momphidae: *Mompha locupletella* ([*Denis & Schiffermüller*]) (*♂. L. Gregory*) (1). Plurivoltine, overwintering in the host cocoon.

Bathythrix rugulosa (Thomson, 1884)

Sawoniewicz (1980) recorded this species from Ireland.

England: 1 ♀, Shropshire, Cleobury North (V.C. 40), ex mud cocoon of *Gyrinus* sp. (Coleoptera: Gyrinidae) (teste G. N. Foster) on rush stem in pond, ix.1972 (*R. E. Evans*). A further ♀ specimen from England, Cambridgeshire, Chippenham Fen NNR, TL6569 (V.C. 29), carr at reed bed edge, 16–24.vi.1983 (*♂. Field*) (det. J. Sawoniewicz) has been transferred to coll. Sawoniewicz.

Bathythrix spheginus (Gravenhorst, 1829)

Sawoniewicz (1980) recorded this species from England.

England: 1 ♀, Kent, Hythe Ranges (V.C. 15), ex *Coleophora galbulipennella* Zeller (Lepidoptera: Coleophoridae), 1993 (*M. S. Parsons*). *Bathythrix spheginus* is best known as a primary or secondary parasitoid of *Cephus pygmeus* (Linnaeus) (Hymenoptera: Cephidae) (Sawoniewicz, 1980).

Bathythrix strigosa (Thomson, 1884)

This species is here recorded as British for the first time. **England:** 1 ♀, Berkshire, Windsor Forest, SU9470 (V.C. 22), 6–15.v.1992 (*K. Porter*); 1 ♂, Cheshire, Dunham New Park (V.C. 58), 23.viii.1976 (*M. A. Kirby*). **Scotland:** 9 ♀, Perthshire, Errol, Paddockmuir Wood (V.C. 89), vi, vii, viii and ix.1987 (*D. Phillips*); 1 ♀, Argyll, Taynish NNR, NR7384 (V.C. 101), 9.vii–5.viii.1984 (*I. C. Christie*). **France:** 1 ♀, Dordogne, St Alvère, 3–21.v.2004 (*R. R. Askew*). **Hungary:** 1 ♀, Vas, Örség, 18.v.2001 (*M. R. Shaw*).

Bathythrix tenuis (Gravenhorst, 1829)

France: 1 ♀, 1 ♂, Lot-et-Garonne, Bernac, 9–21.vi.1996 (1 ♀) and 26.vi–3.vii.1991 (1 ♂) (*R. R. Askew*); 1 ♂, Dordogne, St Alvère, 26.vi–8.vii.2002 (*R. R. Askew*).

Bathythrix thomsoni (Kerrich, 1942)

Numerous specimens. **England:** V.C.s 3, 7, 11, 12, 16, 17, 22, 23, 24, 28, 29, 37, 58, 61. **Isle of Man:** V.C. 71. **Wales:** V.C.s 45, 52. **Scotland:** V.C.s 82, 83, 88, 89, 90, 92, 95, 96, 98, 99, 101, 105, 106, 107. **Guernsey:** V.C. 113.

France: Lot-et-Garonne. Specimens collected from v–x(?xi). Reared from cocoons of Lepidoptera (presumed primary parasitoid) and Hymenoptera (pseudohyperparasitoid of Lepidoptera and Coleoptera) as follows. From Lepidoptera, Psychidae: *Luffia ferchaultella* (Stephens) (J. R. Langmaid) (2); Gracillariidae: *Caloptilia betulicola* (Hering) (M. R. Shaw) (1), *Caloptilia leucapennella* (Stephens) (R. J. Heckford) (1), *Eucalybytes auroguttella* (Stephens) (M. R. Shaw) (2), *Phyllonorycter trifasciella* (Haworth) (M. R. Shaw) (2); host remains are not present and it is possible that cocoons of *Pholetesor circumscriptus* (Nees) (Hymenoptera: Braconidae) were the real host; Choreutidae: *Choreutis pariana* (Clerck) (M. R. Shaw) (1); Yponomeutidae: *Ocerostoma friesei* Svensson (J. M. Chalmers-Hunt; A. N. B. Simpson) (2); Coleophoridae: *Coleophora betulella* Heinemann & Wocke (M. R. Shaw) (1), *Coleophora spinella* (Schrank) (J. R. Langmaid) (1), *Coleophora serratella* (Linnaeus) (B. A. Hawkins; M. R. Shaw) (12), *Coleophora flavipennella* (Duponchel) or *C. lutipennella* (Zeller) (J. R. Langmaid; S. M. Palmer) (3); Hymenoptera, Ichneumonidae: *Hyposoter* sp. / *Pechipogo strigilata* (Linnaeus) or close relative (*D. Grundy*) (1), *Casinaria* spp. on *Betula* (1) and *Pinus* (1), indet. Campopleginae/indet. Noctuidae on *Acer* (2); Braconidae: *Aleiodes* sp./*Eupithecia pusillata* ([Denis & Schiffermüller]) (M. R. Shaw) (4), *Aleiodes alternator* (Nees)/*Euthrix potatoria* (Linnaeus) (H. C. J. Godfray) (1), *Aleiodes similis* (Curtis)/*Orthosia* sp. (B. T. Parsons) (1), *Meteorus lionotus* Thomson/*Thera obeliscata* (Hübner) (M. R. Shaw) (1), ?*Protapanteles immunis* (Haliday) (1), ?*Cotesia* sp. (M. R. Shaw) (1), *Pygostolus ?otiorhynchi* (Boudier) (R. E. Evans; M. R. Shaw) (2), *Charmon cruentatus* Haliday/?*Acleris sparsana* ([Denis & Schiffermüller]) on *Acer* (F. D. Bennett) (1). Although most reared specimens have emerged in the year of collection the full data demonstrate that *B. thomsoni* is a plurivoltine species, overwintering in the cocoon.

CREMNODINA

Cretnodes atricapillus (Gravenhorst, 1815)

Many specimens. **England:** V.C.s 27, 29. **Wales:** V.C. 45. **Scotland:** V.C.s 83, 88, 89, 104. Specimens collected from vi–vii and ix–x. Reared from puparia of Diptera: Agromyzidae as follows: *Phytomyza trolliophila* Hering (K. P. Bland) (2), *Phytobia cambii* (Hendel) (K. P. Bland) (2) and from 'leaf miner' (1).

Cretnodes costalis Horstmann, 1992

In his description of this species Horstmann (1992) included an English ♀ paratype, which is in NMS.

Several specimens. **England:** V.C. 16, 29. **Scotland:** V.C. 96, 108. Specimens collected from vi–vii and in viii/ix. Reared from puparia of an unidentified species of cyclorrhaphous Diptera in a thistle stem coll. iii, em. v (P. J. Chandler) (2).

Cretnodes rufipes (Perkins, 1962)

Wales: 1 ♀, Pembrokeshire, Western Cleddau, SM8931 (V.C. 45), 23.vi.1987 (P. Holmes).

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