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British Isles Atlas: Micropezids & Tanypezids (Diptera, Nerioidea & Diopsoidea) 2016

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Keywords

NERIOIDEA; Pseudopomyzidae; Micropezidae; Micropezids; DIOPSOIDEA; Diopsidae; Tanypezidae; Strongylophthalmyiidae; Megamerinidae; Psilidae; Tanypezids; Brirish Isles Atlas; UK Checklist; Open Access, biogeography

Summary

Although recording of Diptera is very active in the UK, for the less popular groups and the scarcer species, records are obtained infrequently. In respect of Micropezidae, Falk et. al (2017) suggested that "*The family has been relatively little recorded in Britain hitherto*". The current **Stilt & Stalk Fly Recording Scheme** which began as a "Small Acalypterate Families Study Group" in 1999 (announced in Dipterists Forum Bulletin #48 with short reports in most subsequent issues) has provided some assistance via keys, workshop and reports. The rate of accumulation of records through this scheme subsequently increased as they were collected and collated from contributors by the author, published to NBN Gateway and finally to the NBN Atlas in April 2017. The Recording Scheme dataset contained 4,083 species occurrences in 2016.

Introduction

One objective of this work is feedback to those contributing records to the scheme. A new website is under development for Dipterists Forum by BRC and a some scheme organisers are focussing on preparing material that will assist in developing the Recording Scheme pages there.

Maps

Data Compendium 2016

For the purposes of analysis, several species-occurrence datasets (of which the Recording Scheme dataset is but one) were collated in early 2017. The data compendium presented here represents the best obtainable in April 2017. Additional datasets containing Micropezid and Tanypezid taxa were published on NBN Atlas after that date and are thus absent from these maps.
Atlases of species distribution are subject to periodic changes and should be considered "provisional".

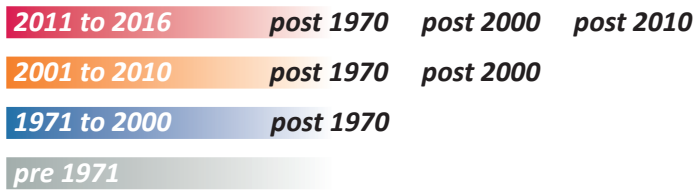
Extent

Two mapping agencies cover the British Isles, the Irish geographical land mass by the **Ordnance Survey Ireland** and most of the remainder by **Ordnance Survey**, which excludes one of the Crown Dependencies, the Channel Islands. Each produces its own National Grid to which naturalists traditionally record. The OS National Grid provides the geographical scope, extents and projection of the maps in this atlas and may be described as "British Isles minus Northern Ireland, the Republic of Ireland and the Channel Islands".

The term "United Kingdom" is used to indicate the scheme's area of interest though no records have been made on the Channel Islands and the few Irish records are to be found published in Speight et. al, (1985), the Irish Diptera list is maintained by Peter Chandler in Dipterists Digest.

Date ranges

Decades using the "AD1 = the first year" convention have been chosen, resulting in time periods on the maps as follows:



The status reviews (Falk, Ismay & Chandler, 2016) are scheduled to be published at 10 year intervals with the next review due in 2022. They use the "IUCN Red List Categories and Criteria" and are based upon measuring area of occupancy by counting up the number of occupied squares. In 2022, comprehensive sets of publicly accessible records are not likely to be available beyond 2020.

Cross-references

These are detailed in the European Atlas (Sumner, 2018)

Methods

Records which are submitted to the scheme are mainly in spreadsheet format. Records which contributors have uploaded to iRecord are downloaded at intervals. All are collected & collated in the desktop application Recorder 6. Management tasks include verification and uploading to NBN Atlas after flagging datasets already present on NBN Atlas so as not to duplicate.

Maps were created in QGIS, according to standards and resources from Taxonomic Databases Working Group (TDWG), NBN and European Environment Agency (EEA), aided by Rich Burkmar's TomBio biological recording plugin.

Publishing on Global Biodiversity Gateways

Though UK Recording Schemes keep their records updated on their desktop databases more or less continuously, summaries (usually in the form of a 10km square map indicating coverage) may only be provided annually or less frequently. Periodically many also publish the entire dataset to an online, publicly accessible Global Biodiversity Gateway, GBG being the term used to describe online repositories of species-occurrences such as the Global Biodiversity Information Facility (GBIF) and the UK's NBN Atlas (which uploads to GBIF periodically).

The Stilt & Stalk Fly dataset has been published to the NBN Atlas and may be found at https://registry.nbnatlas.org/public/show/dr940 and at https://doi.org/10.15468/mwjnku

Verification

James, (2011) discusses validation and verification of species-occurrences. Regarding data uploaded to GBGs, Turnhout et. al (2016) comment that "*Validation in GBIF is primarily procedural because the records are checked not for their correspondence with reality but rather for their compliance with the standard.*" which suggests that once erroneous records have reached a GBG, their correction may be problematic. Once at sea, always at sea.

Species occurrences of taxa in this atlas may be found within other datasets published to the NBN Atlas and thus maps obtained directly from the NBN Atlas will differ from those presented here. Such records have not been submitted to the organiser of this Recording Scheme and thus not passed through the scheme's process of verification. There are many errors in such datasets ranging from mis-typed species names (National Trust) to locations in the sea (Natural England) see https://tinyurl.com/ya3l767d

The NBN team have prioritised a development project to provide tools by which Scheme organisers and other expert verifiers may be able to flag individual records as having an issue. When this system is implemented it will be possible to incorporate NBN Atlas records into Recording Scheme maps in a future version of this atlas.

Nomenclature

Changes have been made in recent years which may cause confusion with older checklists and keys.

The scope of the genus *Neria* was clarified and revised by Ozerov (1987) who divided the whole of the **Calobatinae** into *Calobata* Meigen, *Cnodacophora* Czerny, *Compsobata* Czerny, *Calobatella* Mik and *Neria* Robineau-Desvoidy.

In 2006, Buck & Ryan restored *Imantimyia* as a subgenus of *Loxocera*.

Irwin & Roháček consider that the whole *Chamaepsila* group is in need of revision.

Conservation status

In Falk, Ismay & Chandler (2016) *A Provisional Assessment of the Status of Acalyptratae flies in the UK* the following taxa have been assigned a status:

		Occupied 10km squares			
Pseudopomyza atrimana (Meigen, 1830)	Data deficient	0	4	0	1
Cnodacophora stylifera (Loew, 1870)	pVulnerable	0	10	5	1
Micropeza lateralis Meigen 1826	pNationally scarce	9	34	15	10
Rainieria calceata (Fallén, 1820)	pEndangered	1	4	3	3
Tanypeza longimana Fallén, 1820	pVulnerable	0	8	2	2
Strongylophthalmyia ustulata (Zetterstedt, 1847)	pEndangered	0	4	0	1
Megamerina dolium (Fabricius, 1805)	pNationally scarce	13	57	14	11
Chyliza annulipes Macquart, 1835	pNationally scarce	3	7	1	1
Chyliza extenuata (Rossi, 1790)	pVulnerable	7	2	0	2
Chyliza nova Collin, 1944	pVulnerable	1	17	4	2
Chyliza vittata Meigen, 1826	pVulnerable	6	12	4	2
Imantimyia nigrifrons (Macquart, 1835)	Data deficient	1	0	0	0
Chamaepsila clunalis (Collin, 1944)	pNationally scarce	0	6	0	1
Chamaepsila luteola (Collin, 1944)	pNear threatened	0	8	3	0

Status

Whilst several of the above threatened species are reasonably well recognisable and the figures as true a reflection of occupancy as may be achieved, several may be under-recorded for other reasons. *Pseudopomyza atrimana* for example may be under-recognised and the *Chamaepsila* species confusing and requiring exacting microscopical work. Several species are less likely to be recorded by general sweeping methods and may be discovered by close survey of particular habitats. In particular the *Chyliza* species are most likely to be discovered by staking out known habitats and food plants. *Chyliza annulipes* larvae develop within the viscous resin exudations around wounds of various conifers, *Chyliza extenuata* has been observed on 3 species of Broomrape, *Chyliza nova* on tree sap and *Chyliza vittata* on orchids such as Bird's-nest orchid (*Neottia nidus-avis*)

Schedule

Compendium 2017/8

For a range of analyses[1] by scheme organisers and other researchers, full access to all available valid and verifiable data in a desktop biological records management system is required[2]. Recorder 6 is used by this scheme. A compendium of several datasets ("surveys" in R6 terminology) in addition to the Recording Scheme dataset is therefore collated.

The following tasks are scheduled in 2018 to collate the next compendium:

1. Locate other NBN Atlas datasets containing records and a) fix using tools under developed by NBN, b) download, verify and add to compendium
2. Acquire copyrighted journal articles and extract records. For example the description of *Chyliza annulipes* in Falk et.al (2016) states "*Caledonian Pine forest areas of Scotland*" and "*about twenty known post-1960 sites*", neither of which is clear from the available data; those may be in Winter (1988).
3. Search online identification sites. Uploaded images are an increasingly valuable source but many do not provide georeferenced locations or dates
4. Extract records submitted to the recording scheme since 2016 (~110)
5. Attempt to locate any further historic records still in field notebooks of various recorders
6. Attempt to locate further digitised records arising from Dipterists Forum events
7. Download another batch of iRecord occurrences (~120)
8. Upload a revised Recording Scheme dataset to NBN Atlas

1 Geospatial context (distribution maps) at various levels (country, Europe, Palaearctic), selection of appropriate identification keys, determining population changes of threatened species and devising conservation measures, exploratory spatial data analysis (Quinn & Keogh, 2002) through ecological or historical biogeography to distribution modelling (Franklin, 2009).

2 Online systems have given rise to"online only" advocates, online analyses are restricted to the limited set of tools provided on such sites or to organisations with very substantial resources. A consequence of this advocacy is a threat to continued support of essential desktop management systems (Sumner, 2018). Even a downloaded dataset in a spreadsheet is a form of simple desktop management system.

Acknowledgements

Contributors

Many thanks to contributors to the UK's Stilt & Stalk Fly Recording Scheme. Records uploaded to iRecord until 07/11/2016 were included in the NBN Atlas dataset for this scheme, though not verified through the iRecord online system.

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Checklist: British Isles

The following list is based upon 41 species known to occur in the British Isles.

Diptera: Nerioidea & Diopsoidea

Nerioidea (Micropezids)

Pseudopomyzidae

Pseudopomyza atrimana (Meigen, 1830) 7

Micropezidae

Calobatinae

Calobata petronella (Linnaeus, 1761) 8
Cnodacophora sellata (Meigen, 1826) 9
Cnodacophora stylifera (Loew, 1870) 10
Neria cibaria (Linnaeus, 1761) 11
Neria commutata (Czerny, 1930) 12
Neria ephippium (Fabricius, 1794) 13
Neria femoralis (Meigen, 1826) 14

Micropezinae

Micropeza corrigiolata (Linnaeus, 1767) 15
Micropeza lateralis Meigen 1826 16

Taeniapterinae

Rainieria calceata (Fallén, 1820) 17

Tanypezidae

Tanypeza longimana Fallén, 1820 18

Strongylophthalmyiidae

Strongylophthalmyia ustulata (Zetterstedt, 1847) 19

Megamerinidae Rondani, 1861

Megamerina dolium (Fabricius, 1805) 20

Psilidae

Chyliziinae

Chyliza annulipes Macquart, 1835 21
Chyliza extenuata (Rossi, 1790) 22
Chyliza leptogaster (Panzer, 1798) 23
Chyliza nova Collin, 1944 24
Chyliza vittata Meigen, 1826 25

Psilinae

Loxocerini

Loxocera aristata (Panzer, 1801) *26*
Imantimyia albiseta (Schrank, 1803) 27
Imantimyia fulviventris (Meigen, 1826) 28
Imantimyia nigrifrons (Macquart, 1835) 29
Imantimyia sylvatica (Meigen, 1826) 30

Psilini

Psila fimetaria (Linnaeus, 1761) *31*
Psila merdaria Collin, 1944 32
Psilosoma lefebvrei (Zetterstedt, 1835) 33
Chamaepsila atra (Meigen, 1826) 34
Chamaepsila bicolor (Meigen, 1826) 35
Chamaepsila buccata (Fallén, 1826) 36
= *Chamaepsila gracilis* (Meigen, 1826) *incertae sedis* *36*
Chamaepsila clunalis (Collin, 1944) 37
Chamaepsila humeralis (Zetterstedt, 1847) 38
Chamaepsila limbatella (Zetterstedt, 1847) 39
Chamaepsila luteola (Collin, 1944) 40
Chamaepsila nigra (Fallén, 1820) 41
Chamaepsila nigricornis (Meigen, 1826) 42
Chamaepsila obscuritarsis (Loew, 1856) 43
Chamaepsila pallida (Fallén, 1820) 44
Chamaepsila persimilis (Wakerley, 1959) 45
Chamaepsila rosae (Fabricius, 1794) 46
Chamaepsila unilineata (Zetterstedt, 1847) 47

Possible additional species

The following species may occur in the UK, based upon proximity in Europe (Sumner, 2018) and host plants:

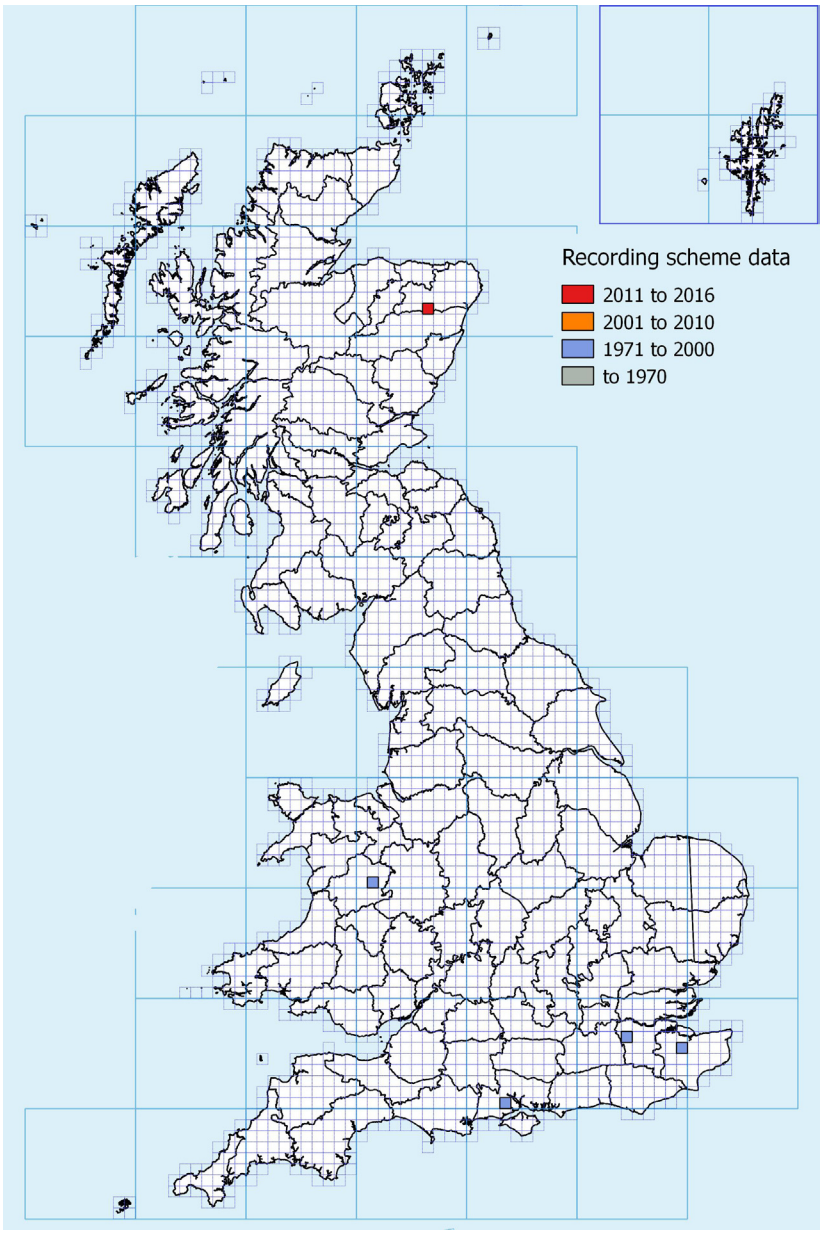
Micropeza brevipennis on Lucerne
Chyliza leguminicola feeding on Lupin (*Lupinus polyphyllus)* garden escapes, see Bygebjerg, (2011)
Loxocera hoffmannseggi
Psila (Oxypsila) abdominalis
Psilosoma audouini
Chamaepsila morio
Chamaepsila pectoralis
Chamaepsila rufa
Chamaepsila villosula

10km distribution: Great Britain & Isle of Man

Nerioidea (Micropezids)

Pseudopomyzidae

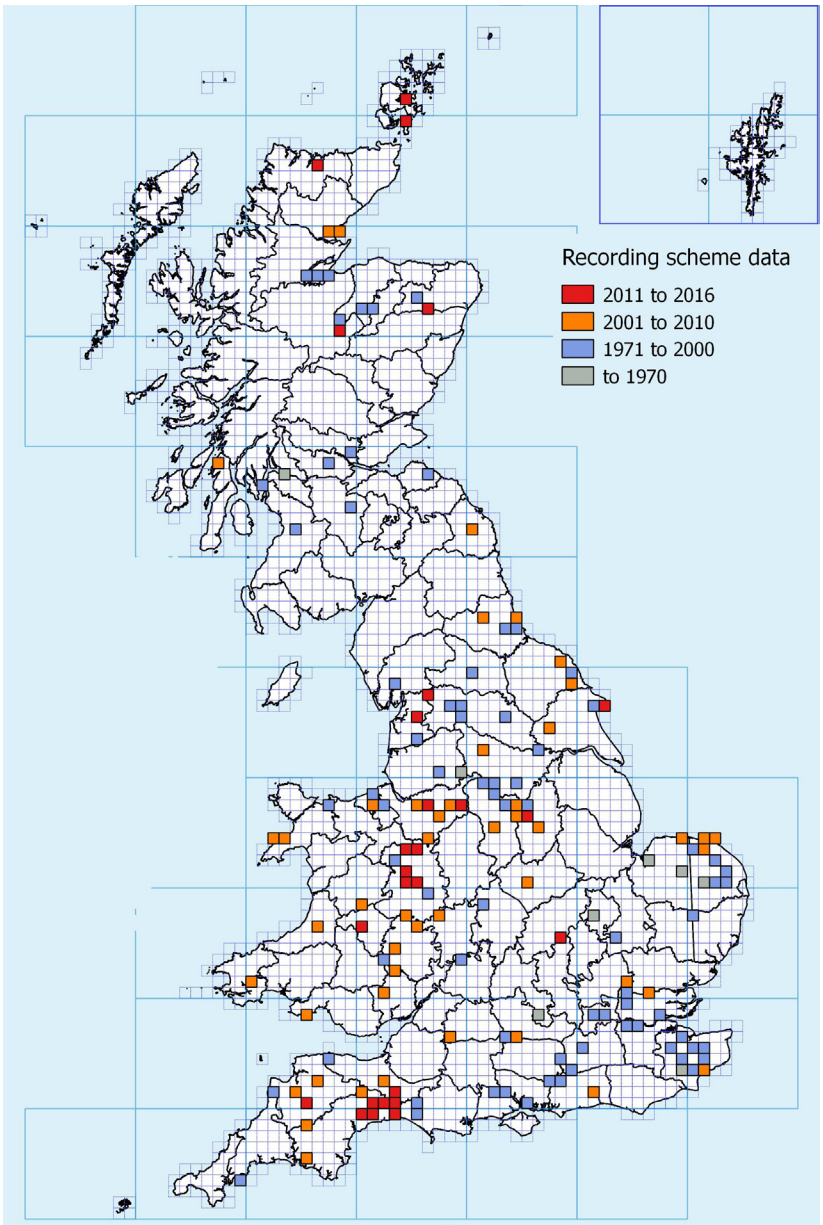
Pseudopomyza atrimana (Meigen, 1830)



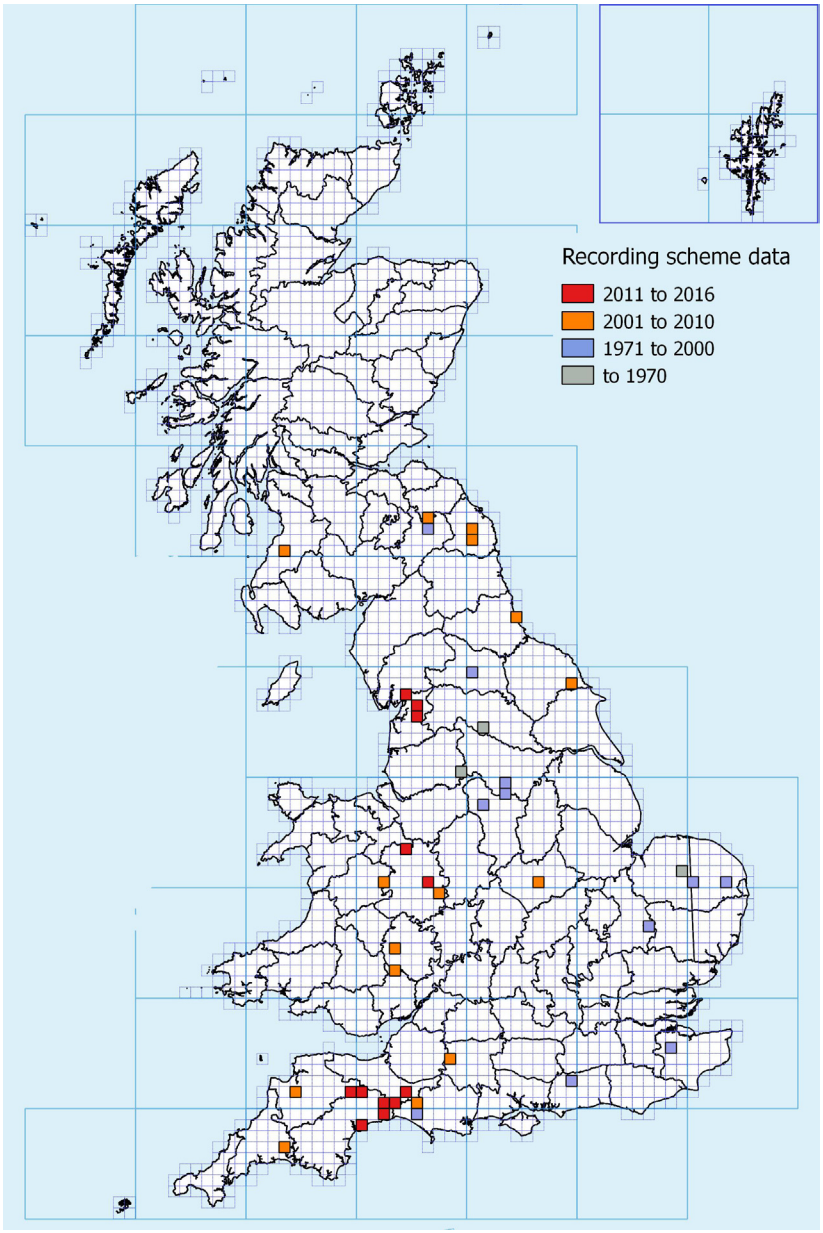
Micropezidae

Calobatinae

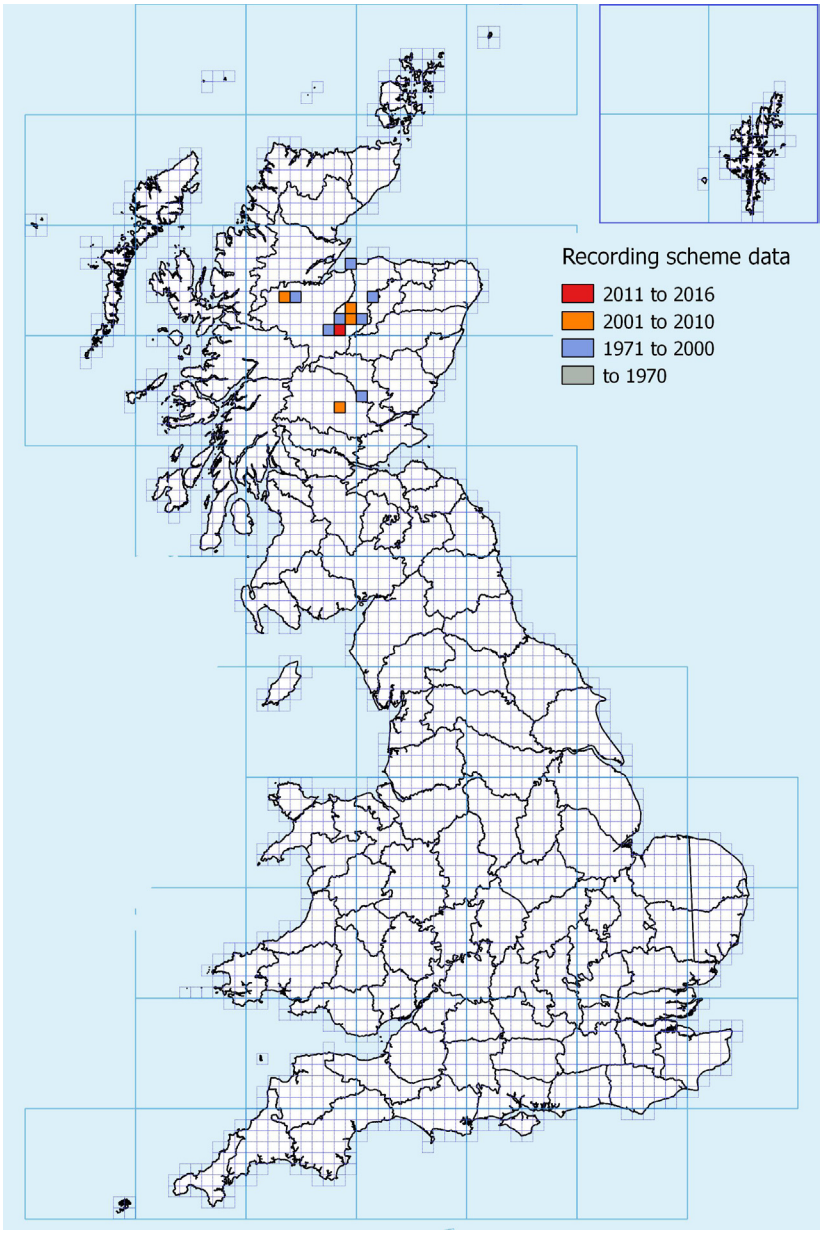
Calobata petronella (Linnaeus, 1761)



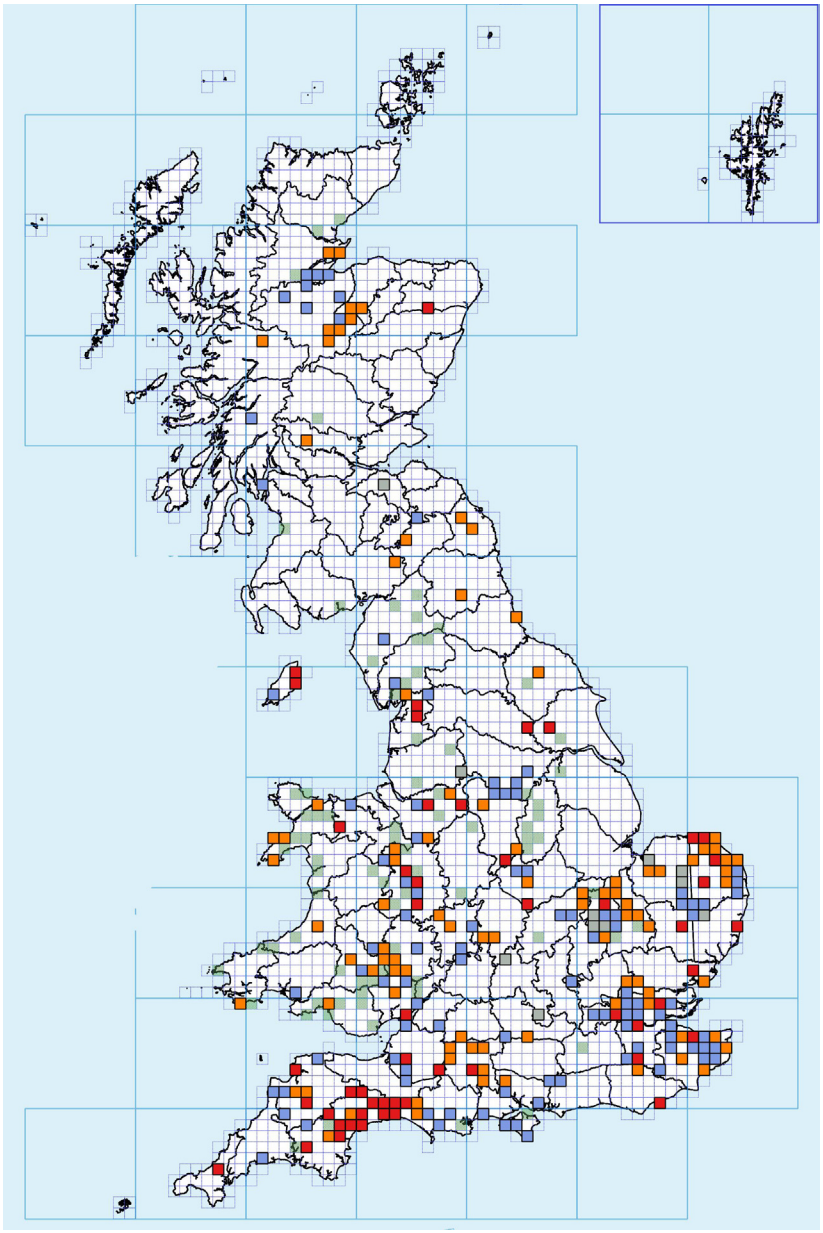
Cnodacophora sellata (Meigen, 1826)



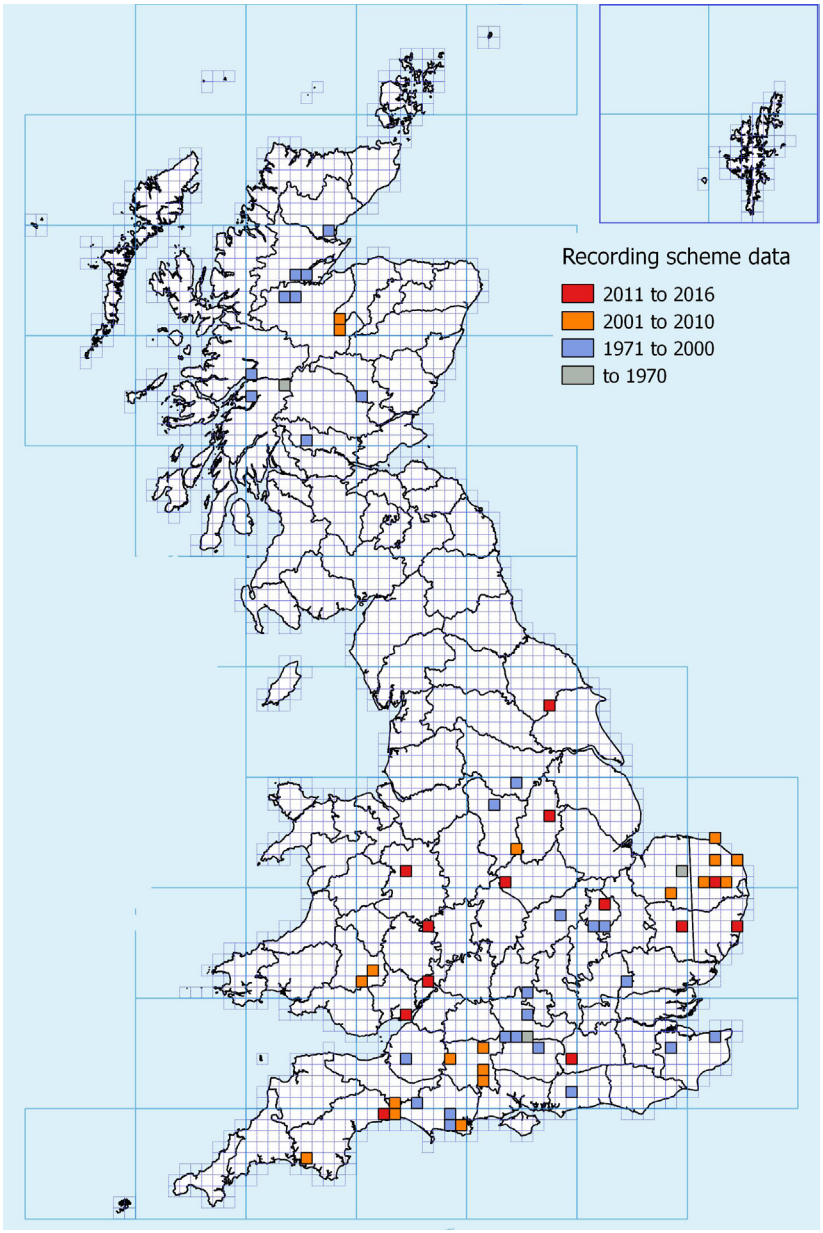
Cnodacophora stylifera (Loew, 1870)



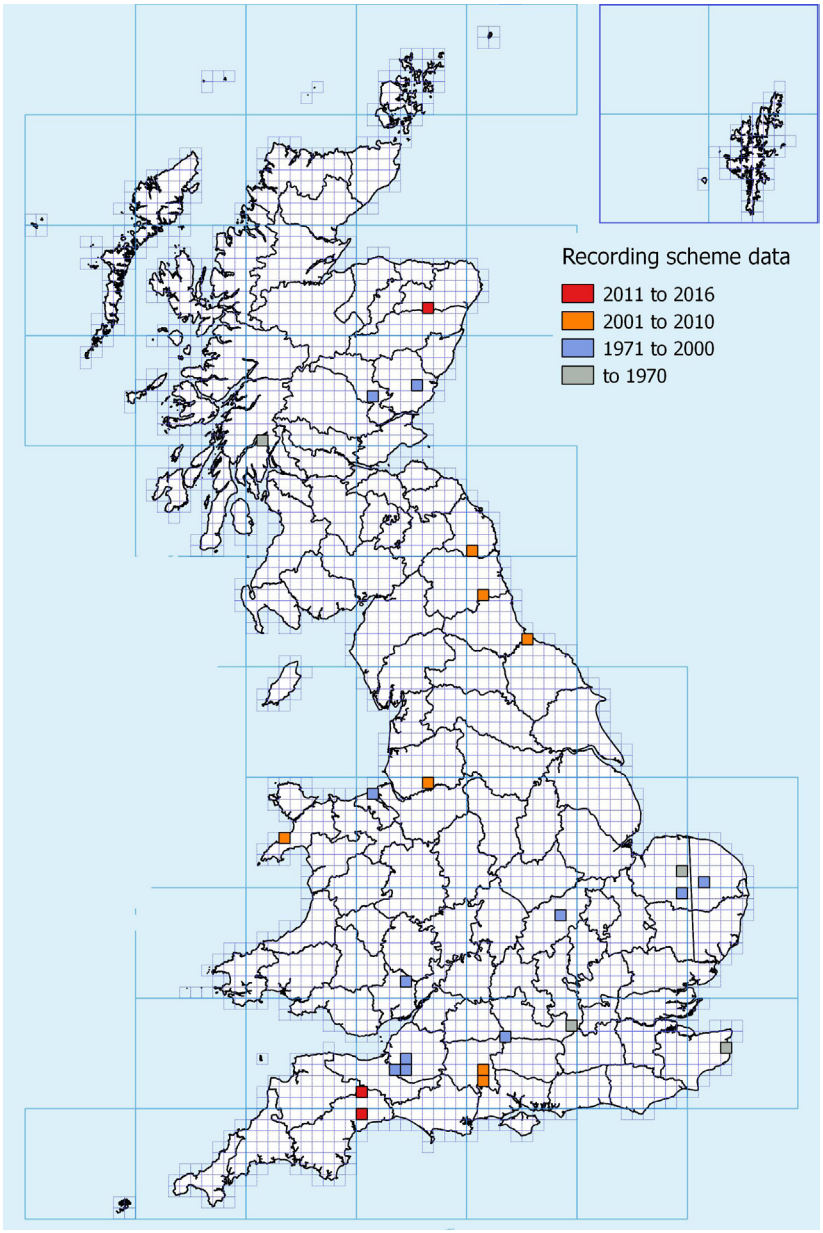
Neria cibaria (Linnaeus, 1761)



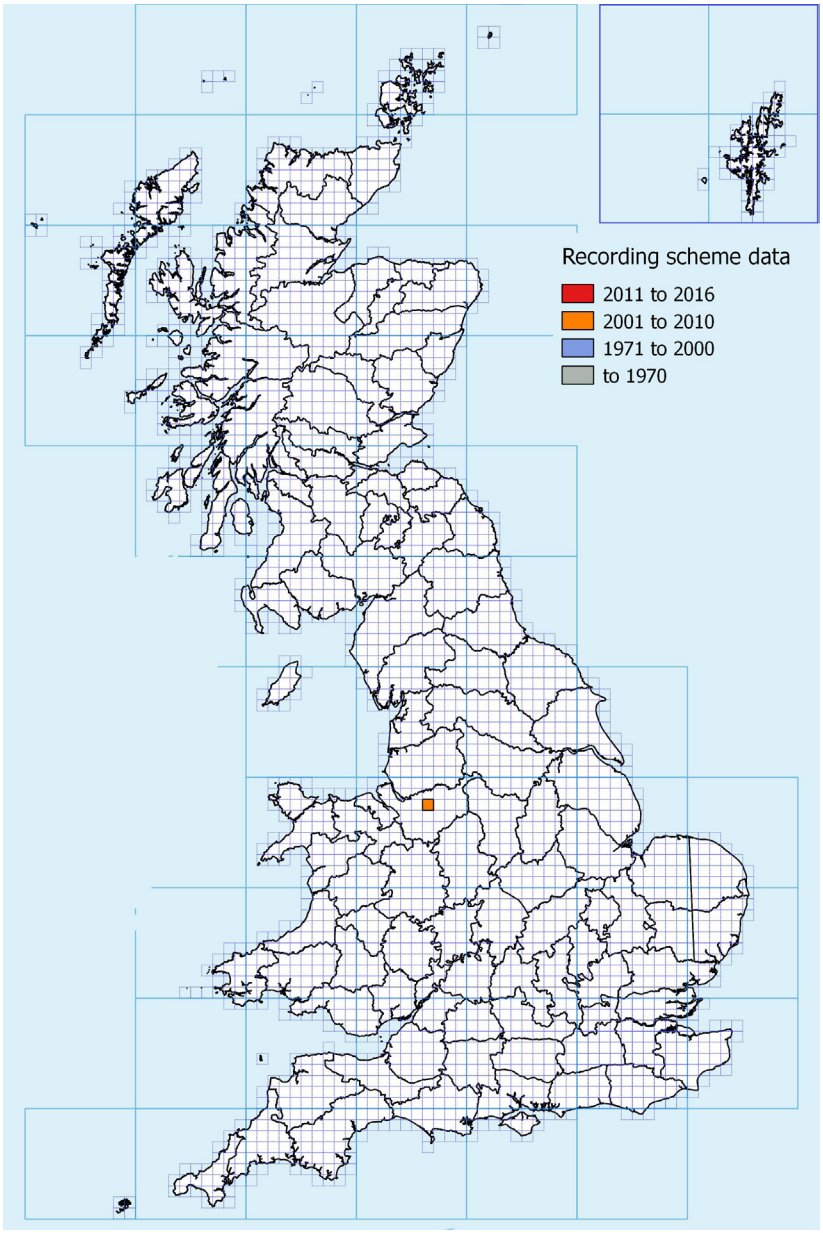
Neria commutata (Czerny, 1930)



Neria ephippium (Fabricius, 1794)

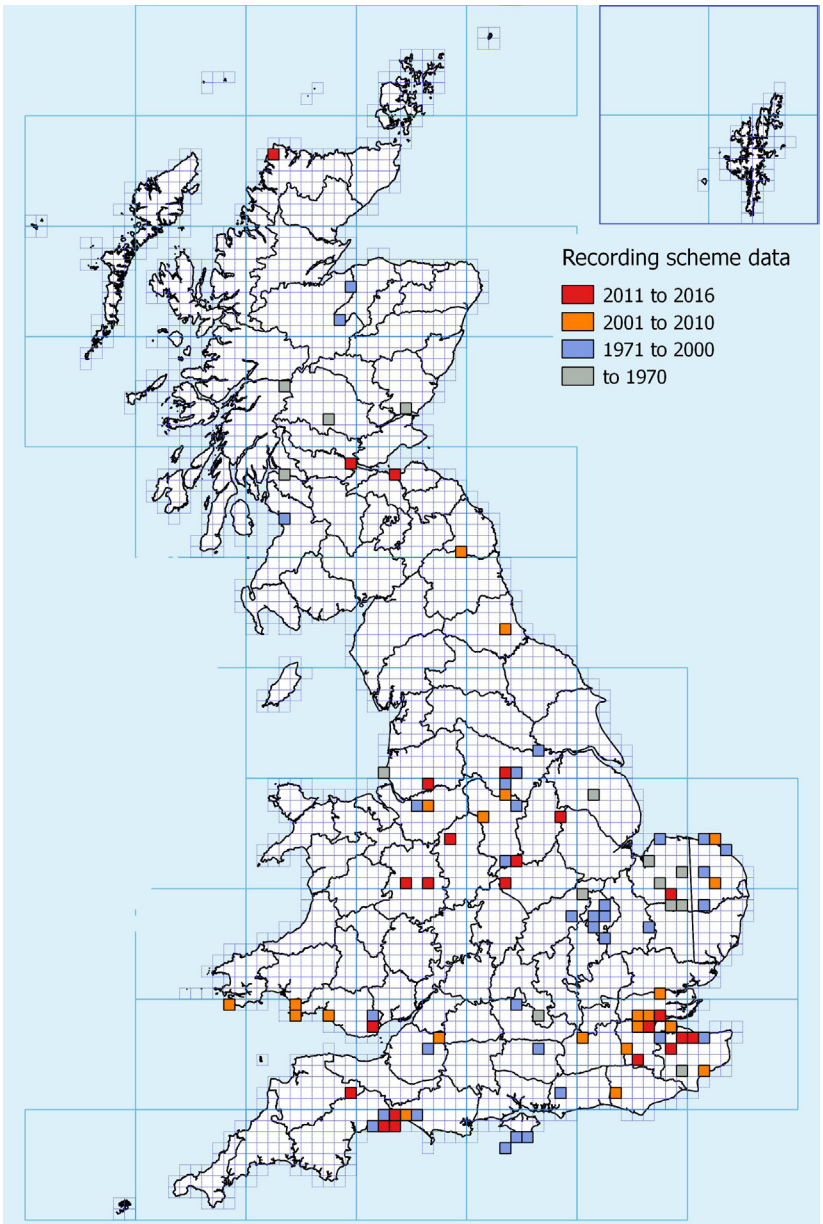


Neria femoralis (Meigen, 1826)

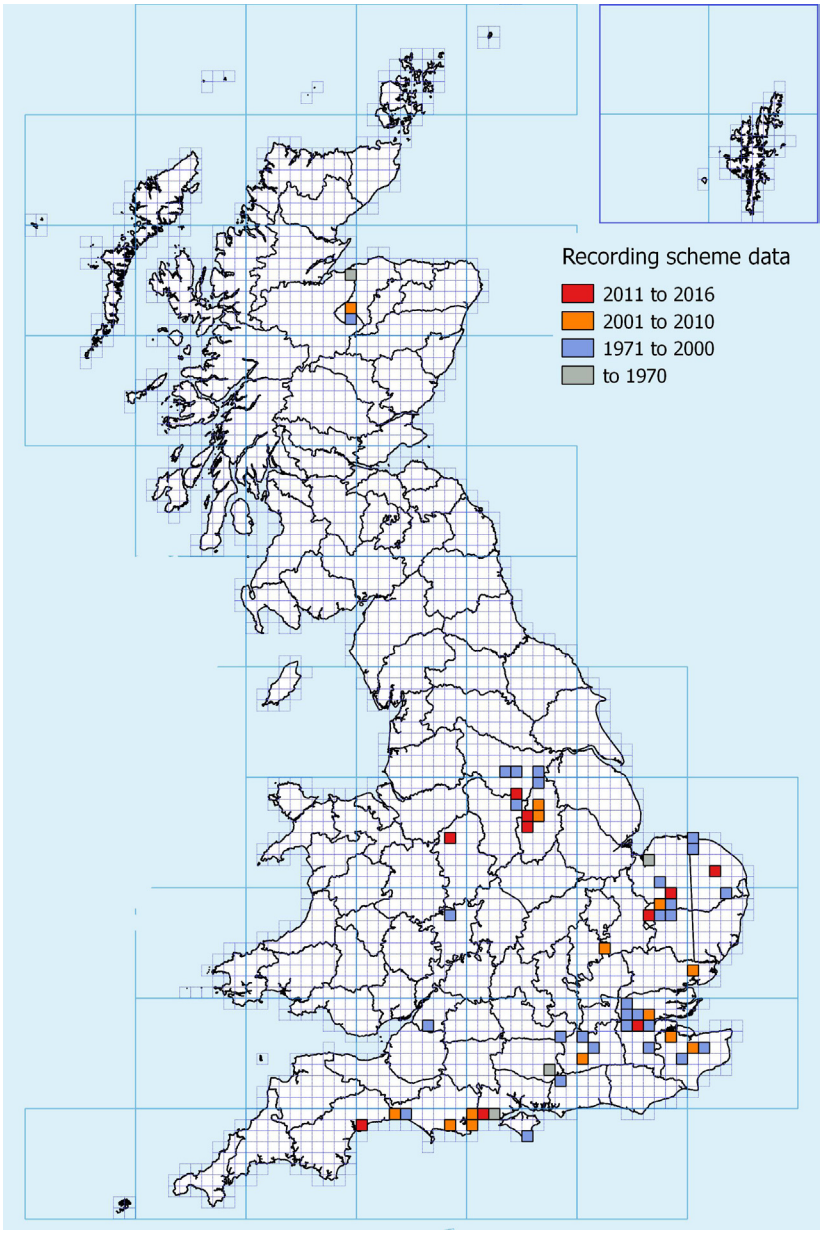


Micropezinae

Micropeza corrigiolata (Linnaeus, 1767)

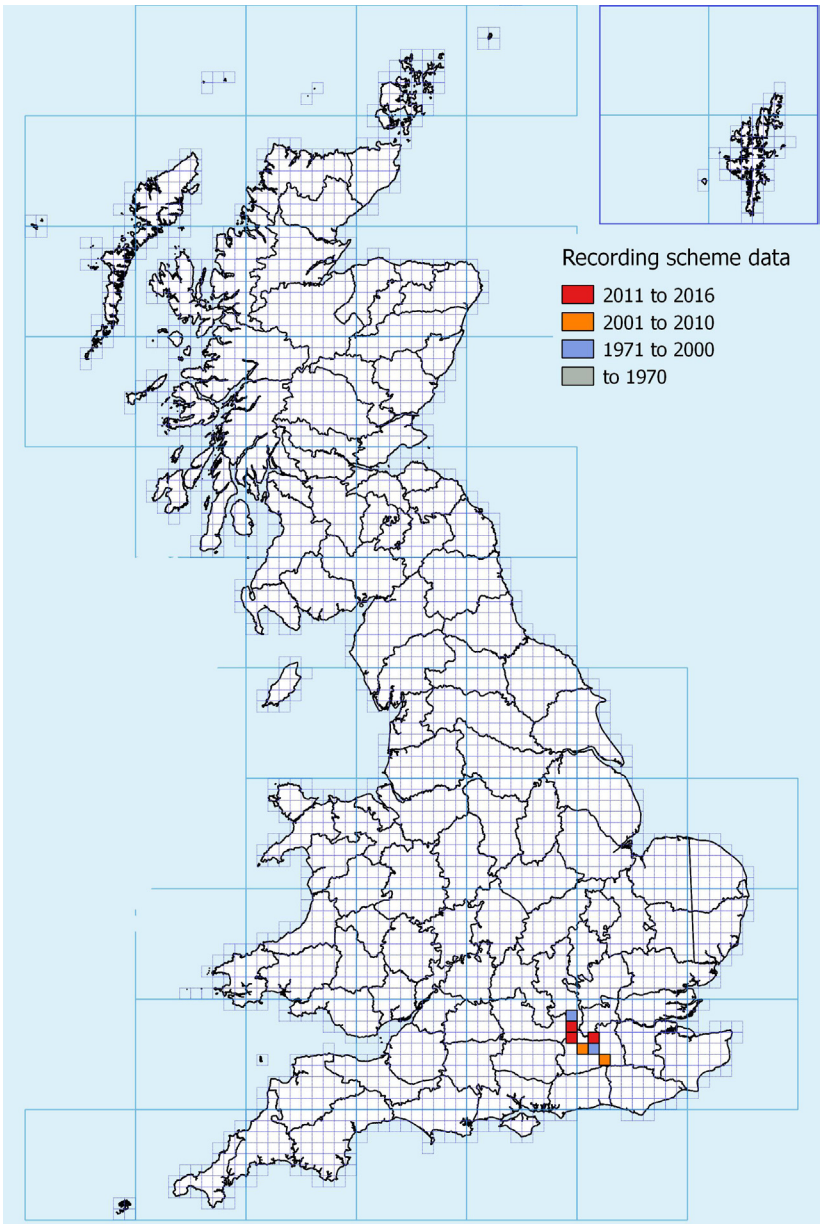


Micropeza lateralis Meigen 1826



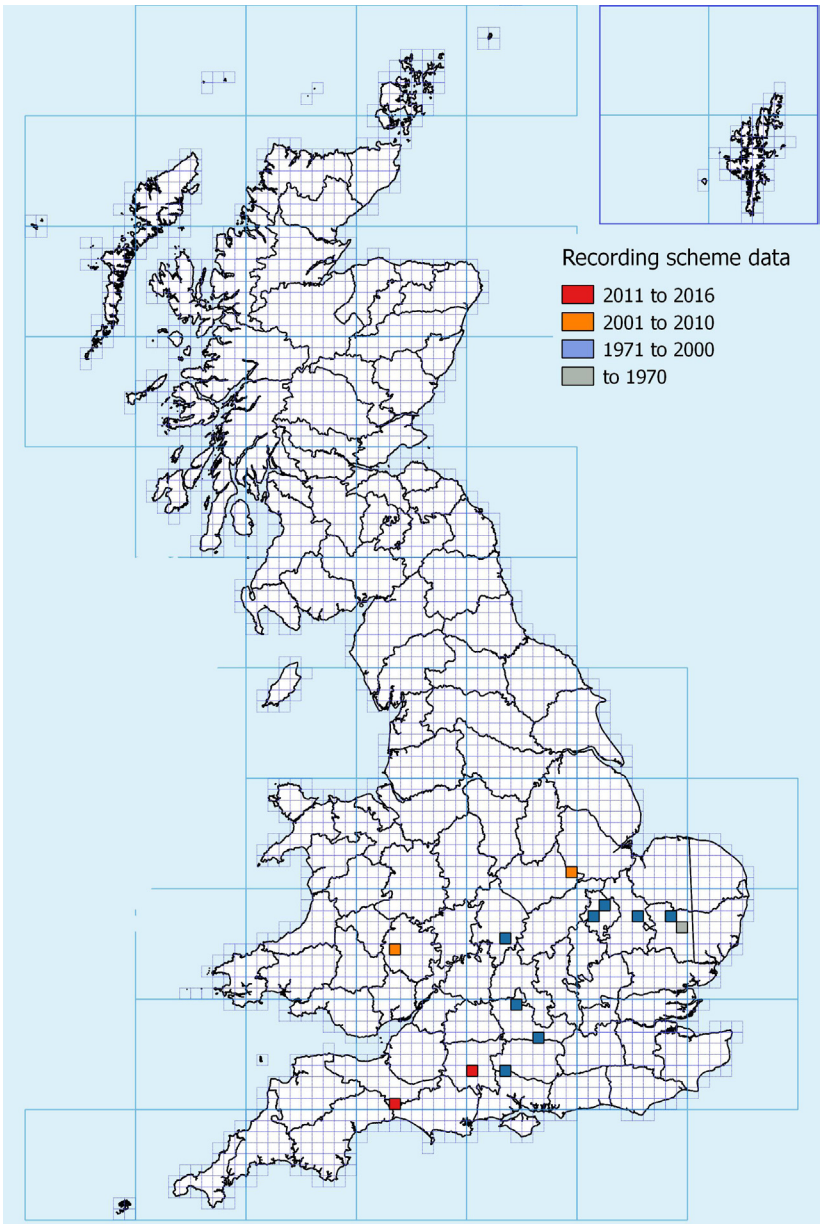
Taeniapterinae

Rainieria calceata (Fallén, 1820)



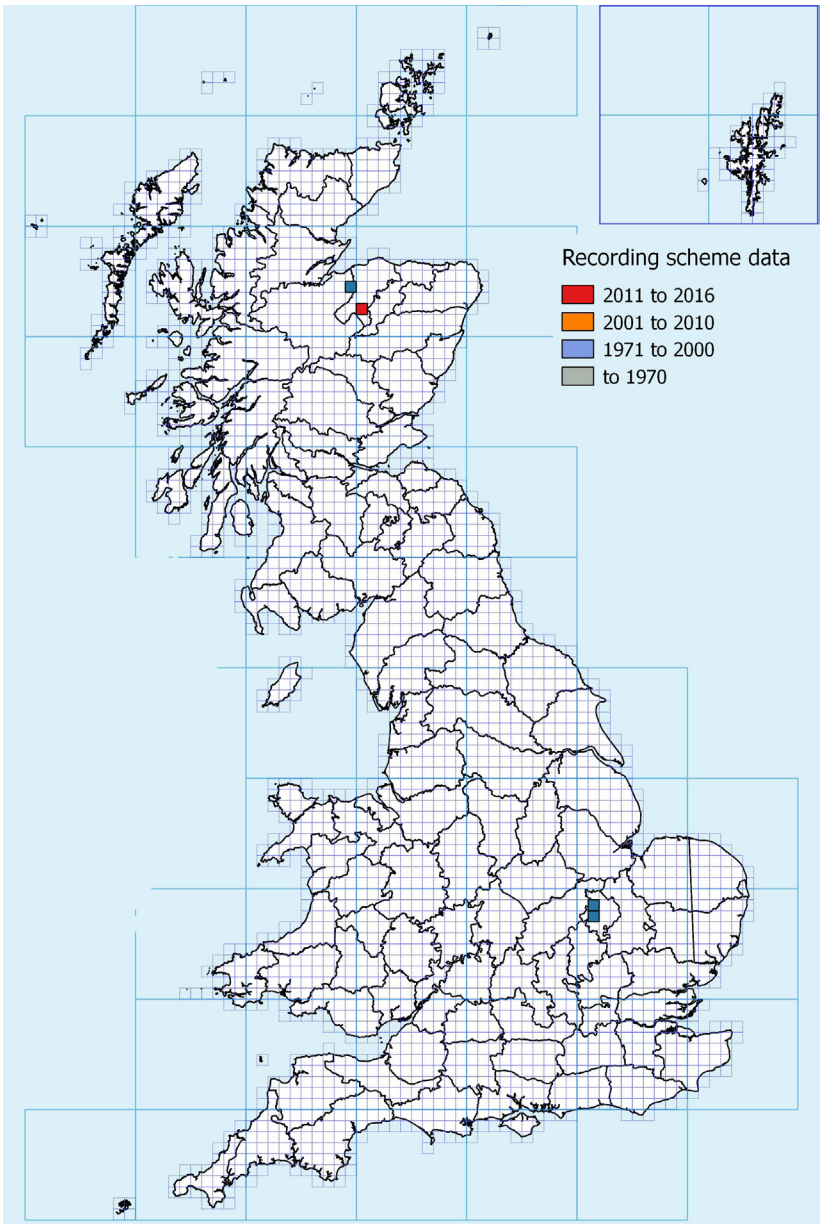
Tanypezidae

Tanypeza longimana Fallén, 1820



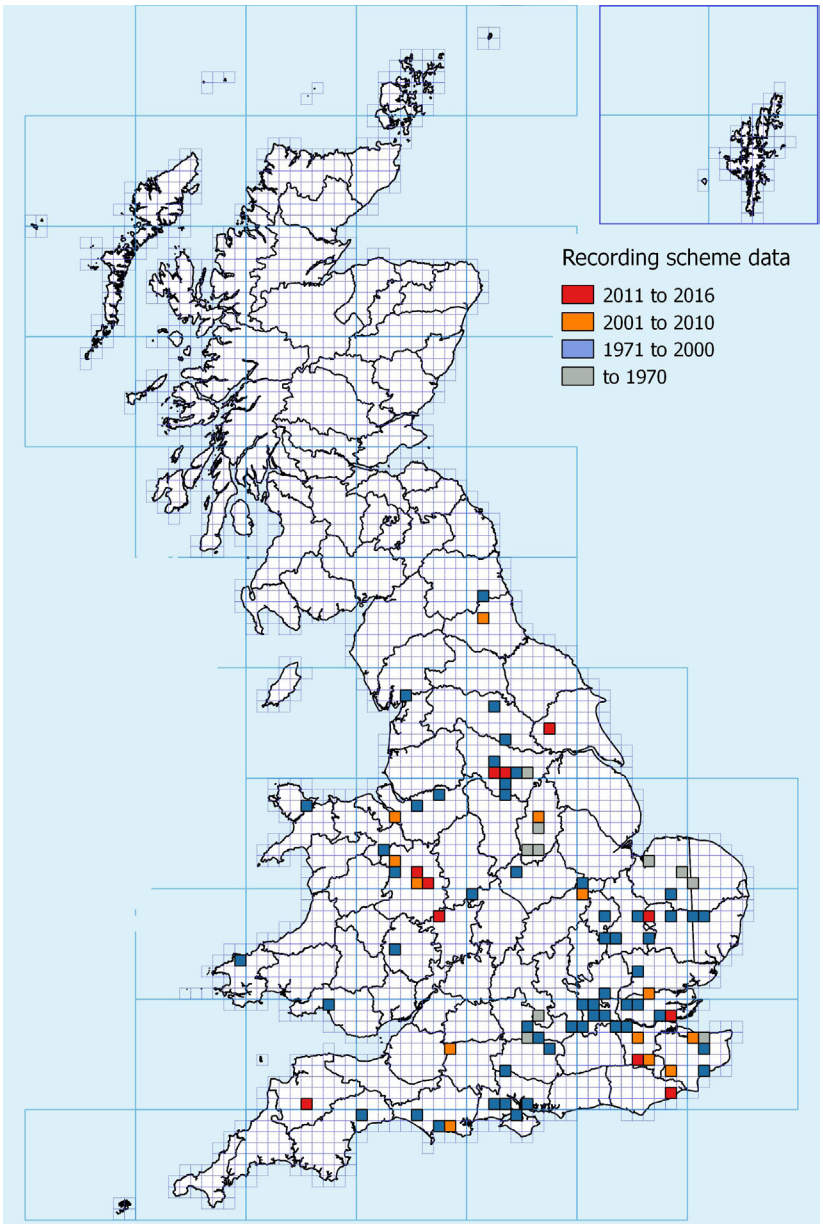
Strongylophthalmyiidae

Strongylophthalmyia ustulata (Zetterstedt, 1847)



Megamerinidae Rondani, 1861

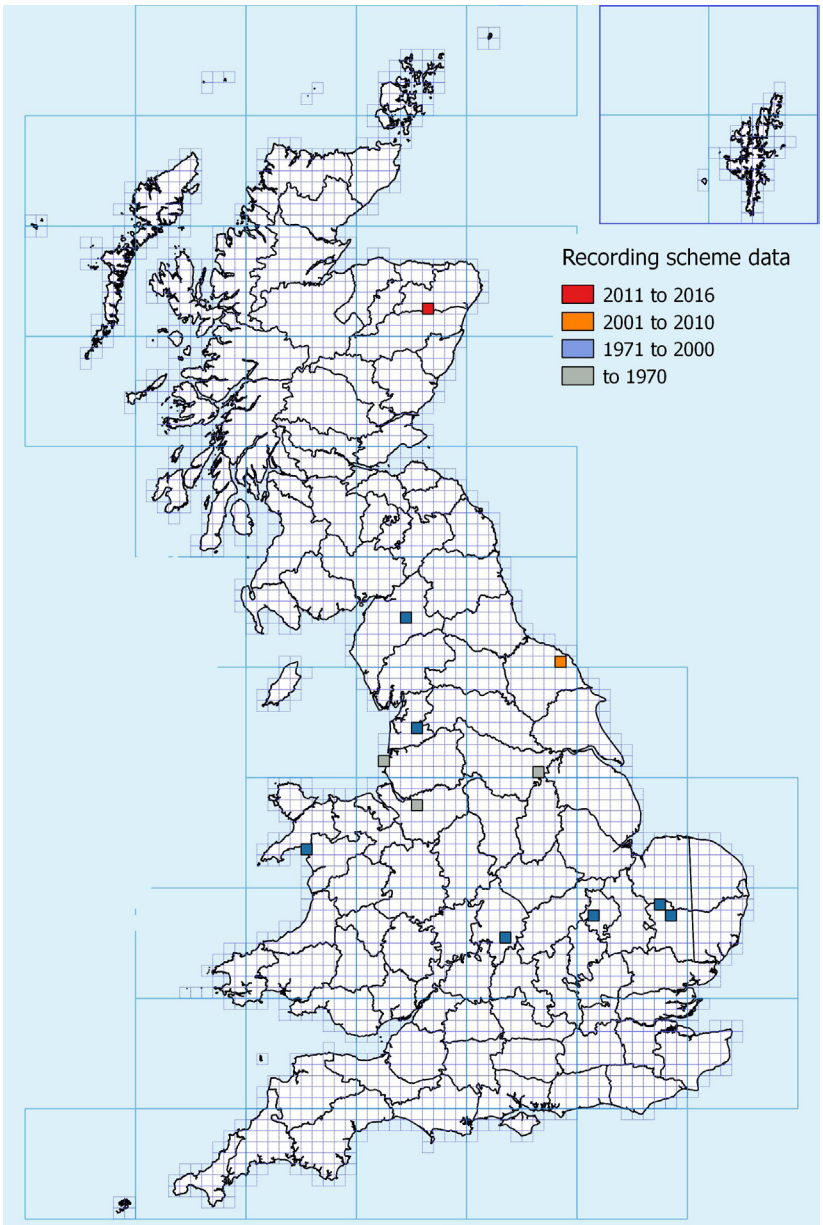
Megamerina dolium (Fabricius, 1805)



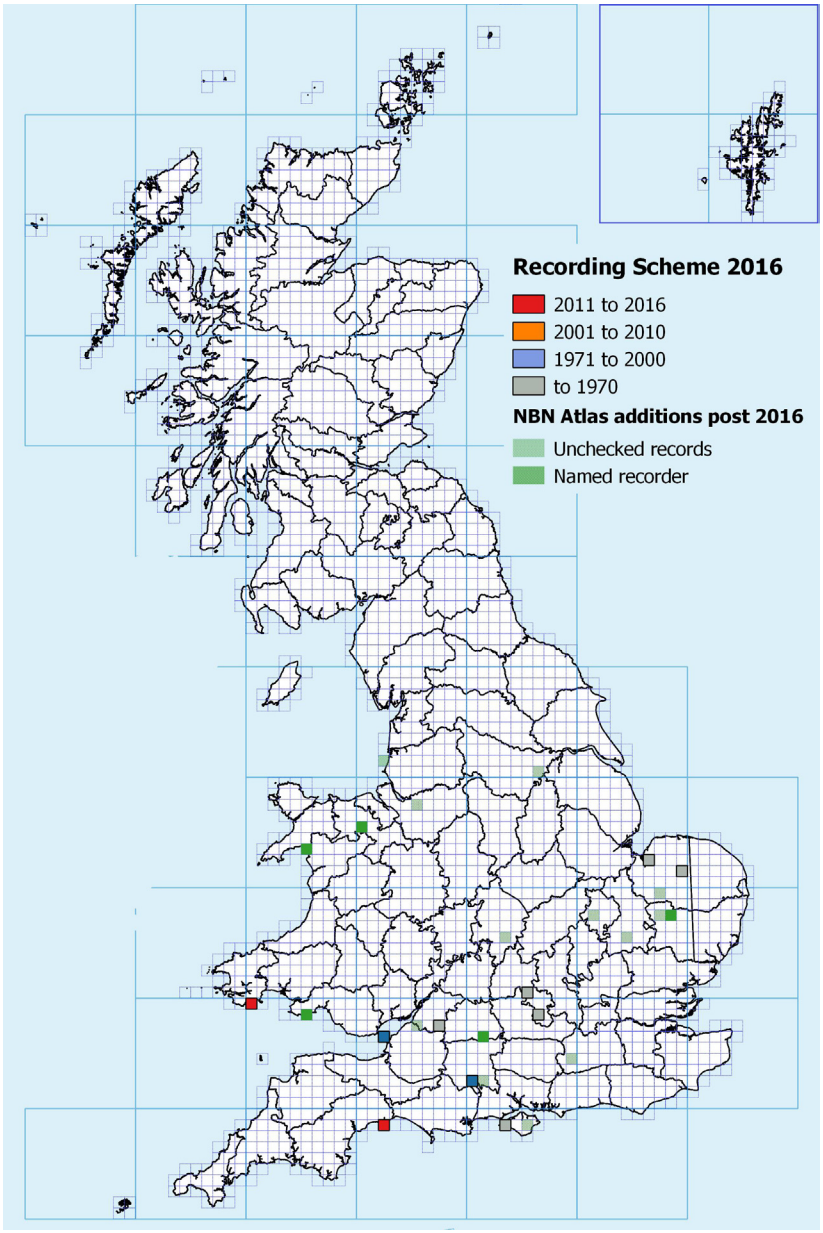
Psilidae

Chylizinae

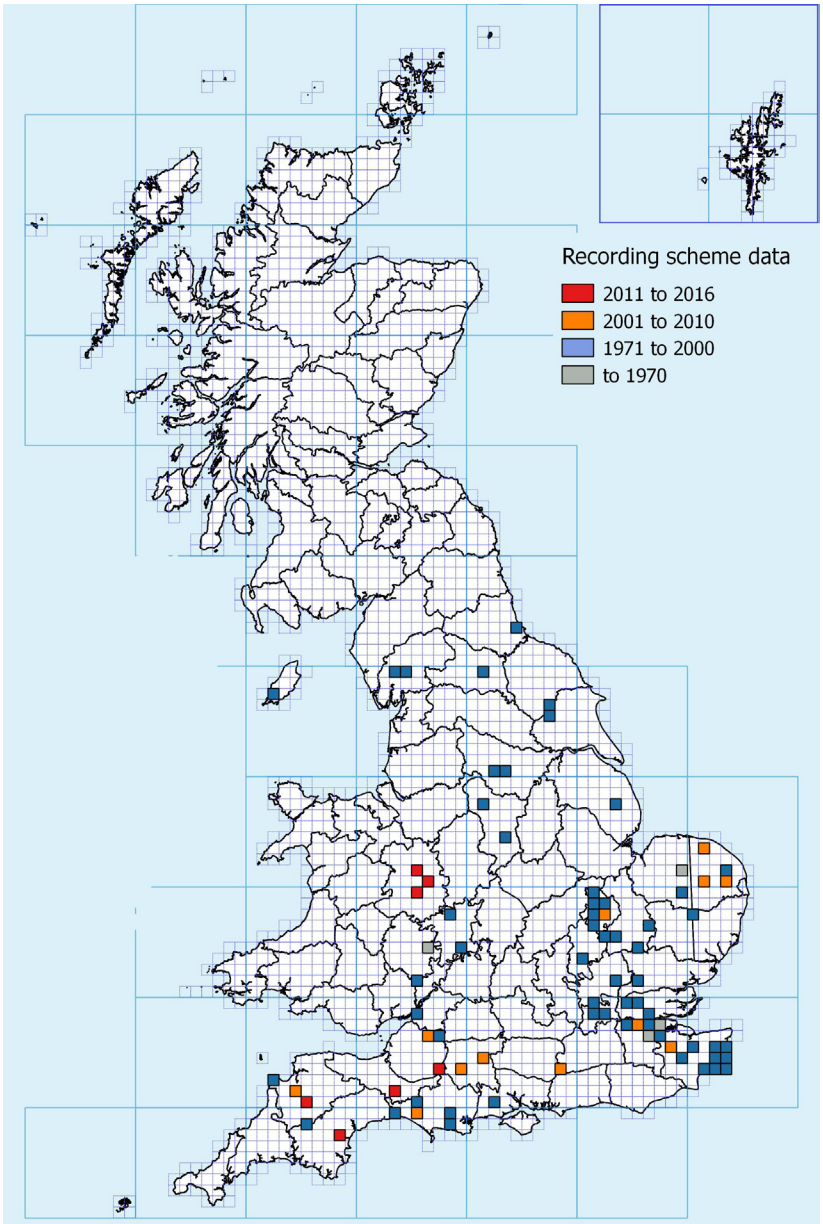
Chyliza annulipes Macquart, 1835



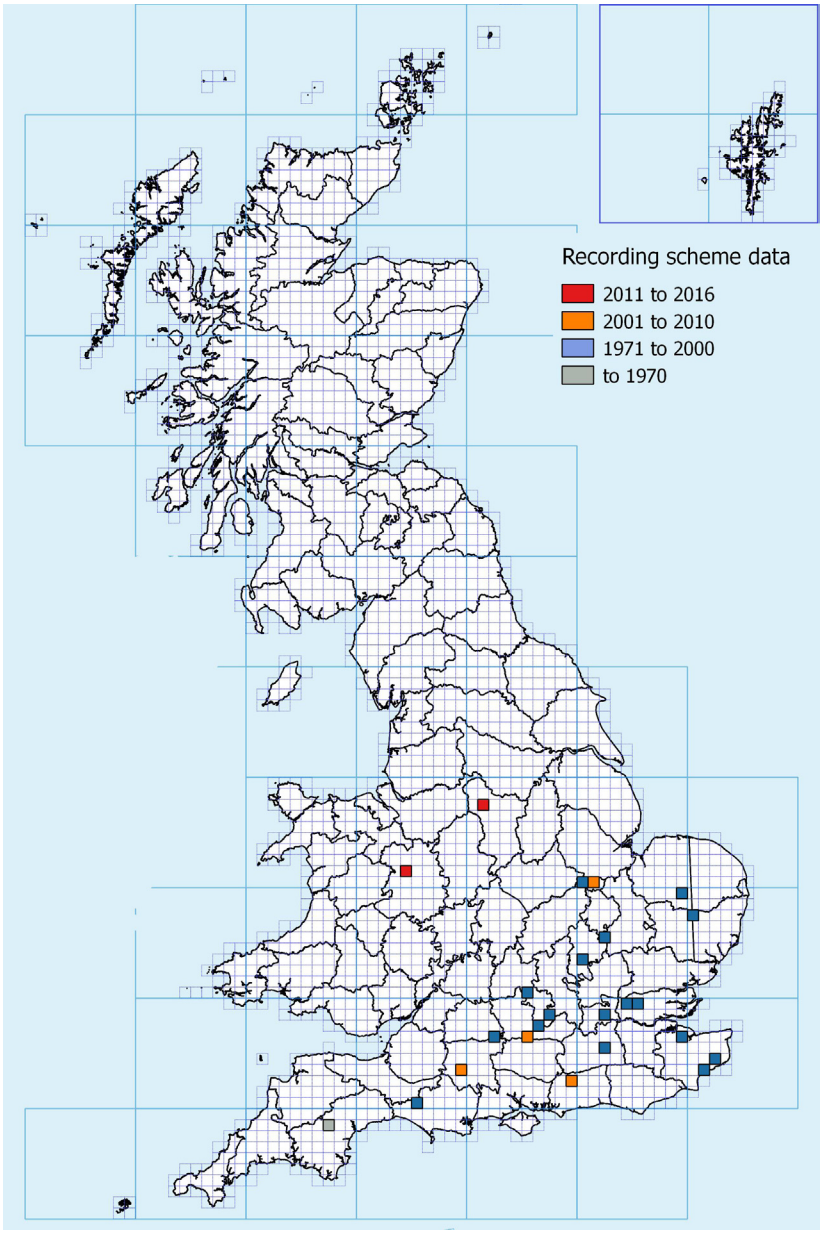
Chyliza extenuata (Rossi, 1790)



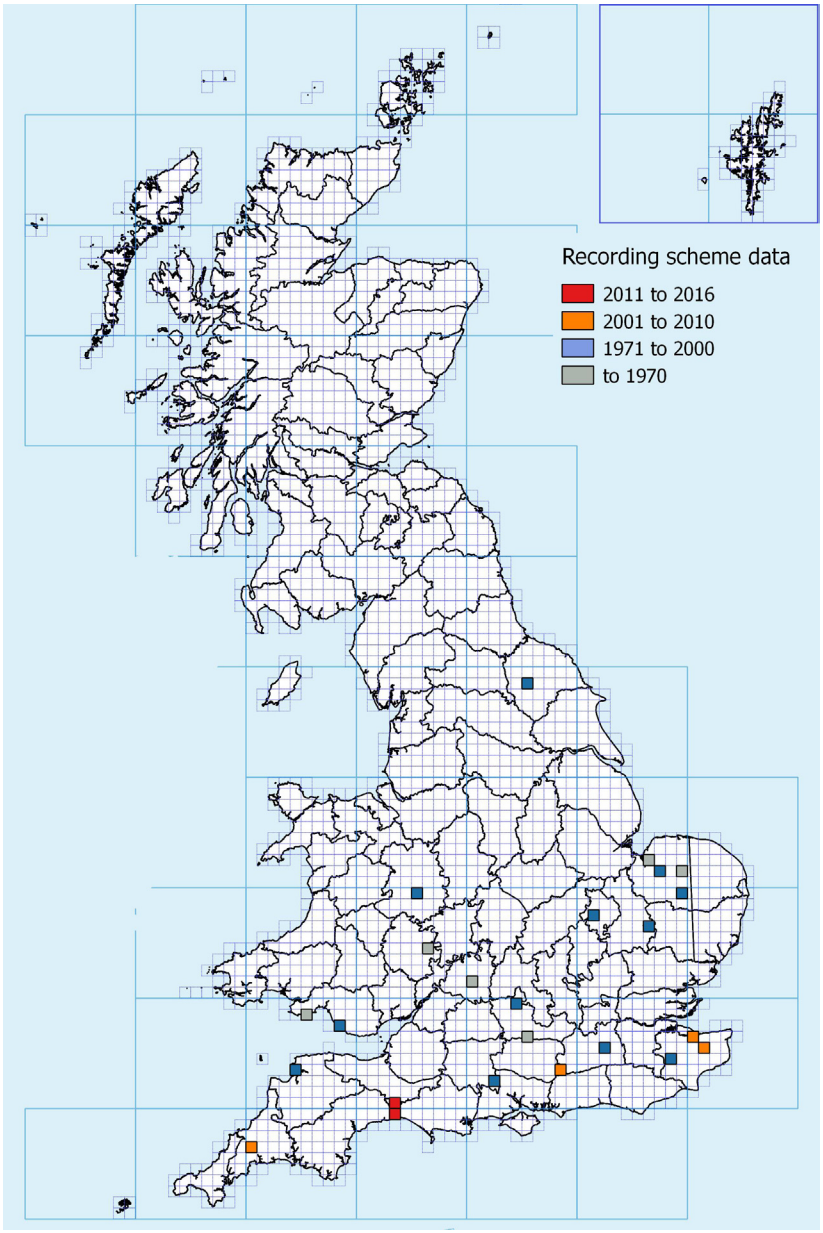
Chyliza leptogaster (Panzer, 1798)
= *Chyliza scutellata* (Fabricius, 1798)



Chyliza nova Collin, 1944



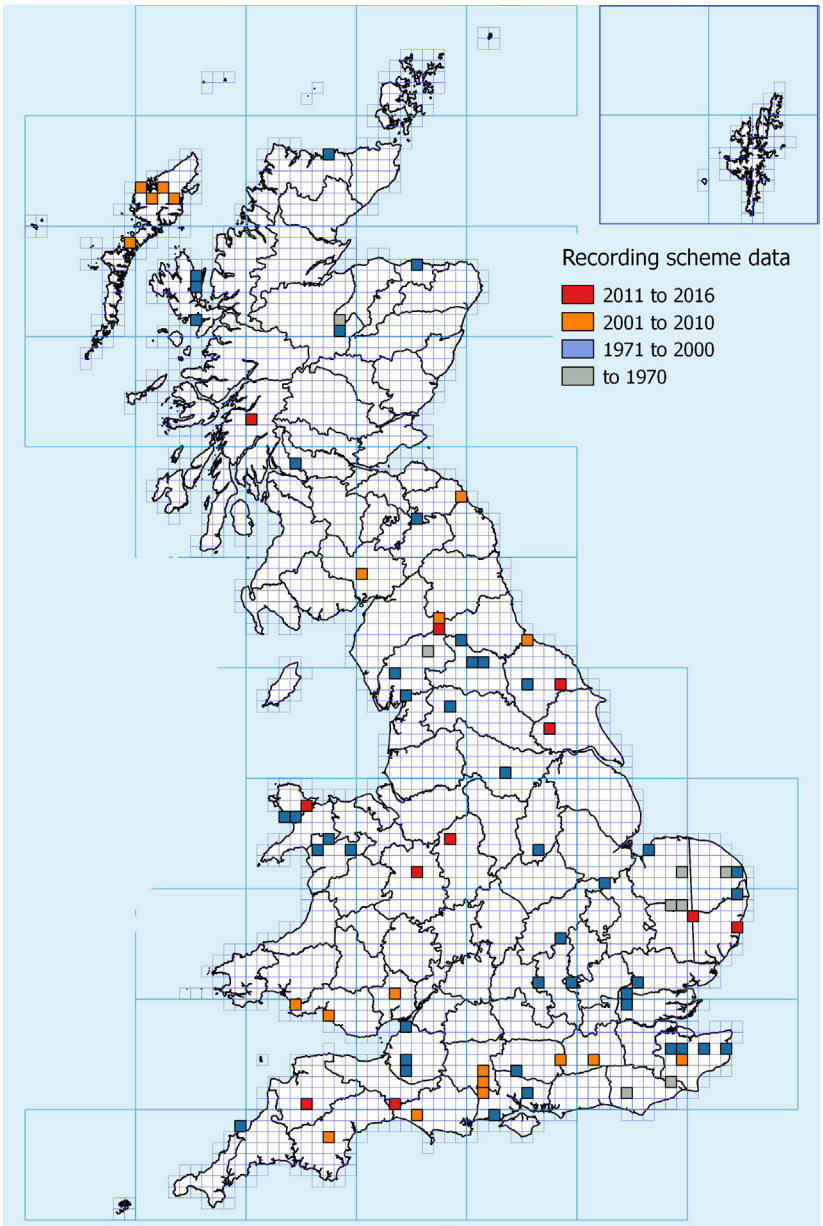
Chyliza vittata Meigen, 1826



Psilinae

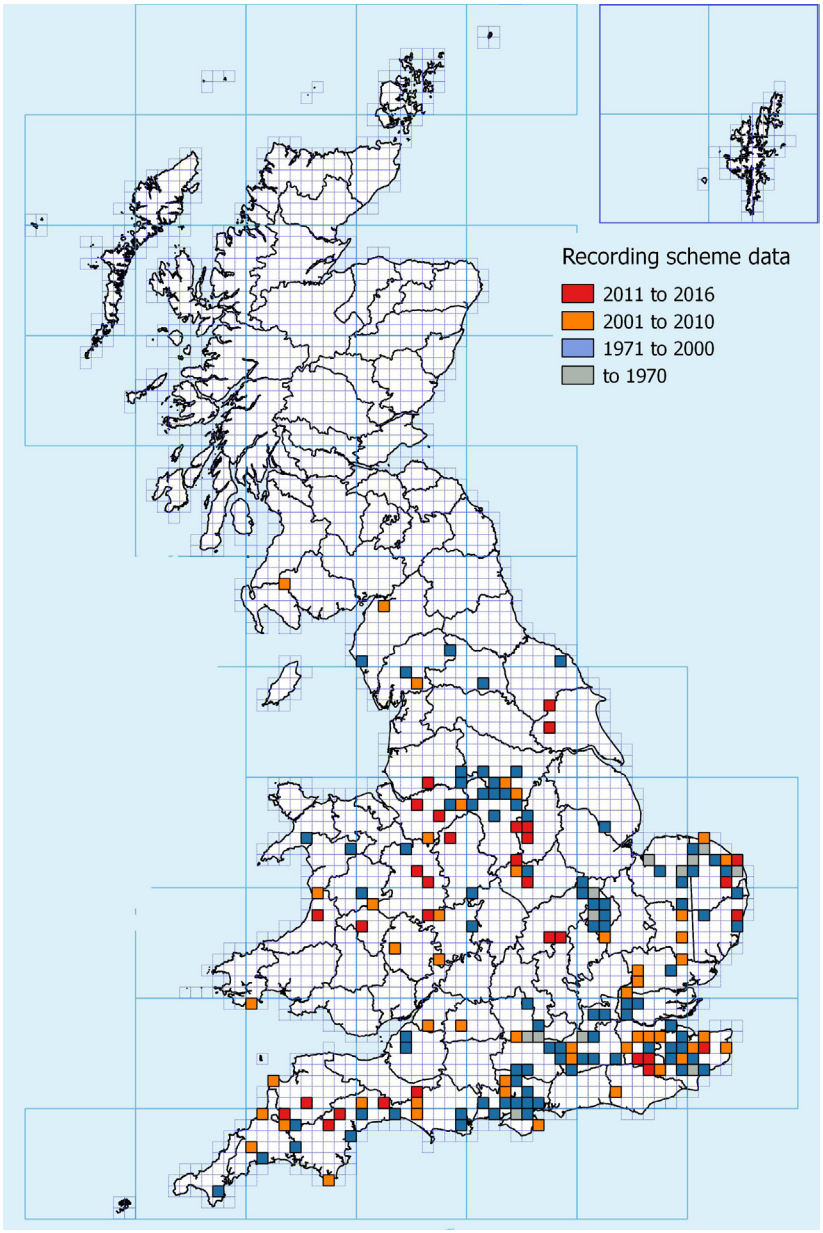
Loxocerini

Loxocera aristata (Panzer, 1801)

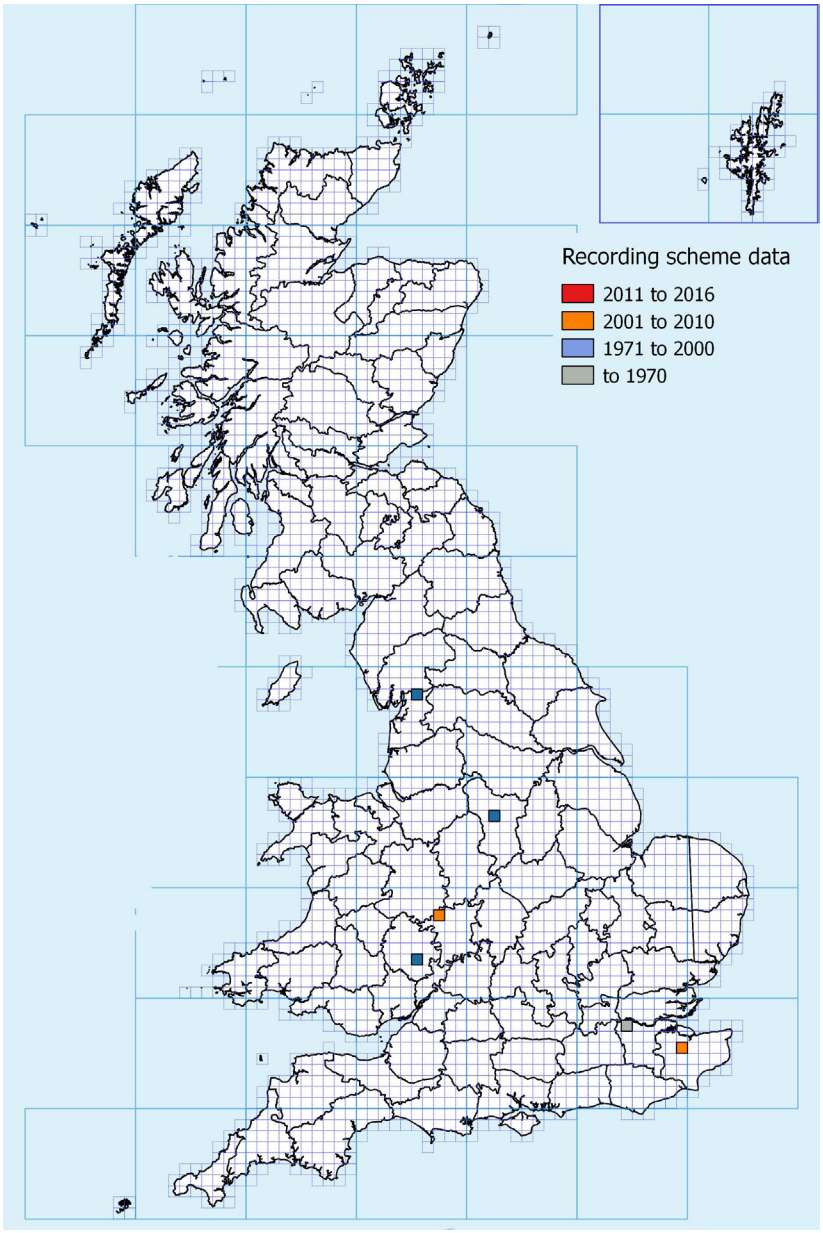


Loxocera hoffmannseggi Meigen, 1826

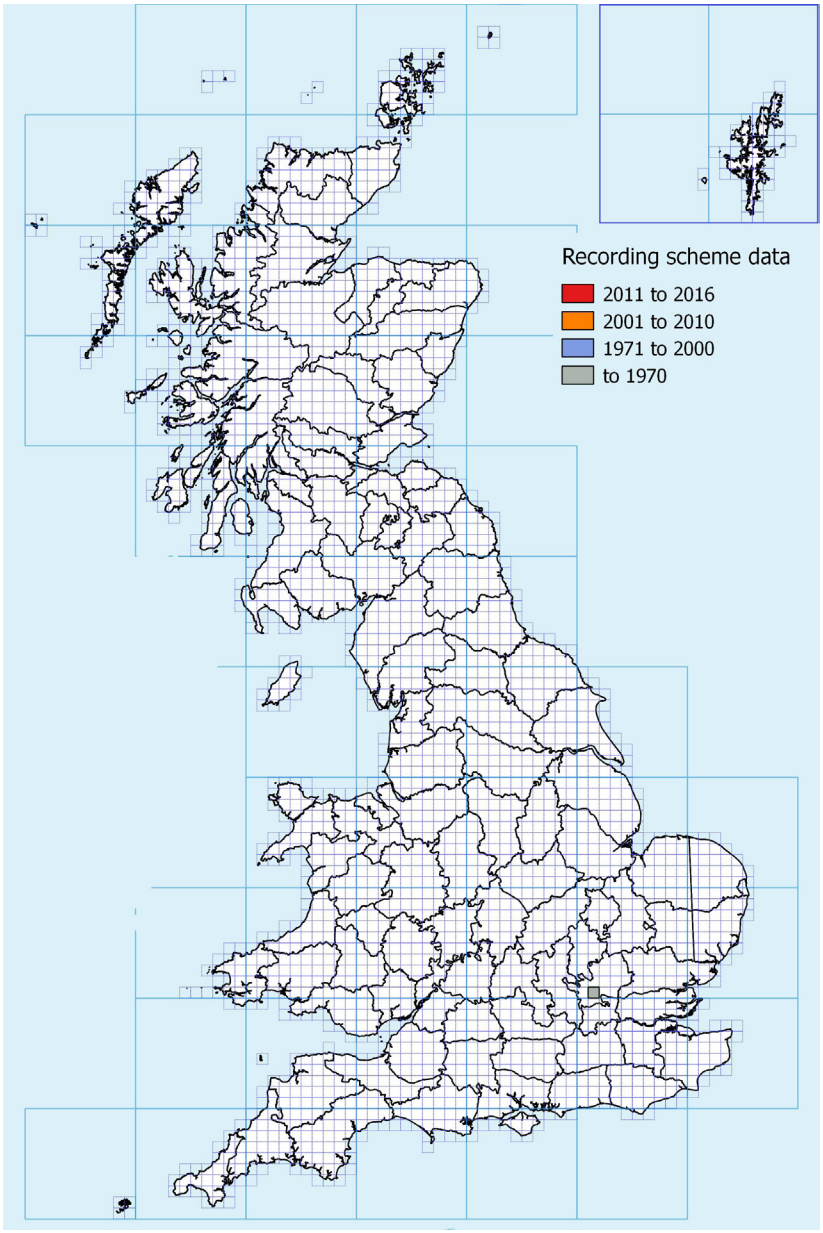
Imantimyia albiseta (Schrank, 1803)



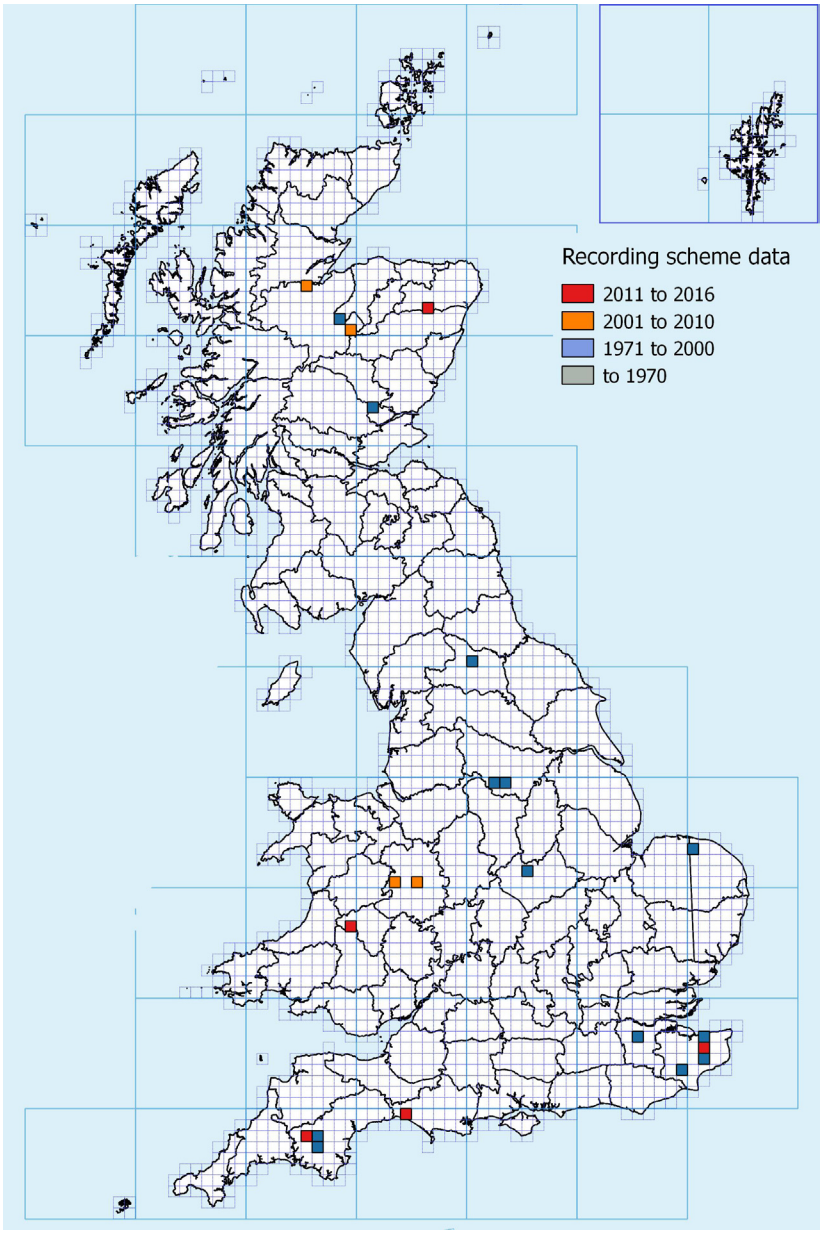
Imantimyia fulviventris (Meigen, 1826)



Imantimyia nigrifrons (Macquart, 1835)

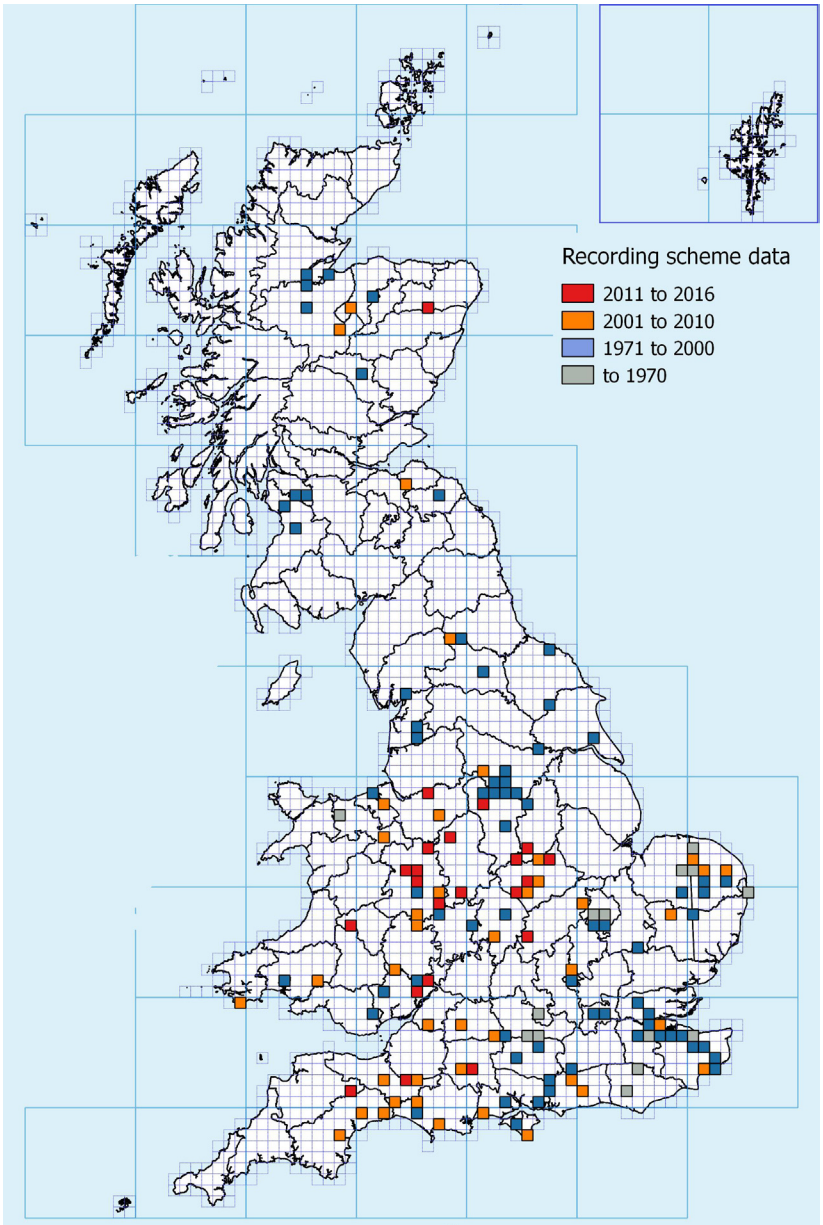


Imantimyia sylvatica (Meigen, 1826)

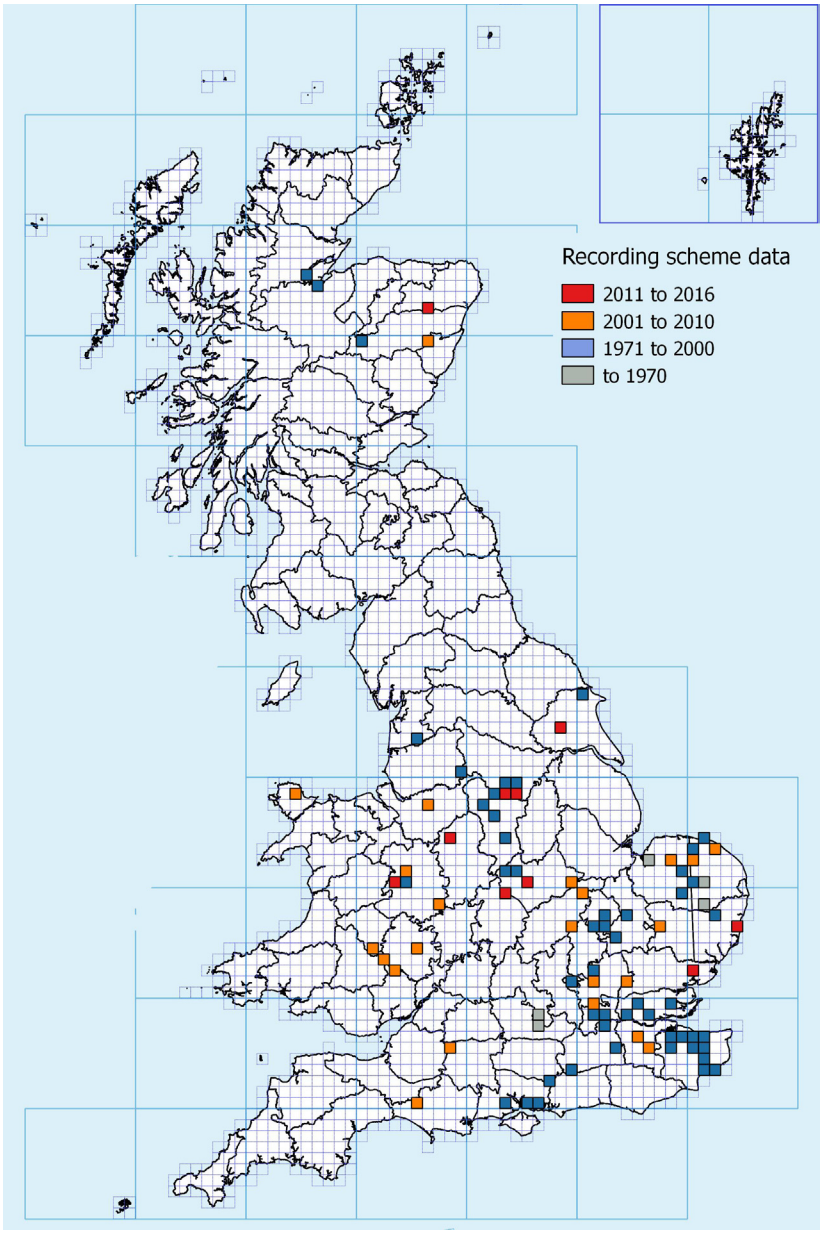


Psilini

Psila fimetaria (Linnaeus, 1761)

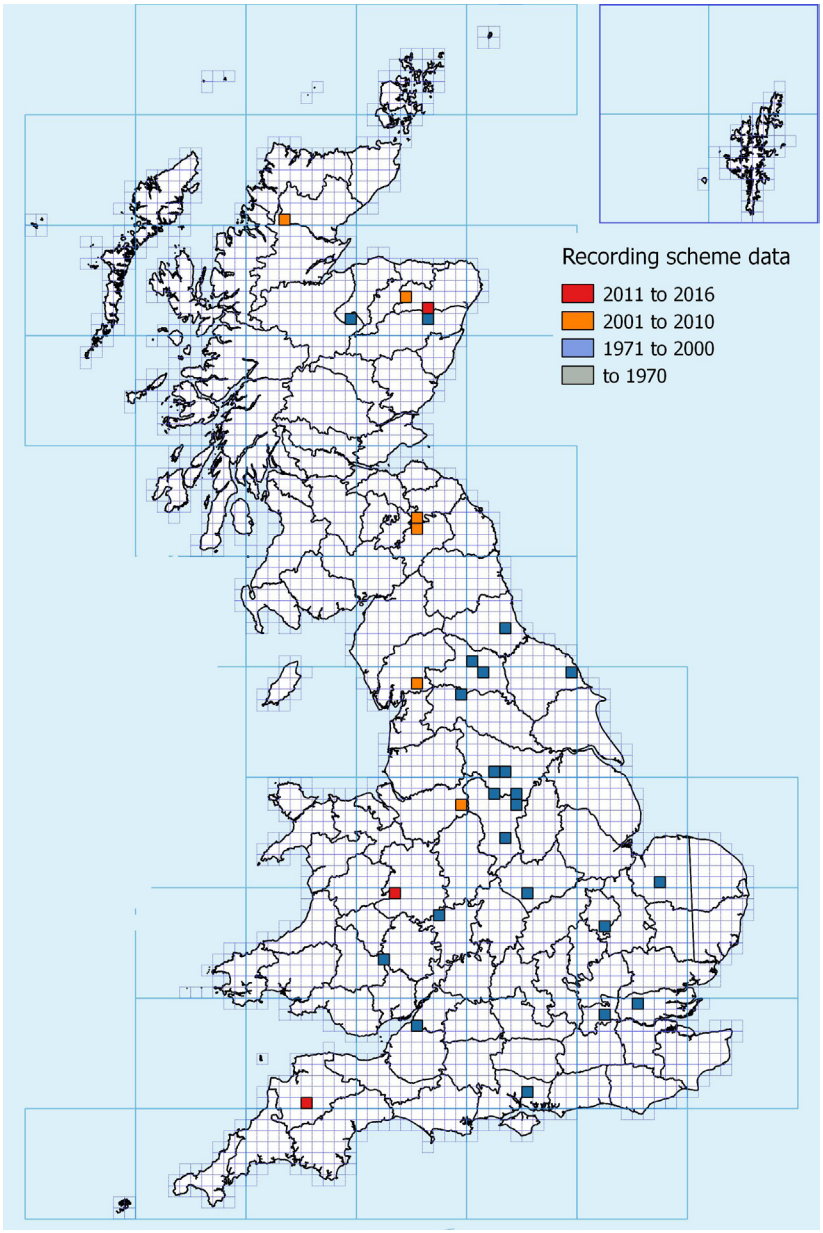


Psila merdaria Collin, 1944

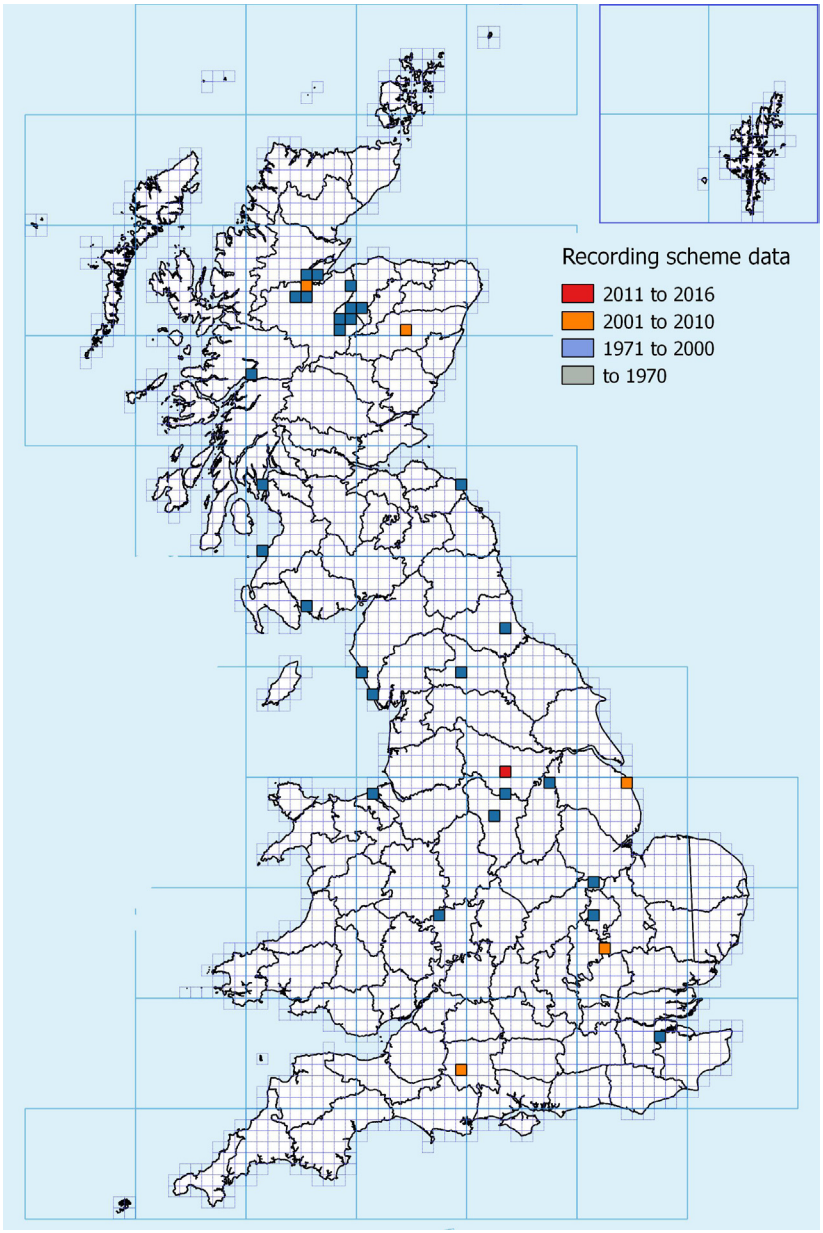


Psilosoma audouini (Zetterstedt, 1835)

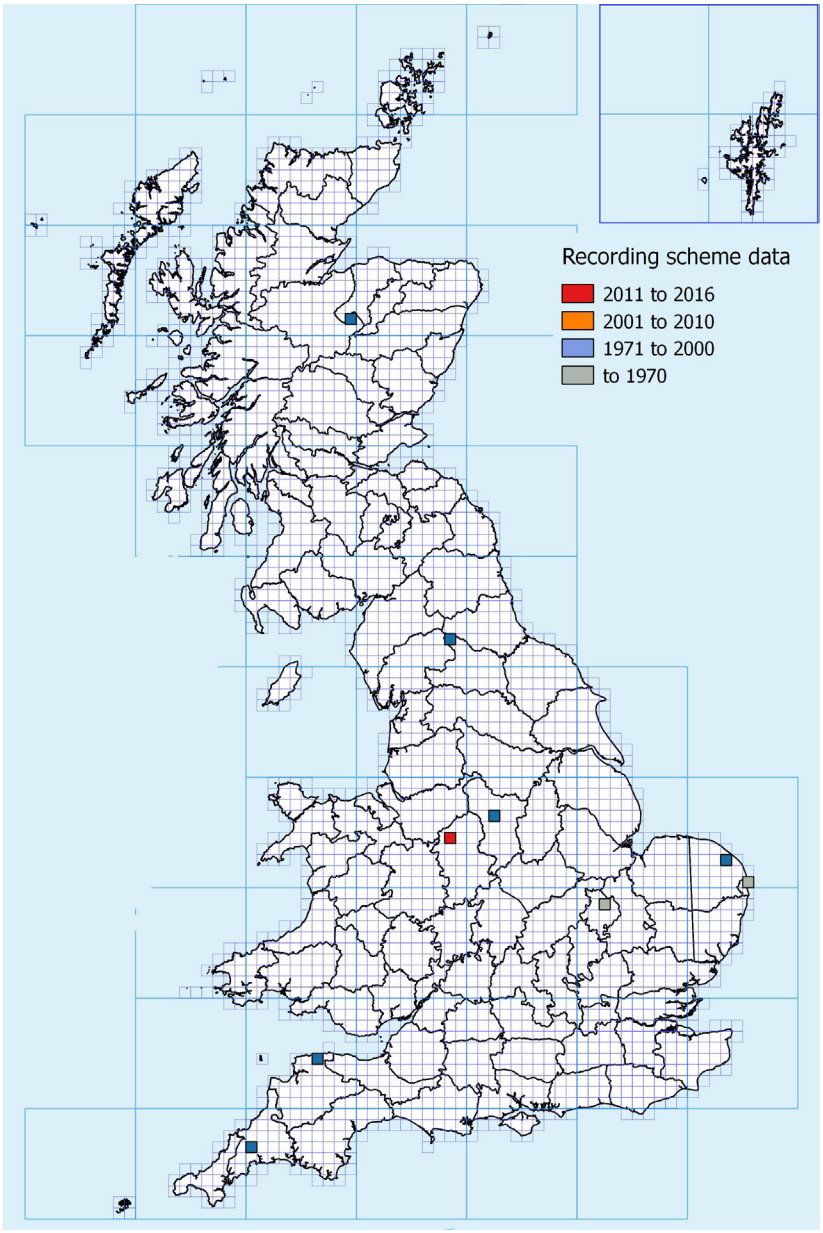
Psilosoma lefebvrei (Zetterstedt, 1835)



Chamaepsila atra (Meigen, 1826)



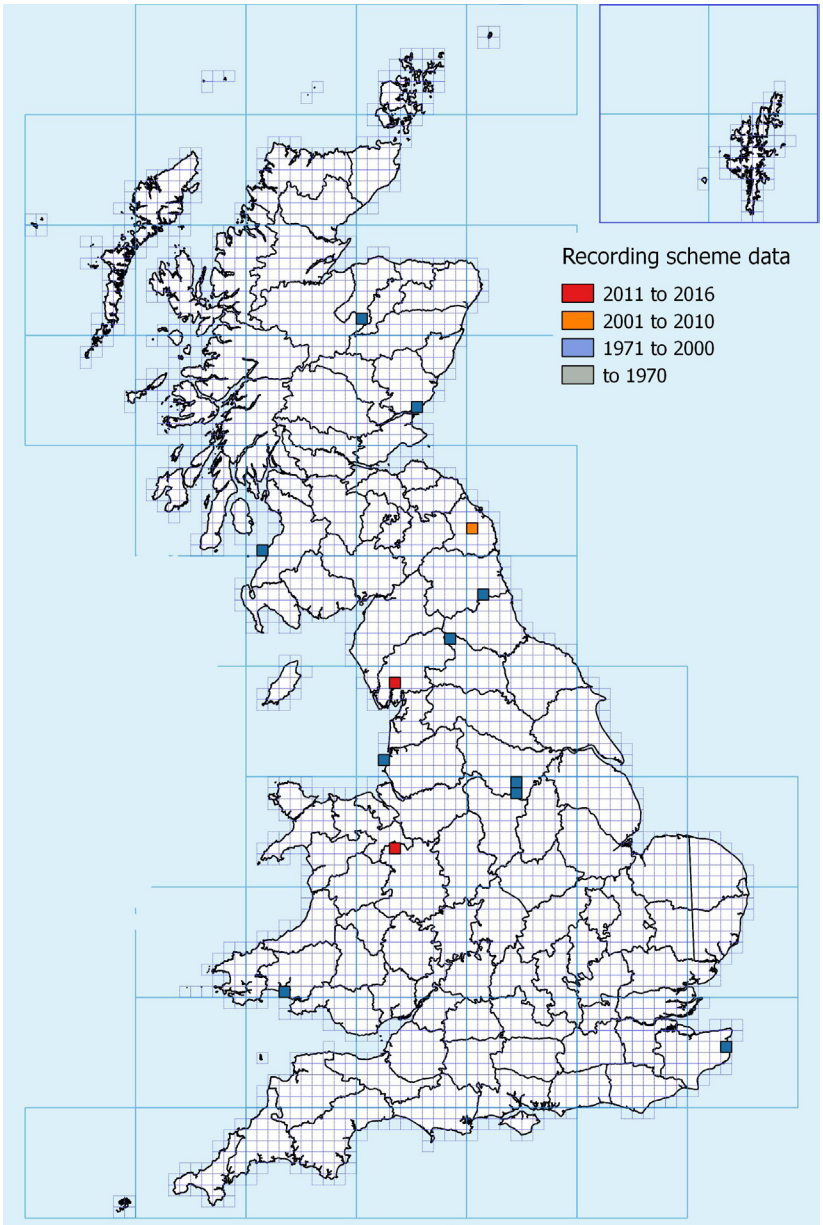
Chamaepsila bicolor (Meigen, 1826)



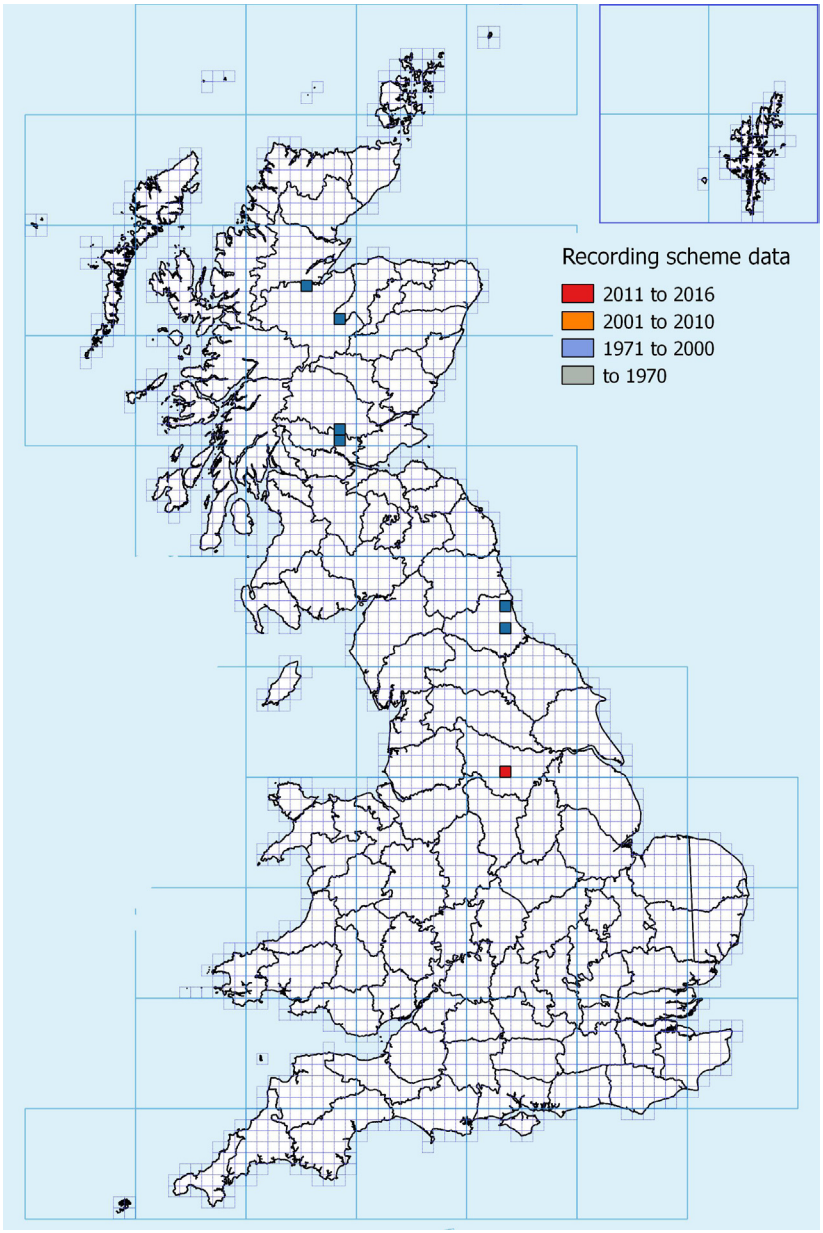
Chamaepsila buccata (Fallén, 1826)

= *Chamaepsila gracilis* (Meigen, 1826) *incertae sedis*

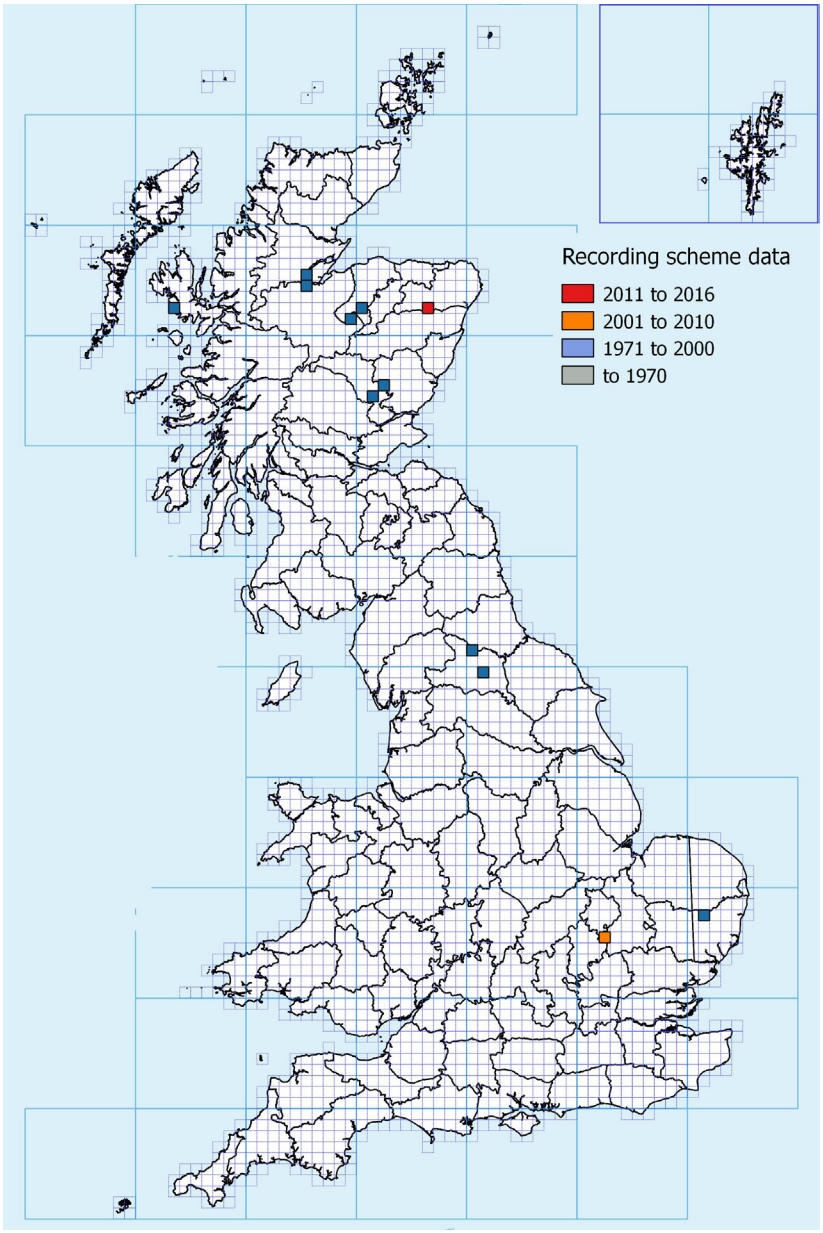
"Most workers currently accept the opinion of Soós (1985) that this is a synonym of *Chamaepsila buccata* (Fallén, 1826)" Irwin - pers comm.



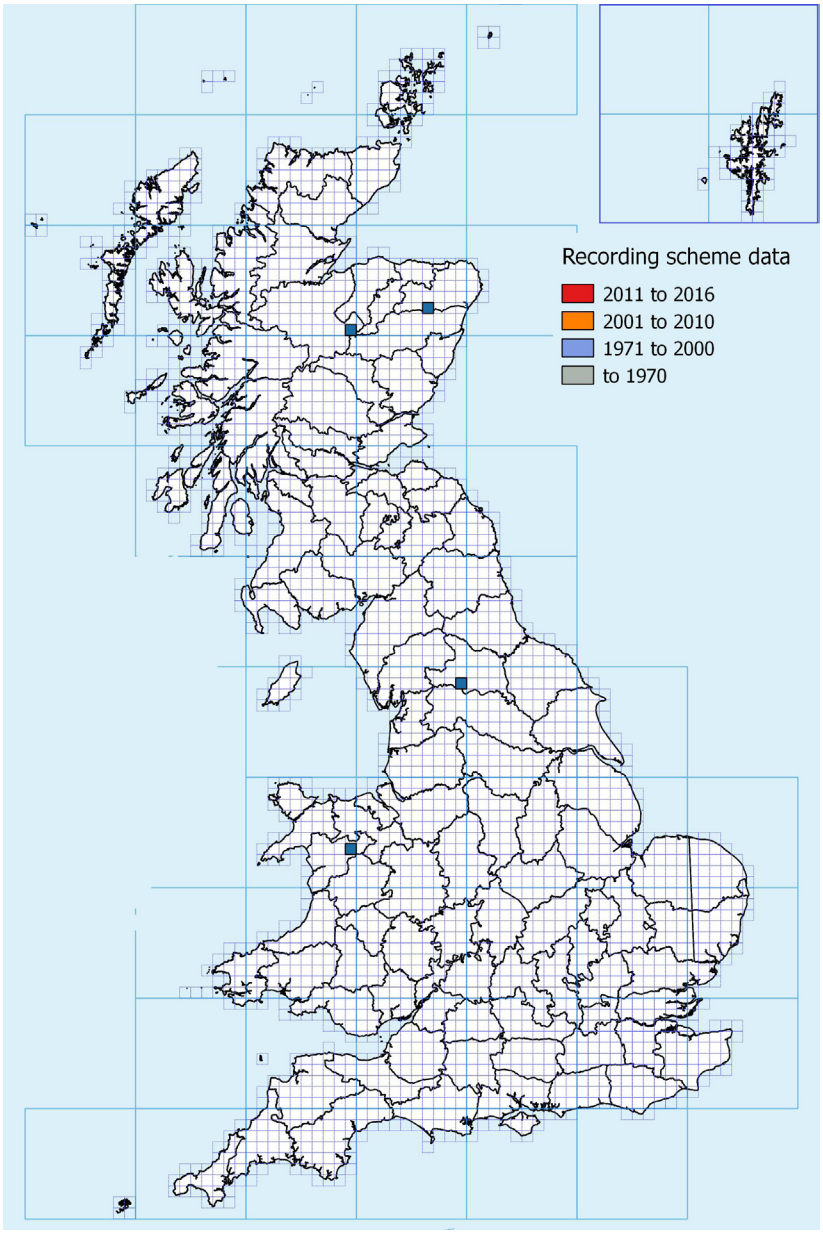
Chamaepsila clunalis (Collin, 1944)



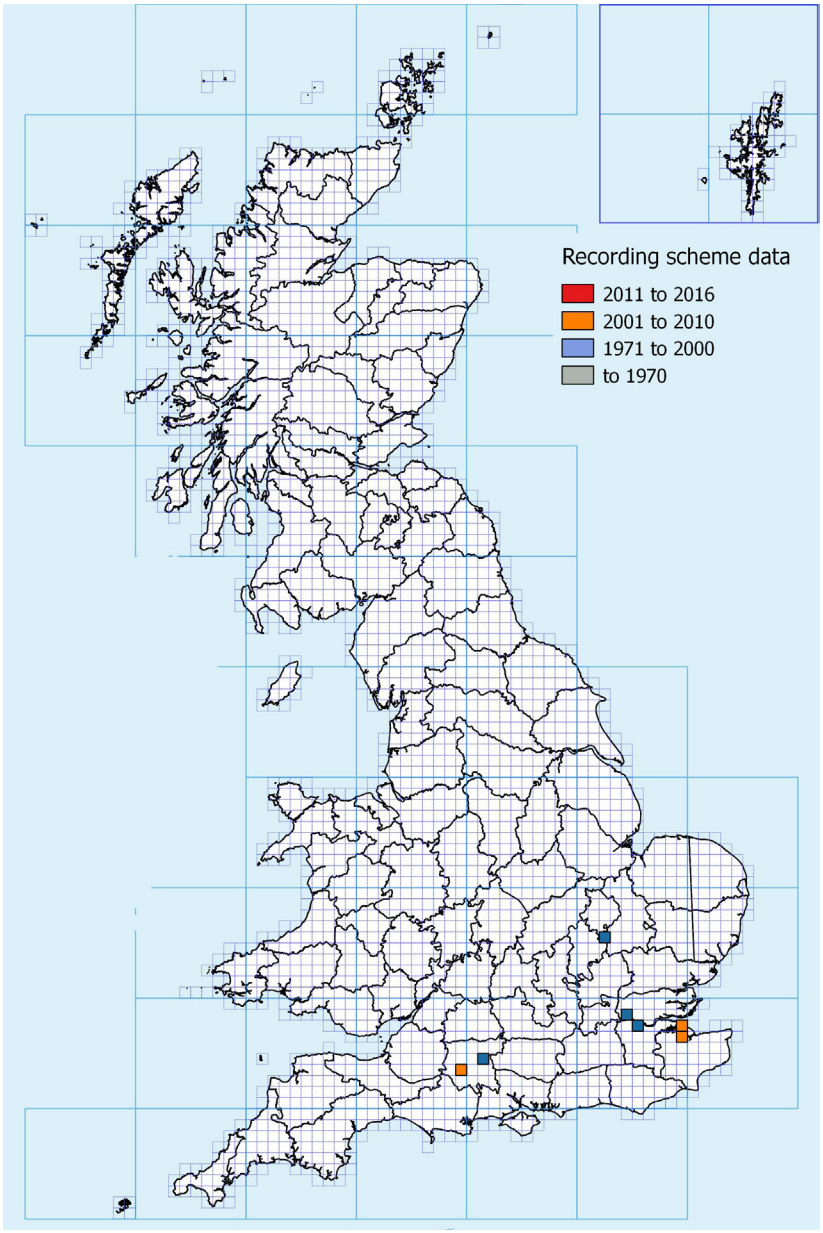
Chamaepsila humeralis (Zetterstedt, 1847)



Chamaepsila limbatella (Zetterstedt, 1847)

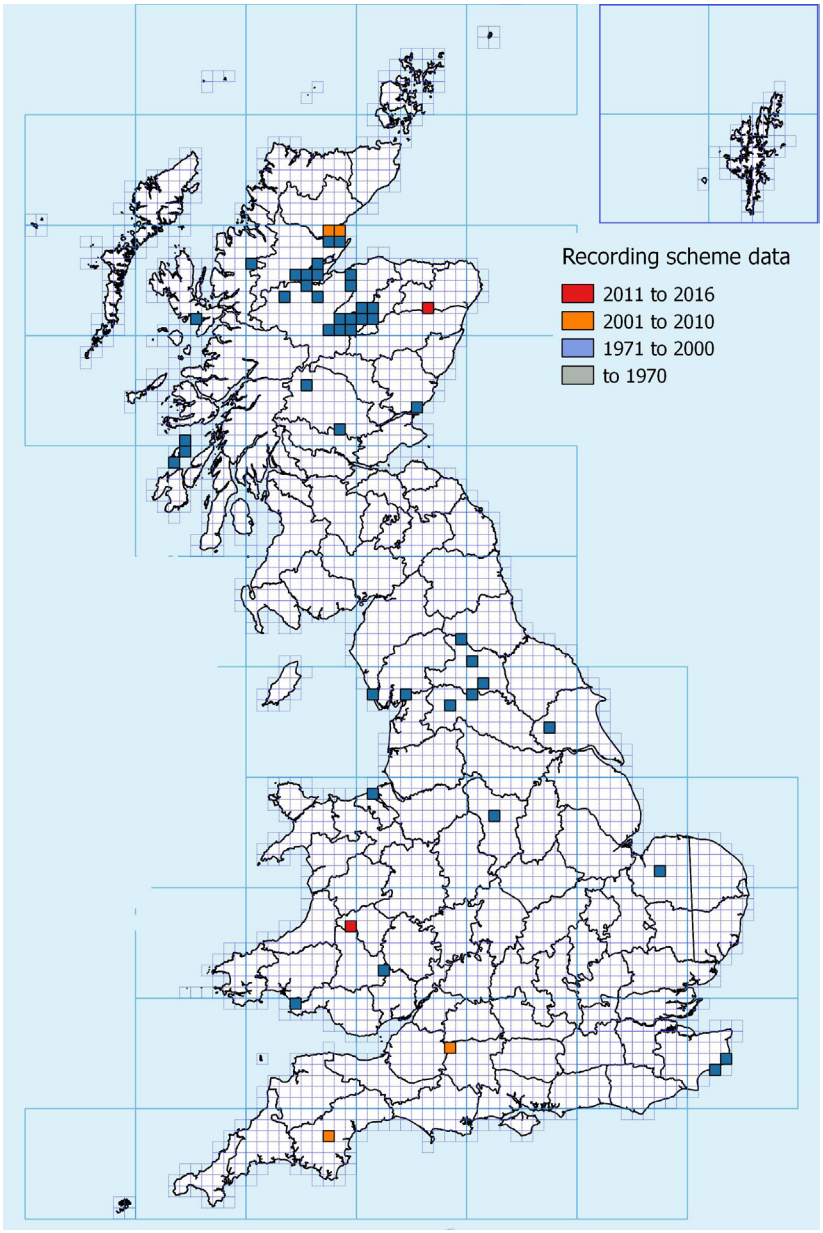


Chamaepsila luteola (Collin, 1944)

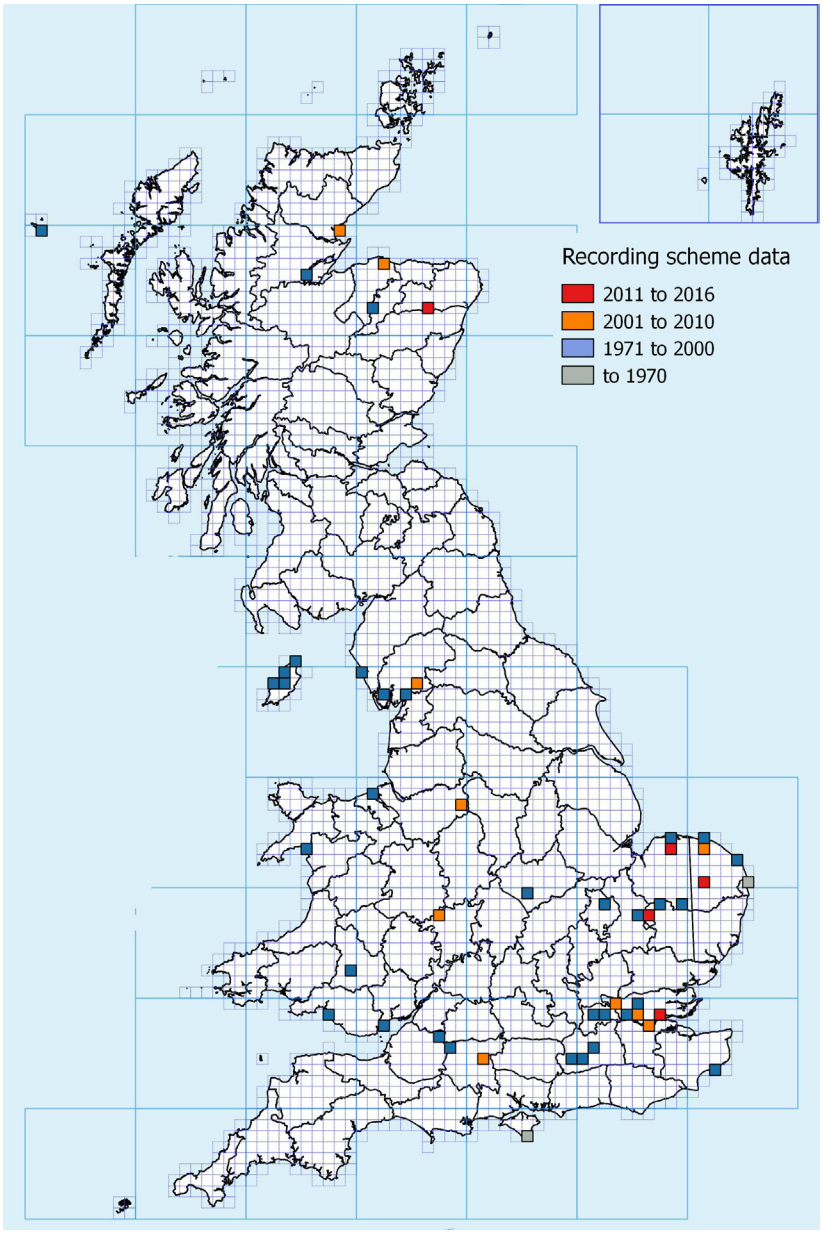


Chamaepsila morio (Zetterstedt, 1835)

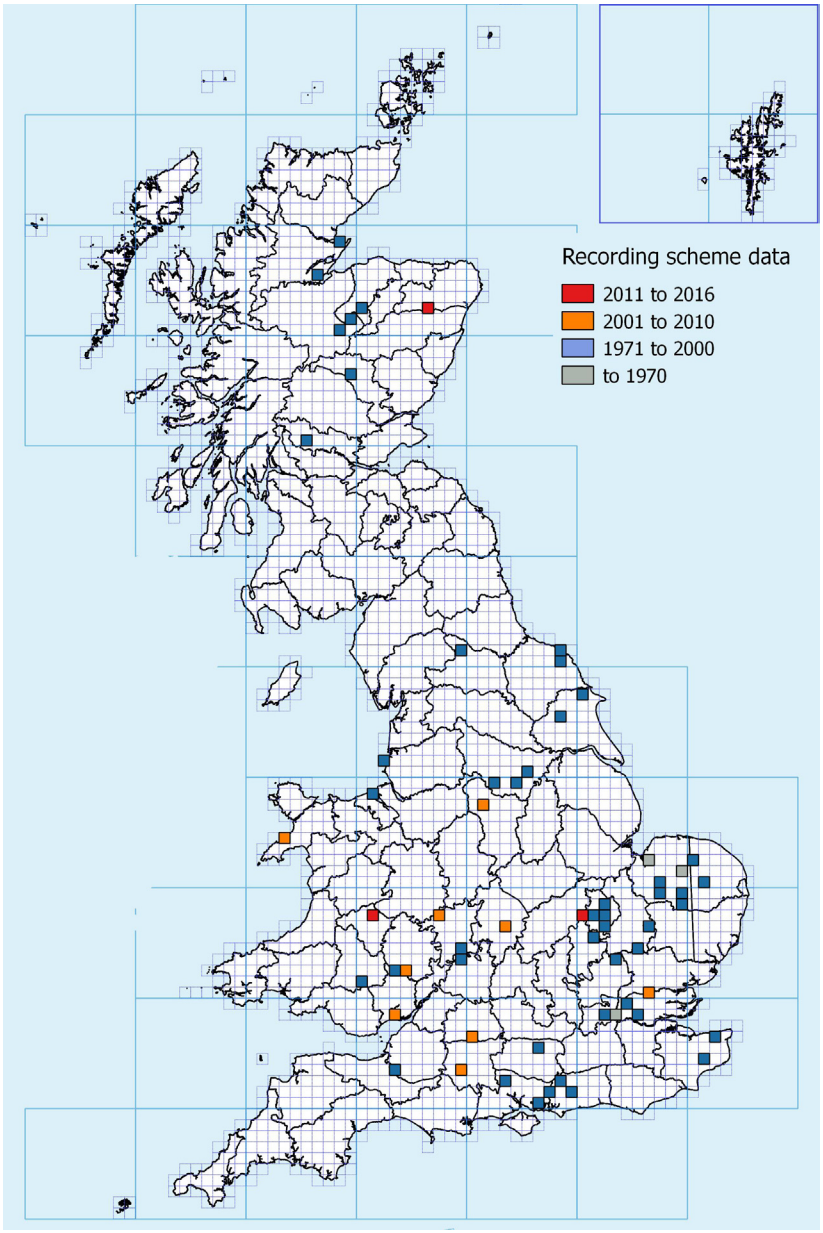
Chamaepsila nigra (Fallén, 1820)



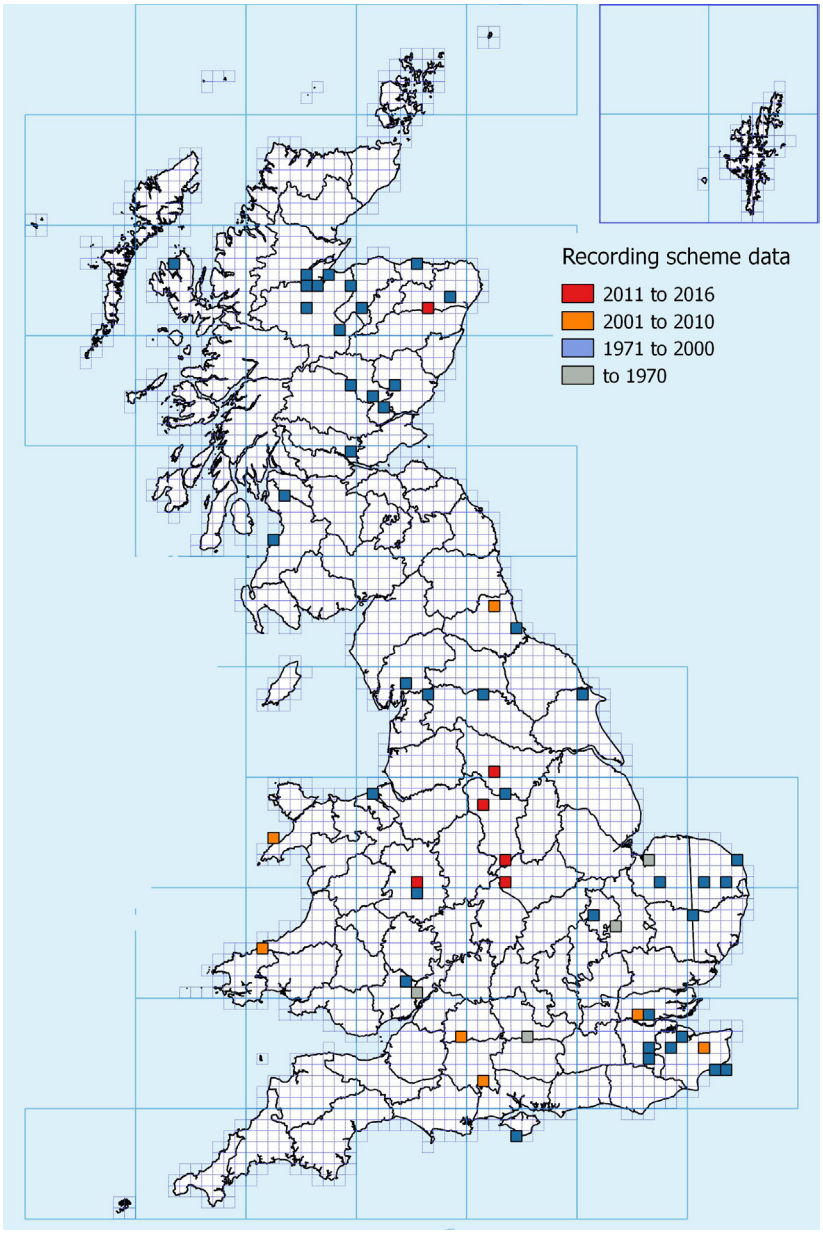
Chamaepsila nigricornis (Meigen, 1826)



Chamaepsila obscuritarsis (Loew, 1856)



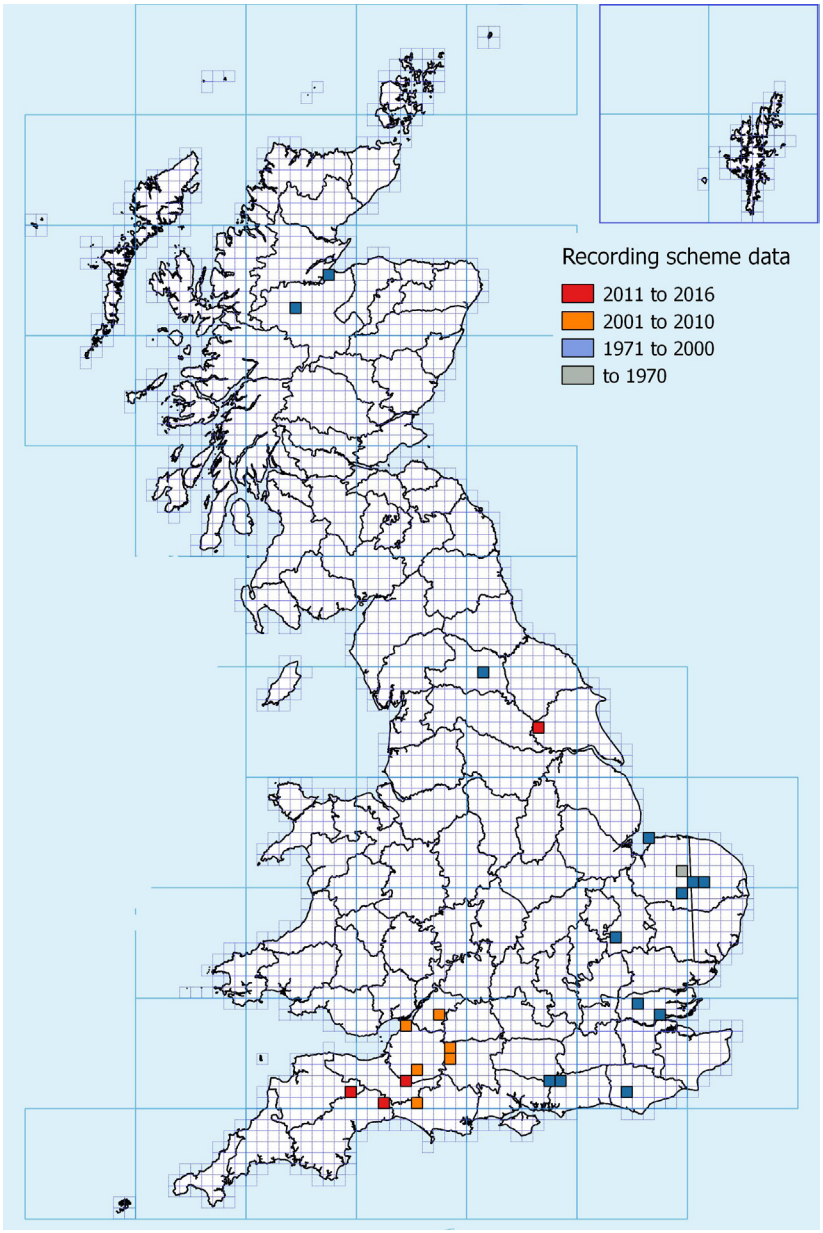
Chamaepsila pallida (Fallén, 1820)



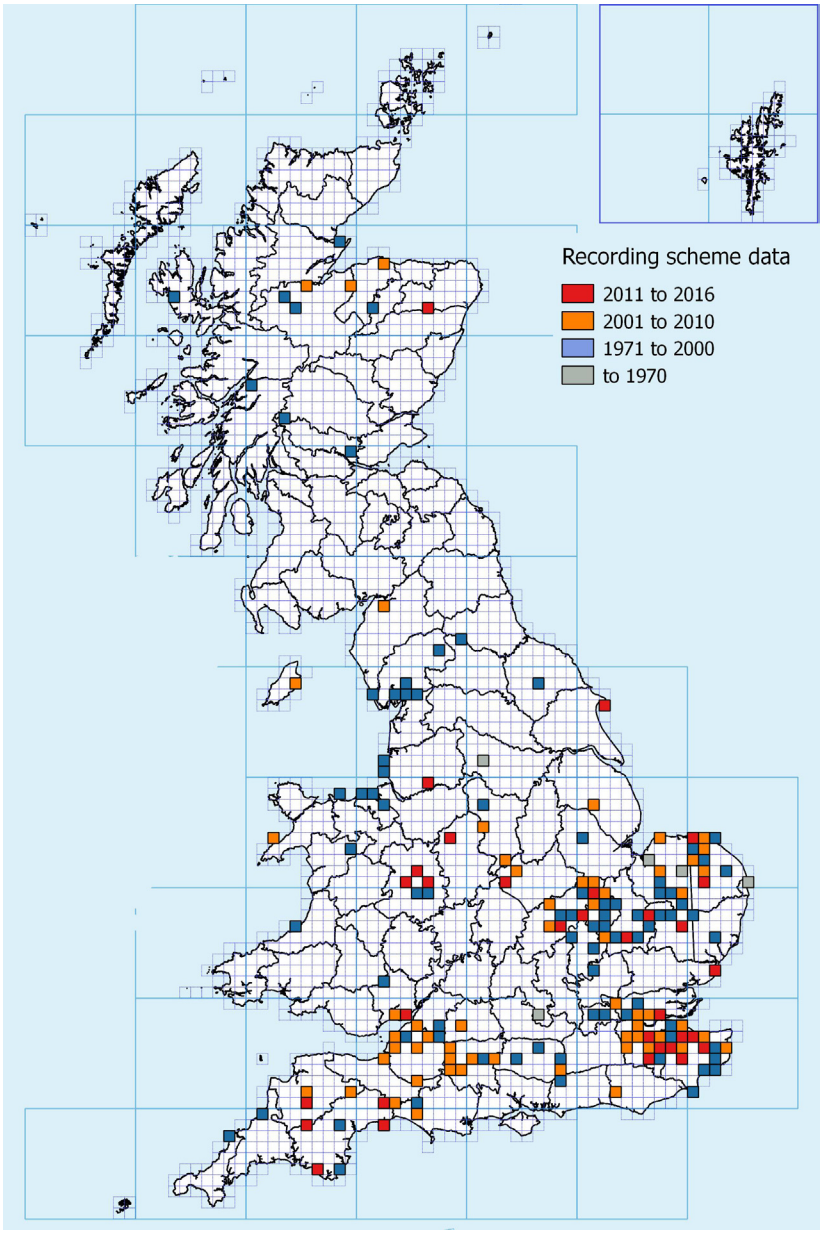
Identifications require revision, see Irwin (2016)

Chamaepsila pectoralis (Meigen, 1826)

Chamaepsila persimilis (Wakerley, 1959)

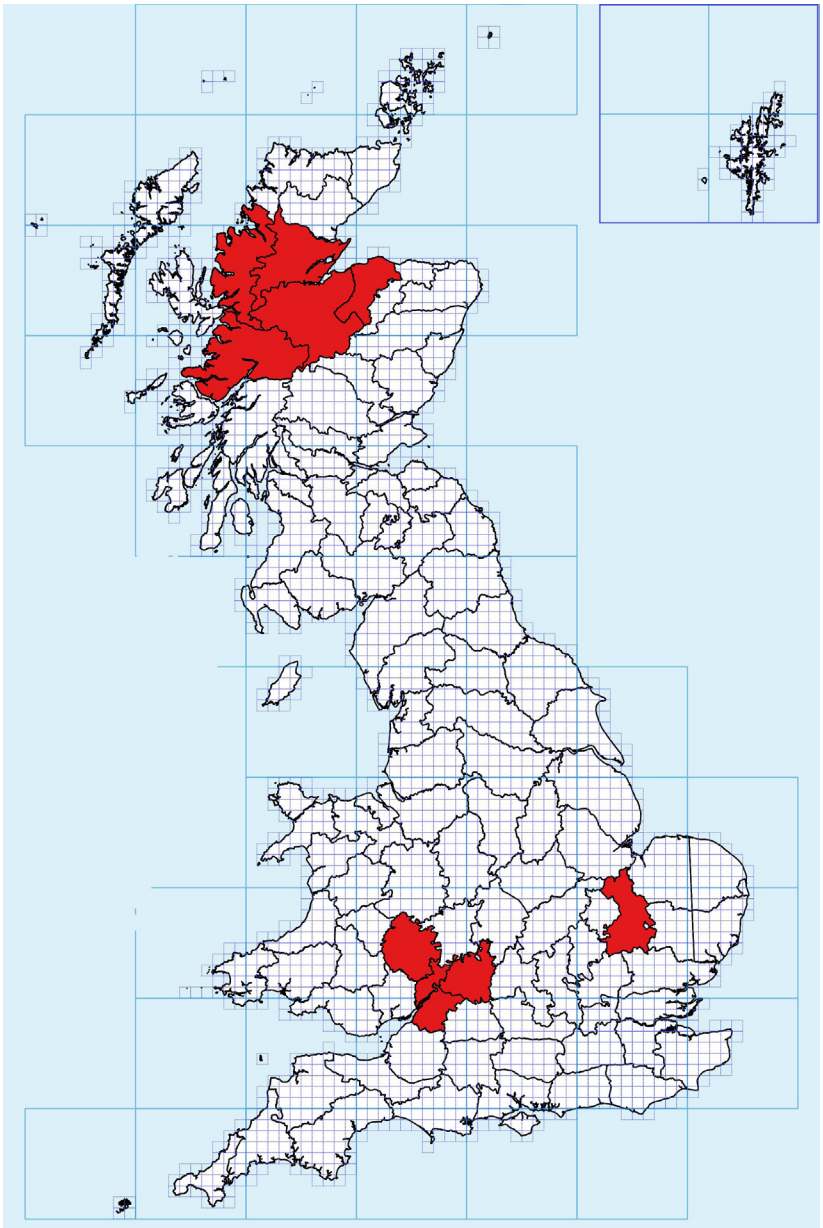


Chamaepsila rosae (Fabricius, 1794)



Chamaepsila rufa (Meigen, 1826)

Chamaepsila unilineata (Zetterstedt, 1847)



Irwin (2016) determined that many specimens previously identified as *Ch. pallida* were in fact *Ch. unilineata*, a species first recorded as native to the UK by Collin in 1944 and readily identified using Collin's key. First reported in 2016 thus records have yet to be resolved in the database. The UK species dictionary was updated in March 2018 by Chris Raper (NHM).

The *Ch. pallida* map should therefore be considered as subject to future amendment.

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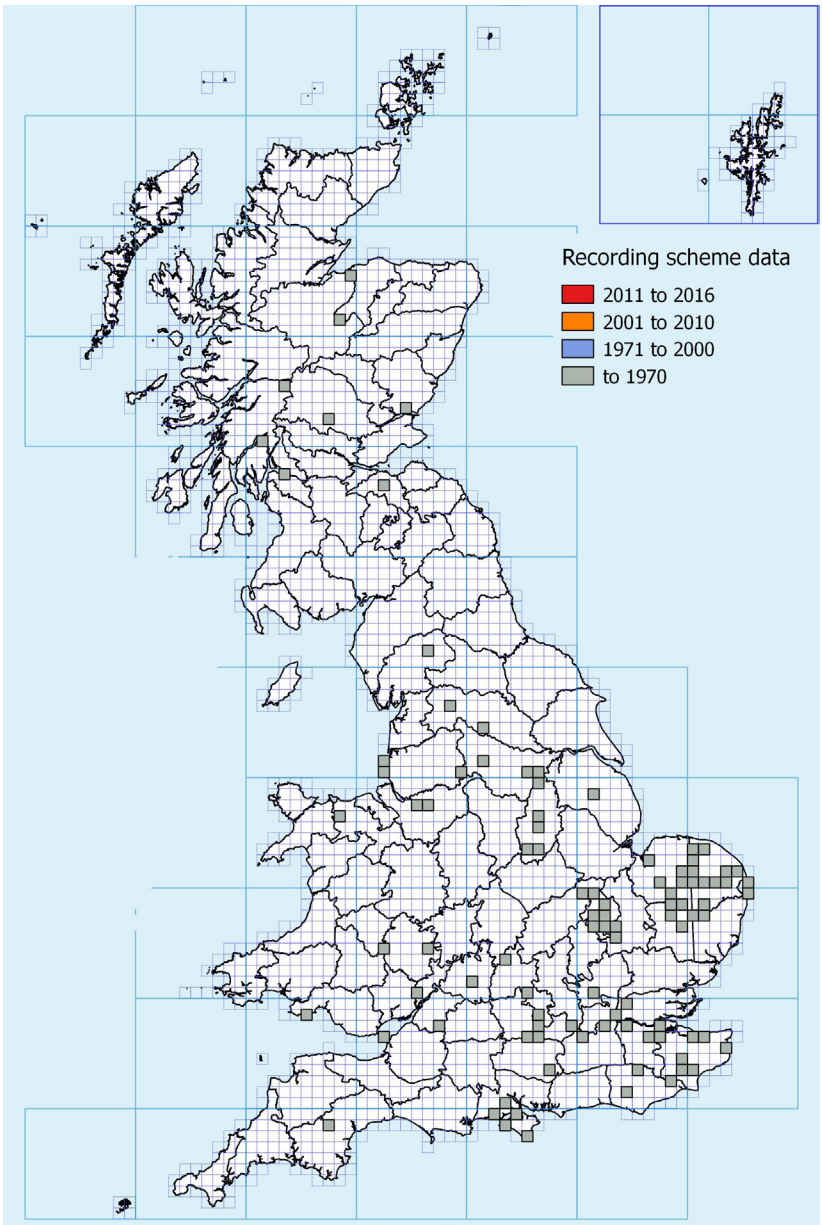
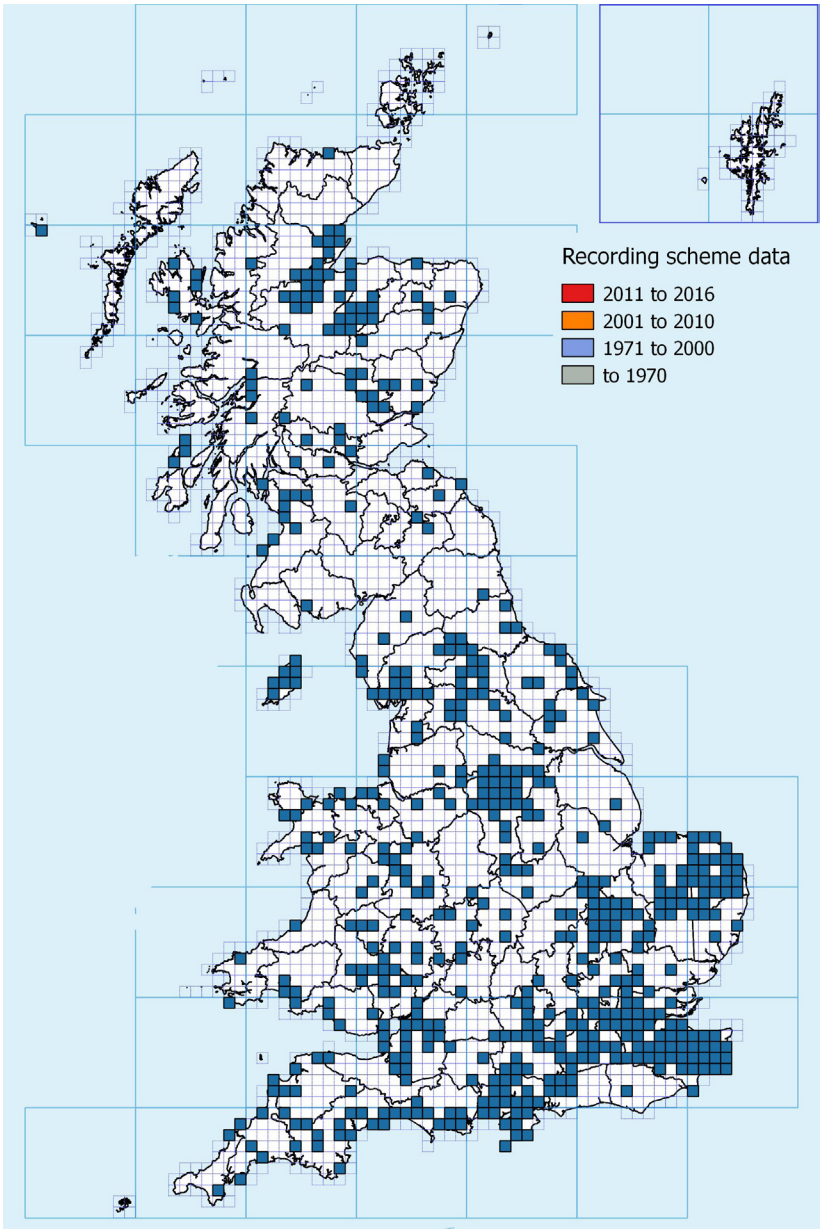
Scheme recording progress

pre 1971

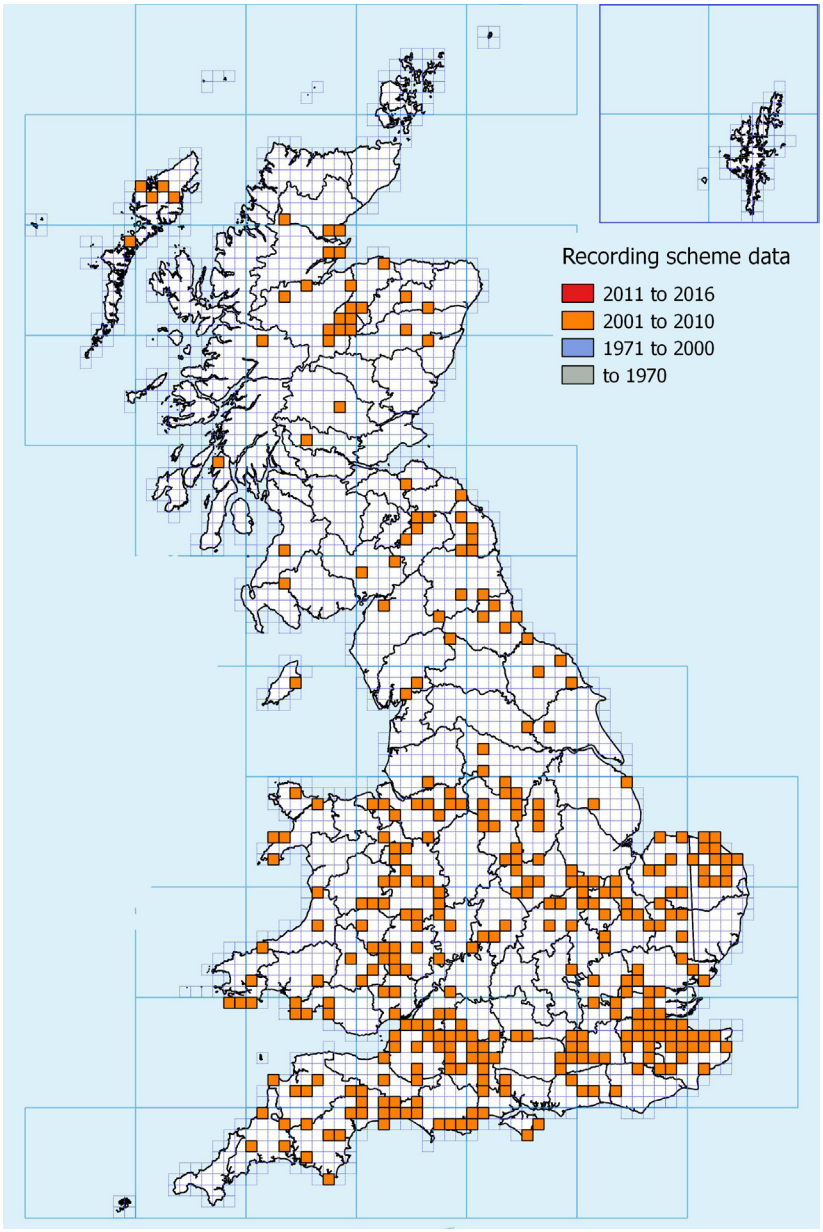


1971 to 2000



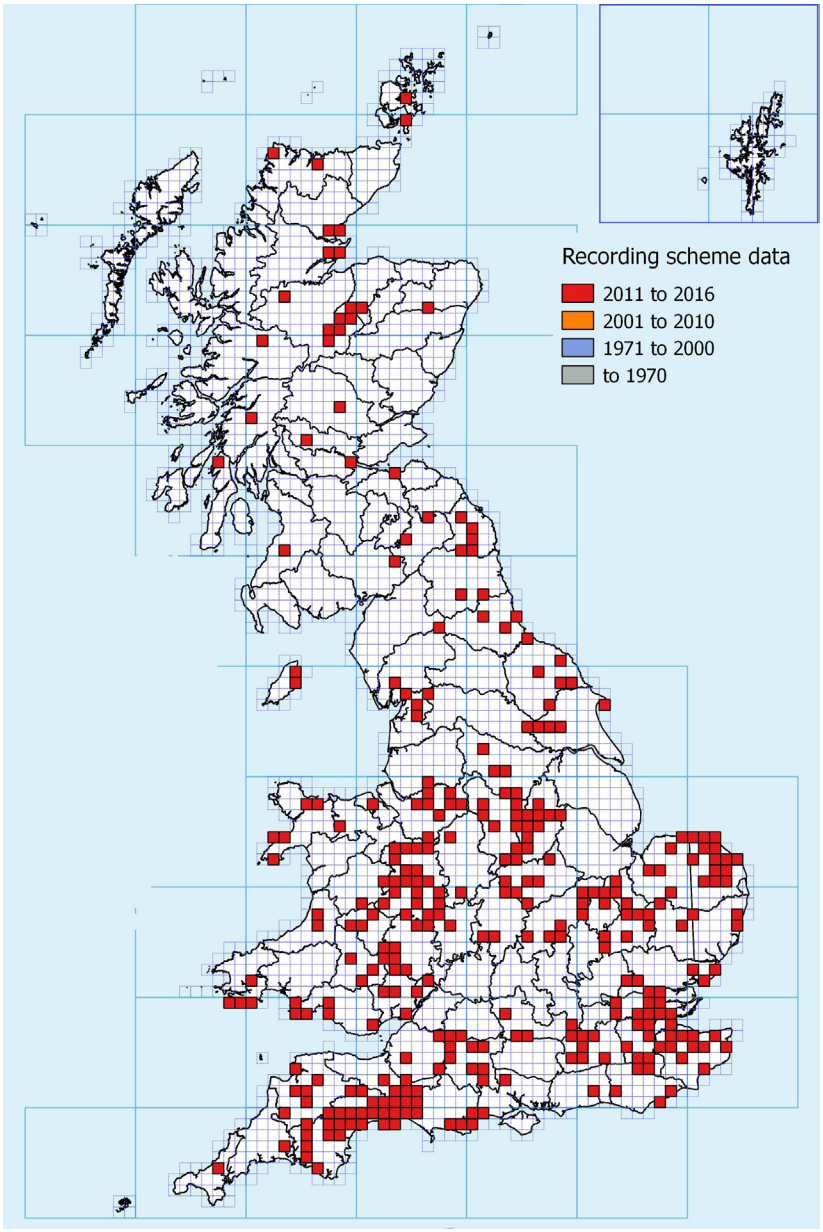
Recording activity in the last three decades of the last millenium is much increased. The setting up of Dipterists Forum and their annual field week meetings seem a likely cause.

2001 to 2010



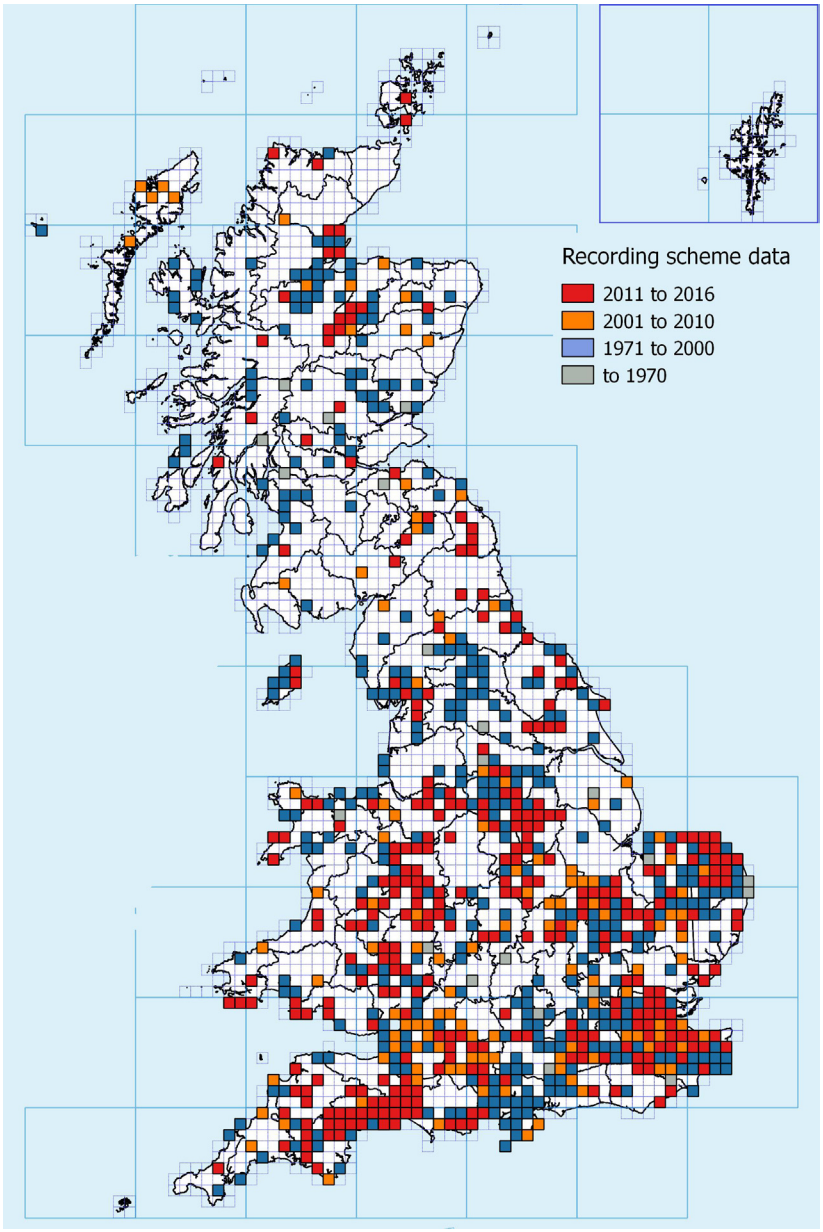
Recording activity throughout a single decade. Much activity in Scotland by members of the Malloch Society. Several busy recorders, Dipterists Forum field weeks and easier access to keys via the Recording Scheme are evident here.

2011 to 2016



Sustained activity by a number of recorders, regional Diptera groups and some response to data published online. Little evidence as yet from online recording methods (iRecord).

Composite


Recording scheme data
2011 to 2016
2001 to 2010
1971 to 2000
to 1970