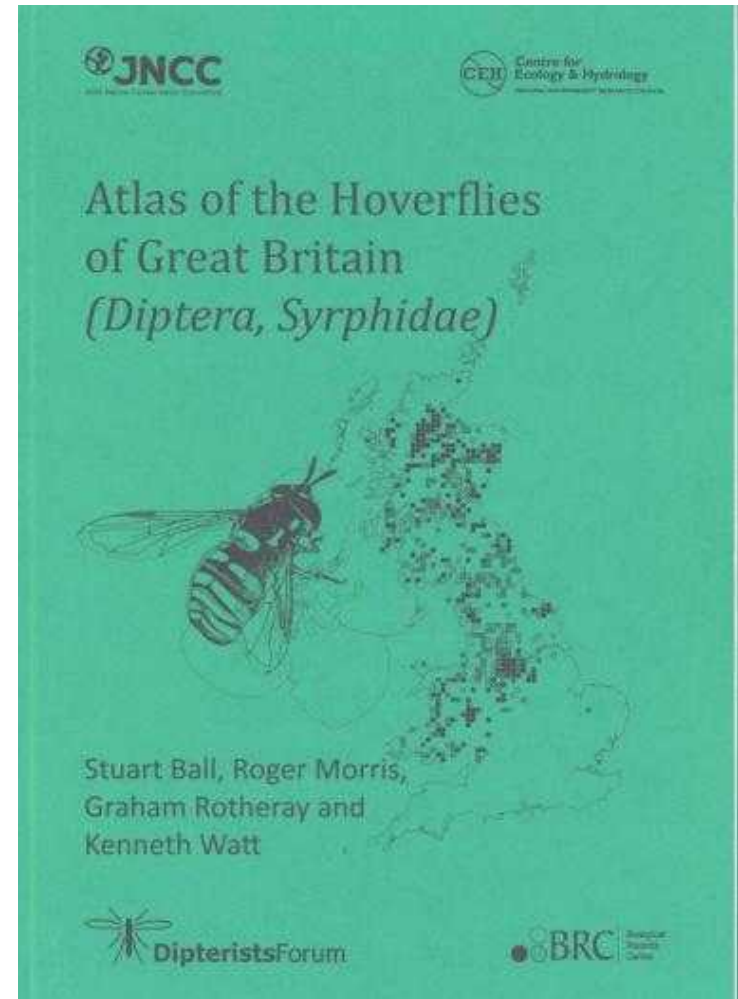


Newsletter and feedback to recorders

Martin Drake

Products of recording

- atlases
- papers
- reports
- books



Overarching aim of newsletters

- maintain enthusiasm of recorders
- see the point of submitting records
- make recorders feel wanted

The value of stimulus

response of hoverfly recorders to feedback

Dipterists Forum

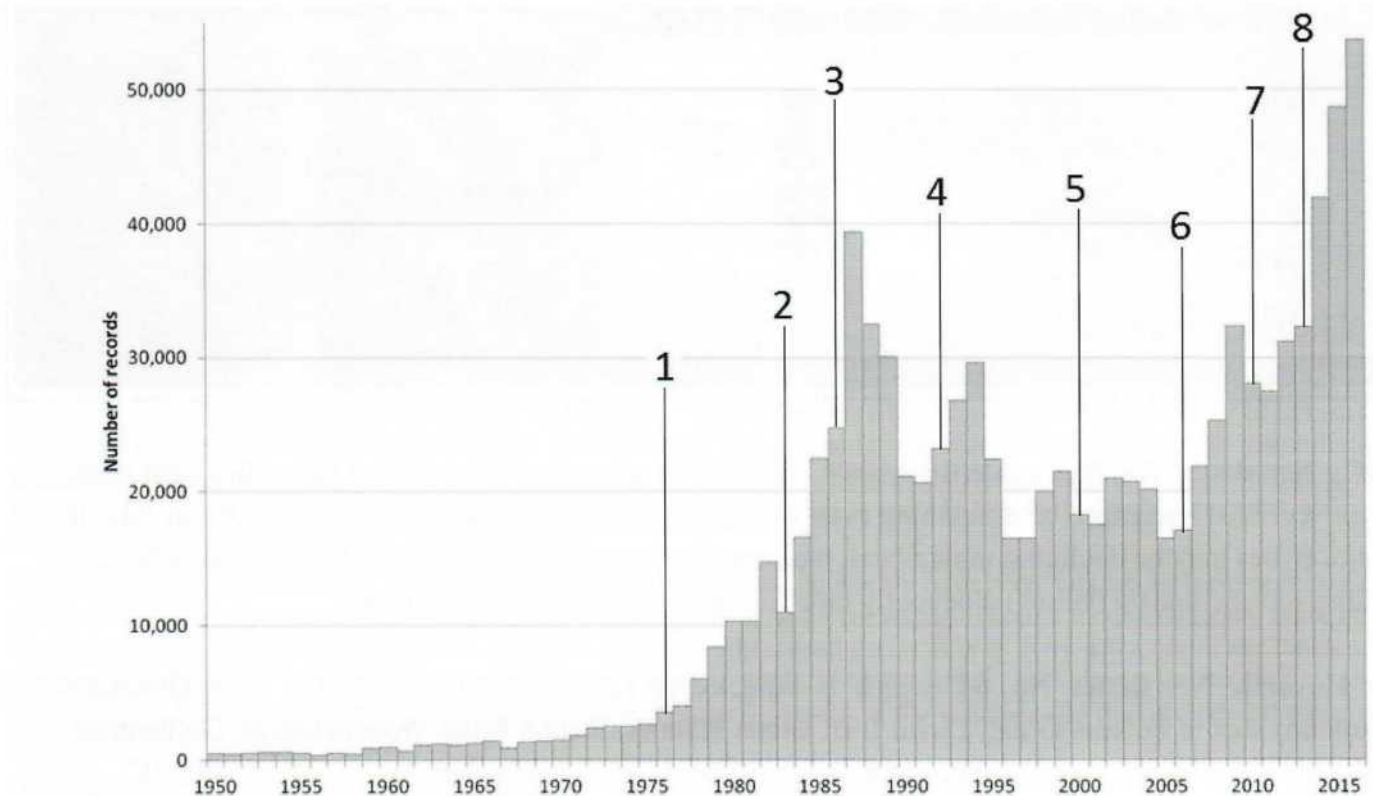


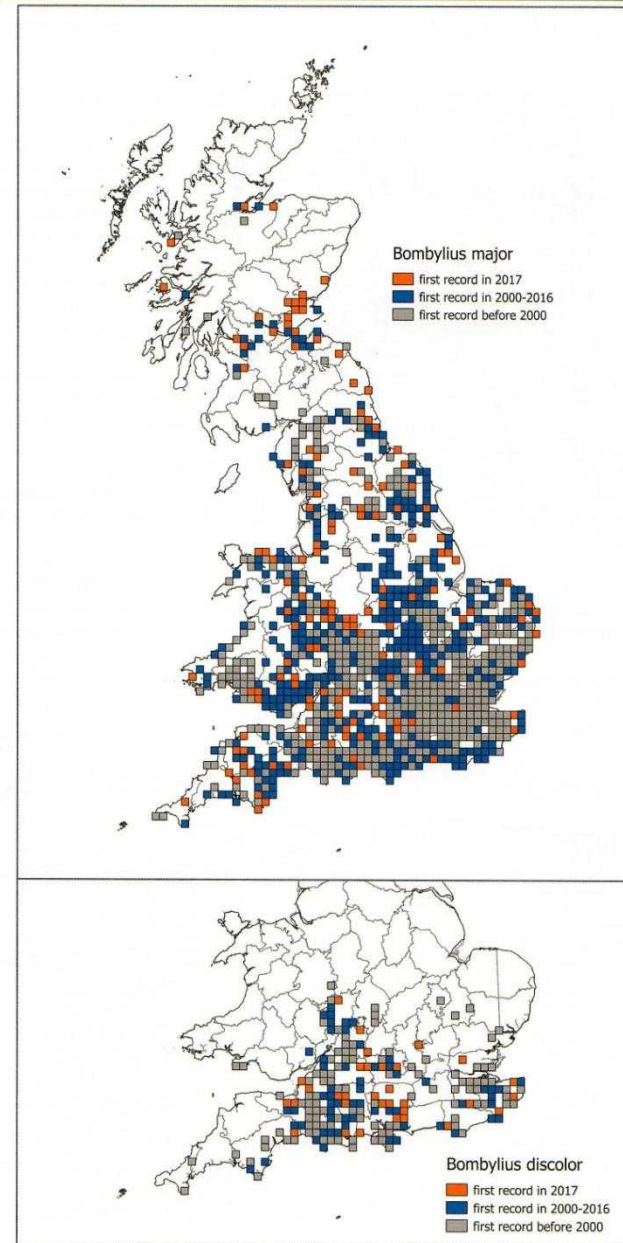
Figure 1. Key points in the evolution of the HRS dataset

What is the key content?

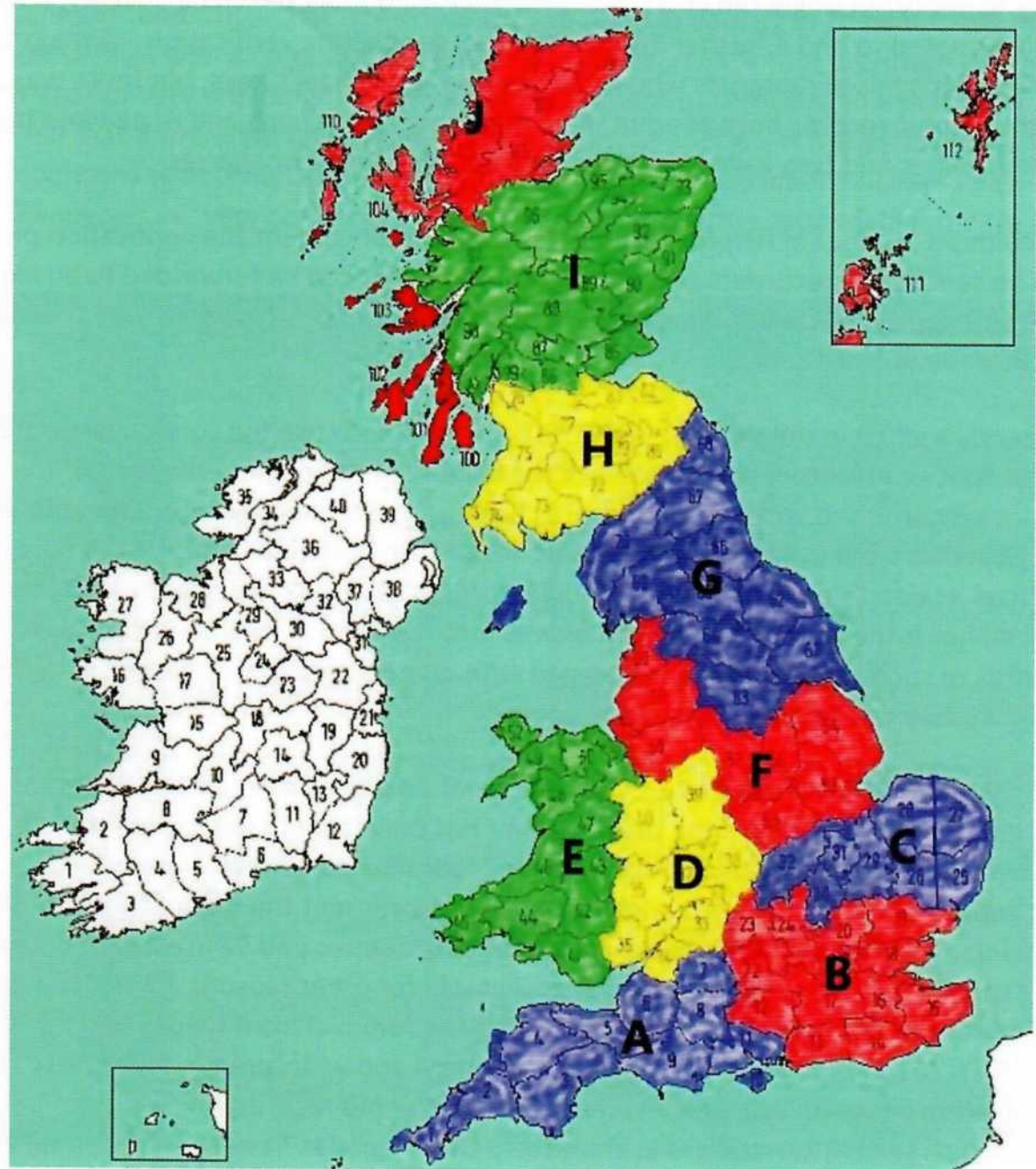
- maps
- flight times
- new species
- new keys
- observations – behaviour, ecology

Bombylius major and *discolor*

Distribution maps for *Bombylius major* (above) and *Bombylius discolor* (below). The orange squares indicate new 10km records in 2017.



Anthomyiidae regions

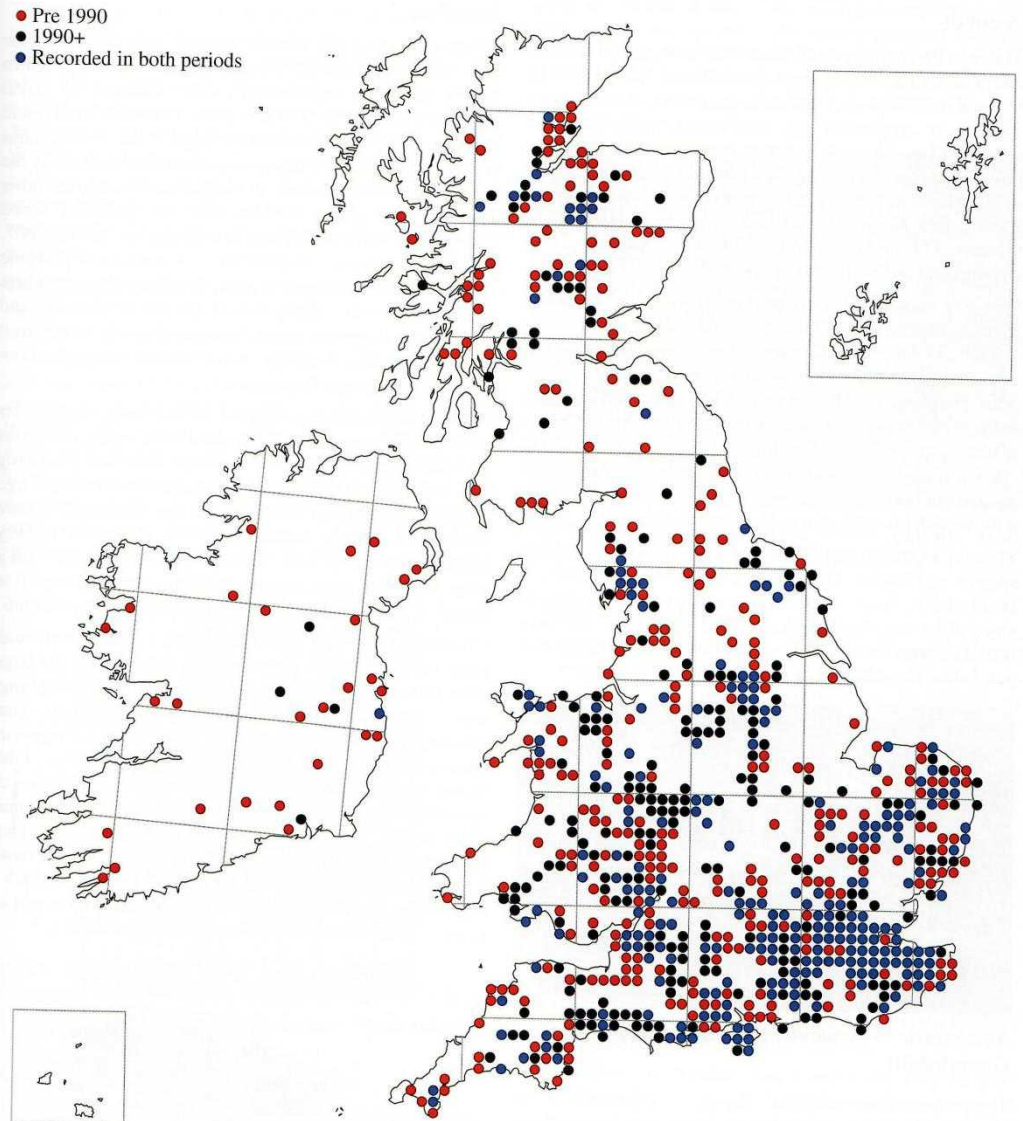


Anthomyiidae records per region

Region Code	Area covered	Vice-counties included	No of records	No of species
A	South-west England	1-11	1187	150
B	South-east England	12-24	2371	168
C	Eastern England	25-32	659	142
D	West Midlands	33-40	600	127
E	Wales	41-52	578	124
F	North Midlands and Lancashire	53-60	129	42
G	Yorkshire, Northern England and the Isle of Man	61-71	172	74
H	Southern Scotland	72-84	23	17
I	Southern Highlands	85-99	778	160
J	The Far North and the Scottish Islands	100-112	349	107

Coverage maps

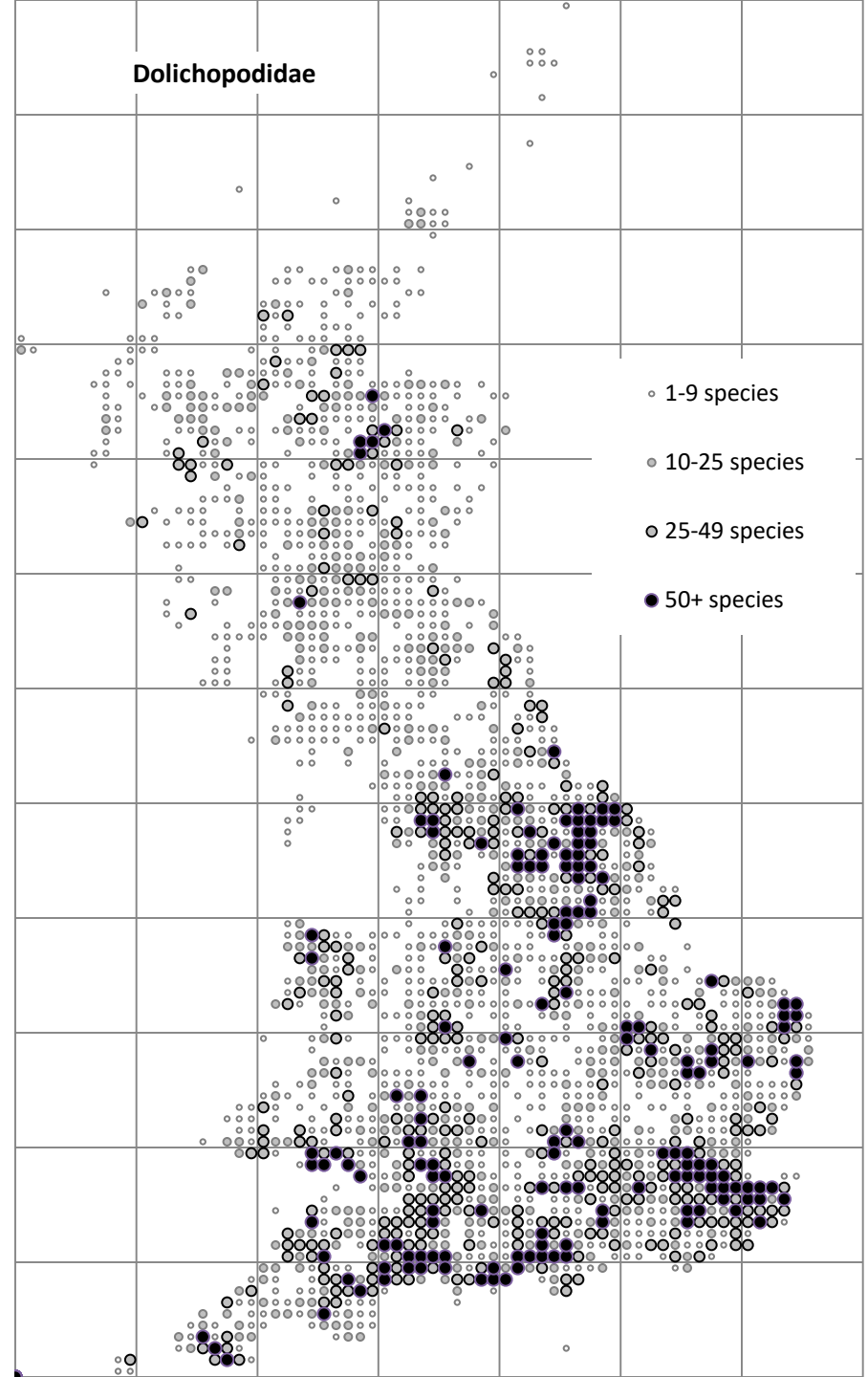
example from platypezids



Distribution of all British Isles Platypezidae records to 2016, showing date classes to 1989 (red), 1990-2016 (black) and records from both periods (blue). The updated map still demonstrates the extensive gaps in recording and the south-eastern bias, with concentrations of records in some other areas indicating location of collectors or of field meetings, particularly those taking place in the autumn. There remains plenty of scope for recording in new or underworked regions, and in Ireland, where only 16 species have hitherto been recorded.

Species frequency maps

example from dolichopodids



Analysis

Range change of *Cheilosia soror* in 5 year periods

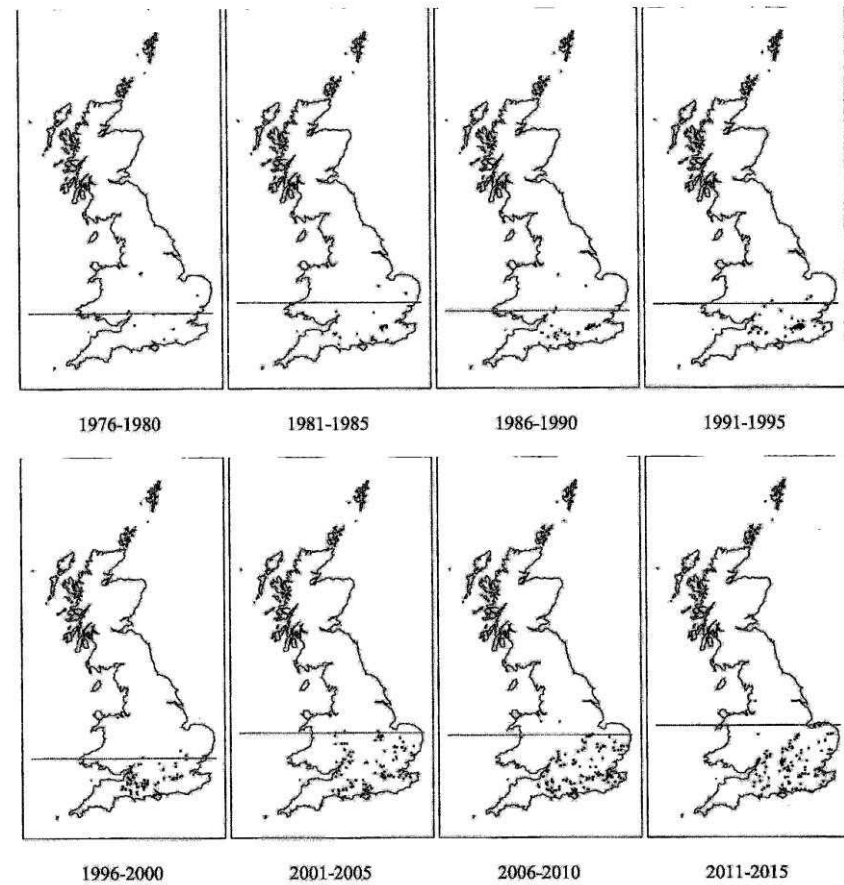


Figure 2. Northward range change in *Cheilosia soror* between 1976 and 2015. The dashed horizontal line indicates the median y-coordinate of the 10 most northerly records.

Flight times

example from platypezids

Phenology

The table below shows the adult flight period for each species, based on British data except for *Agathomyia sexmaculata* and *Platypezina connexa* where each is known only from a single British record in October – the flight period for mainland Europe is given in these cases.

Species	April	May	June	July	August	September	October	November
<i>Paraplatypeza atra</i>								
<i>Agathomyia collini</i>								
<i>Lindneromyia dorsalis</i>								
<i>Agathomyia antennata</i>								
<i>Bolopus furcatus</i>								
<i>Agathomyia viduella</i>								
<i>Polyporivora ornata</i>								
<i>Microsania collarti</i>								
<i>Microsania pallipes</i>								
<i>Microsania pectipennis</i>								
<i>Callomyia amoena</i>								
<i>Callomyia speciosa</i>								
<i>Callomyia dives</i>								
<i>Agathomyia wankowiczii</i>								
<i>Seri obscuripennis</i>								
<i>Agathomyia sexmaculata</i>								
<i>Agathomyia boreella</i>								
<i>Callomyia elegans</i>								
<i>Platypeza consobrina</i>								
<i>Platypeza fasciata</i>								
<i>Agathomyia woodella</i>								
<i>Microsania straeleni</i>								
<i>Microsania vrydaghi</i>								
<i>Agathomyia lundbecki</i>								
<i>Platypeza aterrima</i>								
<i>Platypeza hirticeps</i>								
<i>Polyporivora picta</i>								
<i>Protoclythia rufa</i>								
<i>Protoclythia modesta</i>								
<i>Agathomyia falleni</i>								
<i>Platypezina connexa</i>								
<i>Paraplatypeza bicincta</i>								
<i>Agathomyia unicolor</i>								
<i>Agathomyia cinerea</i>								
Total per month	7	14	19	23	29	31	25	8

This suggests that September is the most productive month, with August as a close second. However, while the autumn flying species may start to appear in August, there are relatively few records of them for that month, and October is usually the most productive month in numbers of individuals. Some species are found mainly in spring and early summer. *Agathomyia wankowiczii* flies only in May and June, and most records of *A. viduella* are from those months. These and species that only appear from July onwards are probably univoltine. The few records of *Polyporivora picta* in April and of *Agathomyia unicolor* in June and July may suggest that they are occasionally bivoltine. The species with an extended flight period, such as *Paraplatypeza atra*, *Lindneromyia dorsalis* and *Polyporivora ornata* are probably bi- to multivoltine, depending on appearance of their fungal hosts.

New species

Example from Fungus Gnats

- key differences
- essential figures
- habitus

sites with more than 50 were Selborne Hanger (SU7333; 56), Yateley (SU8259; 53) and Shortheath Common (SU7736; 51), Hampshire and Winterfold Woods (TQ0643; 53), Surrey, Roger caught *Sciophila varia* at Yateley and at Fleet Pond (the recent Scottish records of this species and development in *Hydnum repandum* are mentioned on pp 7-8).

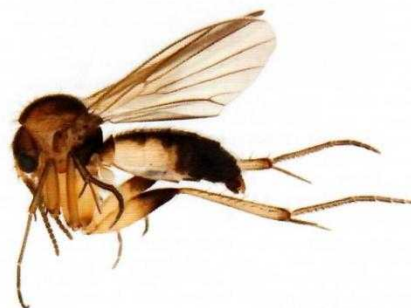
The occurrence of *Mycomya danielae* at four sites (Yateley, Odiham Common (SU7553), Rye Common and Zebon Copse) suggested that this species is becoming widespread, at least south of the Thames. It was new to Britain from Headley Heath on the 2013 Surrey meeting, and had since been recorded only at Piplely Wood, Studland on the 2015 meeting and at Chippenham Fen in 2016 by Ivan Perry. 2017 records from Chippenham Fen and Windsor Forest are mentioned below (pp 5 and 7). Other recent additions to the British list that turned up on this meeting were *Exechiopsis seducta* from Winterfold Woods, *Mycetophila sublunata* from Selborne Hanger and *M. stylatiformis* from Selborne Hanger and Zebon Copse. It seems that these are all becoming widespread in S England.

Gnats new to Britain

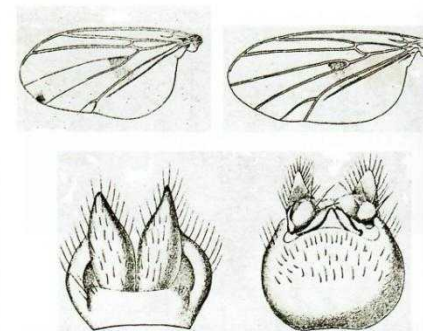
Like other recent additions to the British list, the species dealt with here can presently only be treated as Data Deficient.

Macrobrachius kowarzii Dziedzicki, 1889

This was added from Ashenbank Wood, Kent where Keith Alexander obtained 7 males in a trapping survey in 2016, and it has already been published as new to Britain (Alexander 2017c). As the only European species of the genus it represents a genus new to the British fauna. The distinguishing characters were described in the above paper, and references to its wide European distribution were provided. As mentioned there, these specimens and males that I have seen from elsewhere in Europe have unmarked wings (as shown in the habitus photograph by Jostein Kjørandsen), while ill-defined markings are present on the female wing. Dziedzicki (1889) described and figured examples of similarly marked male wings. Here his figures of this species are reproduced, showing variation in the short posterior fork.



Macrobrachius kowarzii male (from Kjørandsen 2015)

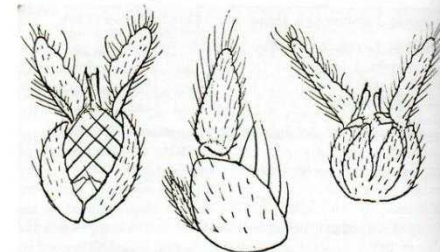


Macrobrachius kowarzii Dziedzicki, 1889: wings and male genitalia – dorsal left, ventral right (from Dziedzicki 1889)

Phronia longelamellata Strobl, 1898

One male was found at Walberswick NNR (TM460728), Suffolk on 29 April 2017, by Ivan Perry.

The name *longelamellata* has previously been on the British list for the species now under the name *P. vitrea* Plassmann, 1999. As explained in Chandler (2006), this was because Lundström (1906) had misidentified this species as *longelamellata* Strobl, 1898. Strobl provided no figures of his species and the elongate cerci found in *P. vitrea* led to this interpretation of the name. In the true *longelamellata* it is the gonostyli that are elongate and it closely resembles the common species *P. nigricornis* (Zetterstedt), also found by Ivan at Walberswick, in structure of the genitalia, the more elongate gonostyli being the most obvious difference (not longer than the gonocoxites in *P. nigricornis*). The identity of *longelamellata* was clarified by Kallweit (1998) from examination of Strobl's type; this species was previously known as *P. minuta* Landrock, 1928 and the figures reproduced below are from that publication.



Phronia longelamellata, male genitalia – ventral (left), lateral and dorsal view (from Landrock 1928, as *P. minuta*)

The European distribution of *P. longelamellata* extends from France through central Europe to Scandinavia and northern Russia. It is also considered likely that *P. dubioides* Matile, 1969 described from Iran is synonymous, as indicated by the genitalia figure.






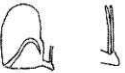





Revised keys

Example from craneflies

APPENDIX:

Draft key for *Dicranomyia*: Group 4 Both sexes (*mitis/chorea* group; small spot at apex of Rs, or absent).

Wings with few if any markings, those with markings in addition to the stigma have the minimum of a spot over the apex of vein Rs. Main style inflated, often elongate, the beak short with a closely spaced pair of spines near apex (some species in other groups are rather similar).

- | | | | | |
|----|--|---|---|------------------|
| 1. | Femora narrowly black at apex. Abdomen often strongly banded. Male main style compact, beak short with spines short (about as long as from their base to the beak apex). |  |  | <i>chorea</i> |
| - | Femora with apical marking different or absent. | | | 2 |
| 2. | Femora with a subapical dark ring, sometimes darkened to apex resulting in a long dark apex. Wings normally with some dark markings, at least over the apex of Rs. Sc distally with hairs near apex. (as <i>chorea</i>) |  |  | 3 |
| - | Femora often only vaguely darkened at apex. Wings often without even a dark mark over the apex of Rs. Sc without hairs. |  | | 4 |
| 3. | Pleura blue-grey dusted, propleuron dark. Top of thorax dusted but often with a shining black median line. Beak of male gonostyle with both spines equidistant from apex. |  | | <i>affinis</i> |
| - | Pleura yellow-grey dusted, propleuron yellow. Top of thorax dull dusted. Male style beak with spines oblique or in line from apex. |  | | <i>mitis</i> |
| 4. | MALES | | | 5 |
| - | FEMALES | | | 7 |
| 5. | Smaller species without stigma. Tarsal segments 4 & 5 very short, 5 flattened (as <i>chorea</i>). Claw as shown. |  | | <i>imbecilla</i> |
| - | Tarsal segments 4 & 5 normal, elongate cylindrical. Claw with several teeth. | |  | 6 |
| 6. | Yellow species. Stigma pale or absent. Main style very elongate when dry (sometimes less so fresh), spines very long and adpressed together. Wing less elongate (see female) |  | | <i>lutea</i> |
| - | Stigma dark. Main style fairly elongate. Rostral spines shorter and obviously separated. Wing longer and narrower (see female). |  | | <i>quadra</i> |

Low key articles, no pressure

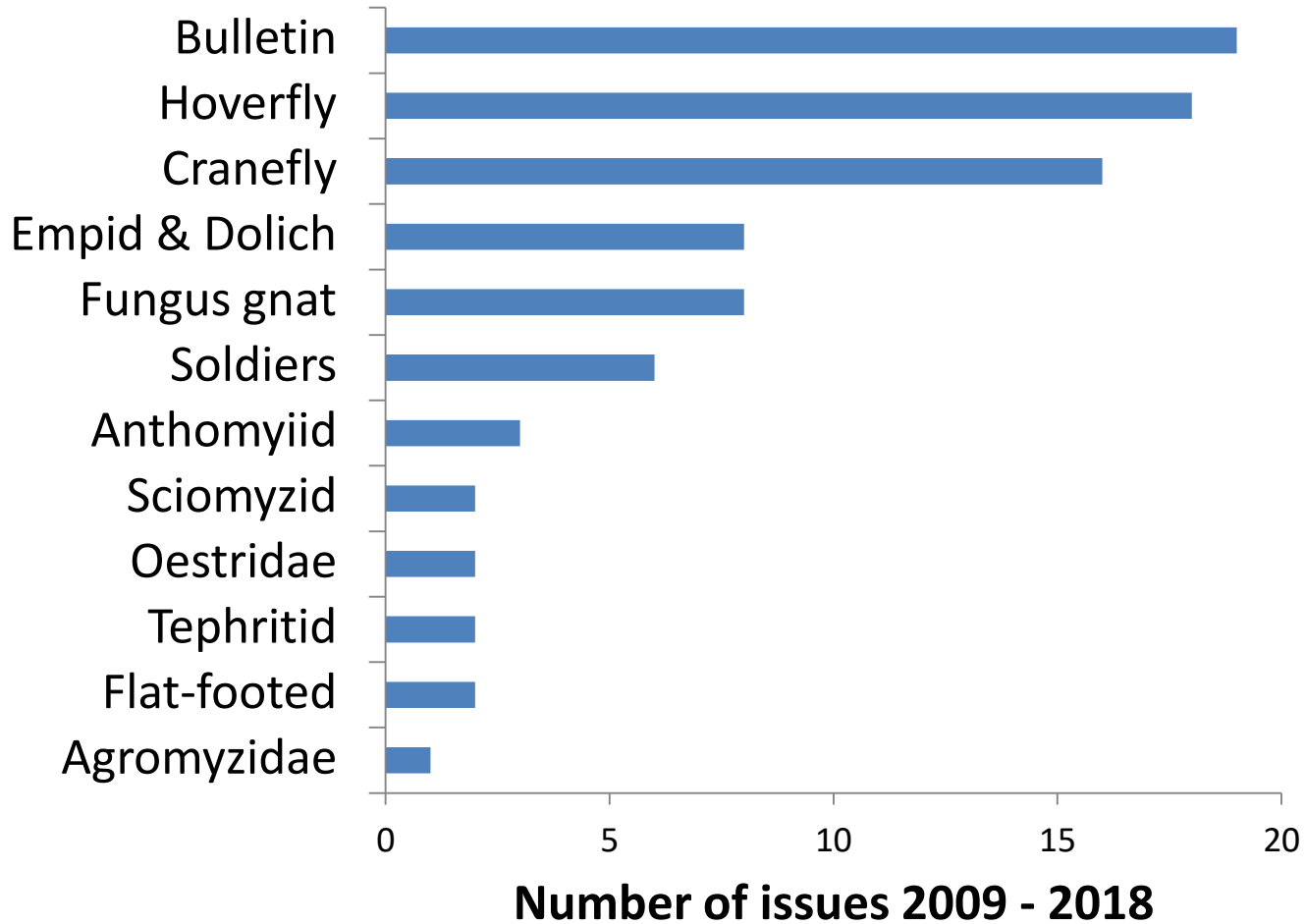
- ecology
- behaviour
- field meeting reports
- methods

Natural history

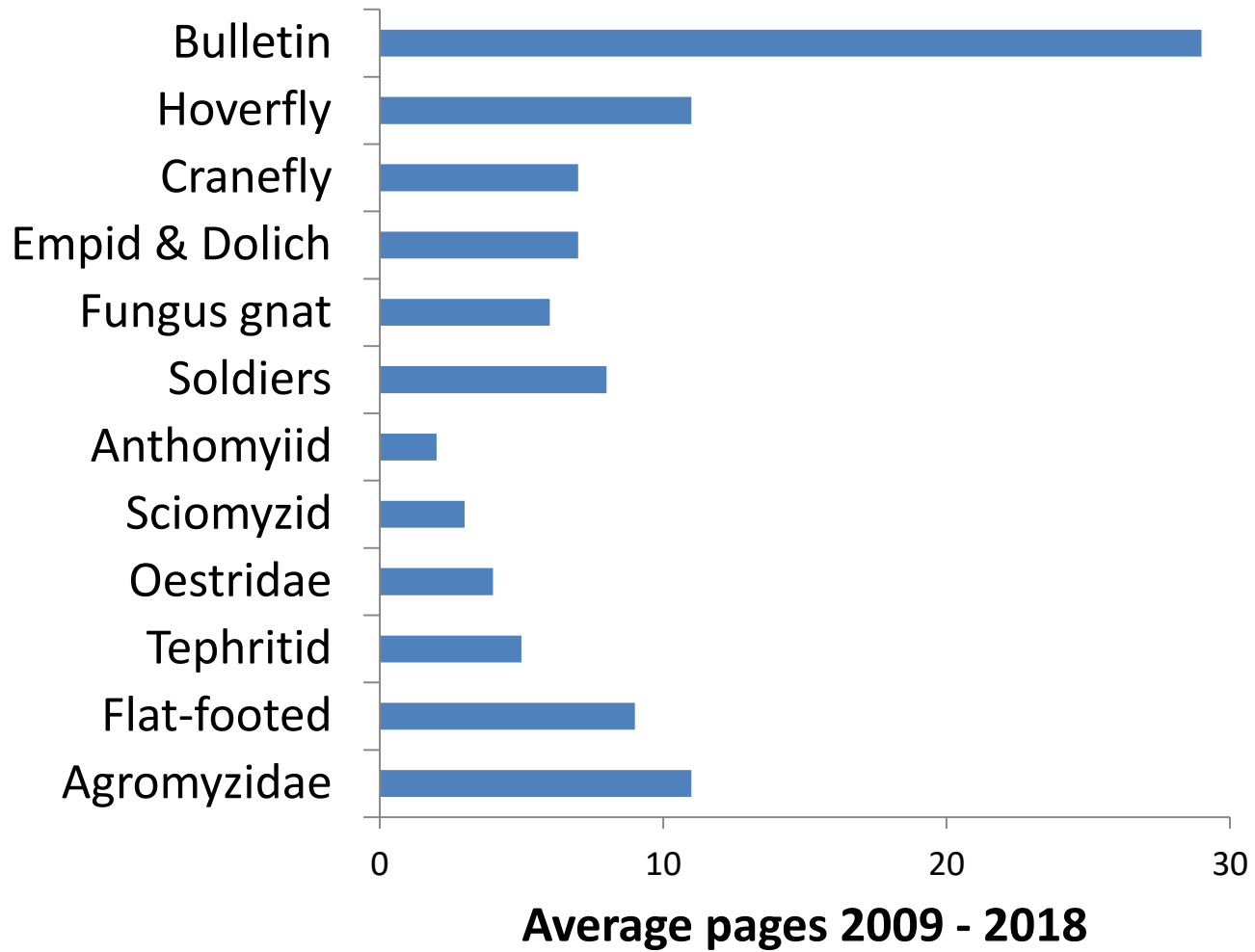
example from *British Soldierflies*

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- DRAKE, C. M. 1988a. 'Swarming' and 'courtship' in *Odontomyia tigrina*. *Larger Brachycera Recording Scheme Newsletter* No. 5: 1-2.
- DRAKE, C. M. 1988b. Diptera from the Gwent Levels, South Wales. *Entomologist's mon. Mag.* **124**: 37-44.
- DRAKE, C. M. 1993a. *Pachygaster leachii* larvae in elder. *Larger Brachycera Recording Scheme Newsletter* No. **10**: 4.
- DRAKE, M. 1993b. Stratiomyid larvae in a compost heap. *Larger Brachycera Recording Scheme Newsletter* No. **10**: 4.
- DRAKE, M. 1994. Stratiomyids in garden grass. *Larger Brachycera Recording Scheme Newsletter* No. **11**: 1.
- DRAKE, M. 1996. *Chorisops tibialis* larval habitat. *Larger Brachycera Recording Scheme Newsletter* No. **14**: 1.
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Output in last 10 years



Volume



Do we need guidelines for editors?

Here is a comprehensive breakdown of each iRecord contributor to the scheme and the number of records they have submitted (as at 20.xi.2017);

Recorder	No. of records submitted
Andy & Melissa Banthorpe	158
Graham Moates	112
James McCulloch	108
Sam Thomas	106
Bill Ely	96
Robert Homan	91
James Emerson	86
Graham Watkeys	64
Graham Bell	62
Gary Hibberd	50
Sally Luker	47
Ryan Mitchell	47
Richard Comont	41
Rodney Monteith	38
Stuart Ogilvy	35
Mike Shurmer	31
Kate Wright	31
Geoffrey Wilkinson	29
Jacob Everitt	28
Kevin Rylands	27
Ian Andrews	24
Laurie Jackson	21
Neil Gregory	19
Mike Lush	19
Jon Mortin	18
Graham Calow	17
Harry Rutherford	16
Richard Shillaker	16
Andrew Watchorn	15
Graeme Davis	14
Saharima Roenisch	14
David Fotheringham	13
Peter Hall	13
Tim Hodge	13
Martin Harvey	12
Annie & Bob Haycock	12
Malcolm Jennings	12
Calum Urquhart	12
Neal Gates	11
Dave Higginson-Tranter	3
Simon Hughes	9
Andy Godfrey	8
Peter Smith	8
Lynn Read	8
Elaine Wright	8
Mike Higgott	7
Christian Owen	7
Stephen O'Donnell	6
Adam Parker	6
Sarah Bebb	5
David Brice	5
Sue Byrne	5
Paula Lightfoot	5
Pete Mella	5
Alice Parfitt	5
R. H. L. Disney	5
David Slade	5
Geri Thomas	5
Helen Bell	4
Paul Bowyer	4
Paul Challinor	4
D. de Courcy Henshaw	4
David Gould	4
Gary Hedges	4
Wil Heeney	4
Annie Irving	4
Lee Johnson	4
Steven Lewis	4
David Nicholls	4
Paul Parsons	4
Pem'shire Rec Group	4
Hilary Perry	4
Phil Lafferty	4
Philip Pullen	4
Mark Steer	4
Sue Timms	4
Aaron Woods	4
Andy Musgrove	3
Pete Boardman	3
Patrick Bonham	3
Howard Burt	3
Liam Crowley	3
James Harding-Morris	3
Glamorgan Botany Group	1
David Inward	1

Since the last report the database has progressed in fits and starts such that, at the time of writing on 25 July 2013, it contains 24606 records for 79 species. The collector/recorder details with number of records, species, grid references and year of last record enclosed in brackets are shown below. Note that a small number of records has been ascertained from websites and if the collector/recorder only provided a pseudonym these have been assigned to Unknown.

D. M. Ackland (1, 1, 1, 1990); F. C. Adams (6, 5, 2, 1905); M. Albertini (1, 1, 1, 2008); K. N. A. Alexander (218, 38, 147, 2008); A. A. Allen (38, 38, 6, 1998); G. W. Allen (4, 4, 4, 1998); P. Allen (3, 3, 1, 2002); C. H. Andrewes (6, 3, 6, 1970); H. W. Andrews (342, 53, 57, 1954); G. & M. Arnold (12, 3, 6, 1986); C. Atkins (1, 1, 1, 2010); E. A. Atmore (1, 1, 1, 1902); H. Audcutt (12, 11, 8, 1945); W. Avery (1, 1, 1, 2010); J. S. Badmin (7, 2, 6, 2007); S. G. Ball (1, 1, 1, 1988); P. Bance (1, 1, 1, 2007); A. Banthorpe (1, 1, 1, 2012); T. Bantock (1, 1, 1, 2007); A. C. Barlow (64, 19, 17, 1991); R. J. Barnett (8, 3, 8, 1996); E. B. Basden (1, 1, 1, 1960); A. Beaumont (15, 7, 9, 1949); J. Beaumont (1, 1, 1, 1898); I. Beavis (56, 19, 29, 2012); B. P. Beirne (25, 11, 6, 1949); J. E. & R. B. Benson (1, 1, 1, 1958); R. B. Benson (1, 1, 1, 1944); H. Bentley (99, 27, 56, 2012); P. Bergdahl (25, 7, 1, 2004); D. T. Biggs (239, 17, 180, 2007); M. F. Biggs (4, 4, 4, 2003); N. Biggs (3, 1, 3, 2000); T. R. Billups (2, 1, 2, 1893); A. E. Binding (1, 1, 1, 2004); N. L. Birkett (1, 1, 1, 1977); K. G. Blair (107, 37, 30, 1951); K. P. Bland (92, 19, 71, 2005); B. N. Blood (3, 3, 1, 1929); E. N. Bloomfield (1, 1, 1, 1893); M. G. Bloxham (176, 32, 71, 2003); J. Bowden (4, 2, 2, 1996); J. P. Bowdrey (188, 18, 143, 2004); J. Bowman (7, 5, 4, 2010); G. Boyd (49, 17, 30, 2010); J. H. Boyd (6, 4, 1, 2004); A. Brackenbury (110, 25, 81, 2001); R. C. Bradley (14, 12, 5, 1900); J. Bratton (181, 28, 134, 2005); A. F. Brazenor (23, 7, 5, 1948); A. T. Brett (1, 1, 1, 1883); C. Brett (1, 1, 1, 1905); A. Brindle (4, 4, 4, 1952); H. Britten Jnr (15, 9, 4, 1958); H. Britten (112, 38, 37, 1956); J. H. Britten (1, 1, 1, 1946); E. Brown (9, 9, 1, 1863); J. M. Brown (3, 1, 3, 1920); E. Brunetti (1, 1, 1, 1889); H. J. Burkill (4, 3, 3, 1947); G. Burleigh (1, 1, 1, 2012); E. N. Burnett (1, 1, 1, 1902); M. Burnhill (2, 2, 2, 2002); V. Burton (1, 1, 1, 2010); E. Burt (17, 7, 6, 1976); H. Bury (1, 1, 1, 1914); L. C. Bushby (1, 1, 1, 1926); P. Butler (10, 6, 3, 1998); G. D. H. Carpenter (1, 1, 1, 1905); J. W. Carr (1, 1, 1, 1919); H. H. Carter (23, 3, 16, 1981); J. M. Chalmers-Hunt (3, 1, 3, 1991); C. G. Champion (1, 1, 1, Unknown); P. J. Chandler (580, 56, 254, 1999); R. A. Chapman (2, 2, 2, 1999); H. J. Charbonier (4, 4, 3, 1918); C. A. Cheetham (15, 11, 9, 1940); J. M. Cheverton (3, 2, 3, 2004); W. E. China (3, 2, 2, 1928); T. M. Clegg (1, 1, 1, 1965); A. Clements (1, 1, 1, 1994); D. Clements (81, 30, 48, 1996); L. Clemons (2485, 53, 740, 2013); J. Clough (16, 8, 6, 2008); W. G. Cluton (1, 1, 1, 1933); P. R. Cobb (2, 2, 2, 1996); R. L. Coe (8, 6, 6, 1939); E. Coetzee (1, 1, 1, 1971); M. Coffin (1, 1, 1, 2012); B. H. Cogan (1, 1, 1, 1971); K. Coker (3, 3, 2, 2010); J. D. Coldwell (231, 37, 55, 2012); J. H. Cole (767, 59, 292, 2010); J. E. Collin (10, 7, 8, 1946); C. W. Collins (1, 1, 1, 2007); D. Collins (2, 2, 2, 1963); G. A. Collins (2, 2, 2, 2003); J. J. Collins (134, 29, 15, 1939); C. N. Colyer (22, 11, 14, 1954); A. Consterdine (14, 1, 14, 1997); P. Cooke (1, 1, 1, 1995); M. Cooper (1, 1, 1, 2012); G. Corbet (14, 7, 2, 2003); E. Coronold (1, 1, 1, 1900); M. Cotterill (2, 1, 2, 2011); J. Cowley (3, 3, 3, 1950); S. M. Crellin (13, 11, 11, 2003); R. Crossley (107, 32, 54, 2009); N. Cumming (1, 1, 1, 2004); P. W. E. Currie (1, 1, 1, 1951); E. C. M. d' Assis-Fonseca (26, 13, 7, 1963); C. W. Dale (1, 1, 1, Unknown); H. W. Daltry (9, 6, 4, 1940); D. Dana (4, 2, 4, 2003); C. David (119, 16, 85, 2002); G. Davis (2, 2, 2, 2011); O. Davis (2, 1, 1, 2006); P. Davis (1, 1, 1, 2004); C. D. Day (13, 10, 10, 1951); M. de Courcy Williams (9, 6, 7, 1979); J. P. & S. Dear (6, 5, 6, 1977); B. Deed (1, 1, 1, 2012); J. C. Deeming (2, 2, 2, 1991); J. S. Denton (99, 31, 49, 2010); R. Dickson (324, 34, 66, 2012); A. F. G. Dixon (1, 1, 1, 1955); J. C. Dobson (162, 33, 48, 1996); S. Dodd (2, 1, 1, 1986); H. St. J. Donisthorpe (1, 1, 1, 1902); D. N. Dowling (12, 7, 10, 1979); C. M. Drake (535, 55, 297, 2011); C. Duke (1, 1, 1, 2011); R. D. Dumbrell (40, 24, 26, 1976); I. Dungey (1, 1, 1, 2006); K. Durrant (126, 26, 51, 1994); C. E. Dye (2, 2, 2, 1970); V. F. Eastop (4, 3, 1, 1974); R. Edmonds (3, 3, 3, 2005); F. W. Edwards (10, 8, 6, 1934); J. Edwards (13, 9, 7, 1956); M. E. Edwards (25, 12, 11, 2010); G. R. Else (5, 5, 5, 2012); W. A. Ely (175, 36, 108, 2006); D. W. Emley (10, 6, 9, 1990); J. Enoch (1, 1, 1, Unknown); P. F. Entwistle (9, 4, 8, 2006); G. Evans (1, 1, 1, 1983); I. Evans (1, 1, 1, 2010); B. Evans (1, 1, 1, 2011); B. Fairs (1, 1, 1, 2010); W. Falconer (4, 1, 4, 1927); S. J. Falk (867, 47, 175, 2008); R. C. Faris (3, 3, 3, 1938); J. C. Felton (3, 3, 2, 1965); I. D. Ferguson (2, 1, 2, 1987); G. L. Finch (1, 1, 1, 2010); J. Flanagan (49, 18, 31, 2004); H. F. Fletcher (2, 2, 2, 2005); T. B. Fletcher (30, 15, 3, 1948); P. Follett (17, 7, 1, 1988); L. T. Ford (1, 1, 1, 1936); W. J. Fordham (1, 1, 1, 1921); B. Formstone (43, 18, 16, 1998); P. Forrest (4, 1, 2, 2003); A. P. Foster (1, 1, 1, 1994); K. Fowler (2, 2, 2, 2011); A. P. Fowles (36, 16, 28, 1996); E. E. Frampton (3, 3, 2, 1937); M. Fray (1, 1, 1, 2013); P. Furze (3, 3, 3, 2011); J. M. Gant (16, 10, 5, 2001); S. P. Garland (4, 2, 3, 1988); D. J. Gibbs (447, 50, 150, 2007); R. Gilbert (1, 1, 1, 2012); G. Glombeck (2, 1, 1, 1975); P. A. Goddard (2, 2, 1, 1967); A. Godfrey (198, 37, 65, 2009); J. Gordon (1, 1, 1, 2012); T. Goudley (2, 1, 2, 1998); P. Grainger (22, 12, 10, 1998); W. R. O. Grant (6, 3, 4, 1907); A. Grayson (22, 11, 12, 1993); L. W. Grensted (1, 1, 1, 1948); H. I. Griffiths (7, 5, 5, 1997); J. Grimes (1, 1, 1, 1918); P. H. Grimshaw (3, 2, 3, 1911); S. Grove (506, 45, 155, 1995); K. M. Guichard (1, 1, 1, 1972); D. Hackett (21, 13, 10, 2001); F. H. Haines (23, 12, 7, 1942); J. N. Halbert (13, 7, 10, 1974); A. H. Haliday (15, 10, 7, 1833); D. Hallett (11, 8, 9, 2005); H. M. Hallett (1, 1, 1, 1934); A. J. Halstead (914, 58, 282, 2007); A. H. Hamm (4, 4, 2, 1922); C. O. Hammond (35, 22, 12, 1978); P. M. Hammond (2, 2, 2, 2006); G. F. Hampson (1, 1, 1, 1891); M. Hanson (152, 32, 61, 2004); L. W. Hardwick (111, 27, 58, 1997); E. Harris (1, 1, 1, 2010); G. J. Harris (2, 2, 2, 1985); K. M. Harris (2, 2, 2, 1986); M. Harris (1, 1, 1, Unknown); J. Hart (1, 1, 1, 2005); B. J. Hartham (1, 1, 1, 1943); M. C. Harvey (52, 19, 35, 2011); N. Harvey (25, 12, 17, 2012); P. R. Harvey (1302, 45, 274, 2012); C. H. Harwood (1, 1, 1, 1908); P. Harwood (3, 2, 1, 1946); L. Haskins (2, 1, 1, 1990); J. Haslett (1, 1, 1, 1974); R. D. Hawkins (53, 22, 39, 2006); N. F. Heal (14, 11, 12, 2004); J. J. Heath (8, 1, 8, 1991); O. G. Heath (4, 3, 2, 1922); D. J. Heaver (4, 4, 3, 1998); G. Hemington (2, 2, 1, 2012); T.

Do newsletters generate more records?

– imponderables

- contribution of organiser is usually disproportionate
- other stimuli – websites, social media
- database types

Are websites and social media better substitutes?

