



## Research article

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# Parasitoid wasps new to Britain (Hymenoptera: Platygasteridae, Eurytomidae, Braconidae & Bethylidae)

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**Abstract.** One genus and five species are recorded as new to Britain: *Fidiobia*, *Fidiobia hispanica*, *Macroteleia bicolora* (Platygasteridae); *Sycophila binotata* (Eurytomidae); *Schizoprymnus collaris* (Braconidae); and *Laelius pedatus* (Bethylidae). Keys to British *Macroteleia* and *Laelius* are provided. Provisional synonymy is proposed between *Macroteleia minor* and *M. brevigaster*, and synonymy is proposed between *Laelius femoralis*, *L. microneurus* and *L. nigricrus*. The possible mode of introduction of *Sycophila binotata* is discussed. A lectotype is designated for *Schizoprymnus collaris*.

**Keywords.** Conservation, identification keys, invasive species, lectotype designation, synonymy

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## Introduction

Knowledge of the composition of the British Hymenoptera fauna is essential for the purposes of biological studies requiring accurate identifications, and their applications, including conservation of

native species and the monitoring of faunal change. There are many species of parasitoid wasps and, even though the fauna is relatively well known, taxa new for Britain are regularly discovered.

This paper records one genus and five species found in material recently acquired by the Natural History Museum, London. The following are recorded as new to Britain: *Fidiobia* Ashmead, 1894, *Fidiobia hispanica* Popovici & Buhl, 2010, *Macroteleia bicolora* Kieffer, 1908 (Platygastridae); *Sycophila binotata* Fonscolombe, 1832 (Eurytomidae); *Schizoprymnus collaris* (Thomson, 1874) (Braconidae); and *Laelius pedatus* (Say, 1836) (Bethyridae). Brief notes are provided on identification, material examined, distribution and biology of each taxon.

A key to British *Macroteleia* is given and provisional synonymy is proposed between *Macroteleia minor* and *M. brevigaster*; other recent additions to the British platygastrid fauna are noted by Notton (2006) and Buhl & Notton (2009). Notes are provided on the distribution and possible mode of introduction of *Sycophila binotata*, which have implications for studies of recruitment of parasitoids of introduced gall wasps. A lectotype is designated for *Schizoprymnus collaris*. A key to British *Laelius* Ashmead, 1893 is given and synonymy is proposed between *L. femoralis* (Förster, 1860), *L. microneurus* (Kieffer, 1906) and *L. nigricrus* (Kieffer, 1906).

## Material and methods

Images were taken using a Canon EOS 450D camera with a Pentax 50 mm macro, with a number of partially focused images combined using Helicon Focus v.4.80 software. The method for measuring the *Fidiobia* is as described by Popovici & Buhl (2010). Except where stated otherwise, all material is deposited in the collection of the Natural History Museum, London (BMNH).

## Results

Class Hexapoda Blainville, 1816  
Order Hymenoptera Linnaeus, 1758  
Suborder Apocrita Latreille, 1810  
Superfamily Platygastroidea Haliday, 1833  
Family Platygastridae Haliday, 1833  
Subfamily Sceliotrachelinae Brues, 1908  
Genus *Fidiobia* Ashmead, 1894

*Fidiobia hispanica* Popovici & Buhl, 2010

Figs 1-3

*Fidobia synergorum* – O'Connor *et al.*, 2004: 14 [not Kieffer, 1921] [misidentification].

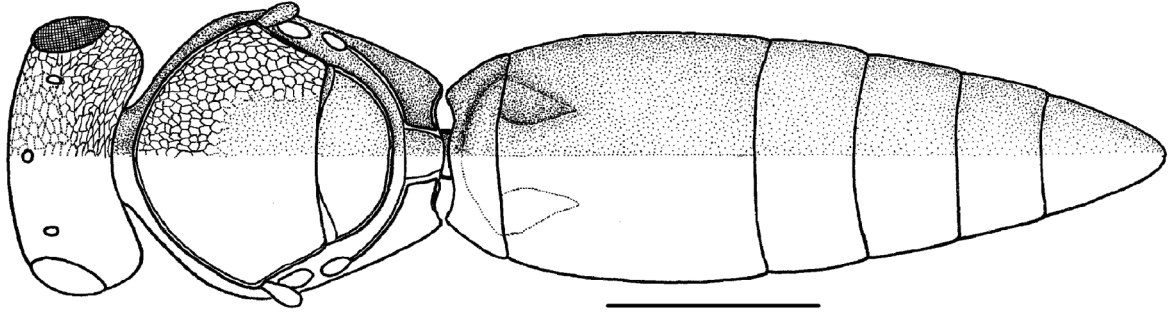
## Identification

Specimens were identified to genus using the key by Masner & Huggert (1989) and to species with the key by Popovici & Buhl (2010). Detailed illustrations are given by Popovici & Buhl (2010). The following notes are provided to improve the diagnosis of the female metasoma given in the original description of this species and to take account of telescoping of the apical gastral tergites, which varies naturally and can also be affected by the preservation techniques used. Numbers given are: range (arithmetic mean,  $\pm$  standard deviation) {range for the type series}.

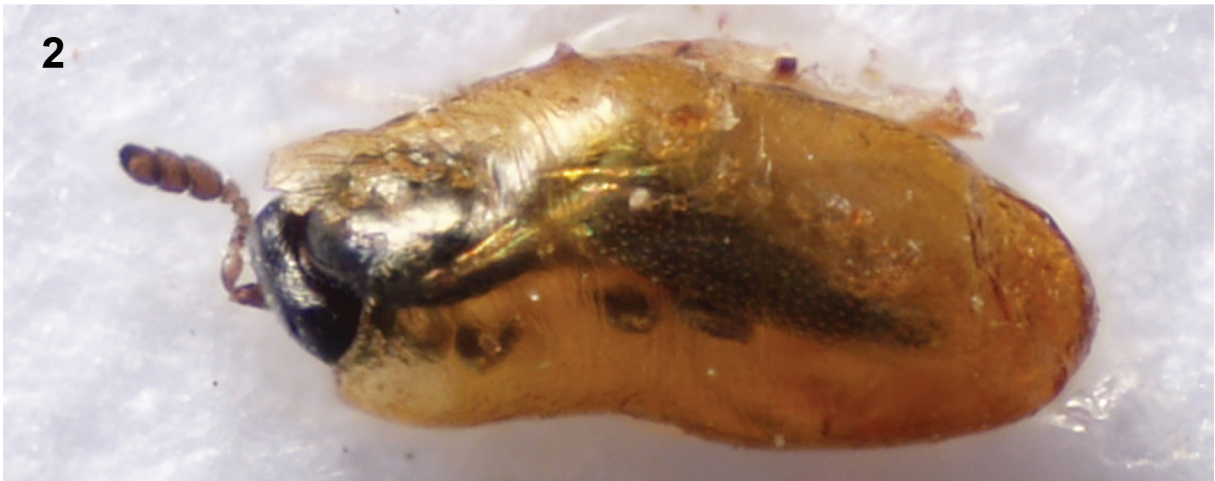
## Diagnosis of female metasoma

Ratio between length and width of metasoma 2.1–2.7 (2.2  $\pm$  0.17) {2.7–2.8}; ratio between width and length of T1 3.0–4.5 (3.4  $\pm$  0.5) {3.6–5.0}; ratio between maximum and minimum width of T1 1.1–1.7

1



2



3



**Figs 1–3.** *Fidiobia hispanica* Popovici & Buhl, 2010. 1. Dorsal habitus, ♀. 2. Host egg with half emerged ♀. 3. Fragment of old *Andricus kollari* gall showing cavity - a vacated cell of *Synergus umbraculus* – containing beetle eggs, the true host of *F. hispanica*. Body length of wasp *c.* 0.8 mm. © Ovidiu Popovici.

(1.4 ±0.16) {1.5–1.7}; ratio between length and width of T2 0.8–1.1 (0.9 ±0.1) {1.0}; ratio between length of T2 and length of T1 3.3–6.5 (4.1 ±0.9) {4.8–5.0}; ratio between length of T2 and length of T3 3.1–4.0 (3.6 ±0.3) {2.4}; ratio between maximum and minimum width of T2 1.2–1.5 (1.3 ±0.1) {1.2–1.3}; ratio between length of T3 and length of T4 1–1.5 (1.1 ±0.2) {1.0–1.3}; ratio between maximum and minimum width of T3 1.1–1.3 (1.2 ±0.1) {1.1}; ratio between maximum and minimum width of T4 1.1–1.6 (1.2 ±0.1) {1.1–1.3}; T6 triangular, ratio between length of T6 and T5 1.7–2.8 (2.1 ±0.4) {1.3–1.5}.

### Material examined

ENGLAND: London, Greenwich, Vanbrugh Pits, 16 ♀♀, 3 ♂♂, reared from a batch of beetle eggs in vacated *Andricus lignicola* (Hartig, 1840) gall on *Quercus robur* Linnaeus, 1753, gall collected 17 Jan. 2010, D. G. Notton; London, Greenwich, Vanbrugh Pits, TQ397771, 5 ♀♀, reared from a batch of beetle eggs in a vacated cell of *Synergus umbraculus* (Olivier, 1791) in an old *Andricus kollari* (Hartig, 1843) gall on *Quercus robur*, gall collected 14 Mar. 2010, D. G. Notton (all BMNH).

### Distribution

Genus and species recorded here as new to Britain. Previously recorded from Ireland by O'Connor *et al.* (2004, as *F. synergorum*) and from Spain and Ireland by Popovici & Buhl (2010).

### Biology

The genus *Fidiobia* contains more than a dozen species worldwide, of which seven are known from the Palaearctic. These wasps are endoparasitoids of beetle eggs, and consequently are very small, typically 0.6–1.3 mm, and rarely collected (Popovici & Buhl 2010). *Fidiobia hispanica* was previously reared from the galls of *Andricus lignicola* by O'Connor *et al.* (2004), although the host remains were not located, and the host identity not confirmed. Spanish material was collected in a pine / juniper forest (Popovici & Buhl 2010). In the present study two broods of *F. hispanica* were reared. The first was from a batch of beetle eggs found in a vacated gall of *Andricus lignicola* on *Quercus robur*. The host eggs were in a small irregular chamber at the base of the gall connected to the outside by a hole. There were at least 34 host eggs, 22 of which had been parasitised. (31 empty shells, 16 ♀♀, 3 ♂♂ emerged, 3 unemerged). The second brood was reared from a batch of beetle eggs found in a vacated *Synergus umbraculus* cell in an old vacated *Andricus kollari* gall. In both cases the galls were old, previously vacated and of weathered appearance, and in both cases the hosts were beetle eggs and not the original inhabitants of the gall. There have been several other rearings of other *Fidiobia* species from oak galls (e.g., Vlug 1995; O'Connor *et al.* 2004), which may be explained the same way – *Fidiobia* reared from oak galls are not using Cynipidae or their inquilines or parasitoids as hosts; it is much more likely that they are attacking beetle eggs which have been laid in cavities in old oak galls. Furthermore, the possibility should be kept in mind that *F. hispanica* has no particular association with oak galls. Probably there is a sampling bias since many people rear oak galls, and there is currently no reason to suppose *F. hispanica* would not attack the same beetle eggs elsewhere, such as in bark crevices.

Superfamily Platygastroidea Haliday, 1833

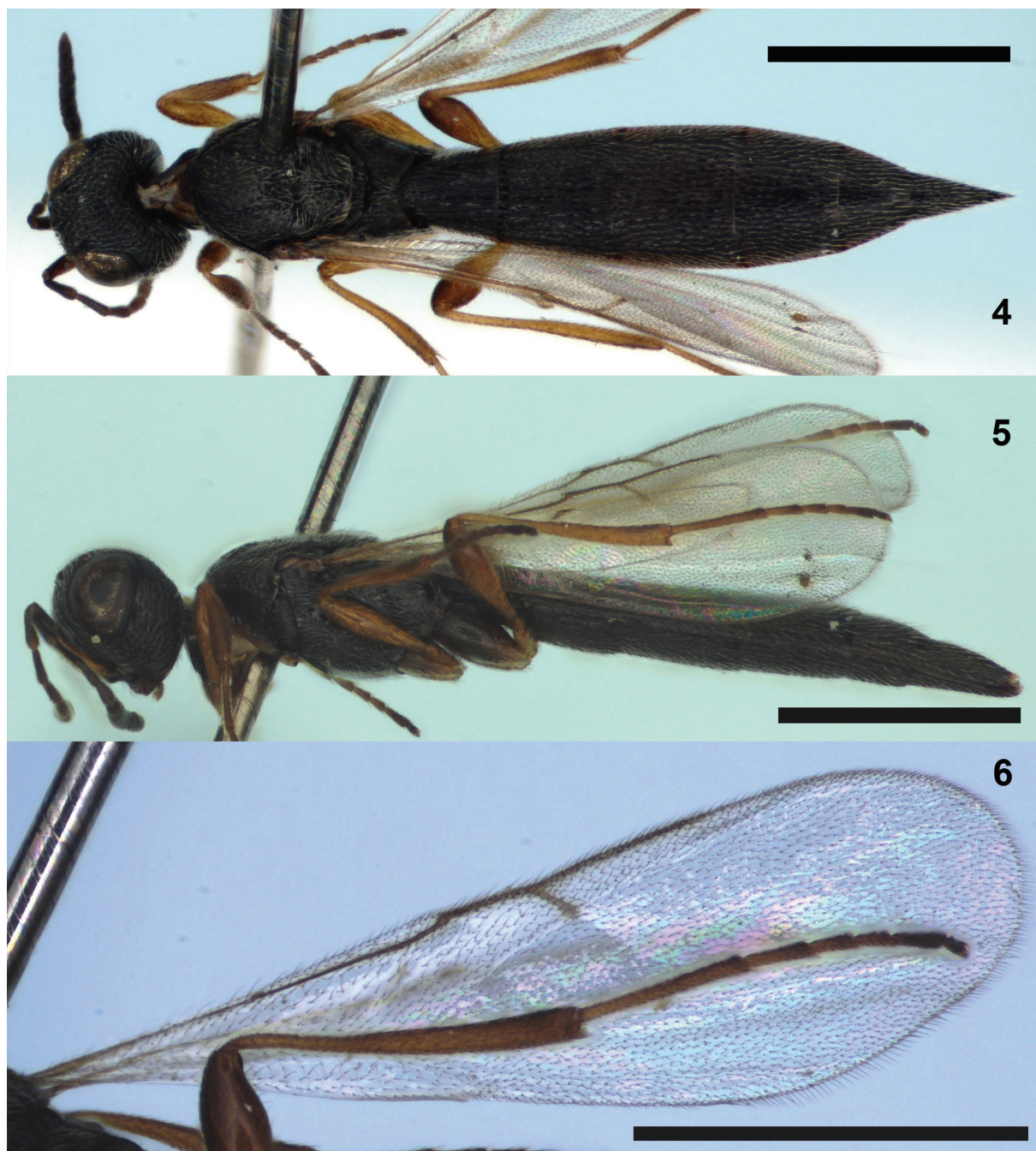
Family Platygastriidae Haliday, 1833

Subfamily Scelioninae Ashmead, 1893

Genus *Macroteleia* Westwood, 1835

Two species of *Macroteleia* were recorded from Britain by Notton (2006) and a third species is reported here. Since limited British material is currently available, further variation, particularly in colour, may be encountered. Provisional synonymy between *M. minor* and *M. brevigaster* is discussed below. Numerous Palaearctic species of *Macroteleia* are catalogued by Johnson (1992) and more have been described since (Kozlov & Kononova 1987, 1990; Kononova & Petrov 2003), although a number of

old names have not been accounted for by recent authors, so some further synonymy may yet occur. The host relations of the British species are unknown, although other species of *Macroteleia* are solitary parasitoids of the eggs of bush crickets (Orthoptera: Tettigoniidae) (Muesebeck 1977).



**Figs 4–6.** *Macroteleia atrata* Kozlov & Kononova, 1987, ♀. 4. Dorsal habitus. 5. Lateral view. 6. Fore wing. Specimen number BMNH(E)968238. Scale bars all 1 mm. © Natural History Museum, London.

**Key to females of British *Macroteleia***

1. Gastral tergite 3 with lateral areas not defined; body less elongate (Fig. 10): exposed part of apical tergite 1.4–1.6 times as long as wide; postmarginal vein 1.4–1.6 times as long as marginal (body black; scape red-brown; legs red-brown, all coxae darkened) .....*Macroteleia brevigaster* Masner, 1976
- Gastral tergite 3 with lateral area on each side defined by a longitudinal carina; body more elongate (Figs 4, 7): exposed part of apical tergite 2.2–2.6 times as long as wide; postmarginal vein 1.7–2.3 times as long as marginal .....2
  
2. Gastral tergite 3 transverse, 1.2 times as wide as long; exposed part of apical tergite 2.2 times as long as wide; postmarginal vein 1.7 times as long as marginal (body black; scape dark brown with base orange-brown; legs orange-brown, mid and hind coxae darkened) .....*Macroteleia atrata* Kozlov & Kononova, 1987
- Gastral tergite 3 as long as wide; exposed part of apical tergite 2.6 times as long as wide; postmarginal vein 2.3 times as long as marginal (body dark brown to black above, yellow to yellow brown below; scape yellow-brown; legs including coxae yellow) .....*Macroteleia bicolora* Kieffer, 1908



**Figs 7–9.** *Macroteleia bicolora* Kieffer, 1908, ♀. 7. Dorsal habitus. 8. Lateral view. 9. Fore wing. Specimen number BMNH(E)938241. Scale bars all 1 mm. © Natural History Museum, London.

*Macroteleia atrata* Kozlov & Kononova, 1987  
Figs 4–6

**Remarks**

*M. atrata* was first recorded from Britain (Kent) by Notton (2006). Its distribution and favoured habitats are poorly known.

*Macroteleia bicolora* Kieffer, 1908  
Figs 7–9

**Identification**

This specimen was identified to genus using the key by Masner (1980) but it did not agree with either of the two previously known British species of *Macroteleia* (Notton, 2006). The identity of the species was confirmed by the second author, who has examined the type and compared it to published descriptions (Kieffer 1908, 1914, 1926; Kozlov 1987; Kononova & Kozlov 2008). Johnson (1992) catalogued numerous Palaearctic species of this genus and more have been described since (Kozlov & Kononova 1987, 1990; Kononova & Petrov 2003), although many of the older species have not been reinterpreted recently, and it is possible that the name *M. bicolora* will turn out to be a synonym.

**Material examined**

ENGLAND: Hants, Botley Wood, SU5409, ♀, 31 Jul. 2007, Malaise trap, K. J. Wheeler (BMNH).

**Distribution**

This species was originally described from Italy by Kieffer (1908), and its distribution includes: Northern Italy, Kazakhstan, Russia (Northern Caucasus), Ukraine (Kononova & Kozlov 2008) and Denmark (Buhl 1999). It is recorded here as new to Britain.

**Biology**

The biology of this species is poorly known; however, the habitat at the Botley Wood Local Nature Reserve and SSSI is an extensive area of varied woodland, scrub and grassland with rides and ancient droeways of high conservation significance for invertebrates managed by Hampshire County Council/Natural England.

*Macroteleia brevigaster* Masner, 1976  
Figs 10–12

*Apegus punctatus* Kieffer, 1908: 150, 161 (preoccupied).

*Macroteleia brevigaster* Masner, 1976: 27 (replacement name for *Ageus punctatus*).

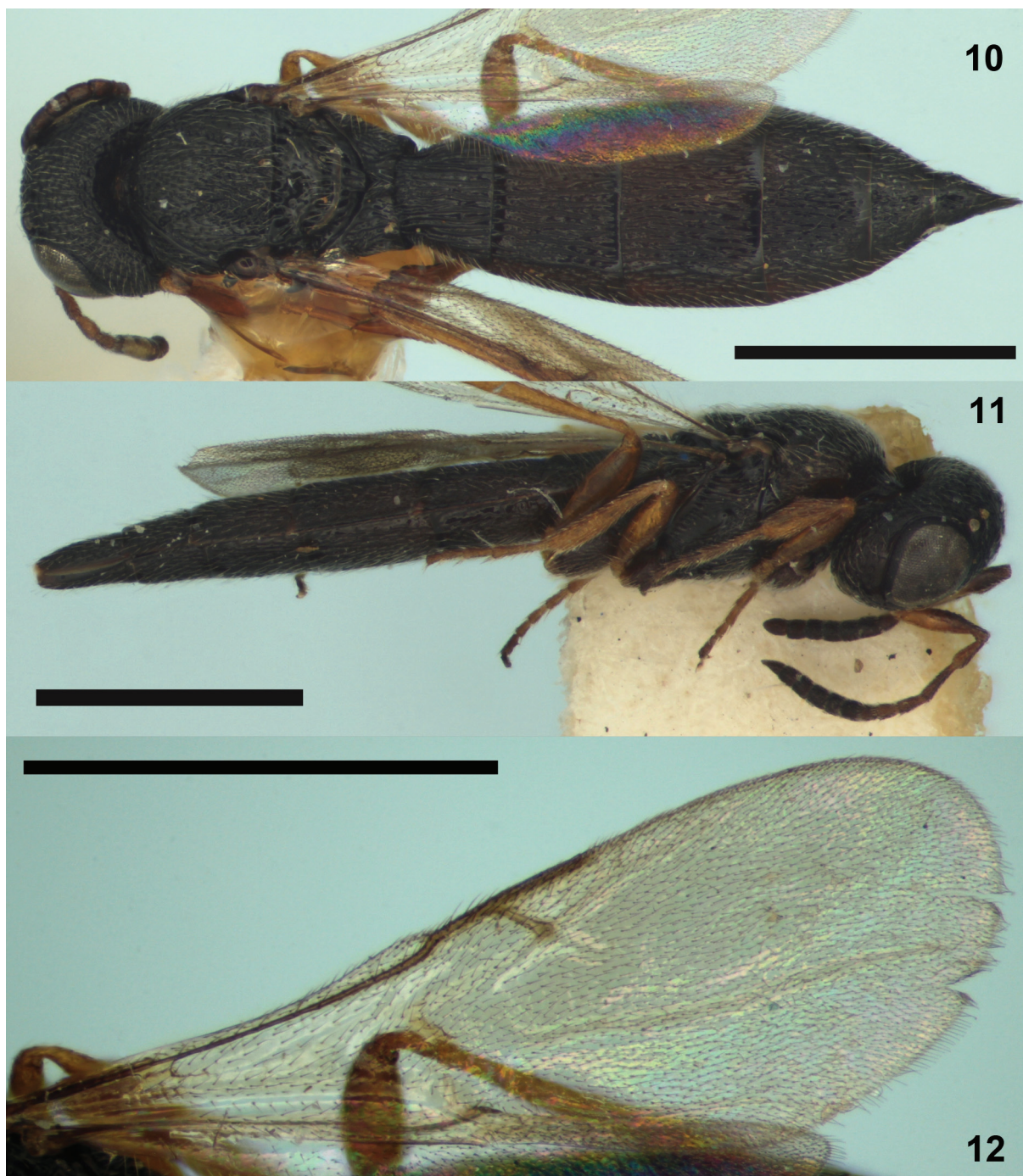
? *Macroteleia minor* Kozlov & Kononova, 1987: 93, 95 (syn. nov.).

**Biology**

Combined records of Masner (1956) and Notton (2006) suggest that this species prefers dry grassland and dune habitats.

**Remarks**

*M. brevigaster* was first recorded from Britain (Devon and the Isle of Wight) by Notton (2006, as *M. minor*). It appears that *M. brevigaster* and *M. minor* are the same species, based on the interpretation of the former by Masner (1956, as *Parapegus punctatus*) and its similarity with the description of Kozlov & Kononova's species. Unfortunately the types of neither *A. punctatus* nor *M. minor* could be



**Figs 10–12.** *Macroteleia brevigaster* Masner, 1976, ♀. **10.** Dorsal habitus. **11.** Lateral view. **12.** Fore wing. Specimen numbers BMNH(E)968239 and BMNH(E)968240. Scale bars all 1 mm. © Natural History Museum, London.



examined, so the new synonymy proposed here is provisional. The new synonymy suggests that the distribution of this species is much wider: Bulgaria (Kononova & Petrov 2003, as *M. minor*); Czech Republic and Slovakia (Masner 1956, as *P. punctatus*); England and the Channel Islands (Notton 2006, as *M. minor*); Hungary (Kozlov 1978, as *P. punctatus*); Northern Italy (Kieffer 1908, as *A. punctatus*); Romania (Popovici 2007; Fabritius & Popovici 2007, as *M. minor*); and Ukraine (Kozlov & Kononova 1987, as *M. minor*).

Superfamily Chalcidoidea Latreille, 1817  
 Family Eurytomidae Walker, 1832  
 Subfamily Eurytominae Walker, 1832  
 Genus *Sycophila* Walker, 1871

*Sycophila binotata* Fonscolombe, 1832

Figs 13–14

### Identification

This species keyed easily in Zerova (1978 – as *Eudecatoma binotata*) and agrees with the concept of Z. Bouček and M. Graham (Graham 1992), based on the lectotype designated by Graham, and specimens determined by Bouček and Graham in BMNH, and was confirmed by R. R. Askew (pers. comm.). The species is highly distinctive among European *Sycophila* in having two dark fasciae on each fore wing.

### Material examined

ENGLAND: London, Fulham, Imperial Wharf, TQ263765, ♀, ex gall of *Aphelonyx cerricola* on *Quercus suber*, gall coll. 21 Mar. 2010, M. Barclay, BMNH(E)969429; ♀, same data, except gall coll. 26 Sep. 2011, BMNH(E)969430.

### Distribution

*S. binotata* has a widespread distribution in southern Europe including Spain, France, Italy, and the Balkans (Noyes 2013; Askew *et al.* 2013), although it was not recovered during a recent survey of parasitoids of *A. cerricola* (Giraud, 1859) in central Europe (Melika *et al.* 2002). It is recorded here as new to Britain.

### Biology

British material of *S. binotata* was reared from the galls of *Aphelonyx cerricola* collected from *Quercus suber* L. The exact insect host was not established, since other inquiline and parasitoid Hymenoptera were also present as well as the gall causer; however, it has apparently not been reared from galls of *Aphelonyx* previously (Melika *et al.* 2002; Askew *et al.* 2013) and is normally an oligophagous endoparasitoid of *Plagiotrochus* spp. (Cynipidae) on evergreen species of *Quercus* L. of sections *Cerris* Loudon and *Ilex* Loudon (Gómez *et al.* 2013). The history of the *Quercus suber* trees which hosted the British *S. binotata* is of some interest – they were planted as well-established saplings during the winter of 2005–2006, and their origin is most likely to have been Italy; novel Coleoptera found in association with these trees are likely to have come from Italy and an Italian coin was found in the soil around their roots (M. V. L. Barclay pers. comm.), so it seems likely that the *S. binotata* was imported with the trees direct from Italy and has survived for several generations in Britain.

### Remarks

If, as seems likely, *S. binotata* was imported together with its gall wasp host and host tree, this is of considerable interest for studies of the recruitment of parasitoids of invasive gall wasps in the UK. Some previous studies of the parasitoids of invasive gall wasps in the UK have considered two main methods of recruitment, either recruitment from an existing pool of native parasitoids, or that



**Figs 13–14.** *Sycophila binotata* Fonscolombe, 1832, ♀. **13.** Lateral habitus. **14.** Fore wing. Specimen number BMNH(E)969430. Scale bars both 1 mm. © Natural History Museum, London.

populations of parasitoids might pursue host gall wasps as they spread continuously across Europe, the former appearing more likely (Schönrogge *et al.* 2006, 2011). However, the presence of the previously non-British *S. binotata* in London, in circumstances where good-sized trees were imported, raises a third, more radical possibility, that recruitment is not necessary when parasitoids are not lost by their cynipid hosts. Oak trees could be imported through the horticulture trade with a community of gall wasps and parasitoids more or less intact; this would of course be much faster than the unassisted, or partially assisted, spread of both gall wasp and parasitoid. It is of course possible that other parasitoids have also been imported in this way; such introductions may be easily overlooked, especially where the same species already occurs in Britain. Without historical evidence of the circumstances of importation of host gall wasps, such instances could have been misinterpreted as recruitment from the existing pool of native parasitoids, so caution is needed when interpreting recruitment studies of such imported gall wasps. Given the numbers of good-sized oaks used in the UK for prestigious building developments and parks, in particular *Quercus ilex* L. and its associated gall wasp species, e.g., *Plagiotrochus* Mayr, 1881, the potential for other parasitoids to be introduced in this way is clear.

Superfamily Ichneumonoidea Latreille, 1802

Family Braconidae Latreille, 1829

Subfamily Brachistinae Förster, 1862

Genus *Schizoprymnus* Förster, 1862

*Schizoprymnus collaris* (Thomson, 1874)

Figs 15–25

*Sigalphus collaris* Thomson, 1874: 557

*Triaspis collaris* – auct.

### Identification

*Schizoprymnus collaris* keys readily to genus using the key to subfamily and notes given by Shaw & Huddleston (1991) and also the key to genera by Tobias *et al.* (1995). There is no key specifically to British species of *Schizoprymnus*, and this species will not run in the key to European *Schizoprymnus* by Tobias *et al.* (1995), which erroneously includes *S. collaris* in the key to *Triaspis* Haliday, 1838. However, the British specimen has been directly compared with the lectotype of *S. collaris* and agrees well. *S. collaris* is an aberrant species when compared to other *Schizoprymnus* and may be distinguished from other British species in this genus as follows: frontal crest absent, at most a blunt ridge; antennal scrobes with regular transverse striations (Fig. 16); lateral carina of scutellum absent (Fig. 18); sutures of carapace weakly developed but present laterally, the first suture perpendicular to the margin, the second suture directed obliquely backwards (Fig. 17); third tergite largely convex with only weak concavity at extreme apex and deep medial incision in posterior margin to accommodate ovipositor (Fig. 19); apical margin of carapace not turned under, so that sternites are not concealed; ovipositor extending beyond apex of carapace by 1.2–1.3 times length of carapace (Fig. 15); pronotum and mesonotum extensively marked with red and hind femur red (Fig. 17).

### Material examined

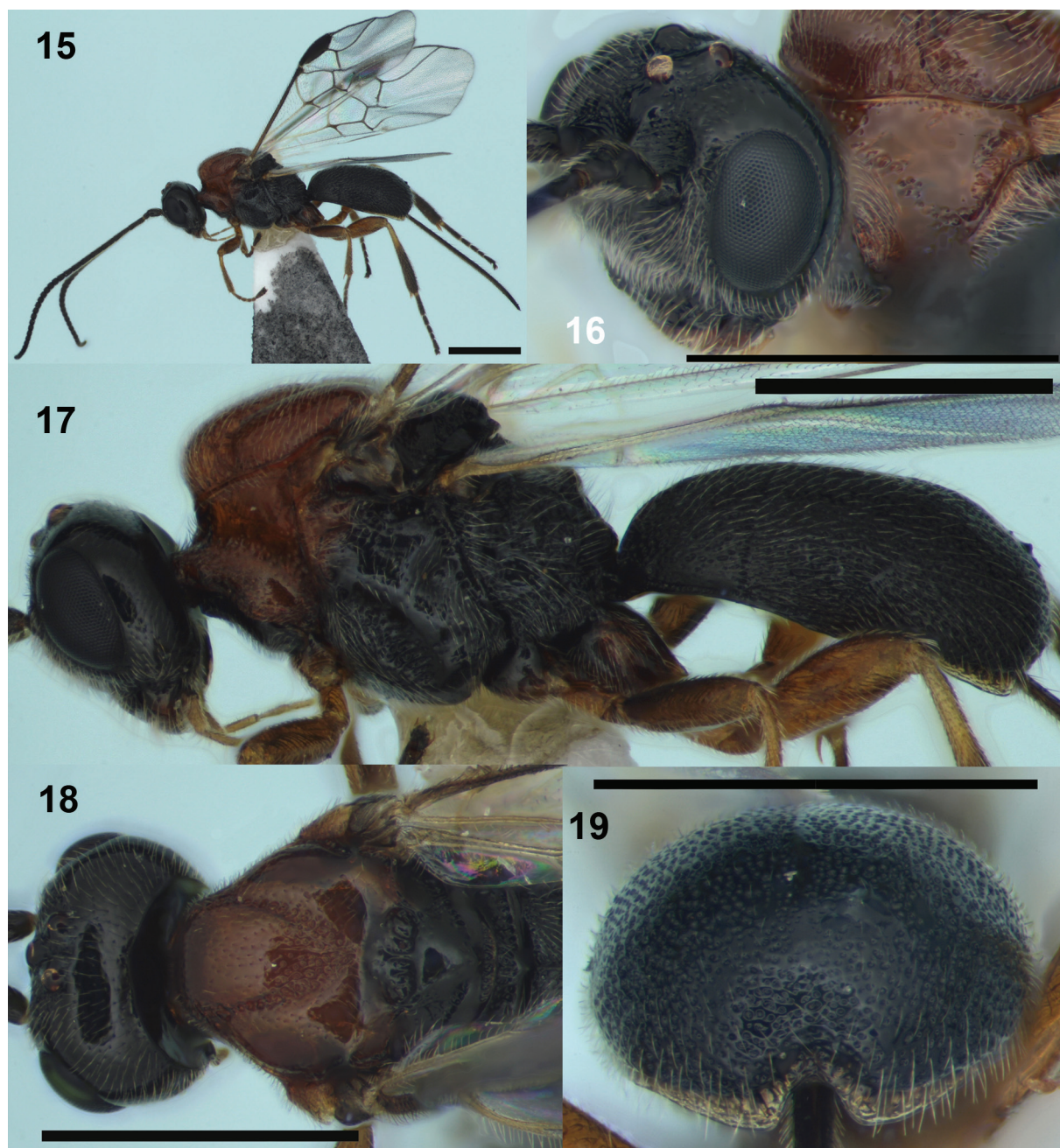
ENGLAND: Wiltshire, Porton Down, The Breck, 51°8'30.9"N 1°38'23.3"W, 105 m, chalk heath, meadow / scrub, ♀, 3 Aug. 2012, D. G. Notton, BMNH(E)2012-120, BMNH(E)968229 (Natural History Museum, London).

GERMANY: ♀, pre-1859, M. Ruthe coll., [BMNH(E)18]59.101 (BMNH).

SWEDEN: [Skåne, Båstad], ♀, Thomson coll., lectotype (Entomological Collection of Lund University).

### Distribution

*S. collaris* is rare in collections but has previously been recorded from France, Germany, Lithuania, The Netherlands and Sweden (Thomson 1874; van Achterberg 2009), but is not included in the recent British checklists of Fitton *et al.* (1978) or Broad *et al.* (2012) and so is recorded here as new for Britain.



**Figs 15–19.** *Schizoprymnus collaris* (Thomson, 1874), ♀ BMNH(E)968229. **15.** Lateral habitus. **16.** Head. **17.** Lateral body. **18.** Dorsal head. **19.** Mesosoma, posterior tergite 3. Scale bars all 1 mm. © Natural History Museum, London.

**Biology**

Host relations of *S. collaris* are unknown; however, other *Schizoprymnus* species are known to be koinobiont egg-larval parasitoids of weevils (Curculionidae), seed beetles (Chrysomelidae: Bruchinae) and tumbling flower beetles (Mordellidae) (Shaw & Huddleston 1991; Belokobylskij & Maetô 2007; Güçlü & Özbek 2011). The habitat, where the English specimen was collected is a rare herb-rich chalk heath habitat with *Juniperus communis* L., *Betula* L. and small amounts of other scrub (English Nature 1999).



**Figs 20–25.** *Schizoprymnus collaris* (Thomson, 1874), ♀, lectotype. **20.** Lateral mesosoma. **21.** Fore wing. **22.** Lateral metasoma. **23.** Hind wing. **24.** Thomson's locality label. **25.** Other labels. Scale bars all 1 mm. © Natural History Museum, London.

### Remarks

A syntype was examined from the Thomson Collection, at the University of Lund, and is designated here as the lectotype in order to remove any possible ambiguity about the application of this name. *S. collaris* was previously placed in *Schizoprymnus* by Telenga (1941: 351) and while recently it has been considered a *Triaspis*, its position in *Schizoprymnus* is confirmed here.

Superfamily Chrysidoidea Latreille, 1802

Family Bethylidae Förster, 1856

Subfamily Epyrinae Kieffer, 1914

Genus *Laelius* Ashmead, 1893

One species of this genus, *Laelius microneurus*, was reported previously from Britain and was keyed by Perkins (1976). Recent taxonomic work has shown that this species should be called *L. femoralis* (see below for discussion and synonymy). A second species, *L. pedatus*, is newly reported here from Britain. The two species may be identified from the key by Vikberg & Koponen (2005); a simplified key is presented here for the British species.

### Key to females of British *Laelius*

1. Stigmal vein straight or almost straight, barely or not widened apically; pterostigma brown, slightly darker than basal vein, and without a seta which is longer than the nearby setae on the costal vein; apex of costal cell with several short setae; propodeum with discal longitudinal carinae slightly converging posteriorly; disc of fore wing hyaline (normally found outdoors) ..... *Laelius femoralis* (Förster, 1860)
- Stigmal vein curved and apically broadened; pterostigma as pale as basal vein and with dorsal seta which is longer than the nearby setae on the subcostal vein; apex of costal cell with 0(–1) small setae; propodeum with discal longitudinal carinae slightly diverging posteriorly, furthest apart at about posterior 2/3; disc of fore wing infuscate (normally found indoors) ..... *Laelius pedatus* (Say, 1836)

*Laelius pedatus* (Say, 1836)

Figs 26-28

### Identification

This species was provisionally identified by John Burn and confirmed by Jeroen de Rond; it may be identified using the key by Vikberg & Koponen (2005) covering Scandinavian species of *Laelius*; they provided a redescription of both sexes and illustrated the wing venation and propodeum of the female and genitalia and apical sclerites of the male. Vikberg & Koponen discussed the steps they took, in the absence of the original type material, to ensure that their interpretation was consistent with previous works such as Evans (1978). The specimens mentioned as plesiotype and plesiallotype by Evans (1978) have no type status as these terms are not recognised by the ICZN; they are merely the specimens on which he based his redescription. The recent specimens mentioned by Vikberg & Koponen (2005) as paratypes are not paratypes; this is an error, since Say's type(s) are lost.

### Material examined

ENGLAND: London, Lewisham, TQ388757, ♀, 19 May 2013, in kitchen, D. G. Notton; London, The Natural History Museum, Entomology Department, TQ265790, ♀, Jul. 1996, A. Polaszek; London, The Natural History Museum, Palaeontology Department, ICZN Secretariat Office, TQ267790, ♀, 2 Oct. 2008, walking across desk, D. G. Notton; London, Streatham Hill, TQ304725, ♂, 7 Jul. 2006, G. Broad; Berks, Ascot, Silwood Park, numerous ♀♀, ♂♂, 1993, in culture, D. Morgan (all BMNH).

THE NETHERLANDS: Leiden University, ♀, cultured on *Trogoderma angustum* (Solier, 1849) (wasps from this culture originated from Madison University, Wisconsin, U.S.A.), P. Mayhew (BMNH).

### Distribution

Originating from the New World: Canada, United States of America, Mexico and Brazil (Gordh & Móczár 1990). More recently recorded from Europe: The Netherlands (Heitmans 1998), Finland (Vikberg & Koponen 2005) and now Britain. *L. pedatus* was kept in culture in Britain by David Morgan at Imperial College (probably the Imperial College field station at Silwood Park near Ascot, Berkshire, U.K.) for some time from at least 1993 (Mayhew 1998), and the possibility of escapees cannot be excluded as a source of the British specimens reported here. Morgan's culture originated from a culture kept by the United States Department of Agriculture in Hoboken, New Jersey (Morgan & Cook 1994). An alternative possibility is that wasps were introduced from mainland Europe, where free-living wasps have been present since at least 1987 (Vikberg & Koponen 2005).

### Biology

*L. pedatus* is a parasitoid of the larvae of various species of carpet beetles (Coleoptera, Dermestidae), including those which are pests of stored products and museum collections. In Europe the wasp has previously only been found indoors (Gordh & Móczár 1990; Heitmans 1998; Vikberg & Koponen 2005), as were the British specimens.

### Remarks

The presence of *L. pedatus* in museums is a matter for concern not because of any problem caused by the wasp itself, but because it may indicate the presence of long standing dermestid infestations upon which they prey. Since the adults of this wasp are quite mobile they might be found on the sticky traps used for museum pest monitoring. Anyone encountering bethylid wasps in these situations is invited to submit the specimens to the senior author in order that the spread of this species can be monitored. One of the localities given above, the old Entomology Building at the Natural History Museum, London, has been demolished and replaced by the new Darwin Centre, which has much improved environmental control and pest management.

### *Laelius femoralis* (Förster, 1860)

*Allepyris microneurus* Kieffer, 1906: 416-417 (syn. nov.).

*Allepyris nigricrus* Kieffer, 1906: 417 (syn. nov.).

### Identification

Material (previously identified as *L. microneurus*) in BMNH was reidentified according to the key by Vikberg & Koponen (1995) to confirm the presence of *L. femoralis* in Britain.

### Material examined

ENGLAND: Berkshire, Silwood Park, 18 Aug. 1975, dead spruce, O.W. Richards, B.M.1967-510; Kent, Beckenham, 9 Jul. 1972, D.E. Kimmins; Surrey, Kew, 17 Jul. 1977, from *Crataegus* Linnaeus, 1753, specimen number 15,576, V.F. Eastop (all BMNH).

### Remarks

Berland (1928) studied the female types of *L. macrocerus* and *L. nigricrus* (in Muséum National d'Histoire Naturelle, Paris) and could not find any difference between them, so he synonymised the two names. It was first suggested that *L. microneurus* was a synonym of *L. femoralis* by de Rond (in Vikberg & Koponen 2005) and from subsequent examination of all the types, including the female neotype of *L.*



**Figs 26–28.** *Laelius pedatus* (Say, 1836), **26–27.** ♀, specimen number BMNH(E)968242. **26.** Dorsal habitus. **27.** Fore wing. **28.** ♂, specimen number BMNH(E)968243, dorsal habitus. Scale bars all 1 mm. © Natural History Museum, London.



*femoralis* (in the Nationaal Natuurhistorisch Museum, Leiden), de Rond has come to the conclusion that both *L. microneurus* and *L. nigricrus* are junior synonyms of *L. femoralis*. This means that the species in Britain referred to as *L. microneurus* by Perkins (1976) should now be called *L. femoralis*.

## Discussion

Knowledge of the composition of the British Hymenoptera fauna is essential for the purposes of biological studies requiring accurate identifications, and their applications, including conservation of native species, and the monitoring of faunal change. It is hoped that this paper will be a useful contribution to the ongoing process of documenting British Hymenoptera and stimulate further study of these fascinating creatures.

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