



# The Diptera of Lancashire and Cheshire: Picture-wing Flies (Opomyzidae, Pallopteridae, Platystomatidae, Tephritidae, Ulidiidae)

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## Summary

This report provides the first regional checklist for the acalyprate Diptera families Opomyzidae, Pallopteridae, Platystomatidae, Tephritidae and Ulidiidae. These have been collectively termed the “picture-wing” flies because of the attractive wing patterns in most species. Overall statistics on recording activity are given by decade and hectad. Checklists have been compiled for each of the three Watsonian vice-counties 58, 59, and 60 detailing for each species the number of occurrences and the year of earliest and most recent record. A combined checklist showing distribution by the three vice-counties is also included covering a total of 85 species, amounting to 66% of the 2020 British checklist. 5 species have not been recorded since 1970 or earlier, but 35 have been added since.

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## Introduction

This report is the sixth in a series of reviews of the diptera records for Lancashire and Cheshire. As explained in the earlier reviews (Brighton 2017, 2017a, 2017b, 2019, 2020) these reports provide updates of sections of the pioneering publication of Kidd and Brindle (1959) and indeed extensions, since a Part 2 to cover the Schizophora was planned (Kidd, 1971) but never appeared. The present contribution is an addition to the 1959 scope.

As previously, the geographical range of this review is the Watsonian vice-counties 58, 59 and 60, referred to as Cheshire, South Lancashire and North Lancashire respectively. (Although VC60 is officially designated West Lancashire, this could cause confusion with the local government area of South Lancashire bearing that name.)

## Taxonomic Scope and Identification

The Dipterists Forum workshop in February 2020 was titled “British Picture-Wing Flies” and covered five acalyprate families Opomyzidae, Pallopteridae, Platystomatidae, Tephritidae and Ulidiidae. This title refers to the attractive wing markings of many species in the group, though other acalyprate families include species with patterned wings.

This grouping does not reflect the phylogeny of the Diptera families as the Opomyzidae fit within the superfamily Opomyzoidea while the other four families are in the Tephritoidea. The latter superfamily contains two other families with British species, the Lonchaeidae and Piophilidae.

In his magnificent survey of the world’s Diptera, Marshall (2012) calls Tephritidae “true fruit flies”, Pallopteridae “flutter flies” and Platystomatidae

“signal flies”, while the term “picture-wing flies” is limited to Ulidiidae. In Britain, we often call the Drosophilidae “fruit flies” (Ball *et al* 2015).

Identification of the British Opomyzidae is covered by Drake (1993, 2001), while a key to the British Ulidiidae and Platystomatidae was published by Clements (1990). White (1988) provides a comprehensive account of the British Tephritidae. These keys have been updated with name changes and additions to the British list together with a key to Pallopteridae by Clements and Showers (2020). These workshop notes are available via the Dipterists Forum website on payment of a small membership fee.

## Sources of data and methodology

The sources of data are the same as for previous reviews. There are national recording schemes for the Tephritidae alone and for the Pallopteridae, Platystomatidae and Ulidiidae, which are grouped with the rather distantly related Conopidae and Lonchoptera. Data was downloaded from the National Biodiversity Network Atlas and from IRECORD in October 2021. This included all records, whether classed as verified or unverified by the contributing organisations. Further data for 2021 was obtained directly from a few individual diptera recorders.

In addition, data has been transcribed from the collections of record cards at Manchester Museum maintained by Harry Britten and Alan Brindle (Logunov, 2010). All the names used on the cards were correlated to current species names using synonyms given by Chandler (2020). Of course, misidentification is a possible problem with these records, as indeed it is with more recent unverified records. No attempt has been made to trace and

check original specimens in the course of compiling this report, other than those in the authors own collection.

The overall proportions of data from the various sources were very similar to those from the previous reviews, including considerable duplication of records. Major overlaps in datasets were removed at source, eg where a local records centre has uploaded data to the NBN Gateway. Duplication arising from multiple entries of data on different occasions can be more difficult to detect and rectify, but has been largely eliminated by reducing the data to occurrences by hectad, year and month, as was done for the Muscidae and Fanniidae (Brighton 2020).

This involved sorting the individual records by species, year, month of the year and hectad, and then using a simple spreadsheet function to keep only one occurrence of each species for each combination of year, month and hectad. As well as removing duplicate records, this also has the effect of reducing the amount of data from recent surveys where multiple 100m squares may have been recorded in a single site visit. This provides numbers which are more comparable to those derived from pre-1970 recording which mostly have a 1-km spatial resolution at best. These numbers of “occurrences” are intermediate between the numbers of records and numbers of hectads reported for each species in the previous reviews (Brighton 2017, 2017a, 2017b, 2019). They have also been used in the tables of spatial coverage (Tables 2a-c) and the county and regional lists (Table 3). They are considered an improvement on both the measures of abundance used in earlier reviews in reducing the dominance of recent records and providing a much better indication of abundance than simple counts of presence in hectads over the whole time range.

## Overview of combined dataset

Table 1 below lists the numbers of occurrences for each family by decade. The respective totals for VC58, VC59 and VC60 were 1624, 1098 and 312.

As in the previous reviews, 1970 has been taken as a good division for looking at long-term changes in the fauna, not only because it marks the half-way point in the overall period over which the vast majority of the data has been gathered, but also because it is the date of the last update of the county lists (Kidd, 1971) and the 1970s and 80s marked a nadir in recording effort. Harry Britten made the major contribution between 1920 and 1950, mainly in Cheshire and what is now Greater Manchester. Alan Brindle continued this effort during the 1950s. There was then a low level of effort for three decades until the post-1990 surge in recording spear-headed by Bill Hardwick in collaboration with Steve McWilliam (Hardwick, 1999), though again heavily biased towards VC58. Over the last decade, Rob Zloch, Steve Garland and the present author have played a major part in starting to redress this geographical imbalance.

The influence of these all recorders is seen in the geographical plots of numbers of occurrences over the whole time period in Tables 2a-c. The most heavily recorded hectads are the “home ranges” of the principal collectors, but a number of areas of particular entomological interest also show up: Delamere Forest (SJ57) and Wirral coast (SJ28) in VC58; the Sefton coast (SD20, SD30 and SD31) and the north-western coast (SD46 and SD47) in Lancashire.

## Vice-county and Regional Checklists

The combined regional checklist appears in Table 3, in alphabetical order of family and species for simplicity. It includes the earliest and latest years of records in

**Table 1: Number of occurrences by decade and family**

Family	Pre-1920	1920s	1930s	1940s	1950s	1960s	1970s	1980s	1990s	2000s	2010s	2020s	Totals
Opomyzidae	7	43	9	65	22	2	23	14	210	95	436	83	1009
Palloppteridae	8	24	16	22	25	3	5	9	65	47	82	30	336
Platystomatidae					2			1	1	1	23	2	30
Tephritidae	15	33	29	90	56	19	25	28	255	162	575	176	1463
Ulidiidae	2	7	6	8	17	8	2	9	41	13	64	19	196
<b>Totals</b>	<b>32</b>	<b>107</b>	<b>60</b>	<b>185</b>	<b>122</b>	<b>32</b>	<b>55</b>	<b>61</b>	<b>572</b>	<b>318</b>	<b>1180</b>	<b>310</b>	<b>3034</b>

the region, and the numbers of occurrences in each vice-county together with the regional total. Separate checklists for each vice-county are provided in a supplementary spreadsheet on the North West Invertebrates website.

The entry for each species gives brief notes on national distribution, habitats and host-plants based on those in Uffen and Chandler (2010) and Clements and Showers (2020). The bottom of Table 3 shows the changes in the regional species richness from the pre-1970 to modern periods. Of the total 85 species recorded, 35 have been added after 1970, and only 5 have not been recorded since then.

Interestingly calculations using Fisher's log-series reveal that this increase can be attributed largely to increased recording effort. For the historic pre-1970 period there were 538 occurrences comprising 55 species, giving  $\alpha = 15.34$ , while the modern era has yielded 80 species with 2496 occurrences, giving  $\alpha = 15.78$ . Looking at it another way, extrapolation from the pre-1970 recording level of effort to the modern total gives a prediction of 78.0 species.

Nevertheless, there are several species which have expanded their range rapidly from south-eastern England in recent decades, as discussed in the following sections reviewing the regional status family by family. In each heading the number of species recorded in Lancashire and Cheshire is given compared with the current total on the British list.

### Opomyzidae (10 of 16 species)



The Opomyzidae are a small family with only about 60 species known world-wide, mainly in the Palearctic (Marshall 2012). The larvae feed on grasses. Drake (1993) provides much additional information on national distribution and ecology.

Our regional fauna includes five common or very common species while the other five are decidedly scarce or rare. *Opomyza florum* and *O. germinationis* were the 7<sup>th</sup> and 11<sup>th</sup> most frequent species amongst the wide range of Diptera recorded in the sweep-net surveys of Brighton (2020a). *O. petrei* is very similar to *O. germinationis* and so the lack of historic records may not be significant. A similar comment applies to *Geomyza hackmani* which was described as a species separate from *G. balachowskyi* as late as 1984.

The numbers of regional records and associated habitats correlate well with the national picture given by Drake (1993). He describes *O. florum* as sometimes common in lowland areas but scarce in western pastureland which may account for the very significant lack of records in VC60.

### Pallopteridae (9 of 13 species)



This is another small family with 70 or so species in the Holarctic region, and also endemic species in New Zealand and the extreme south of South America (Marshall 2012). Rotheray (2014) considered that sampling problems made adult records a poor guide to distribution and abundance, while Marshall (2012) states that adults are often conspicuous and diurnally active. Our regional list (Table 3) contains a similar proportion of the British fauna as the other families in this review and all but one of them has a good number of recorded occurrences, indicating that sampling of adults is not particularly difficult for Pallopteridae.

The most notable feature of the data is the large number of occurrences of *Palloptera scutellata* since the first record in 1994. This apparent increase in numbers in recent decades does not appear to be confined to Lancashire and Cheshire. The species was first recorded in Britain in 1950 in Surrey, but it was



not until the 21<sup>st</sup> century that De Jong and Aartsen (2007) and Smit *et al.* (2008) reported first records from the Netherlands and Belgium. Rotheray and Hewitt (2015) reported the first record in Scotland and provided a detailed description of the early development in *Juncus* stems. The GBIF now shows a large number of records across the Low Countries and southern Britain, but the numerous recent Scottish records (Bland and Horsfield 2016, Rotheray 2017) appear neither on the NBN Atlas nor on GBIF. The species has also been reported from Greece (Dvořák 2013).

### Platystomatidae (1 of 2 species)



This family has 1,200 species worldwide, found mainly in the Afrotropical, Oriental and Australian regions (Marshall 2012). Species of the cosmopolitan genus *Rivellia* develop within the root nodules of legumes, so it is not surprising that our single species *R. syngenesiae* is associated with flowery meadows.

### Tephritidae (50 of 77 species)

This family is particularly interesting not only because of the attractive wing patterns and coloration of many species, but because of the extent that their ecology and evolution has been studied. The overwhelming majority of the 4,600 species worldwide are plant feeders, the females being equipped with an aculeus for egg-laying in plant tissue - this feature can be important for identification (White, 1988).

Fruit-feeding Tephritidae are major pests in many parts of the world. One of these, the Medfly *Ceratitis capitata*, features on our regional list from two records by Harry Britten in Manchester associated with imported fruit. White (1988) provides an extensive survey of the biology of the family and world-wide behavioural studies are reviewed by Díaz-Fleischer and Aluja (2001). There is continuing research on speciation which can be seen happening

through shifts on food-plants in North American species (Hood *et al.* 2021).



Our regional fauna includes just four native frugivorous tephritids (Table 3), while the majority attack the leaves or flowerheads, mainly of plants in the Asteraceae, or Compositae as they used to be known. Some can be identified from the resultant leaf-mines or galls (Redfern *et al.* 2002).

As discussed above the large increase since 1970 in the number of species in Lancashire and Cheshire may be largely the result of the much greater recording effort since 1990. However, maps produced from the Tephritid recording scheme data do show a rapid northwards expansion of some species.

For instance, *Campiglossa malaris* was stated by White (1988) (under the name *Paroxyna lhommei*) to have been recently found in large numbers on *Senecio* sp. on the coast of both sides of the straits of Dover. Thirty years later South Lancashire and South Yorkshire represented the northernmost extent of its range according to the map of Clemons (2020). *Tephritis matricariae* was unknown in Britain before 2000 but had reached Oxfordshire by early 2009 (Ismay and Harding 2009).



Other species showing a dramatic spread from a low level in southern England are *Chetostoma curvinerve*, *Rhagoletis meigenii* and *Tephritis praecox*. The first two of these are readily identifiable from field photographs and have been recorded on IRECORD by non-specialists.

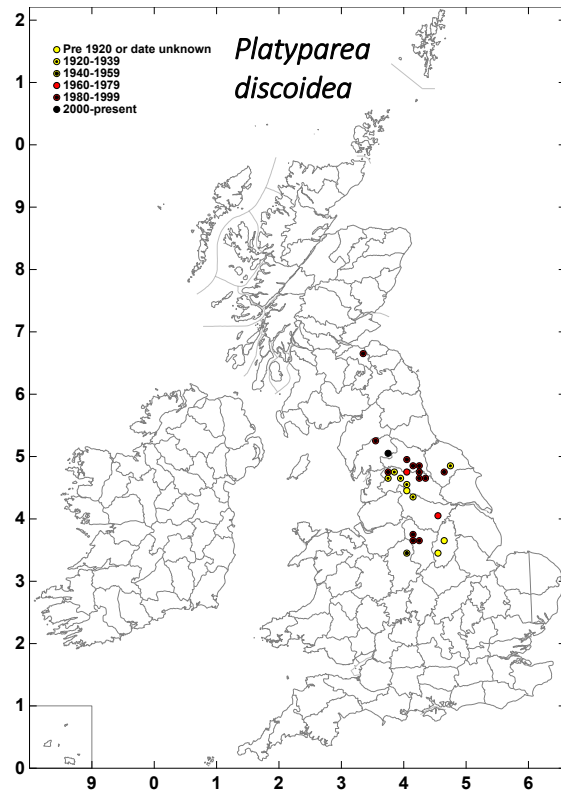
There are three species with no modern records in the region. *Ceratitis capitata* has already been mentioned above and as an imported species is not of conservation concern. *Euphranta toxoneura* is exceptional as its larvae are predators and brood parasites on *Pontania* sawflies which form galls on willow leaves (Redfern *et al.* 2002). There is no shortage of these galls in the region and the fly shows an increase in numbers nationally in the last 40 years according to the figures in Clemons (2020). The NBN atlas shows a cluster of records in South-west Yorkshire and two in Shropshire in the last ten years, so while clearly generally scarce or rare, it is quite likely to turn up again in our region.



The third species lacking modern regional records is *Platyparea discoidea* which is also associated with a non-composite host plant. White (1988) states that it is believed to bore the stems of the giant bell-flower *Campanula latifolia*. The national distribution from the Recording Scheme (Clemons 2018) certainly shows a good match to the areas where the plant is commonest according to Blamey *et al.* (2003).

Only one of the marked hectads represents a post-2000 record, so it appears that this species may be in decline, despite the generally greater increased recording of the family. The 7 Lancashire records are not included on the above map. Our earliest record from 1921 was in a wood near Ribchester on the

Ribble (SD60) and the other six were by Alan Brindle in SD75, SD83 and SD84 on the other side of Pendle Hill.



This is a particularly large and distinctive Tephritid, which would seem very likely to attract the attention of passing photographers. IRECORD has one photographic record of the species from South Lincolnshire in 2021.

### Ulidiidae (15 of 20 species)



Marshall (2012) describes this family, the original “picture-winged” flies with 700 species world-wide, as innocuous inhabitants of decomposing plant matter, apart from a few overseas pests. Clements and Merz (1997) give further details of the biology of the family,

of which there are almost 100 species in Europe and about 200 in the Palaearctic.

There have been some further name changes in the genus *Herina* with the split of *lugubris* and *longistylata* being revoked so that the first of these takes precedence (Chandler 2020). Both names were found in use in the data used for this report. *H. germinationis* has become *H. nigrina* but again the former name appeared in the data. Despite the suggestions of Clements and Merz (1997), no further *Herina* species have been added to the British list.

Interestingly, all ten British *Herina* and *Meliera* species appear on our regional list. The limestone area of VC60 in hectad SD47 has proved particularly fruitful with 8 of those species, with many records gathered on the 1999 Dipterists Forum field meeting. *Herina paludum* is now classified nationally as provisionally vulnerable as since 1960 it has been found at only two sites, in Kent and Glamorgan. Falk *et al.* (2016) state that it was much more widespread a hundred years ago in unimproved grass land and herb-rich meadows. They include Harry Britten's 1931 record from Rostherne in their list of locations, but no Lancashire sites. The four VC59 records are all from the Sefton coast and may be the result of misidentifications or muddling of the name with *palustris*.

*Otites guttatus* is a grey fly with fairly distinctive mottled wings and dark stripes on the thorax. The NBN Atlas shows very few records nationally in the last ten years compared to previous decades, so possibly it has declined generally, though it is not included in the status review of Falk *et al.* (2016). The distribution is patchy across most of England, but there seems to be no definite information about its larval biology or habitats.

*Physiphora alceae* has unmarked wings but a metallic green body and striped eyes. Marshall (2012) describes its remarkable courtship display, with wing waving, drumming and dancing, as an exemplar of the Ulidiidae. The NBN Atlas shows our region as just beyond its national range. Marshall describes it as "now widespread" in a worldwide context. I found a single specimen on garden golden-rod flowers on 5<sup>th</sup> Aug 2017.

## Discussion

The recent national status review of the Acalyprates (Falk *et al.* 2016) covered three of the families discussed here, Opomyzidae, Pallopteridae and Ulidiidae. Table 3 shows that this review assigned a provisional status of Nationally Scarce (pNS) to 9 species. In addition *Herina oscillans* was classed as provisionally Near-Threatened (pNT) and, as mentioned above, *H. paludum* as provisionally vulnerable (pV). *H. oscillans* clearly meets the first of the criteria for the regional Priority List (see box overleaf). The only record was from Hawes Water (SD477768) on 13 June 1999.

The two British Platystomatidae are clearly sufficiently common that they would not qualify for a national conservation status. *Platystoma seminationis* could occur in the region, as it was recorded on Whitbarrow in 1996, a limestone outcrop across Morecambe Bay from the VC60 limestone area.

Falk *et al.* (2016) excluded Tephritidae, along with Conopidae and Sciomyzidae, as popular families which should have a separate review. The conservation status of species in these families was documented by Falk (1991) but the dynamic nature of the Tephritid fauna makes this clearly well out of date. For instance *Chetostoma curvinerve* was then considered vulnerable and *Campiglossa malaris* was endangered. Both now seem to have recently become well established in the region, and fall under exclusion F of the regional priority list.

The two Tephritids missing from our modern list, *Euphranta toxoneura* and *Platyparea discoidea*, were classed by Falk (1991) as notable and vulnerable respectively. It is considered that these merit inclusion in the Regional Priority list under clauses C and D.

The rapid northern spread of certain species of Tephritidae is of course not an isolated phenomenon, being noted amongst the soldierflies and allies (Brighton 2017a) and heteropteran bugs (Brighton *et al.* 2022) for instance. While climate change is often mentioned in this context, that is not saying very much. For one thing, it has been estimated that climate zones in Britain are moving northwards at a



## Regional Priority List

The Tanyptera Project (2020) has issued the following selection criteria for designation of priority invertebrate species in Lancashire and Cheshire:

A) **Nationally Rare** (GB Rarity Status) or **Threatened** (all GB IUCN categories excl. DD, LC, RE) species according to the most recent review of the taxon group with reliable records in the Tanyptera Project region since 1980 based on LERC data, regional expert review and some National Scheme data.

B) At the discretion of regional experts, **Nationally Scarce** (GB Rarity Status) species according to the most recent review of the taxon group with reliable records in the Tanyptera project region since 1980 according to LERC data, regional expert review and some national scheme data. These selections will usually be those in well documented decline nationally.

C) **Nationally Rare, Scarce or Threatened** species not yet recorded within the project region according to LERC data but perceived by regional experts to have reasonable potential of occurring.

D) At the discretion of national / regional / county recorders, species without a GB rarity or GB IUCN threat status but known / thought to be in rapid decline. These selections will usually only fall within taxon groups that have not had status reviews nationally for over 25 years.

### Exclusions

E) At the discretion of the Tanyptera Regional Entomologist and Tanyptera Project Steering Group, any qualifying species that has received significant surveying effort within the past decade or will be receiving such attention in the near future, e.g. Northern Dune Tiger Beetle (*Cicindela hybrida*).

F) At the discretion of the Tanyptera Regional Entomologist and Tanyptera Steering Group, any qualifying species that is perceived to no longer warrant a GB Rarity Status of Nationally Rare status based on new distribution information and/or advice from national/local experts. Usually these species will have expanded their range markedly in recent years and will fall within taxon groups that have not been reviewed nationally for over 25 years.

Based on these criteria this review recommends that the following three species be included: *Euphranta toxoneura*, *Platyparea discoidea* (Tephritidae); *Herina oscillans* (Ulidiidae).

rate of 5km/yr (Rewilding Britain 2020). But the spread of *Tephritis matricariae* to the Lancashire coast in 19 years equates to a rate of 20km/yr – surprisingly high for a rather small fly with a single generation per year.

Also of course insect numbers are strongly affected by short-term variations in weather from year to year, such as severe winters and summer droughts. Flies may be spread through human activities whether accidental transport in vehicles or associated with movement of horticultural products. The abundance of the ruderal herbs on which many Tephritids depend may have increased significantly with modern developments of road embankments and the abandonment to nature of industrial sites, such as the South Lancashire coal-mines.

We can only expect continuing changes in the dynamic regional fauna of picture-wing flies.

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Table 2: number of occurrences per hectad - picture-wing flies

VC58	SJ2_	SJ3_	SJ4_	SJ5_	SJ6_	SJ7_	SJ8_	S_9_	S_0_	S_1_
S_0								1	5	
S_9	20	2				34	9	56	22	
26	53	20	4	138	18	54	97	73	3	
S_7	8	41	95	151	165	37	24	35	10	
S_6		5	3	50	203	21	29	18		
SJ_5		1	4	23	17	21	2			
SJ_4				9	10	7				

VC59	SD2_	S_3_	S_4_	S_5_	S_6_	S_7_	S_8_	S_9_	SKO_
SD_4						7	7		
SD_3					1	32	14	7	
SD_2			2	14	3				
SD_1	46	54	31	14	36	6	3	1	
SD_0	67	13	6	23	12	11	11	26	
SJ_9		12	21	28	329	49	69	30	
SJ_8		2	41	52	17		2		

VC60	SD2_	SD3_	SD4_	SD5_	2	SD7_	SD8_
SD_7			99	17	5		
SD_6			62	19	1		
SD_5			9	15	1		
SD_4		23	4	9	13		
SD_3		9	3	53	6		
SD_2		1					

**Table 3.** Lancashire and Cheshire checklist for picture wing flies. X indicates those species not recorded after 1970, and + those not recorded before 1970. National status categories from Falk *et al.* (2016) are given in square brackets.

Family				Number of Occurrences					
Species	X/+	Earliest Year	Latest Year	VC58	VC59	VC60	Total	General Abundance (Clements & Showers 2020)	Host Plant or Habitat
<b>Opomyzidae</b>									
<i>Geomyza balachowskyi</i>		1919	2021	43	37	10	90	Frequent, widespread	Mainly grasslands
<i>Geomyza hackmani</i>	+	2019	2021	2			2	Rare, southern	Wetlands and marsh
<i>Geomyza majuscula</i>	+	2014	2018	2	1		3	Scarce, widespread [pNS]	Rich fens and marshes
<i>Geomyza subnigra</i>	+	1998	1998	1			1	Scarce, widespread [pNS]	Mainly grassland
<i>Geomyza tripunctata</i>		1919	2021	138	90	22	250	Common, widespread	Grasslands
<i>Opomyza florum</i>		1913	2021	117	61	1	179	Common, widespread	Many habitats
<i>Opomyza germinationis</i>		1912	2021	217	88	43	348	Common, widespread	Many habitats
<i>Opomyza lineatopunctata</i>		1920	2019	3	2		5	Scarce, southern [pNS]	Moorland and heath
<i>Opomyza petrei</i>	+	1979	2021	56	44	22	122	Common, widespread	Many habitats
<i>Opomyza punctata</i>		1942	2004	5	4		9	Scarce, widespread [pNS]	Grasslands
<b>Pallopterae</b>									
<i>Paloptera modesta</i>		1912	2021	5	8	3	16	Scarce, widespread	Woodland, ruderal and grassland (thistles)
<i>Paloptera muliebris</i>		1897	2021	26	11	2	39	Frequent, widespread	Various habitats
<i>Paloptera quinque maculata</i>		1920	2021	26	22	8	56	Frequent, widespread	Various habitats
<i>Paloptera saltuum</i>		1936	2018	4	9	2	15	Frequent, widespread	Ruderal, scrub and grassland (umbels)
<i>Paloptera scutellata</i>	+	1994	2021	27	22	1	50	Scarce, widespread	Woodland – <i>Juncus effusus</i>
<i>Paloptera trimacula</i>		1920	2019	18	13	5	36	Frequent, widespread	Grassland, scrub and ruderal (umbels)
<i>Paloptera umbellatarum</i>		1919	2021	35	23	8	66	Frequent, widespread	Various habitats (thistles)
<i>Paloptera usta</i>	+	1980	1980			1	1	Scarce, mainly northern [pNS]	Woodland, including conifer
<i>Paloptera ustulata</i>		1919	2021	34	19	4	57	Scarce, widespread	Mainly woodland
<b>Platystomatidae</b>									
<i>Rivellia syngenesiae</i>		1955	2021	9	15	6	30	Local, widespread	Many habitats – legume roots



Family				Number of Occurrences					
Species	X/+	Earliest Year	Latest Year	VC58	VC59	VC60	Total	General Abundance (Clements & Showers 2020)	Host Plant or Habitat
<b>Tephritidae</b>									
<i>Acanthiophilus helianthi</i>	+	2019	2019	1	1	1	3	Very rare, S & SE England, W Wales	Many composites
<i>Acidia cognata</i>		1915	2021	24	26	4	54	Local, widespread	<i>Tussilago farfara</i> and <i>Petasites</i> spp. - leaf-miner
<i>Anomoia purmunda</i>	+	1984	2021	59	41	6	106	Common, widespread	Rosaceae & <i>Berberis</i> fruits
<i>Campiglossa absinthii</i>		1923	2016	12	19	1	32	Rare, widespread	<i>Artemisia</i> spp.
<i>Campiglossa loewiana</i>	+	2011	2011	1			1	Local, widespread	<i>Solidago</i> spp.
<i>Campiglossa malaris</i>	+	2014	2021	6	3		9	Very local, SE & S England	<i>Senecio</i> spp.
<i>Campiglossa misella</i>	+	1979	2017	13	27	1	41	Local, southern	<i>Artemisia</i> and other spp.
<i>Campiglossa plantaginis</i>		1936	2021	9	13	4	26	Frequent, mainly coasts	<i>Aster</i> and related spp.
<i>Ceratitis capitata</i>	X	1924	1931		2		2	Imported species	Fruits
<i>Chaetorellia jaceae</i>	+	2000	2019	2	1	1	4	Local, S & E England	<i>Centaurea</i> spp.
<i>Chaetostomella cylindrica</i>		1919	2021	75	26	15	116	Common, widespread	<i>Centaurea</i> and related genera
<i>Chetostoma curvinerve</i>	+	2015	2020	1	4	2	7	Scarce, southern	<i>Lonicera</i> spp. - fruits
<i>Dioxyna bidentis</i>	+	2001	2021	2	3	2	7	Local, widespread	<i>Bidens</i> spp.
<i>Dithryca guttularis</i>		1949	1999	1		1	2	Frequent, widespread	<i>Achillea millefolium</i>
<i>Ensina sonchi</i>		1921	2018		3		3	Local, mainly southern	Various composites
<i>Euleia heraclei</i>		1890	2021	41	35	3	79	Common, widespread	Many umbellifers ("celery fly") - leaf-miner
<i>Euphranta toxoneura</i>	X	1930	1947	2	1		3	Scarce, southern	<i>Pontania</i> galls on <i>Salix</i> spp.
<i>Merzomyia westermanni</i>	+	2017	2017		1		1	Local, southern	<i>Senecio</i> spp.
<i>Noeeta pupillata</i>		1921	2021	16	9		25	Local, widespread	<i>Hieracium</i> spp.
<i>Oxyna parietina</i>	+	1981	2019	7	2	2	11	Common, southern	<i>Artemisia vulgaris</i>
<i>Philophylla caesio</i>		1939	2021	26	17	5	48	Common. Widespread	<i>Urtica</i> spp.
<i>Platyparea discoidea</i>	X	1921	1961		6	1	7	Rare, Midlands, N England, Scotland	<i>Campanula</i> spp.
<i>Rhagoletis alternata</i>		1954	2020	7	4	2	13	Frequent, widespread	<i>Rosa</i> spp. fruits
<i>Rhagoletis meigenii</i>	+	2021	2021		1		1	Very rare, S England	<i>Berberis vulgaris</i> fruits
<i>Sphenella marginata</i>		1933	2021	15	21	3	39	Frequent, widespread	<i>Senecio</i> spp.



Family				Number of Occurrences					
Species	X/+	Earliest Year	Latest Year	VC58	VC59	VC60	Total	General Abundance (Clements & Showers 2020)	Host Plant or Habitat
<b>Ulidiidae</b>									
<i>Ceroxys urticae</i>		1936	2020	11	3	1	15	Scarce, southern	Marsh, including salt-marsh
<i>Herina frondescens</i>		1923	2021	13	9	15	37	Local, widespread	Species-rich grasslands
<i>Herina lugubris</i>	+	1989	2021	14	8	12	34	Local, southern	Calcareous or species-rich neutral marsh or grassland
<i>Herina nigrina</i>	+	1999	2021	2	2	4	8	Scarce, southern	Usually calcareous marsh or grassland
<i>Herina oscillans</i>	+	1999	1999			1	1	Rare, southern [pNT]	Wetlands and grasslands
<i>Herina paludum</i>	X	1920	1959	2	4		6	Very rare, southern [pV]	Often near coasts
<i>Herina palustris</i>	+	2018	2020			2	2	Scarce, southern [pNS]	Wetlands and grasslands
<i>Melieria cana</i>		1953	2021	1		5	6	Rare, widespread [pNS]	Coastal dunelands
<i>Melieria crassipennis</i>	+	1982	2021	2	1		3	Local, widespread	Wetlands
<i>Melieria omissa</i>	+	1988	2021	12	4	1	17	Scarce, widespread	Wetlands, often coastal
<i>Melieria picta</i>	+	2018	2020		1	1	2	Scarce, southern [pNS]	Coastal
<i>Otites guttatus</i>	X	1954	1959		1	2	3	Local, widespread	Rank vegetation and grasslands
<i>Physiphora alceae</i>	+	2017	2017		1		1	Frequent, widespread	Moist organic habitats
<i>Seioptera vibrans</i>		1917	2021	34	19		53	Local, widespread	Various habitats (usually woody)
<i>Tetanops myopinus</i>		1924	2019		8		8	Scarce, widespread [pNS]	Sand dunes, coastal
<b>TOTALS</b>				1624	1098	312	3034		
<b>Number of species</b>				69	73	58	85		
<b>Number added since 1970</b>				36	33	39	35		
<b>Number not seen since 1970</b>				4	6	3	5		