Rymosia Winnertz (Diptera: Mycetophilidae), a newly recognised element of wetland faunas, with five species new to Britain and a key to species

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Edwards (1925, 1941) recognised ten British species of Tuomikoski's (1966) concept of *Rymosia* Winnertz, and Chandler (1977) added *R. armata* Lackschewitz. The genus falls into two broad groups according to the presence or absence of spinose setae beneath segments 3 and 4 of the male fore tarsi, five of the British species possessing these spines while the remainder lack them.

Recent collecting, principally during surveys carried out by pitfall, water and Malaise traps, on upland and wetland sites, has produced much material of Rymosia, including R. britteni Edwards, R. armata Lackschewitz and four species new to the British list (all of them previously undescribed). A fifth addition to the British list (R. acta Dziedzicki) from Scottish forest, is also introduced, bringing the total to 16 species. All of these additions lack the tarsal spines and there are few specific characters other than in the genitalia; abdominal markings show some distinctions but are variable. The male genitalia are, however, quite distinct in each case; the females have not been recognised for some species and, where they are known, differences in the ovipositor are not great.

The other four British species with simple male fore tarsi include *R. fasciata* (Meigen), generally common in woods, which has been reared from various soft terrestrial fungi; *R. virens* Dziedzicki and *R. placida* Winnertz, which are less common but widespread woodland species. Little is known of the other species, *R. connexa* Winnertz, but it has been found in wooded and open habitats, including coastal sites (no information on precise habitat) at Blakeney Point, Norfolk and Gibraltar Point, Lincs. The most recent record known to me was from Wykeham, N. Yorks., 5–6.ix.1978 (*P. Q. Winter*, via P. Skidmore) in an open site in the Derwent Valley. It is presumed that all species of the genus develop in soft fungi (*R. virens* and *R. affinis* Winnertz are known to have this habit) but most have not yet been reared.

The distribution so far established for the six wetland species is indicated on the accompanying maps, to demonstrate the differences in their ranges. The habitats from which these species have been recorded may be summarised as follows.

R. armata Lackschewitz (Fig. 1)

Widespread in England and Wales; two known Scottish sites. Wooded and open fen and bog sites: amongst Carex rostrata, C. paniculata, Juncus flushes, acidic basin mires, raised bog. The Sussex and Hants records are from wooded pond margins.

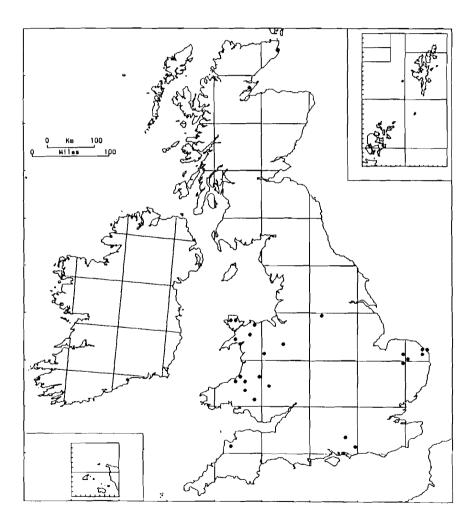


Fig. 1. Map showing distribution in the British Isles of Rymosia armata Lackschewitz.

R. coulsoni sp. n. (Fig. 2)

Widespread in Wales and N. England in the following open habitats: upland valley and basin mires, Juncus and Molinia bogs, Juncus flushes, amongst Sphagnum and Eriophorum, raised bogs.

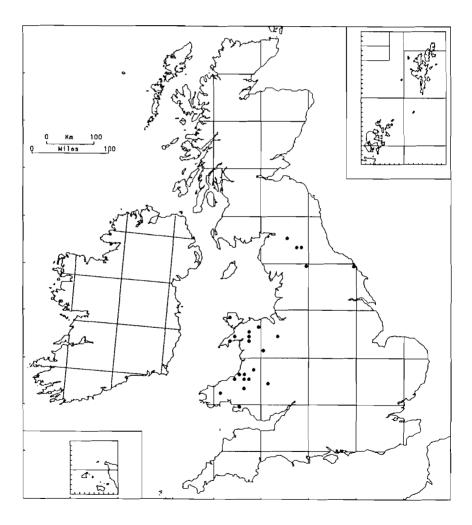


Fig. 2. Map showing distribution in the British Isles of Rymosia coulsoni sp. n.

R. speyae sp. n. (Fig. 3A)

Only two sites, both floodplain fens, i.e. *Carex*-dominated fen by Loch Insh in the Spey Valley and Cors Gyfelog by the Afon Dwyfach.

R. thorneae sp. n. (Fig. 3B)

Welsh sites: amongst *Phragmites*, wet *Myrica* flush, *Juncus* and *Molinia* bog and raised bog. Yorkshire site: raised mire.

R. fosteri sp. n. (Fig. 3C)

Open and wooded fen sites: calcareous valley mires in Oxfordshire and East Anglia.

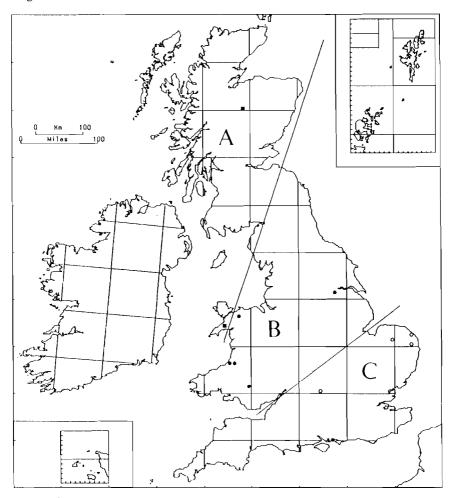


Fig. 3. Map showing distribution in the British Isles of *Rymosia* species: area $A (\blacksquare) R$. speyae sp. n.; area $B (\blacksquare) R$. thorneae sp. n.; area $C (\bigcirc) R$. fosteri sp. n.

R. britteni Edwards (Fig. 4)

Open and wooded fen sites in Oxfordshire and East Anglia; also valley mires on a dry heathland site and by wooded streams in upland areas.

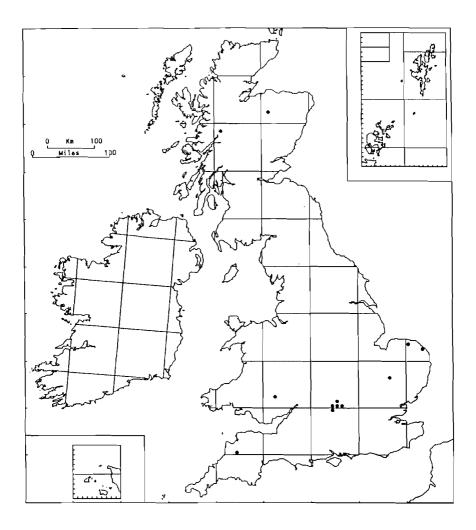


Fig. 4. Map showing distribution in the British Isles of Rymosia britteni Edwards.

Key to British species of Rymosia Winnertz

This is expanded from Edwards' (1925) key to include the seven species added by Edwards (1941), Chandler (1977) and in the present paper.

1	Hind femora with broad brown ring near base; a distinct brown cloud on the wing behind CuA_2 . Mesoscutum without discal bristles. [1 strong, 1 weak proepisternal (= propleural) bristle. \bigcirc front tarsi simple. \bigcirc tergites 2-5 with progressively broader basal bands; \bigcirc also with basal lateral yellow patches on tergite 6, 7 all yellow.]
_	Hind femora all yellow. No cloud behind CuA ₂ . Discal (dorsocentral) bristles
2	present although may be small
	half length of first.] 3 Discal bristles in dorsocentral rows well developed 4
3	Tergites 2-5 (0), 2-6 (\bigcirc) broadly yellow basally, these markings narrowly divided dorsally. [5(-6) posterior setae near tip of hind tibia.]
_	(\bigcirc not seen). [7 posterior setae near tip of hind tibia.] acta Dziedzicki
4	Hind tibia with irregular patch of close-set posterior bristles near tip. Base of
	posterior fork well before base of r-m, which is not much longer than stem of
	median fork. [Second proepisternal weak, less than half first. Tergites 2-4 (\bigcirc), 2-5 (\bigcirc) with yellow basal bands, emarginate medially. \bigcirc fore tarsi
	with spines below segments 3 and 4.] signatipes (Wulp)
_	Hind tibia with row of 3-6 stronger posterior bristles near tip. Base of
	posterior fork usually not well before base of r-m which is usually longer than
5	stem of median fork
_	Male fore tarsi simple. [Cross-vein r-m $1.5-2.0 \times$ stem of median fork.] 9
6	Second proepisternal strong, two-thirds length of first. Cross-vein r-m
	2.5-3.0 × stem of median fork. Tergites 2-5 (\circlearrowleft), 2-6 (\updownarrow) with yellow basal bands narrowed in middle, that on 6 in \updownarrow very narrow in middle
	Second proepisternal weak or absent. Cross-vein r-m 1.5-2.0 × stem of
	median fork
7	Abdomen with distinct yellow basal bands on tergites $2-5$ (O), $2-6$ (Q), which extend narrowly onto hind margins of tergites $1-4$ (-5 in Q). [Second
	proepisternal very weak.] affinis Winnertz (= gracilipes Dziedzicki) Abdomen with less conspicuous markings and hind margins of all tergites
	dark. [Second proepisternal absent.]
8	Lateral margins of tergites 2 and 3 (-4) entirely yellowish, this marking extended narrowly along hind margins of 2-3. Coxae clear yellow
-	Lateral margins of tergites 2 and 3 dark except at base; 2 and 3 (-4) narrowly yellow on hind margin, 2 and 4 with broader yellow bands basally (a third tergal length)

9 Tergites 2-5 (3'), 2-6 (2) with complete yellow basal bands. [Second proepisternal weak. Cross-vein r-m nearly twice stem of median fork.]
 fasciata Meigen Tergites with yellow markings strongly emarginate or more usually separated medially 10
medially
- Second proepisternal weak or absent
11 Tergites 1–4 (\circlearrowleft), 1–7 (\updownarrow) entirely yellow laterally with narrow dark median
dorsal stripe coulsoni sp. n.
dorsal stripe
12 Tergite 2 (O') entirely yellow laterally, basal two-thirds of 3-4 and small
yellow basal marking on 5, all broadly separated dorsally; tergites $2-6$ (\bigcirc)
with yellow basal markings on basal two-thirds armata Lackschewitz
- Tergites 2-5 (\circlearrowleft), 2-7 ($\overset{\circ}{\hookrightarrow}$) with yellow markings on basal two-thirds or more,
widely separated dorsally
widely separated dorsally
13 Tergites with well-defined yellow basal markings, strongly emarginate or
widely separated dorsally
13 Tergites with well-defined yellow basal markings, strongly emarginate or narrowly separated dorsally
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Rymosia signatipes (Wulp, 1859) nom. rev.

Mycetophila signatipes Wulp, 1859: 179. Rymosia truncata Winnertz, 1863: 815. Rhymosia winnertzi Barendrecht, 1938: 46. Syn. n.

The name signatipes used by Edwards (1925) for this species is restored here. The confusion arose because Dziedzicki (1910) figured Winnertz' type (now lost) of truncata and in the same paper figured signatipes (Wulp) as a distinct species. Barendrecht (1938) examined Wulp's type and recognised it as agreeing with Dziedzicki's figures of truncata, which he placed in synonymy with signatipes. Believing Dziedzicki's signatipes to be a different species, he proposed the name winnertzi for it. Edwards (1941) accepted this conclusion and introduced the name winnertzi to the British list. From examination of several British specimens, which I found to agree better with the figures of truncata than those of signatipes, I

have concluded that the latter represent the same species, depicted with the gonostyli deflected and more exposed than normally apparent in situ. This species is widespread but local in woods in southern England and Wales.

Rymosia armata Lackschewitz, 1937

The original British specimen was from Scotland (Ross) and it was found in a survey of the Caithness 'Flow Country', Killimster, 2.v.1990 (J. Coulson). It has also proved frequent in wetland sites in East Anglia and Wales, with some Welsh sites in common with R. coulsoni sp. n. Other new records are as follows: Salop: O', Whixall Moss, 11.x.1936 (C. H. W. Pugh, Manchester University Museum). Devon: O', Powler's Piece, 13.x.1988 (A. E. Stubbs). Sussex: O', Burton Mill Pond, 13.x.1989 (A. Godfrey). Hants: O', Shortheath Common, 24.vi.1990 (Chandler). Yorks: O', Agden Bog, 31.iii.1990 (A. Godfrey).

The male genitalia were figured by Chandler (1977), except for the aedeagus and tergite 9 which are figured here (Fig. 5a); the structure of the aedeagal parameres (also shown in Lackschewitz' figures), differing strongly from the new species described here, confirms its identity. The large material examined has enabled the female to be recognised (Fig. 7a).

The Whixall Moss example has the thorax more yellowish (only dark grey dusted on the disc of the dorsum) and abdomen with tergites 2-4 and basal margin of 5 yellow except on the dorsal mid line. Other males have yellow markings more restricted to basal lateral patches on 2-4 (or 5).

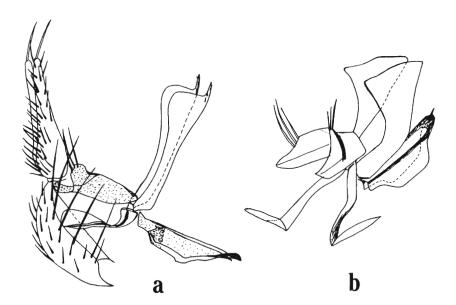


Fig. 5. Male genitalia of Rymosia species. a, R. armata Lackschewitz, lateral view of tergite 9, cerci, aedeagus and parameres; b, R. coulsoni sp. n., lateral view of aedeagus and parameres.

Rymosia coulsoni sp. n.

Male. Head dark brown, grey dusted. Antennae with pedicel and greater part of first flagellar segment yellow, rest brown; flagellar segments more than twice as long as broad. Palpi yellow. Thorax brown, grey dusted, darker on disc of mesoscutum. Chaetotaxy as in armata, second proepisternal (propleural) about two-thirds length of strong anterior bristle. Halteres yellow. Legs entirely yellow, with all bristles and setulae dark. Tibiae 2 and 3 with series of weak bristles distributed as in armata; mid tibia with close-set rows of a, 3 p-d, 3 p, 3 v, hind tibia with 4 a, 3 d, 5 p near tip, 2 v. Fore metatarsus subequal to its tibia in length or a little shorter. Wings yellowish, more brownish in radial sector. Venation similar to armata. Abdomen usually mainly yellow on sides of tergites 1-4 (sometimes 5 also) with narrow dark mid line dorsally, tergites 5-6 (or sometimes only 6) entirely dark, genitalia yellow (Figs 5b, 6) (one male from Bog End has the body entirely dark except for the yellow genitalia). Wing length 2.4-2.8 mm.

Female. Similar in most respects but abdomen more extensively yellow, with only dorsal mid line dark on all tergites. Ovipositor yellow (Fig. 7b). Wing length 2.6–2.9 mm.

MATERIAL EXAMINED

Holotype &, Cumbria: Bolton Estate, Beldon Bottom, 17.ix.1978 (J. Coulson) (deposited in Natural History Museum, London).

Paratypes. Cumbria: \bigcirc , locality as holotype, 16.ix.1976; \bigcirc , Moorhouse, Bog End, amongst Juncus, 10.v.1977 (J. Coulson). Dyfed (Cardigan): 1 \bigcirc , Llyn Eiddwen, 30.vii.1987, valley fen; 1 \bigcirc , 2 \bigcirc , locality as last, 8.x.1987, valley fen; 3 \bigcirc , Comin-Esgair-maen, 23.vii.1987, valley fen; 1 \bigcirc , 1 \bigcirc , locality as last, 1.x.1987, valley fen; 1 \bigcirc , 1 \bigcirc , Cors Gorsgoch, 29.vii.1987, basin mire; 3 \bigcirc , as last but valley mire; 1 \bigcirc , 1 \bigcirc Cors Llyn Farch y Llyn Fanod, 23.vii.1987, basin mire (P. Holmes, D. Bovce & D. Reed).

Other material. Many $\circlearrowleft \circlearrowleft (33 \circlearrowleft, 14 \circlearrowleft \text{Pretained})$ from above Welsh localities and 22 other wetland localities: Cardigan (Llyn y Gwaith, Figyn Blaen Brefi, Gwaun Garthenor, Cors Caron, Cors Caranod and Cwm Ystwyth). Pembroke (Gors Fawr). Carmarthen (Cors Bryn Mawr, Cors Farlais). Anglesey (Cors Clegyrog). Gwynedd (Merioneth: Trawsfynydd; Caernarfon: Migneint, Llyn Ystumllyn, Cors Graianog, Rhosgyll Fawr, Llyn Pencraig, Cors Geirch). Powys (Montgomery) Cors Lawnt, Llyn Coethlyn; Radnor: Rhos Goch). Clwyd (Denbigh: Sontley Marsh, Blaen y Wergloedd). W. Glamorgan (Cefn Bryn) (all above Holmes, Boyce & Reed). Cumbria: Cumwhitton (A. Godfrey). N. Yorks: Chapel Fell; Gunnerside (J. Coulson).

Comments. Most material of this species was collected passively, the Coulson examples in pitfall traps and the Welsh material in water traps. It first came to my notice from John Coulson's material but was initially confused with *armata* until the Welsh material became available. The shape of the ventral stylomeres differs from that of *armata* and *speyae* (most obviously in lateral view) but the aedeagal parameres provide the most obvious differences.

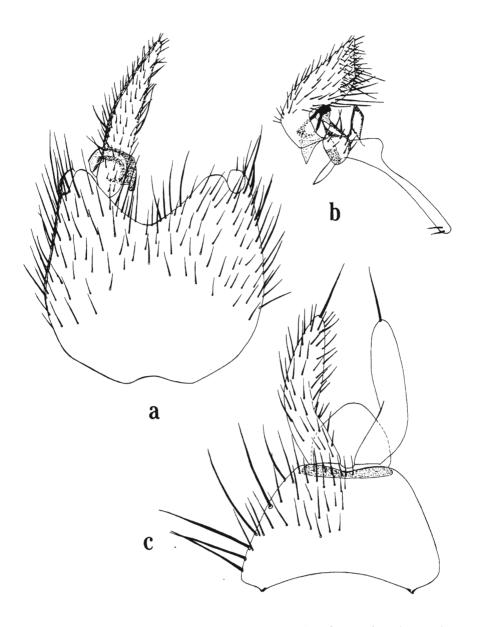


Fig. 6. Male genitalia of *Rymosia coulsoni* sp. n. a, ventral view of gonocoxite and gonostylus; b, external view of right gonostylus; c, dorsal view of tergite 9 and cerci.

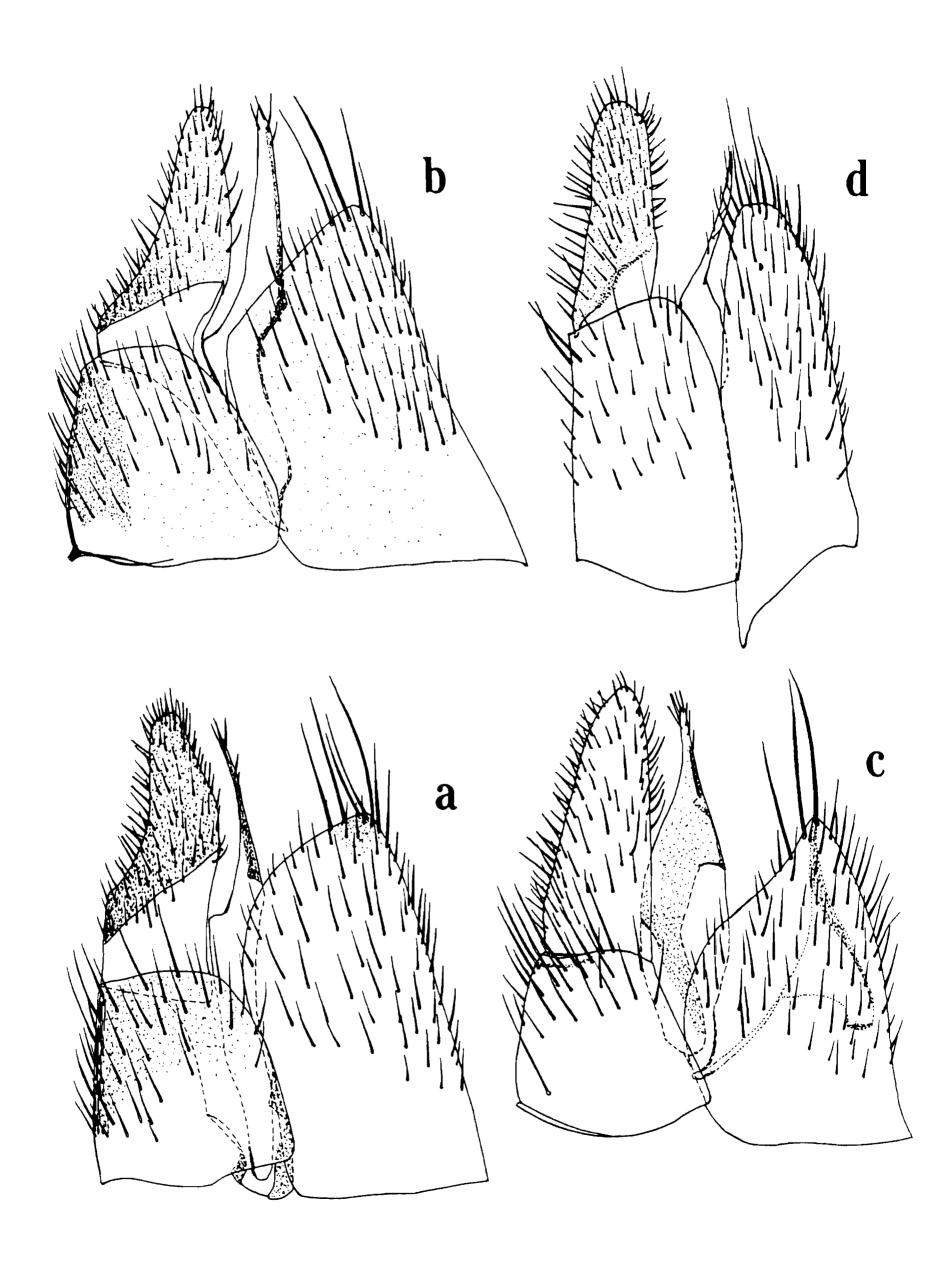


Fig. 7. Ovipositors of Rymosia species. a, R. armata Lackschewitz; b, R. coulsoni sp. n.; c, R. thorneae sp. n.; d, R. britteni Edwards.

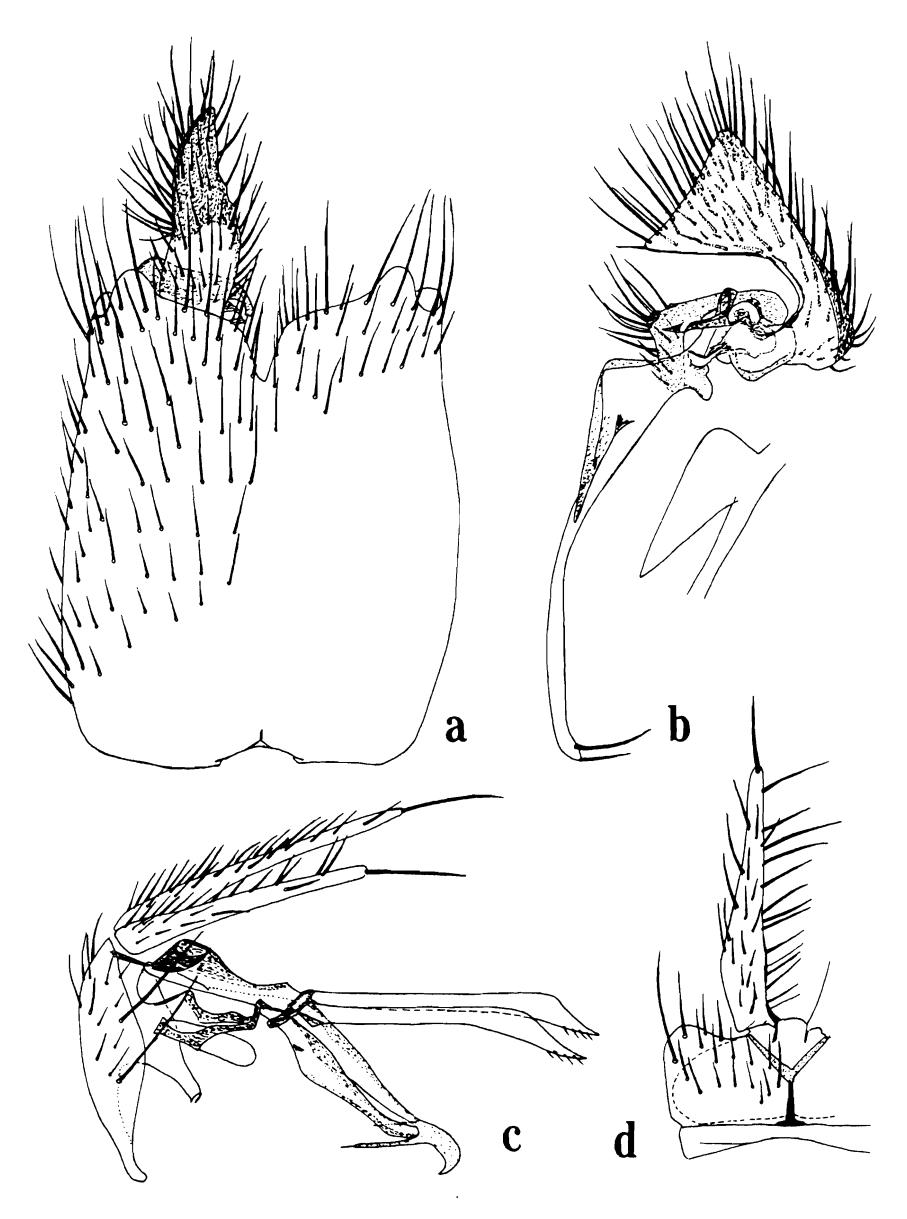


Fig. 8. Male genitalia of Rymosia speyae sp. n. a, ventral view of gonocoxite and left gonostylus; b, internal view of right gonostylus, with inset ventral aspect of basal part of internal portion; c, lateral view of tergite 9, cerci, aedeagus and parameres; d, dorsal view of tergite 9 and cercus.

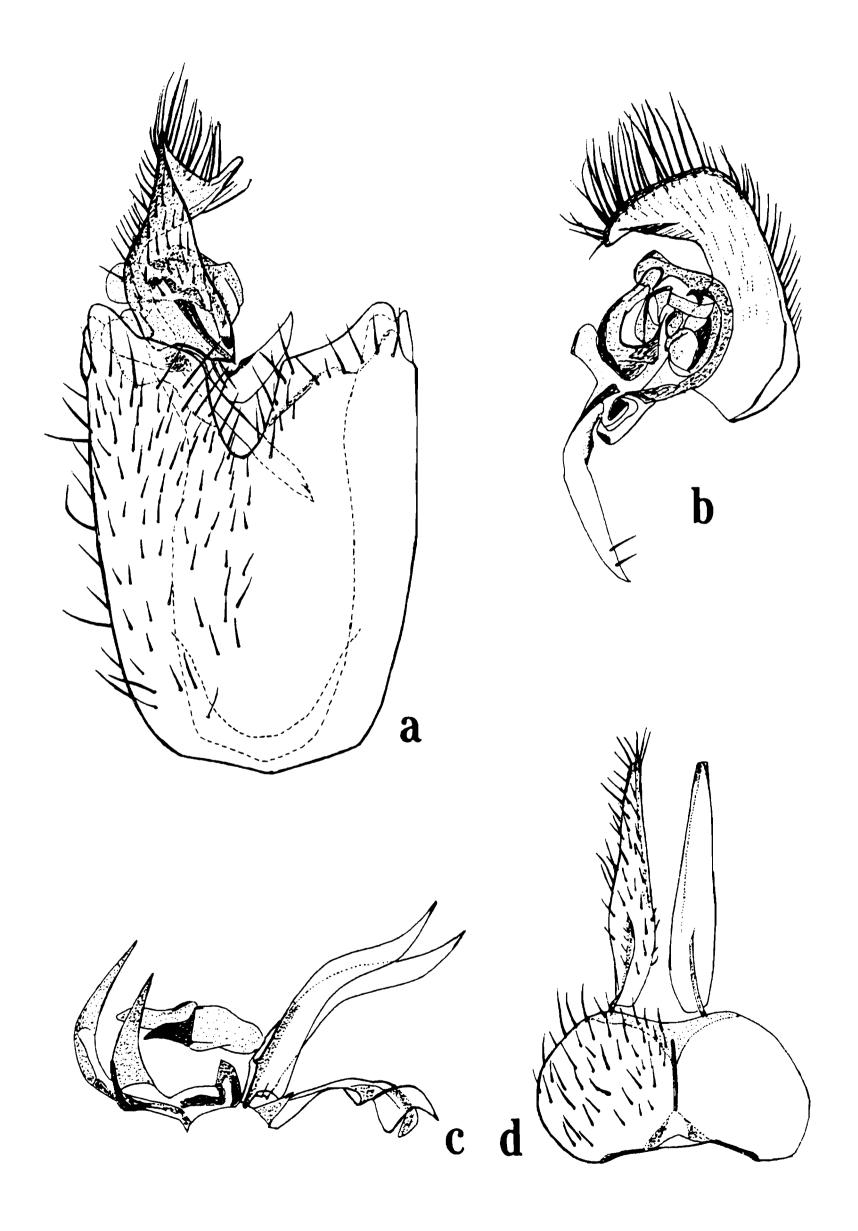


Fig. 9. Male genitalia of Rymosia sagulata Plassmann. a, ventral view of gonocoxite and left gonostylus; b, internal view of right gonostylus; c, lateral view of aedeagus and parameres; d, dorsal view of tergite 9 and cerci.

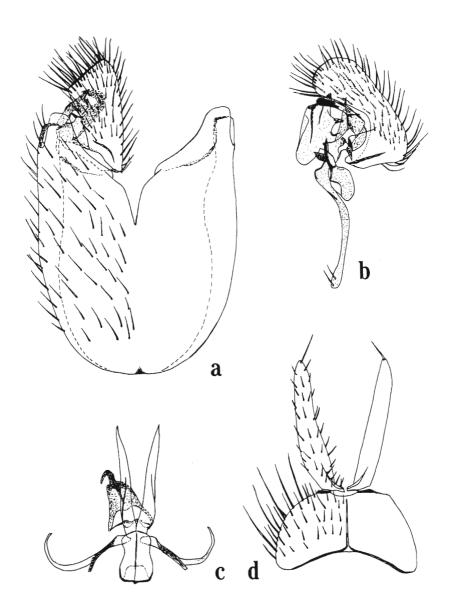


Fig. 10. Male genitalia of Rymosia guttata Lundström. a, ventral view of gonocoxite and left gonostylus; b, internal view of right gonostylus; c, dorsal view of aedeagus and parameres; d, dorsal view of tergite 9 and cerci.

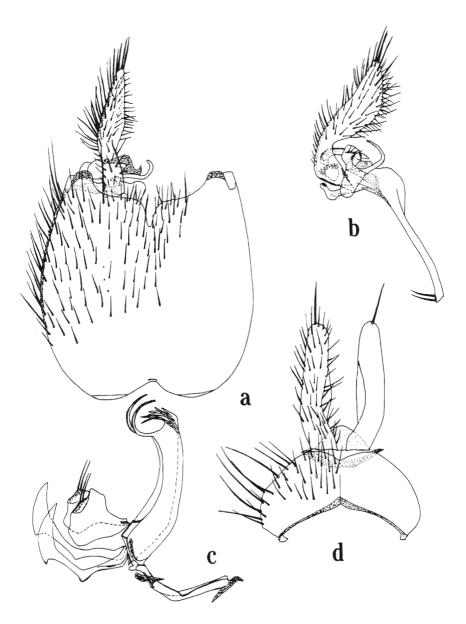


Fig. 11. Male genitalia of *Rymosia thorneae* sp. n. a, ventral view of gonocoxite and gonostylus; b, external view of right gonostylus; c, lateral view of aedeagus and parameres; d, dorsal view of tergite 9 and cerci.

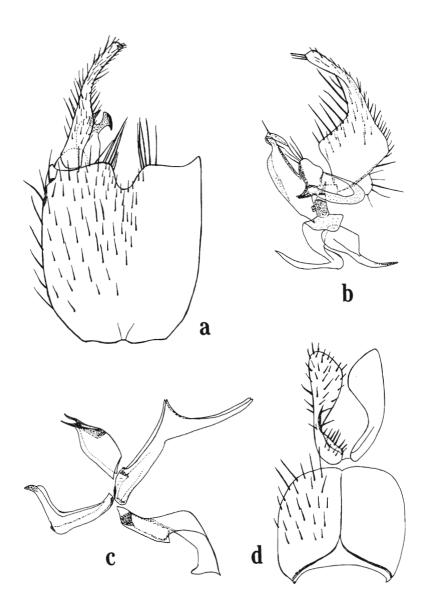


Fig. 12. Male genitalia of *Rymosia caucasia* Plassmann. a, ventral view of gonocoxite and gonostylus; b, internal view of right gonostylus; c, lateral view of aedeagus and parameres; d, dorsal view of tergite 9 and cerci.

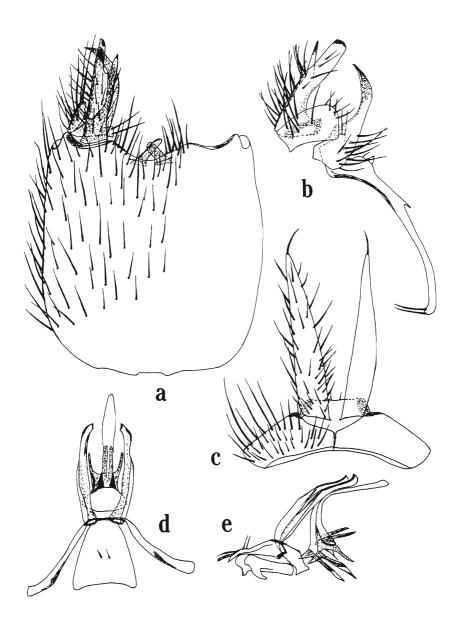


Fig. 13. Male genitalia of *Rymosia fosteri* sp. n. a, ventral view of gonocoxite and gonostylus; b, external view of right gonostylus; c, dorsal view of tergite 9 and cerci; d, dorsal view of aedeagus and parameres; e, lateral view of aedeagus and parameres.

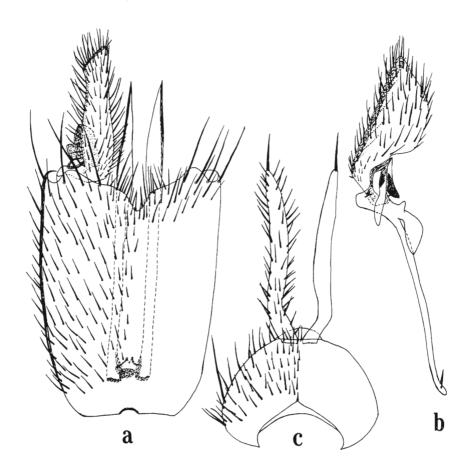


Fig. 14. Male genitalia of *Rymosia acta* Dziedzicki. a, ventral view of gonocoxite and gonostylus, with aedeagus and parameres shown in situ; b, external view of right gonostylus; c, dorsal view of tergite 9 and cerci.

Rymosia speyae sp. n.

Male. Head dark brown, grey dusted. Antennae with pedicel and base of first flagellar segment yellow, rest dark brown, flagellar segments about twice as long as broad. Palpi yellow, brownish apically. Thorax with mesoscutum and scutellum dark brown, grey dusted, only narrowly yellow on fore margin and notopleural area. Prothorax brownish yellow, pleura and mediotergite (postnotum) brownish, grey dusted on disc. Chaetotaxy as *armata*. One long proepisternal (propleural) with a short weak one behind. Halteres yellow. Legs yellow, slightly dusky on tips of tibiae and on tarsi, with all bristles and setulae

dark. Mid tibia with series of short close-set a, 3 p-d, 2-3 p, 0-2 v. Hind tibia with 3-5 a, 3-4 d, 4 p near tip, 3 weak p-v. Fore metatarsus $1.2 \times$ its tibia. Wings tinged yellowish brown. Venation similar to *armata*, but r-m about $1.5 \times$ length of stalk of median fork. Abdomen dark brown with tergites 2-4 lighter, obscurely yellowish at sides basally, genitalia yellow (Fig. 8). Wing length 2.9 mm.

Female. Not recognised.

MATERIAL EXAMINED

Holotype of, Inverness: Insh Marshes, vi. 1982 (W. Ely) (deposited in Natural History Museum, London).

Paratype. **Gwynedd**: O, Caernarfon, Cors Gyfelog, floodplain fen, 26.v.1988, water trap (*Holmes*, *Boyce & Reed*) (PJC collection).

Comments. This species resembled sagulata Plassmann (1976b), described from Sweden, in some respects. The holotype of sagulata (Senckenberg Museum, Frankfurt am Main) and other material determined by Plassmann as both sagulata and guttata Lundström has been examined and found to be close to speyae and to each other, but clearly distinct. The male genitalia of these other species (Figs 9, 10) are figured here for comparison, as some details were omitted from Plassmann's figures of sagulata and guttata has not been figured other than by Lundström (1912). R. lacki Edwards (1935), from Greenland, also appears related. It is concluded that these species form a group of boreal and wetland species, also including armata and coulsoni.

Rymosia thorneae sp. n.

Male. Coloration of head, antennae, palpi and thorax as above species, flagellar segments more than twice as long as broad. Chaetotaxy of thorax similar. Halteres and legs yellow. Mid tibia with close-set row of a, 4 p-d, 3 p on apical half, 3 v. Hind tibia with 6 a, 4 d, 5 short p near tip, 4 v. Fore metatarsus subequal to its tibia. Wings tinged yellowish grey, r-m nearly twice stem of median fork. Posterior fork begins length of m-stalk before base of r-m. Abdomen mainly dark brown, with lateral yellow patches on tergites 2–5 (larger on 3–4), broadly separated dorsally. Genitalia yellow (Fig. 11). Wing length 2.8–3.4 mm.

Female. Similar in most respects to male. Abdomen with sides of tergites 2–7 broadly yellow at sides, only brown on dorsal mid line (less broadly than in male) and narrowly on upper part of fore margins. Ovipositor yellow (Fig. 7c). Wing length 3.2–3.4 mm.

MATERIAL EXAMINED

Holotype O, Yorks: Thorne Moor, 10-24.x.1990 (pitfall trap, D. Heaver) (deposited in Natural History Museum, London).

Paratypes. Yorks: \bigcirc , $2 \bigcirc$, same data as holotype; $2 \bigcirc$, Thorne Moor, 8-29.viii.1990 (pitfall trap, D. Heaver). Powys (Brecon): \bigcirc , Plas y Gors, ex Phragmites, 4.x.1989. Gwynedd (Caernarvon): \bigcirc , Cwm Crafnant, 13.x.1988,

wet Myrica flush. **Dyfed** (Cardigan): ♂, Cors Caranod, 1.x.1987, Juncus/Molinia bog; ♂, Cors Caron, 5.x.1987, raised bog (Holmes, Boyce & Reed).

Comments. This species was initially considered to be conspecific with R. caucasia Plassmann (1976a), described from a single male collected in the Central Caucasus and later (Plassmann, 1984) recorded from several sites in the Austrian Alps. Examination of the holotype of R. caucasia (Senckenberg Museum, Frankfurt am Main) has shown, however, that it is different and the British species must be considered to represent a new species. Genitalia of caucasia are figured here for comparison (Fig. 12). It resembles tristis Matile (1967) but appears distinct.

Rymosia fosteri sp. n.

Male. Head dark brown, grey dusted. Antennae with scape brownish, pedicel and base of first flagellar segment yellowish, rest darker, flagellar segments little more than twice as long as broad. Palpi yellow. Thorax brown, darker on disc of mesoscutum and other sclerites. One long proepisternal with a weaker one behind. Halteres yellow. Legs entirely yellow. Mid tibia with short close-set a, 3 p-d, 0 p, 1 p-v. Hind tibia with 4 a, 3 d, 4–5 p near tip, 0 v. Fore metatarsus $1.35 \times \text{length}$ of its tibia. Wings yellowish grey, cross-vein r-m about $1.5 \times \text{stalk}$ of median fork. Abdomen dark brown, tergites 2–5 with ovoid yellow patches on basal half (larger on 3–4) separated by dark area dorsally, 6 and narrow 7 all dark; sternites mainly yellow, 3–5 dark apically, 6–7 all dark. Genitalia yellow, with brown appendages (Fig. 13). Wing length 2.3 mm.

Female. Not recognised.

MATERIAL EXAMINED

Holotype O, Norfolk: Catfield, 5.vii-12.viii.1988 (water trap, A. Foster & D. Procter) (deposited in Natural History Museum, London).

Paratypes. Norfolk: O, Strumpshaw, 21.viii.-5.ix.1989; O Scarning, 1-15.ix.1988 (water traps, A. Foster & D. Procter). Oxon: O, Lashford Lane, 27.viii.-26.x.1987 (Malaise trap, K. Porter).

Comments. R. fosteri bears some resemblance in genital structure to fraudatrix Dziedzicki (1910) and spiniforceps Matile (1963), which also have the ventral stylomeres shallowly bifid apically. Examination of Czech specimens of both these species (figured by Chandler, in press) confirmed that fosteri is not conspecific.

R. britteni Edwards, 1925

The holotype of *britteni* (in Natural History Museum London) was found in the Museum window at Oxford (Edwards, 1925, who figured the male genitalia). Edwards (1941) examined a second specimen from the J. J. F. X. King collection (Glasgow University Museum), suggesting that it was from near

Glasgow. However, King was based at Fort William, Inverness, on the day concerned, so the locality (described as '3 mile west') must have been near there.

Females in the wetland material have permitted recognition of this sex, which have yellow basal lateral markings on tergites 2-5, divided dorsally as in the male (ovipositor, Fig. 7d). Before the wetland material came to notice, three other records were known to me (only data of these given in full).

Devon: O', Dunsland, N.T. Park, 13.x.1988 (J. Mousley, K. Alexander & M. Drake). Oxon: Cothill; Spartum Fen; Weston Green; Barrow Farm Bog; Lashford Lane Fen (Malaise traps, K. Porter). Cambs: Chippenham Fen. Norfolk: Sutton Broad; Holt Lowes (water traps, A. Foster & D. Procter). Powys (Brecon): O', Cwm Coed y Cerrig, wet wooded valley, 9.x.1977 (I. F. G. McLean). Inverness: O', Bridge of Brown, 17.vi.1982 (Chandler).

Rymosia acta Dziedzicki, 1910

This species runs in Edwards' (1925) key to virens Dziedzicki, which it resembles in size and abdominal coloration (broad yellow basal patches on tergites 2–5 in male). It differs in having yellowish sides to the thoracic dorsum (light grey dusted in virens), male ventral stylomeres broader, sternal margin of genital capsule with shallow triangular excavation and lacking the row of stronger bristles found in virens. Dziedzicki described acta from a Belorussian male. Laštovka & Matile (1974) recorded several of both sexes from Mongolia and also figured the male genitalia (Fig. 14).

MATERIAL EXAMINED

Perthshire: O, Rannoch, Kilvrecht, 31.viii.1987 (Chandler).

Acknowledgements

I am grateful to all collectors who have provided material related to this study, especially to those who conducted the surveys instigated by the former Nature Conservancy Council. These surveys have been a revelation to studies of many groups of Diptera and have consistently produced valuable records of fungus gnats. I also thank the authorities of the Museums cited above for the opportunity to examine collections in their care, and particularly the Senckenberg Museum for the loan of the types of sagulata and caucasia. Brian Eversham, Biological Records Centre, Monk's Wood, kindly arranged for the distribution maps to be prepared.

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