



# The Diptera of Lancashire and Cheshire: Empidoidea, Part I

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## Summary

This document provides a new checklist for the four Diptera families (Atelestidae, Brachystomidae, Empididae and Hybotidae) which together with the Dolichopodidae constitute the superfamily Empidoidea. This supersedes the lists of the Empididae of Lancashire and Cheshire first published by Kidd and Bindle in 1959. Overall statistics on recording activity are given by decade and hectad. Checklists are presented for each of the three Watsonian vice-counties 58, 59, and 60 detailing for each species the number of records, year of earliest and most recent record, and the number of hectads with records. A combined checklist showing distribution by the three vice-counties is also included, covering a total of 243 species, amounting to 62% of the current British checklist. A summary of habitat associations and national conservation status is also included.

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## Introduction

This report is the fourth in a series to update and extend the checklist of the diptera of Lancashire and Cheshire published in 1959 by Leonard Kidd and Alan Brindle<sup>1</sup>. There were two previous updates, in 1964<sup>2</sup> and 1971<sup>3</sup>.

The previous reports in this series cover the crane flies and allies<sup>4</sup>, soldier flies and allies<sup>5</sup> and the Sepsidae<sup>6</sup>, the latter family not having been covered in Ref 1. The reader is referred to Refs 5 and 6 for the background and rationale of these checklists, as well as the history of diptera recording and available data sources. The description of methodology is also kept to a minimum in the present report: only significant differences from the previous publications will be outlined. The previous format of the tables and maps is continued, but with the addition of data on habitats and national conservation status from the Natural England PANTHEON database.

As before, the geographical scope is the Watsonian vice-counties of Cheshire (VC58), South Lancashire (VC59), and West Lancashire (VC60). However to avoid confusion with the present political area of West Lancashire which lies within VC59, VC60 will be referred to as North Lancashire below. VC60 here is shorn of parts of south Cumbria which were covered erroneously in Ref 1. The Forest of Bowland largely remains in VC64, mid-west Yorkshire, and is also excluded.

## Taxonomic scope

The dipterous superfamily Empidoidea includes the following families:

- Atelestidae: 2 British species
- Brachystomatidae: 4 British species
- Empididae: 208 British species
- Hybotidae: 182 British species
- Dolichopodidae: 305 British species

The above numbers are taken from the March 2018 update of the British checklist on the Dipterists Forum (DF) website. The first four of these families were all brigaded under the Empididae in 1961 when J. E. Collin published his epic monograph providing full taxonomic descriptions of each of the 354 species then known in Britain<sup>7</sup>. This book also provided a comprehensive set of keys and illustrations. There are now 42 species to be added, which have been keyed or described in various publications over the years. The DF identification workshop at FSC Preston Montford in February 2019 provided an update on these species and an opportunity to check several identifications.

The national conservation status of all the families covered by this report was reviewed in Ref 8, which provides useful general information as well as details of ecology and distribution, insofar as they are known, for species with a formal designation. Additional information on habitats for some genera and species is in Chapter 4 of *A Dipterist's Handbook*<sup>9</sup>.

## Sources of data and methodology

The approach to collecting and analysing data follows that established for the soldierflies and allies in Ref 5. The Table below lists the sources of data split across the 3 vice-counties. These records were subject to an initial review to remove duplications and particularly doubtful records.

- The records received direct from regular recorders of diptera, including my own, include data up to and including the collecting season of 2018. Those for recent years have been or will be submitted for verification via IRECORD. Review of IRECORD itself in November 2018 indicated that, apart from photographic records of large and conspicuous species such as *Empis tessellata*, there was little or no additional data to be found there: none of the records have been verified, and most of those based on photographs are by non-specialists.
- The national Empidoidea recording scheme (ERS) run by Martin Drake and Steve Hewitt on behalf of the Dipterists Forum and the Biological Records Centre kindly supplied me with their records for VCs 58, 59 and 60 in October 2018. I have removed my own records from this dataset to avoid duplication. A few records were found to be geographically misplaced and have also been removed.
- The Greater Manchester LRC data contained records evidently derived from Refs 1-3: these have been removed.
- The Harry Britten cards have been transcribed and checked against Refs 1-3 as done previously for the soldierflies and crane flies, and their allies. Data from before 1900 and for the Furness region of North Lancashire in VC69 have been omitted.
- It has been noted in the previous checklists that the Cheshire RECORD data contains a large number of records attributed to Harry Britten or his contemporaries, and derived from records at World Museum Liverpool (WML). For the present data collation, these were compared with the records from the Manchester record cards to determine the extent of overlap. It was found that there were 87 records not represented in the cards – this presumably has arisen from specimens being donated to WML before being recorded on the cards.
- It is also the case that records from the 1999 DF summer field meeting appear on the RECORD database, apparently as a useful temporary storage location or back-up at the time. These records were found to include 51 not already in the ERS dataset. The duplicates have been removed.
- It appears that the NBN Gateway contains little or no regional data not included in the above.

The numbers of records from these various sources are as follows, amounting to a total of 7,232.

Data Source	VC58	VC59	VC60
Direct from recorders	696	719	209
Empidoidea Recording Scheme	699	151	363
Greater Manchester LRC	0	62	0
Harry Britten cards	487	340	37
LERN (Lancashire LRC)	0	19	71
Merseyside Biobank	0	313	25
RECORD (Cheshire LRC)	2863	178	0
TOTALS	4745	1782	705

While as much validation as possible has been carried out, it is acknowledged that uncertainties or errors are likely to be present particularly for older records, or species aggregates which have recently been split: this is discussed in the species status notes in the Appendix.

## Overview of combined dataset

The combined data have been analysed to provide details of recording frequency by decade and vice-county in Table 1. The overall pattern is similar to that already found the previous regional checklists. The 1920s and 1940s show the influence of Harry Britten during, with Cheshire visited rather more often than Lancashire. The 1950s records in VC59 come from Allan Brindle, Leonard Kidd and Liverpool Museum records from the Sefton coast. There is then a slump in recording until the 1990s when Bill Hardwick began intensive recording in VCs 58 and 59 and Liverpool Museum recorders again became active: the DF 1999 field meeting based in Grange-over-Sands is largely responsible for the boost to VC60 records in this decade. Bill Hardwick's contributions have continued through to the present decade, during which several other recorders have become active. The Dipterists Forum again visited VC60 in 2013, based at Lancaster.

Tables 2a-c show the uneven geographical spread of records, being concentrated around the bases of the main recorders and areas of ongoing entomological interest such as the Delamere Forest, the Sefton Coast and the Silverdale area.

## Vice-county and Regional Checklists

Tables 3a-c present the summarised data for each of the three vice-counties in the now well-established format. The families are listed in alphabetical order rather than the taxonomic order presented above, and species are listed alphabetically with no split into the various tribes and subgenera which have been defined in some cases. The earliest year of observation may represent the beginning of a range of years where no exact date was given in the historic records. Equally latest dates may represent the end of such a range.

Table 4 provides a combined checklist for the whole region, comparing numbers of records in each vice-county. This has been arranged in the ranked order of number of records: this is partly to serve as a guide to new recorders on what to expect, but it also demonstrates the wide variance in apparent abundance even between species with no specific designation as rare or scarce. 50% of the records come from just 20 species, while at the other end of the distribution 2% of the records account for 79 species, almost a third of the total number in the region. 33 species are represented by only one record.

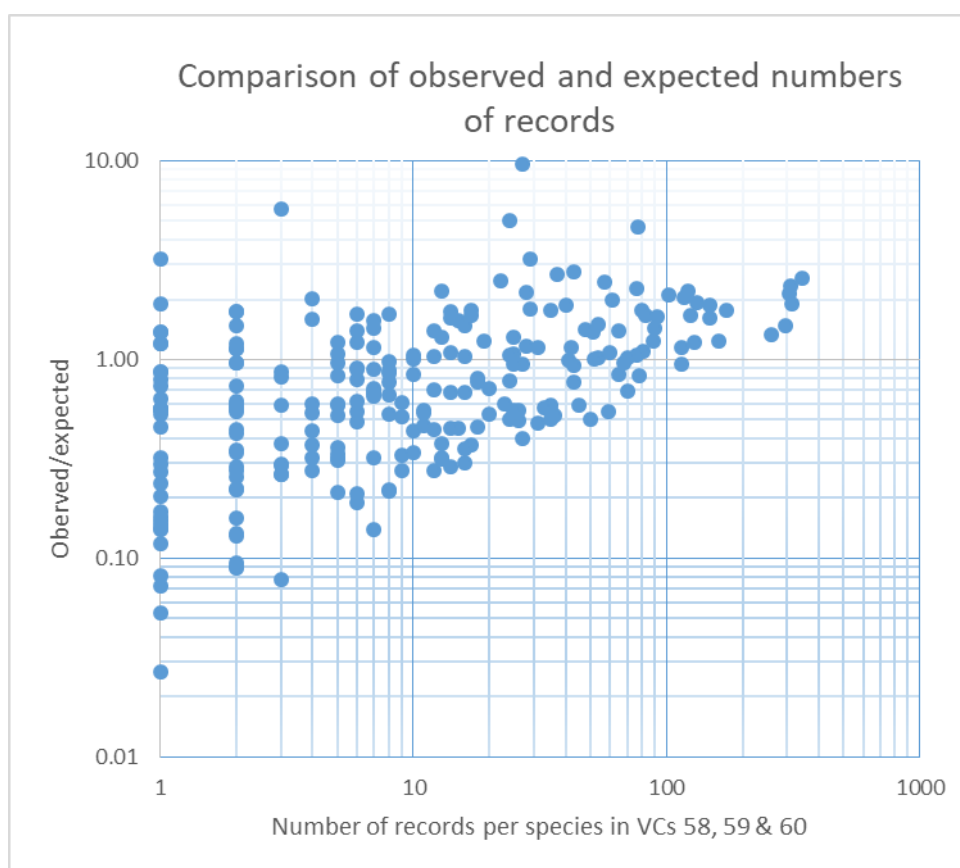
15 species have not been recorded since 1970, while since then as many as 92 have been added to the regional list. The majority of the additions are rare or scarce species, which have been revealed simply by the increased level of recording in recent decades. It is possible that before the publication of Collin's book<sup>7</sup> in 1961 difficulties in identification may have discouraged recording of the group. The commoner "new" species which may represent significant increases in regional abundance or extensions of range are *Empis praevia* (102 records), *Platypalpus calceatus* (45 records) and *Empis albinervis* (35 records).

## Comparison with national data

The regional totals of 243 species and 7,232 records compare with 389 species and a total of 69,045 site records on the database of the ERS at January 2019. The regional list contains just under 62% of the national list.

The diagram overleaf makes a comparison between the number of regional records for each of the 243 species and the "expected" number based on the number of national records factored down by 7,232/69,045. Because of the large variation in both the numbers of records and the ratios of "observed" and "expected" numbers, logarithmic (base 10) scales are used on both axes.

This scatter plot shows that a large proportion of the data is within a factor 3 or so from equality of the observed and expected. The commonest species, with over 100 records, tend to be recorded more often than predicted. This may be partly because the ERS data refer only to presence at



“sites” without account of repeated records, whereas most of the recent regional records are to 100m accuracy and resolved to specific dates. Another factor is that the ERS data of course includes data from species absent from the region.

At the lowest end of the scale, the singleton records have a wide range of observed/expected (O/E) ratios between 0.03 and 3.18. Lower values represent species which must be common in some other parts of the country, but scarce in north-west England, while high values relate to scarce or rare species which appear to have a regional stronghold: some of these records have yet to be verified, as discussed in the Appendix. Amongst species with more than one regional record, just 5 have an O/E ratio higher than three: *Leptopeza borealis* (only 3 records, but O/E=5.73) is nationally rare but the others have no conservation designation.

The chart does not show species which are not scarce nationally but nevertheless have not been recorded in the region. There are 4 with an “expected” number of records greater than 10: *Empis pennipes*, which according to the NBN Atlas has concentrations of records in Shropshire and South Yorkshire, and so ought to turn up in the region; *Stilpon graminum*, a very small hybotid which may be overlooked rather than genuinely absent; *Rhamphomyia caliginosa*, mainly confined to the coasts of South Wales and East Anglia; and *Empis volucris*, a species which according to the NBN hardly spreads north of the line between the Severn Estuary and the Wash.

Overall, it is concluded that there is a fairly high degree of consistency between the regional and national abundances of common species.

#### Habitats and conservation status

The Natural England PANTHEON database (version 3.7.6) has been used to assess the ecological characteristics of the regional assemblage of 243 species listed in Table 4.

Almost all the species are listed as being predators both as larvae and adults. The information is not given in some cases, but uniquely *Trichopeza longicornis* in the Brachystomatidae has an herbivorous larva and a predaceous adult.

The following Table provides a broad overview of the characteristic habitats of the species listed in Table 4.

Broad biotope	Habitat	No. of species	% representation	SQI	Species with conservation status
coastal	saltmarsh	3	1	100	
	sandy beach	1	<1	100	
open habitats	short sward & bare ground	3	<1	100	
	tall sward & scrub	67	3	120	4
	upland	1	<1	100	
tree-associated	decaying wood	12	1	100	
	shaded woodland floor	82	7	142	6
	wet woodland	23	9	114	1
wetland	marshland	4	<1	175	1
	peatland	19	2	150	3
	running water	64	6	223	15
	wet woodland	27	10	113	1

The highest level of ecological classification is the broad biotope, which embraces a range of habitats. Specific habitats can occur in more than one biotope as with wet woodland here. Each species may have more than one habitat association so the numbers in the third column add up to more than the total number of species in the region. The percentage representation compares the number of species in the list to the total number of species for that habitat in PANTHEON. The SQI is a weighted score for the habitat according to the number of species with a conservation designation, as listed in the last column.

This shows some interesting features of the regional empid and hybotid fauna. There are few coastal specialists despite the fairly large number of coastal records: this seems likely to be an intrinsic characteristic of the group rather than an indication of poor quality in our coastal environment. Peatland is also well represented in the areas surveyed, but poor in species associated with that habitat. As suggested by general experience in the field, the adult flies generally favour well-vegetated areas, whether tall herbage and scrub (the characteristic habitat for finding *Platypalpus* species) or wooded areas. Many *Hilara* species are associated with running water, and certain rare *Platypalpus* and *Tachydromia* species are particularly associated with exposed riverine sediments: the regional list is particularly strong on the latter because of specialist surveys such as that reported in Ref 11.

There are a total of 38 species in the regional list with a national conservation designation according to PANTHEON. Table 5 lists all these species together with PANTHEON data on conservation status, habitats and associations. Habitat scores indicate the strength of association with certain habitats, another factor in assessing habitat quality.

Further information on the regional status of these species, and other less recorded ones, is included in the Appendix

## Acknowledgments

Thanks are due to RECORD, Merseyside Biobank (MBB), Greater Manchester Local Records Centre (GMLRC), Lancashire Environmental Record Network (LERN) and the Dipterists Forum Empidoidea Recording Scheme (ERS) for the provision of data, to World Museum Liverpool and Manchester Museum for access to their collections and internal records, and last but not least to all the original field recorders.

Table 1: numbers of records of by vice-county and decade (Empidoidea other than Dolichopodidae)

Decade	VC58	VC59	VC60
1900s			
1910s	16	5	2
1920s	258	168	1
1930s	50	44	0
1940s	196	36	6
1950s	44	141	27
1960s	20	10	2
1970s	46	7	0
1980s	91	55	11
1990s	988	343	243
2000s	1759	87	59
2010s	1277	887	354

Table 2a: number of records per hectad in VC58 (Empidoidea other than Dolichopodidae)

	SJ2_	SJ3_	SJ4_	SJ5_	SJ6_	SJ7_	SJ8_	S_9_	S_0_	S_1_
S__0								2	1	0
S__9	8	2				19	7	47	24	
38	84	6	2	450	14	212	302	66	0	
S__7	5	77	86	493	405	80	166	31	58	
S__6		8	20	195	1095	164	48	6	0	
SJ_5		18	11	61	113	51	0			
SJ_4			0	2	267	1				

Table 2b: number of records per hectad in VC59 (Empidoidea other than Dolichopodidae)

	SD2_	S_3_	S_4_	S_5_	S_6_	S_7_	S_8_	S_9_	SK0_
SD_4						7	20	0	
SD_3					16	50	38	12	
SD_2		0	7	21	19	6	1	13	
SD_1	131	39	30	16	130	10	10	3	
SD_0	177	15	27	1	2	15	21	46	
SJ_9		6	6	95	462	44	80	11	
SJ_8		0	62	66	60		1		

Table 2c: number of records per hectad in VC60 (Empidoidea other than Dolichopodidae)

	SD2_	SD3_	SD4_	SD5_	SD6_	SD7_	SD8_
SD_7			207	60	25		
SD_6			81	139	4		
SD_5		0	20	20	7		
SD_4		0	25	26	13		
SD_3		4	3	40	7		
SD_2	0	18	0	3			

Table 3a: checklist of Empidoidea other than Dolichopodidae for VC58 (Cheshire)

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<b>ATELESTIDAE</b>				
<i>Atelestus pulicarius</i>	2	2	1999	2006
<b>BRACHYSTOMATIDAE</b>				
<i>Gloma fuscipennis</i>	2	1	2016	2016
<i>Heleodromia immaculata</i>	11	6	1920	2014
<i>Trichopeza longicornis</i>	22	7	1924	2018
<b>EMPIDIDAE</b>				
<i>Chelifera diversicauda</i>	4	3	1920	2015
<i>Chelifera pectinicauda</i>	1	1	1956	1956
<i>Chelifera precabunda</i>	1	1	2004	2004
<i>Chelifera preclatoria</i>	19	9	1921	2017
<i>Chelifera stigmatica</i>	3	3	2001	2016
<i>Chelifera subangusta</i>	1	1	1939	1939
<i>Chelifera trapezina</i>	2	2	1924	1940
<i>Chelipoda albiseta</i>	14	4	1922	2018
<i>Chelipoda vocatoria</i>	3	3	2001	2005
<i>Clinocera stagnalis</i>	19	10	1921	2018
<i>Clinocera wesmaeli</i>	1	1	1956	1956
<i>Dolichocephala guttata</i>	56	17	1921	2017
<i>Dolichocephala irrorata</i>	76	16	1921	2018
<i>Dolichocephala oblongoguttata</i>	6	3	1944	2017
<i>Empis aestiva</i>	39	10	1921	2018
<i>Empis albinervis</i>	19	4	1999	2016
<i>Empis albohirta</i>	54	10	1921	2018
<i>Empis bicuspidata</i>	4	3	1929	1996
<i>Empis caudatula</i>	19	7	1996	2018
<i>Empis chioptera</i>	59	16	1921	2018
<i>Empis digramma</i>	1	1	1950	1950
<i>Empis grisea</i>	12	8	1927	2016
<i>Empis hyalipennis</i>	2	1	1996	1996
<i>Empis livida</i>	168	28	1916	2018
<i>Empis longipes</i>	14	9	1913	2016
<i>Empis lutea</i>	2	2	2001	2015
<i>Empis nigripes</i>	92	18	1921	2018
<i>Empis nigratarsis</i>	2	1	2006	2006
<i>Empis nuntia</i>	46	13	1923	2018
<i>Empis opaca</i>	25	12	1922	2018
<i>Empis planetica</i>	5	5	1921	2012
<i>Empis praevia</i>	88	10	1989	2018
<i>Empis punctata</i>	14	8	1924	2018
<i>Empis scutellata</i>	11	5	1943	2012

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Empis stercorea</i>	36	15	1921	2018
<i>Empis tessellata</i>	188	27	1913	2018
<i>Empis trigramma</i>	75	21	1915	2018
<i>Empis tumida</i>	2	2	1992	2001
<i>Empis verralli</i>	1	1	1921	1921
<i>Empis vitripennis</i>	3	2	1943	2000
<i>Hemerodromia baetica</i>	28	5	1929	2007
<i>Hemerodromia oratoria</i>	1	1	1921	1921
<i>Hemerodromia raptoria</i>	1	1	1948	1948
<i>Hemerodromia unilineata</i>	17	6	1999	2007
<i>Hilara albipennis</i>	20	5	1910	2018
<i>Hilara albitarsis</i>	1	1	2001	2001
<i>Hilara albiventris</i>	16	6	1943	2018
<i>Hilara anglodanica</i>	10	7	1999	2017
<i>Hilara apta</i>	2	1	2006	2006
<i>Hilara beckeri</i>	8	3	1927	2006
<i>Hilara biseta</i>	12	3	2005	2006
<i>Hilara bistriata</i>	6	5	1921	1944
<i>Hilara brevistyla</i>	21	8	1920	2018
<i>Hilara brevivittata</i>	2	2	1928	2016
<i>Hilara canescens</i>	3	3	2001	2012
<i>Hilara cantabrica</i>	13	3	1936	2018
<i>Hilara chorica</i>	72	14	1920	2018
<i>Hilara clavipes</i>	4	3	1921	2001
<i>Hilara clypeata</i>	12	7	1979	2018
<i>Hilara cornicula</i>	52	14	1924	2018
<i>Hilara curtisi</i>	6	4	1929	1999
<i>Hilara discoidalis</i>	5	2	2002	2005
<i>Hilara flavipes</i>	39	15	1919	2017
<i>Hilara fulvibarba</i>	4	3	1999	2016
<i>Hilara fuscipes</i>	38	15	1921	2018
<i>Hilara hirtipes</i>	2	2	2007	2007
<i>Hilara intermedia</i>	1	1	2016	2016
<i>Hilara interstincta</i>	13	9	1921	2017
<i>Hilara litorea</i>	41	11	1924	2017
<i>Hilara longifurca</i>	63	14	1934	2018
<i>Hilara longivittata</i>	7	5	2001	2006
<i>Hilara lurida</i>	3	2	2012	2017
<i>Hilara manicata</i>	44	11	1921	2016
<i>Hilara maura</i>	119	20	1921	2018
<i>Hilara nigrina</i>	27	11	1921	2016
<i>Hilara nigrohirta</i>	2	2	1999	2017

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Hilara obscura</i>	98	12	1920	2018
<i>Hilara pilosa</i>	3	2	1970	1976
<i>Hilara pseudochorica</i>	15	5	2005	2007
<i>Hilara pseudocornicula</i>	5	3	2005	2016
<i>Hilara quadrifasciata</i>	19	10	1949	2018
<i>Hilara rejecta</i>	17	6	1921	2016
<i>Hilara thoracica</i>	2	2	1999	2016
<i>Kowarzia bipunctata</i>	2	2	1999	2017
<i>Kowarzia tenella</i>	1	1	1928	1928
<i>Phyllodromia melanocephala</i>	30	14	1920	2017
<i>Rhamphomyia albipennis</i>	7	6	1928	2006
<i>Rhamphomyia anomalipennis</i>	5	3	1921	2016
<i>Rhamphomyia atra</i>	1	1	1996	1996
<i>Rhamphomyia barbata</i>	4	4	1937	2018
<i>Rhamphomyia caesia</i>	1	1	2015	2015
<i>Rhamphomyia crassirostris</i>	50	15	1916	2018
<i>Rhamphomyia curvula</i>	3	2	1921	1971
<i>Rhamphomyia erythrophthalma</i>	33	12	1920	2018
<i>Rhamphomyia flava</i>	25	10	1931	2016
<i>Rhamphomyia geniculata</i>	2	2	1950	1999
<i>Rhamphomyia gibba</i>	3	3	1923	1943
<i>Rhamphomyia hirsutipes</i>	4	4	1924	1998
<i>Rhamphomyia hybotina</i>	3	3	1921	1943
<i>Rhamphomyia laevipes</i>	2	2	1941	2008
<i>Rhamphomyia lamellata</i>	1	1	2018	2018
<i>Rhamphomyia maculipennis</i>	4	3	1993	2018
<i>Rhamphomyia murina</i>	1	1	2006	2006
<i>Rhamphomyia nigripennis</i>	75	15	1927	2017
<i>Rhamphomyia pilifer</i>	25	12	1922	2018
<i>Rhamphomyia sciarina</i>	2	2	1945	1999
<i>Rhamphomyia simplex</i>	6	5	1936	2018
<i>Rhamphomyia stigmosa</i>	5	4	1934	2016
<i>Rhamphomyia subcinerascens</i>	29	12	1923	2018
<i>Rhamphomyia sulcata</i>	90	22	1915	2018
<i>Rhamphomyia sulcatella</i>	4	1	1996	2016
<i>Rhamphomyia sulcatina</i>	1	1	1999	1999
<i>Rhamphomyia tarsata</i>	54	11	1921	2018
<i>Rhamphomyia tibiella</i>	37	11	1921	2018
<i>Rhamphomyia umbripennis</i>	62	9	1944	2018
<i>Rhamphomyia variabilis</i>	6	5	1924	2017
<i>Wiedemannia insularis</i>	4	4	1933	1947

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<b>HYBOTIDAE</b>				
<i>Bicellaria intermedia</i>	31	4	1989	2017
<i>Bicellaria nigra</i>	2	1	2016	2016
<i>Bicellaria pilosa</i>	8	4	1920	2006
<i>Bicellaria simplicipes</i>	4	3	1996	2016
<i>Bicellaria spuria</i>	5	5	1922	2016
<i>Bicellaria sulcata</i>	4	3	1922	1927
<i>Bicellaria vana</i>	225	16	1974	2018
<i>Crossopalpus curvipes</i>	4	4	1924	2018
<i>Crossopalpus humilis</i>	1	1	1998	1998
<i>Crossopalpus nigritellus</i>	3	3	1999	2017
<i>Drapetis assimilis</i>	2	1	1943	1999
<i>Drapetis exilis</i>	1	1	2006	2006
<i>Drapetis infitalis</i>	1	1	1999	1999
<i>Elaphropeza ephippiata</i>	11	4	2004	2016
<i>Euthyneura gyllenhali</i>	3	1	1937	1988
<i>Euthyneura myrtilli</i>	8	4	1921	2017
<i>Hybos culiciformis</i>	186	24	1920	2018
<i>Hybos femoratus</i>	86	20	1920	2018
<i>Hybos grossipes</i>	2	2	1997	2003
<i>Leptopeza borealis</i>	3	2	1988	2017
<i>Leptopeza flavipes</i>	6	4	2001	2012
<i>Ocydromia glabricula</i>	248	25	1916	2018
<i>Oedalea flavipes</i>	7	6	1936	2001
<i>Oedalea holmgreni</i>	24	9	1922	2018
<i>Oedalea stigmatella</i>	6	4	1999	2017
<i>Oedalea tibialis</i>	3	2	2001	2016
<i>Oedalea zetterstedti</i>	1	1	1939	1939
<i>Oropezella sphenopectera</i>	1	1	1999	1999
<i>Platypalpus aeneus</i>	2	2	1999	2005
<i>Platypalpus agilis</i>	51	13	1921	2018
<i>Platypalpus albifacies</i>	3	3	2001	2006
<i>Platypalpus albiseta</i>	3	2	2015	2016
<i>Platypalpus annulatus</i>	11	6	1943	2016
<i>Platypalpus annulipes</i>	51	12	1936	2018
<i>Platypalpus articulatooides</i>	1	1	2007	2007
<i>Platypalpus articulatus</i>	2	2	2005	2005
<i>Platypalpus australominutus</i>	4	2	2006	2006
<i>Platypalpus bilobatus</i>	1	1	2007	2007
<i>Platypalpus calceatus</i>	39	9	2004	2017
<i>Platypalpus candicans</i>	11	6	1940	2012
<i>Platypalpus ciliaris</i>	27	7	1999	2018

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Platypalpus clarandus</i>	8	3	1922	1999
<i>Platypalpus cothurnatus</i>	23	9	1977	2016
<i>Platypalpus cursitans</i>	5	3	1999	2016
<i>Platypalpus excavatus</i>	1	1	2006	2006
<i>Platypalpus exilis</i>	14	5	1988	2016
<i>Platypalpus flavicornis</i>	13	6	1939	2006
<i>Platypalpus infectus</i>	3	2	2005	2016
<i>Platypalpus interstinctus</i>	30	11	1920	2018
<i>Platypalpus kirtlingensis</i>	4	1	2006	2006
<i>Platypalpus leucocephalus</i>	5	3	1999	2012
<i>Platypalpus longicornis</i>	105	18	1920	2018
<i>Platypalpus longiseta</i>	92	15	1952	2018
<i>Platypalpus luteus</i>	13	10	1919	2018
<i>Platypalpus maculipes</i>	28	7	1996	2016
<i>Platypalpus melancholicus</i>	22	7	2005	2008
<i>Platypalpus minutus</i> agg.	84	18	1919	2018
<i>Platypalpus minutus</i> sens. str.	11	7	2005	2017
<i>Platypalpus niger</i>	10	4	2005	2007
<i>Platypalpus nigritarsis</i>	18	10	1918	2016
<i>Platypalpus notatus</i>	54	17	1921	2016
<i>Platypalpus ochracea</i>	1	1	2007	2007
<i>Platypalpus optivus</i>	12	4	1999	2016
<i>Platypalpus pallidicornis</i>	2	1	1999	1999
<i>Platypalpus pallidiventris</i>	183	23	1920	2017
<i>Platypalpus pallipes</i>	11	6	1921	2016
<i>Platypalpus pectoralis</i>	12	5	1988	2016
<i>Platypalpus politus</i>	1	1	2006	2006
<i>Platypalpus pseudociliaris</i>	4	1	2006	2006
<i>Platypalpus pseudofulvipes</i>	19	9	1999	2018
<i>Platypalpus stabilis</i>	2	2	1966	2017
<i>Platypalpus strigifrons</i>	4	1	2017	2018
<i>Platypalpus subtilis</i>	1	1	2017	2017
<i>Platypalpus verralli</i>	13	11	1921	2018
<i>Stilpon lunatus</i>	1	1	1922	1922
<i>Stilpon nubilus</i>	2	2	1979	2005
<i>Symballophththalmus dissimilis</i>	1	1	1939	1939
<i>Symballophththalmus fuscitarsis</i>	1	1	1999	1999
<i>Symballophththalmus pictipes</i>	2	1	2005	2005
<i>Tachydromia aemula</i>	15	9	1921	2018
<i>Tachydromia arrogans</i>	8	8	1920	2004
<i>Tachydromia connexa</i>	2	1	1950	1963
<i>Tachydromia costalis</i>	15	8	2005	2008

VC58 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Tachydromia morio</i>	4	3	2007	2008
<i>Tachydromia umbrarum</i>	4	3	1929	2014
<i>Tachydromia woodi</i>	3	2	2005	2005
<i>Tachypeza nubila</i>	63	18	1920	2017
<i>Trichina bilobata</i>	3	3	1996	2004
<i>Trichina clavipes</i>	12	8	1920	2012
<i>Trichina elongata</i>	12	5	1999	2017
<i>Trichina opaca</i>	2	2	1997	1999
<i>Trichinomyia flavipes</i>	17	10	1922	2015

Table 3b: checklist of Empidoidea other than Dolichopodidae for VC59 (South Lancashire)

VC59 Family/Species	No of Records	No of Hectads	Earliest	Latest
<b>ATELESTIDAE</b>				
<i>Atelestus pulicarius</i>	2	1	2015	2015
<b>BRACHYSTOMATIDAE</b>				
<i>Gloma fuscipennis</i>	6	3	1924	2017
<i>Heleodromia immaculata</i>	2	2	1950	1955
<i>Trichopeza longicornis</i>	7	4	1937	2018
<b>EMPIDIDAE</b>				
<i>Chelifera astigma</i>	1	1	1937	1977
<i>Chelifera concinnicauda</i>	1	1	1923	1923
<i>Chelifera diversicauda</i>	3	3	1923	1985
<i>Chelifera precatória</i>	8	6	1935	1984
<i>Chelifera stigmatica</i>	2	2	1927	1985
<i>Chelifera trapezina</i>	2	2	1985	2018
<i>Chelipoda vocatoria</i>	2	1	1997	1997
<i>Clinocera fontinalis</i>	7	4	1955	2018
<i>Clinocera stagnalis</i>	8	7	1920	2016
<i>Dolichocephala guttata</i>	17	10	1921	2016
<i>Dolichocephala irrorata</i>	11	9	1920	2017
<i>Dolichocephala oblongoguttata</i>	6	4	2006	2018
<i>Empis aemula</i>	3	1	1955	1962
<i>Empis aestiva</i>	13	7	1920	2016
<i>Empis albinervis</i>	11	2	2014	2017
<i>Empis albohirta</i>	33	7	2010	2018
<i>Empis bicuspidata</i>	1	1	1921	1921
<i>Empis caudatula</i>	5	5	1999	2016
<i>Empis chioptera</i>	24	11	1921	2017
<i>Empis digramma</i>	7	6	1930	1990
<i>Empis grisea</i>	3	3	1959	2015
<i>Empis livida</i>	93	19	1923	2018
<i>Empis longipes</i>	5	4	1951	2018
<i>Empis lutea</i>	7	5	1937	2015
<i>Empis nigripes</i>	47	14	1922	2018
<i>Empis nuntia</i>	19	9	1920	2017
<i>Empis opaca</i>	7	5	1946	2014
<i>Empis planetica</i>	3	3	1937	2018
<i>Empis praevia</i>	14	7	1994	2018
<i>Empis punctata</i>	23	8	1920	2018
<i>Empis scotica</i>	4	3	1990	2000
<i>Empis scutellata</i>	3	2	1999	1999
<i>Empis stercorea</i>	20	9	1921	2016

VC59 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Empis tessellata</i>	102	23	1925	2018
<i>Empis trigramma</i>	35	11	1920	2017
<i>Empis verralli</i>	2	2	1949	1997
<i>Empis vitripennis</i>	10	3	1997	2016
<i>Hemerodromia raptoria</i>	1	1	1940	1940
<i>Hemerodromia unilineata</i>	1	1	1937	1937
<i>Hilara albipennis</i>	6	5	1921	2018
<i>Hilara anglodanica</i>	3	3	2015	2015
<i>Hilara brevistyla</i>	3	3	2015	2016
<i>Hilara cantabrica</i>	14	3	1928	2018
<i>Hilara chorica</i>	24	8	1922	2018
<i>Hilara clavipes</i>	4	3	1937	2017
<i>Hilara clypeata</i>	3	2	1997	1999
<i>Hilara cornicula</i>	9	5	1999	2016
<i>Hilara flavipes</i>	17	7	1923	2016
<i>Hilara fulvibarba</i>	7	4	1959	2017
<i>Hilara fuscipes</i>	7	6	1937	2015
<i>Hilara hirtipes</i>	1	1	2015	2015
<i>Hilara interstincta</i>	10	8	1920	2017
<i>Hilara litorea</i>	23	13	1918	2018
<i>Hilara longifurca</i>	7	3	1999	2017
<i>Hilara manicata</i>	5	5	1937	2015
<i>Hilara maura</i>	39	16	1920	2018
<i>Hilara nigrina</i>	8	7	1985	2018
<i>Hilara nitidula</i>	1	1	1928	1928
<i>Hilara obscura</i>	5	5	1923	2017
<i>Hilara pseudocornicula</i>	4	3	1997	2015
<i>Hilara quadrifasciata</i>	3	3	1924	2015
<i>Hilara rejecta</i>	5	3	1968	2018
<i>Hilara thoracica</i>	1	1	1946	1946
<i>Iteaphila arundela</i>	1	1	2015	2015
<i>Kowarzia bipunctata</i>	1	1	1951	1951
<i>Phyllodromia melanocephala</i>	11	4	1937	2018
<i>Rhamphomyia albipennis</i>	7	5	1928	2015
<i>Rhamphomyia anomalipennis</i>	3	3	1921	1928
<i>Rhamphomyia barbata</i>	3	1	2016	2017
<i>Rhamphomyia crassirostris</i>	25	13	1912	2018
<i>Rhamphomyia culicina</i>	1	1	1959	1959
<i>Rhamphomyia curvula</i>	3	1	2015	2015
<i>Rhamphomyia erythrophthalma</i>	25	12	1920	2017
<i>Rhamphomyia flava</i>	18	6	1950	2017
<i>Rhamphomyia geniculata</i>	10	6	1927	2018

VC59 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Rhamphomyia gibba</i>	7	5	1927	2016
<i>Rhamphomyia hirsutipes</i>	2	2	1981	1981
<i>Rhamphomyia hybotina</i>	3	3	1923	2015
<i>Rhamphomyia laevipes</i>	3	2	1937	1977
<i>Rhamphomyia maculipennis</i>	3	2	1921	1996
<i>Rhamphomyia nigripennis</i>	26	7	1937	2016
<i>Rhamphomyia pilifer</i>	24	11	1921	2018
<i>Rhamphomyia sciarina</i>	3	2	1939	1997
<i>Rhamphomyia simplex</i>	2	2	1939	1952
<i>Rhamphomyia stigmata</i>	3	3	1923	1925
<i>Rhamphomyia subcinerascens</i>	13	6	1922	2018
<i>Rhamphomyia sulcata</i>	39	15	1920	2018
<i>Rhamphomyia sulcatella</i>	4	2	1959	2015
<i>Rhamphomyia tarsata</i>	11	6	1952	2010
<i>Rhamphomyia tibialis</i>	1	1	2018	2018
<i>Rhamphomyia tibiella</i>	8	7	1928	2018
<i>Rhamphomyia umbripennis</i>	11	6	1937	2018
<i>Rhamphomyia variabilis</i>	25	9	1937	2018
<i>Wiedemannia insularis</i>	1	1	1937	1977
<b>HYBOTIDAE</b>				
<i>Bicellaria pilosa</i>	2	2	1921	1977
<i>Bicellaria simplicipes</i>	2	1	1959	2000
<i>Bicellaria spuria</i>	3	3	1925	2017
<i>Bicellaria sulcata</i>	3	2	1924	1925
<i>Bicellaria vana</i>	68	14	1959	2018
<i>Chersodromia hirta</i>	5	3	1924	1959
<i>Chersodromia incana</i>	2	2	1924	1959
<i>Crossopalpus nigritellus</i>	1	1	2015	2015
<i>Euthyneura halidayi</i>	8	4	1955	2018
<i>Euthyneura myrtilli</i>	4	3	1924	2015
<i>Hybos culiciformis</i>	128	19	1923	2018
<i>Hybos femoratus</i>	53	12	1932	2018
<i>Hybos grossipes</i>	1	1	1949	1949
<i>Leptopeza flavipes</i>	7	4	1959	2016
<i>Ocydromia glabricula</i>	41	15	1957	2018
<i>Oedalea flavipes</i>	2	1	1921	1946
<i>Oedalea holmgreni</i>	5	4	1924	2015
<i>Oedalea stigmatella</i>	2	2	1950	2016
<i>Oedalea zetterstedti</i>	1	1	1946	1946
<i>Oropezella sphenoptera</i>	1	1	2015	2015
<i>Platypalpus agilis</i>	14	11	1920	2016
<i>Platypalpus albifacies</i>	1	1	2015	2015

<b>VC59 Family/Species</b>	<b>No of Records</b>	<b>No of Hectads</b>	<b>Earliest</b>	<b>Latest</b>
<i>Platypalpus albiseta</i>	2	1	1997	1997
<i>Platypalpus annulatus</i>	3	1	1920	1920
<i>Platypalpus annulipes</i>	6	3	1959	2018
<i>Platypalpus calceatus</i>	2	2	2015	2016
<i>Platypalpus candicans</i>	8	5	1946	2016
<i>Platypalpus ciliaris</i>	3	3	1980	2016
<i>Platypalpus clarandus</i>	8	4	1923	1997
<i>Platypalpus cothurnatus</i>	2	1	2015	2015
<i>Platypalpus cursitans</i>	3	1	2015	2015
<i>Platypalpus excavatus</i>	3	2	1999	2018
<i>Platypalpus exilis</i>	2	2	1999	1999
<i>Platypalpus flavicornis</i>	4	2	1918	2015
<i>Platypalpus incertus</i>	1	1	2016	2016
<i>Platypalpus interstinctus</i>	1	1	1999	1999
<i>Platypalpus leucocephalus</i>	1	1	1997	1997
<i>Platypalpus longicornis</i>	40	14	1919	2016
<i>Platypalpus longiseta</i>	20	6	1985	2017
<i>Platypalpus luteus</i>	4	4	1926	2015
<i>Platypalpus maculipes</i>	1	1	1994	1994
<i>Platypalpus minutus</i> agg.	26	10	1943	2018
<i>Platypalpus minutus</i> sens. str.	4	3	2015	2018
<i>Platypalpus nigratarsis</i>	21	10	1920	2017
<i>Platypalpus notatus</i>	21	13	1920	2018
<i>Platypalpus pallidicornis</i>	1	1	2017	2017
<i>Platypalpus pallidiventris</i>	54	16	1920	2017
<i>Platypalpus pallipes</i>	5	2	1959	2000
<i>Platypalpus pseudofulvipes</i>	2	2	2015	2015
<i>Platypalpus strigifrons</i>	12	3	1959	2018
<i>Platypalpus verralli</i>	13	8	1920	2017
<i>Symballophthalmus dissimilis</i>	1	1	1953	1953
<i>Tachydromia aemula</i>	3	2	1996	2000
<i>Tachydromia arrogans</i>	9	6	1924	1997
<i>Tachydromia umbrarum</i>	6	5	1933	2018
<i>Tachypeza nubila</i>	21	11	1920	2016
<i>Trichina bilobata</i>	1	1	1994	1994
<i>Trichina clavipes</i>	8	7	1923	2017
<i>Trichina elongata</i>	5	2	2015	2017
<i>Trichina pallipes</i>	1	1	2018	2018
<i>Trichinomyia flavipes</i>	11	6	1920	2017

Table 3c: checklist of Empidoidea other than Dolichopodidae for VC60 (North Lancashire)

VC60 Family/Species	No of Records	No of Hectads	Earliest	Latest
<b>ATELESTIDAE</b>				
<i>Atelestus pulicarius</i>	2	2	1999	1999
<b>BRACHYSTOMATIDAE</b>				
<i>Gloma fuscipennis</i>	4	3	1999	2013
<i>Heleodromia immaculata</i>	1	1	1999	1999
<i>Trichopeza longicornis</i>	6	5	1999	2013
<b>EMPIDIDAE</b>				
<i>Chelifera diversicauda</i>	1	1	2013	2013
<i>Chelifera precatória</i>	8	5	1992	2017
<i>Chelifera trapezina</i>	1	1	2013	2013
<i>Clinocera nigra</i>	1	1	1937	1977
<i>Clinocera stagnalis</i>	16	7	1937	2018
<i>Clinocera wesmaeli</i>	1	1	1937	1977
<i>Dolichocephala guttata</i>	4	2	2013	2013
<i>Dolichocephala irrorata</i>	3	2	1999	2017
<i>Dolichocephala oblongoguttata</i>	4	3	1999	2013
<i>Dolichocephala ocellata</i>	1	1	1999	1999
<i>Empis aemula</i>	4	2	1992	2011
<i>Empis aestiva</i>	8	5	1982	2018
<i>Empis albinervis</i>	5	3	1999	2018
<i>Empis albohirta</i>	5	2	1947	2018
<i>Empis bicuspidata</i>	1	1	2017	2017
<i>Empis concolor</i>	7	1	2011	2018
<i>Empis femorata</i>	1	1	1999	1999
<i>Empis grisea</i>	5	2	1937	2017
<i>Empis laetabilis</i>	1	1	2011	2011
<i>Empis livida</i>	35	9	1937	2018
<i>Empis longipes</i>	8	4	1999	2018
<i>Empis lutea</i>	7	1	1937	2017
<i>Empis nigripes</i>	9	6	1999	2017
<i>Empis nuntia</i>	5	4	1992	2018
<i>Empis opaca</i>	5	3	1989	2016
<i>Empis planetica</i>	8	5	1999	2017
<i>Empis prodromus</i>	2	2	1937	1977
<i>Empis punctata</i>	5	3	1999	2018
<i>Empis stercorea</i>	4	2	2011	2015
<i>Empis tessellata</i>	15	7	1919	2017
<i>Empis trigramma</i>	8	4	2011	2016
<i>Hemerodromia adulatoria</i>	1	1	1999	1999
<i>Hemerodromia oratoria</i>	1	1	2006	2006

VC60 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Hemerodromia unilineata</i>	7	3	1999	2013
<i>Hilara albipennis</i>	1	1	1945	1945
<i>Hilara albiventris</i>	1	1	2013	2013
<i>Hilara beckeri</i>	1	1	1999	1999
<i>Hilara biseta</i>	1	1	1982	1982
<i>Hilara canescens</i>	2	2	1999	2013
<i>Hilara cantabrica</i>	2	1	2016	2016
<i>Hilara chorica</i>	19	5	1999	2017
<i>Hilara clavipes</i>	2	2	2013	2017
<i>Hilara clypeata</i>	9	2	2006	2006
<i>Hilara cornicula</i>	4	4	1999	2017
<i>Hilara flavipes</i>	1	1	2013	2013
<i>Hilara fuscipes</i>	7	3	1937	2013
<i>Hilara galactoptera</i>	2	1	2011	2018
<i>Hilara hirtella</i>	1	1	1999	1999
<i>Hilara interstincta</i>	3	2	1937	2017
<i>Hilara litorea</i>	14	6	1999	2017
<i>Hilara longifurca</i>	10	4	1999	2017
<i>Hilara lurida</i>	3	3	1999	2017
<i>Hilara manicata</i>	5	3	1982	1999
<i>Hilara maura</i>	15	3	2013	2018
<i>Hilara morata</i>	4	3	1999	2013
<i>Hilara nigrina</i>	8	4	1982	2017
<i>Hilara obscura</i>	21	5	1982	2017
<i>Hilara pseudochorica</i>	3	1	2013	2013
<i>Hilara pseudocornicula</i>	2	2	2016	2017
<i>Hilara quadrifasciata</i>	4	3	1937	2013
<i>Hilara rejecta</i>	1	1	2013	2013
<i>Hilara sturmii</i>	2	2	1999	1999
<i>Hilara thoracica</i>	10	6	1999	2013
<i>Kowarzia bipunctata</i>	3	2	1992	2013
<i>Phyllodromia melanocephala</i>	9	3	1999	2018
<i>Rhamphomyia anomalipennis</i>	1	1	2011	2011
<i>Rhamphomyia atra</i>	1	1	1947	1947
<i>Rhamphomyia barbata</i>	1	1	1962	1962
<i>Rhamphomyia caesia</i>	1	1	2017	2017
<i>Rhamphomyia crassirostris</i>	6	3	1989	2017
<i>Rhamphomyia erythrophthalma</i>	3	3	2011	2017
<i>Rhamphomyia flava</i>	11	4	1937	2018
<i>Rhamphomyia hybotina</i>	1	1	1937	1977
<i>Rhamphomyia nigripennis</i>	20	7	1982	2017
<i>Rhamphomyia pilifer</i>	2	2	1999	1999

VC60 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Rhamphomyia sciarina</i>	2	2	1937	1982
<i>Rhamphomyia subcinerascens</i>	1	1	1947	1947
<i>Rhamphomyia sulcata</i>	3	3	1919	2016
<i>Rhamphomyia tarsata</i>	5	4	1999	2016
<i>Rhamphomyia tibialis</i>	1	1	2015	2015
<i>Rhamphomyia tibiella</i>	3	2	2013	2017
<i>Rhamphomyia umbripennis</i>	3	3	1937	2016
<i>Rhamphomyia variabilis</i>	4	2	1937	2017
<i>Wiedemannia bistigma</i>	2	1	2013	2013
<i>Wiedemannia insularis</i>	2	2	1937	2013
<b>HYBOTIDAE</b>				
<i>Bicellaria nigra</i>	1	1	2011	2011
<i>Bicellaria simplicipes</i>	1	1	1999	1999
<i>Bicellaria vana</i>	17	9	1992	2018
<i>Crossopalpus curvipes</i>	1	1	1992	1992
<i>Elaphropeza ephippiata</i>	1	1	2013	2013
<i>Hybos culiciformis</i>	28	8	1924	2018
<i>Hybos femoratus</i>	22	9	1937	2018
<i>Leptopeza flavipes</i>	4	1	1999	1999
<i>Ocydromia glabricula</i>	23	8	1992	2017
<i>Oedalea holmgreni</i>	7	3	1937	2013
<i>Oedalea stigmatella</i>	4	1	1999	2011
<i>Oedalea tibialis</i>	2	1	1999	1999
<i>Oedalea zetterstedti</i>	1	1	2011	2011
<i>Oropezella sphenoptera</i>	7	1	1954	2018
<i>Platypalpus albifacies</i>	2	1	1999	1999
<i>Platypalpus annulipes</i>	11	4	1999	2018
<i>Platypalpus calceatus</i>	4	2	2006	2016
<i>Platypalpus candicans</i>	6	1	1956	2011
<i>Platypalpus carteri</i>	1	1	1968	1968
<i>Platypalpus ciliaris</i>	3	2	1999	2013
<i>Platypalpus clarandus</i>	2	1	1999	1999
<i>Platypalpus cursitans</i>	2	1	1937	1977
<i>Platypalpus divisus</i>	2	1	1999	1999
<i>Platypalpus exilis</i>	8	3	1999	2011
<i>Platypalpus interstinctus</i>	9	2	2006	2006
<i>Platypalpus longicornis</i>	3	1	1992	1999
<i>Platypalpus longiseta</i>	2	1	2006	2017
<i>Platypalpus luteus</i>	3	1	1937	2011
<i>Platypalpus major</i>	2	1	1999	1999
<i>Platypalpus minutus</i> agg.	4	2	2016	2016
<i>Platypalpus nigratarsis</i>	2	2	1992	2017

VC60 Family/Species	No of Records	No of Hectads	Earliest	Latest
<i>Platypalpus notatus</i>	1	1	1982	1982
<i>Platypalpus pallidicornis</i>	5	3	1999	2006
<i>Platypalpus pallidiventris</i>	23	7	1982	2016
<i>Platypalpus parvicauda</i>	2	1	1999	1999
<i>Platypalpus pectoralis</i>	1	1	2013	2013
<i>Platypalpus pseudofulvipes</i>	4	3	1999	2013
<i>Platypalpus stabilis</i>	2	1	2006	2006
<i>Platypalpus verralli</i>	1	1	1999	1999
<i>Tachydromia arrogans</i>	2	2	1949	2013
<i>Tachydromia edenensis</i>	1	1	2006	2006
<i>Tachydromia halidayi</i>	6	2	2006	2006
<i>Tachydromia morio</i>	1	1	2013	2013
<i>Tachydromia umbrarum</i>	1	1	1937	1977
<i>Tachypeza nubila</i>	5	3	1957	2017
<i>Trichina bilobata</i>	1	1	2018	2018
<i>Trichina clavipes</i>	11	5	1937	2013

Table 4: overall regional checklist

The species are listed in order of decreasing number of records for the whole region. The number of records in each vice-county is also listed.

X denotes species not recorded after 1970. + indicates species not recorded before 1970.

The last column gives the cumulative percentage of the number of records.

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
1	<i>Hybos culiciformis</i>		186	128	28	342	4.7%
2	<i>Ocydromia glabricula</i>		248	41	23	312	9.0%
3	<i>Bicellaria vana</i>		225	69	17	311	13.3%
4	<i>Empis tessellata</i>		188	102	15	305	17.6%
5	<i>Empis livida</i>		168	93	35	296	21.7%
6	<i>Platypalpus pallidiventris</i>		183	54	23	260	25.2%
7	<i>Hilara maura</i>		119	39	15	173	27.6%
8	<i>Hybos femoratus</i>		86	53	22	161	29.9%
9	<i>Empis nigripes</i>		92	47	9	148	31.9%
10	<i>Platypalpus longicornis</i>		105	40	3	148	33.9%
11	<i>Rhamphomyia sulcata</i>		90	39	3	132	35.8%
12	<i>Platypalpus minutus</i>		95	30	4	129	37.6%
13	<i>Hilara obscura</i>		98	5	21	124	39.3%
14	<i>Rhamphomyia nigripennis</i>		75	26	20	121	40.9%
15	<i>Empis trigramma</i>		75	35	8	118	42.6%
16	<i>Hilara chorica</i>		72	24	19	115	44.2%
17	<i>Platypalpus longiseta</i>		92	20	2	114	45.8%
18	<i>Empis praevia</i>	+	88	14		102	47.2%
19	<i>Empis albohirta</i>		54	33	5	92	48.4%
20	<i>Dolichocephala irrorata</i>		76	11	3	90	49.7%
21	<i>Tachypeza nubila</i>		63	21	5	89	50.9%
22	<i>Empis chioptera</i>		59	24		83	52.1%
23	<i>Rhamphomyia crassirostris</i>		50	25	6	81	53.2%
24	<i>Hilara longifurca</i>		63	7	10	80	54.3%
25	<i>Hilara litorea</i>		41	23	14	78	55.4%
26	<i>Dolichocephala guttata</i>		56	17	4	77	56.4%
27	<i>Platypalpus notatus</i>		54	21	1	76	57.5%
28	<i>Rhamphomyia umbripennis</i>		62	11	3	76	58.5%
29	<i>Empis nuntia</i>		46	19	5	70	59.5%
30	<i>Rhamphomyia tarsata</i>		54	11	5	70	60.5%
31	<i>Platypalpus annulipes</i>		51	6	11	68	61.4%
32	<i>Hilara cornicula</i>		52	9	4	65	62.3%
33	<i>Platypalpus agilis</i>		51	14		65	63.2%
34	<i>Rhamphomyia erythrophthalma</i>		33	25	3	61	64.0%
35	<i>Empis stercorea</i>		36	20	4	60	64.9%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
36	<i>Empis aestiva</i>		39	12	8	59	65.7%
37	<i>Hilara flavipes</i>		39	17	1	57	66.5%
38	<i>Hilara manicata</i>		44	5	5	54	67.2%
39	<i>Rhamphomyia flava</i>		25	18	11	54	68.0%
40	<i>Hilara fuscipes</i>		38	7	7	52	68.7%
41	<i>Rhamphomyia pilifer</i>		25	24	2	51	69.4%
42	<i>Phyllodromia melanocephala</i>		30	11	9	50	70.1%
43	<i>Rhamphomyia tibiella</i>		37	8	3	48	70.8%
44	<i>Platypalpus calceatus</i>	+	39	2	4	45	71.4%
45	<i>Clinocera stagnalis</i>		19	8	16	43	72.0%
46	<i>Hilara nigrina</i>		27	8	8	43	72.6%
47	<i>Rhamphomyia subcinerascens</i>		29	13	1	43	73.2%
48	<i>Empis punctata</i>		14	23	5	42	73.7%
49	<i>Platypalpus nigrirarsis</i>		18	21	2	41	74.3%
50	<i>Platypalpus interstinctus</i>		30	1	9	40	74.9%
51	<i>Empis opaca</i>		25	7	5	37	75.4%
52	<i>Oedalea holmgreni</i>		24	5	7	36	75.9%
53	<i>Chelifera precatória</i>		19	8	8	35	76.4%
54	<i>Empis albinervis</i>	+	19	11	5	35	76.8%
55	<i>Rhamphomyia variabilis</i>		6	25	4	35	77.3%
56	<i>Trichopeza longicornis</i>		22	7	6	35	77.8%
57	<i>Platypalpus ciliaris</i>	+	27	3	3	33	78.3%
58	<i>Bicellaria intermedia</i>	+	31			31	78.7%
59	<i>Trichina clavipes</i>		12	8	11	31	79.1%
60	<i>Hilara cantabrica</i>		13	14	2	29	79.5%
61	<i>Platypalpus maculipes</i>	+	28	1		29	79.9%
62	<i>Hemerodromia baetica</i>		28			28	80.3%
63	<i>Trichinomyia flavipes</i>		17	11		28	80.7%
64	<i>Empis longipes</i>		14	5	8	27	81.1%
65	<i>Hilara albipennis</i>		20	6	1	27	81.4%
66	<i>Platypalpus verralli</i>		13	13	1	27	81.8%
67	<i>Hilara interstincta</i>		13	10	3	26	82.2%
68	<i>Hilara quadrifasciata</i>		19	3	4	26	82.5%
69	<i>Hemerodromia unilineata</i>		17	1	7	25	82.9%
70	<i>Platypalpus candicans</i>		11	8	6	25	83.2%
71	<i>Platypalpus cothurnatus</i>	+	23	2		25	83.6%
72	<i>Platypalpus pseudofulvipes</i>	+	19	2	4	25	83.9%
73	<i>Empis caudatula</i>	+	19	5		24	84.3%
74	<i>Hilara brevistyla</i>		21	3		24	84.6%
75	<i>Hilara clypeata</i>	+	12	3	9	24	84.9%
76	<i>Platypalpus exilis</i>	+	14	2	8	24	85.2%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
77	<i>Hilara rejecta</i>		17	5	1	23	85.6%
78	<i>Platypalpus melancholicus</i>	+	22			22	85.9%
79	<i>Empis grisea</i>		12	3	5	20	86.1%
80	<i>Platypalpus luteus</i>		13	4	3	20	86.4%
81	<i>Tachydromia arrogans</i>		8	9	2	19	86.7%
82	<i>Hilara pseudochorica</i>	+	15		3	18	86.9%
83	<i>Platypalpus clarendus</i>		8	8	2	18	87.2%
84	<i>Tachydromia aemula</i>		15	3		18	87.4%
85	<i>Hilara albiventris</i>		16		1	17	87.7%
86	<i>Leptopeza flavipes</i>		6	7	4	17	87.9%
87	<i>Platypalpus flavicornis</i>		13	4		17	88.1%
88	<i>Trichina elongata</i>	+	12	5		17	88.4%
	<i>Dolichocephala oblongoguttata</i>		6	6	4	16	88.6%
89							
90	<i>Empis lutea</i>		2	7	7	16	88.8%
91	<i>Empis planetica</i>		5	3	8	16	89.0%
92	<i>Platypalpus pallipes</i>		11	5		16	89.2%
93	<i>Platypalpus strigifrons</i>		4	12		16	89.7%
94	<i>Tachydromia costalis</i>	+	15			15	89.9%
95	<i>Chelipoda albiseta</i>		14			14	90.0%
96	<i>Empis scutellata</i>		11	3		14	90.2%
97	<i>Heleodromia immaculata</i>		11	2	1	14	90.4%
98	<i>Platypalpus annulatus</i>		11	3		14	90.6%
99	<i>Rhamphomyia albipennis</i>		7	7		14	90.8%
100	<i>Empis vitripennis</i>		3	10		13	91.0%
101	<i>Hilara anglodanica</i>	+	10	3		13	91.2%
102	<i>Hilara biseta</i>	+	12		1	13	91.4%
103	<i>Hilara thoracica</i>		2	1	10	13	91.5%
104	<i>Platypalpus pectoralis</i>	+	12		1	13	91.7%
105	<i>Elaphropeza ephippiata</i>	+	11		1	12	91.9%
106	<i>Gloma fuscipennis</i>		2	6	4	12	92.0%
107	<i>Hilara fulvibarba</i>		4	8		12	92.2%
108	<i>Oedalea stigmatella</i>		6	2	4	12	92.3%
109	<i>Platypalpus optivus</i>	+	12			12	92.4%
110	<i>Rhamphomyia geniculata</i>		2	10		12	92.5%
111	<i>Euthyneura myrtilli</i>		7	4		11	92.7%
112	<i>Hilara pseudocornicula</i>	+	5	4	2	11	92.9%
113	<i>Tachydromia umbrarum</i>		4	6	1	11	93.0%
114	<i>Bicellaria pilosa</i>		8	2		10	93.1%
115	<i>Hilara clavipes</i>		4	4	2	10	93.3%
116	<i>Platypalpus cursitans</i>		5	3	2	10	93.4%
117	<i>Platypalpus niger</i>	+	10			10	93.6%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
118	<i>Rhamphomyia gibba</i>		3	7		10	93.7%
119	<i>Hilara beckeri</i>		8		1	9	93.8%
120	<i>Oedalea flavipes</i>		7	2		9	93.9%
121	<i>Oropezella sphenoptera</i>		1	1	7	9	94.1%
122	<i>Rhamphomyia anomalipennis</i>		5	3	1	9	94.2%
123	<i>Bicellaria spuria</i>		5	3		8	94.3%
124	<i>Chelifera diversicauda</i>		4	3	1	8	94.4%
125	<i>Empis digramma</i>		1	7		8	94.5%
126	<i>Euthyneura halidayi</i>			8		8	94.6%
127	<i>Platypalpus pallidicornis</i>	+	2	1	5	8	94.7%
128	<i>Rhamphomyia barbata</i>		4	3	1	8	94.9%
129	<i>Rhamphomyia simplex</i>		6	2		8	95.0%
130	<i>Rhamphomyia stigmata</i>		5	3		8	95.1%
131	<i>Rhamphomyia sulcatella</i>		4	4		8	95.2%
132	<i>Bicellaria simplicipes</i>		4	2	1	7	95.3%
133	<i>Bicellaria sulcata</i>	X	4	3		7	95.4%
134	<i>Clinocera fontinalis</i>			7		7	95.5%
135	<i>Empis aemula</i>			3	4	7	95.6%
136	<i>Empis concolor</i>	+			7	7	95.7%
137	<i>Hilara longivittata</i>	+	7			7	95.8%
138	<i>Rhamphomyia hybotina</i>		3	3	1	7	95.9%
139	<i>Rhamphomyia maculipennis</i>		4	3		7	96.0%
140	<i>Rhamphomyia sciarina</i>		2	3	2	7	96.1%
141	<i>Wiedemannia insularis</i>		4	1	2	7	96.2%
142	<i>Atelestus pulicarius</i>	+	2	2	2	6	96.2%
143	<i>Empis bicuspidata</i>		4	1	1	6	96.3%
144	<i>Hilara bistriata</i>	X	6			6	96.4%
145	<i>Hilara curtisi</i>		6			6	96.5%
146	<i>Hilara lurida</i>	+	3		3	6	96.6%
147	<i>Kowarzia bibunctata</i>		2	1	3	6	96.6%
148	<i>Platypalpus albifacies</i>	+	3	1	2	6	96.7%
149	<i>Platypalpus leucocephalus</i>	+	5	1		6	96.8%
150	<i>Rhamphomyia curvula</i>		3	3		6	96.9%
151	<i>Rhamphomyia hirsutipes</i>		4	2		6	97.0%
152	<i>Tachydromia halidayi</i>	+			6	6	97.1%
153	<i>Chelifera stigmatica</i>		3	2		5	97.1%
154	<i>Chelifera trapezina</i>		2	2	1	5	97.2%
155	<i>Chelipoda vocatoria</i>	+	3	2		5	97.3%
156	<i>Chersodromia hirta</i>	X		5		5	97.3%
157	<i>Crossopalpus curvipes</i>		4		1	5	97.4%
158	<i>Hilara canescens</i>	+	3		2	5	97.5%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
159	<i>Hilara discoidalis</i>	+	5			5	97.5%
160	<i>Oedalea tibialis</i>	+	3		2	5	97.6%
161	<i>Platypalpus albiseta</i>	+	3	2		5	97.7%
162	<i>Rhamphomyia laevipes</i>		2	3		5	97.7%
163	<i>Tachydromia morio</i>	+	4		1	5	97.8%
164	<i>Trichina bilobata</i>	+	3	1	1	5	97.9%
165	<i>Crossopalpus nigrtellus</i>	+	3	1		4	97.9%
166	<i>Empis scotica</i>	+		4		4	98.0%
167	<i>Hilara morata</i>	+			4	4	98.1%
168	<i>Platypalpus australominutus</i>	+	4			4	98.1%
169	<i>Platypalpus excavatus</i>	+	1	3		4	98.2%
170	<i>Platypalpus kirtlingensis</i>	+	4			4	98.2%
171	<i>Platypalpus pseudociliaris</i>	+	4			4	98.3%
172	<i>Platypalpus stabilis</i>		2		2	4	98.3%
173	<i>Bicellaria nigra</i>	+	2		1	3	98.4%
174	<i>Empis verralli</i>		1	2		3	98.4%
175	<i>Euthyneura gyllenhali</i>		3			3	98.5%
176	<i>Hilara hirtipes</i>	+	2	1		3	98.5%
177	<i>Hilara pilosa</i>		3			3	98.5%
178	<i>Hybos grossipes</i>		2	1		3	98.6%
179	<i>Leptopeza borealis</i>	+	3			3	98.6%
180	<i>Oedalea zetterstedti</i>		1	1	1	3	98.6%
181	<i>Platypalpus infectus</i>	+	3			3	98.7%
182	<i>Tachydromia woodi</i>	+	3			3	98.7%
183	<i>Chersodromia incana</i>	X		2		2	98.8%
184	<i>Clinocera wesmaeli</i>		1		1	2	98.8%
185	<i>Drapetis assimilis</i>		2			2	98.8%
186	<i>Empis hyalipennis</i>	+	2			2	98.8%
187	<i>Empis nigratarsis</i>	+	2			2	98.9%
188	<i>Empis prodromus</i>				2	2	98.9%
189	<i>Empis tumida</i>	+	2			2	98.9%
190	<i>Hemerodromia oratoria</i>		1		1	2	98.9%
191	<i>Hemerodromia raptoria</i>	X	1	1		2	99.0%
192	<i>Hilara apta</i>	+	2			2	99.0%
193	<i>Hilara brevivittata</i>		2			2	99.0%
194	<i>Hilara galactoptera</i>	+			2	2	99.1%
195	<i>Hilara nigrohirta</i>	+	2			2	99.1%
196	<i>Hilara sturmii</i>	+			2	2	99.1%
197	<i>Platypalpus aeneus</i>	+	2			2	99.1%
198	<i>Platypalpus articulatus</i>	+	2			2	99.2%
199	<i>Platypalpus divisus</i>	+			2	2	99.2%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
200	<i>Platypalpus major</i>	+			2	2	99.2%
201	<i>Platypalpus parvicauda</i>	+			2	2	99.3%
202	<i>Rhamphomyia atra</i>		1		1	2	99.3%
203	<i>Rhamphomyia caesia</i>	+	1		1	2	99.3%
204	<i>Rhamphomyia tibialis</i>	+		1	1	2	99.3%
205	<i>Stilpon nubilus</i>	+	2			2	99.4%
206	<i>Symbollophthalmus dissimilis</i>	X	1	1		2	99.4%
207	<i>Symbollophthalmus pictipes</i>	+	2			2	99.4%
208	<i>Tachydromia connexa</i>	X	2			2	99.4%
209	<i>Trichina opaca</i>	+	2			2	99.5%
210	<i>Wiedemannia bistigma</i>	+			2	2	99.5%
211	<i>Chelifera astigma</i>			1		1	99.5%
212	<i>Chelifera concinnicauda</i>	X		1		1	99.6%
213	<i>Chelifera pectinicauda</i>	X	1			1	99.6%
214	<i>Chelifera precabunda</i>	+	1			1	99.6%
215	<i>Chelifera subangusta</i>	X	1			1	99.6%
216	<i>Clinocera nigra</i>				1	1	99.6%
217	<i>Crossopalpus humilis</i>	+	1			1	99.6%
218	<i>Dolichocephala ocellata</i>	+			1	1	99.7%
219	<i>Drapetis exilis</i>	+	1			1	99.7%
220	<i>Drapetis infitalis</i>	+	1			1	99.7%
221	<i>Empis femorata</i>	+			1	1	99.7%
222	<i>Empis laetabilis</i>	+			1	1	99.7%
223	<i>Hemerodromia adulatoria</i>	+			1	1	99.7%
224	<i>Hilara albitarsis</i>	+	1			1	99.8%
225	<i>Hilara hirtella</i>	+			1	1	99.8%
226	<i>Hilara intermedia</i>	+	1			1	99.8%
227	<i>Hilara nitidula</i>	X		1		1	99.8%
228	<i>Kowarzia tenella</i>	X	1			1	99.8%
229	<i>Platypalpus articulatooides</i>	+	1			1	99.8%
230	<i>Platypalpus bilobatus</i>	+	1			1	99.8%
231	<i>Platypalpus carteri</i>	X			1	1	99.8%
232	<i>Platypalpus incertus</i>	+		1		1	99.9%
233	<i>Platypalpus ochracea</i>	+	1			1	99.9%
234	<i>Platypalpus politus</i>	+	1			1	99.9%
235	<i>Platypalpus subtilis</i>	+	1			1	99.9%
236	<i>Rhamphomyia culicina</i>	X		1		1	99.9%
237	<i>Rhamphomyia lamellata</i>	+	1			1	99.9%
238	<i>Rhamphomyia murina</i>	+	1			1	99.9%
239	<i>Rhamphomyia sulcatina</i>	+	1			1	99.9%
240	<i>Stilpon lunatus</i>	X	1			1	100.0%

Rank	Species	Pre/post 1970	VC58	VC59	VC60	Regional Total	Cum. %
241	<i>Symbalophthalmus fuscitarsis</i>	+	1			1	100.0%
242	<i>Tachydromia edenensis</i>	+			1	1	100.0%
243	<i>Trichina pallipes</i>	+		1		1	100.0%
	<b>Numbers of records</b>	(15 X)	<b>4747</b>	<b>1780</b>	<b>705</b>	<b>7232</b>	
	<b>Numbers of species</b>	(91 +)	<b>213</b>	<b>157</b>	<b>136</b>	<b>243</b>	

Table 5: PANTHEON data for nationally designated species of Empididae and Allies on the regional list.

DD denotes data deficient; LR, lower risk; NR, nationally rare; NS, nationally scarce; NT, near threatened (see Ref 8).

Species	SQS	Conservation status	Habitat	Resources	Habitat score	Associations
<i>Chelifera astigma</i>	8	DD;NR	running water		coarse woody debris: e	Arthropoda
<i>Chelifera concinnicauda</i>	4	(LR);NS	running water		coarse woody debris: e, ERS (Diptera): 3	Arthropoda
<i>Empis laetabilis</i>	4	(LR);NS	shaded woodland floor	conifer or broadleaved >> broadleaved only, woodland habitat		Arthropoda, Plantae
<i>Empis prodromus</i>	8	NR;NT				
<i>Hemerodromia adulatoria</i>	4	(LR);NS	running water; shaded woodland floor; wet woodland	conifer or broadleaved >> broadleaved only, humidity >> wet, shadiness >> heavy shade, woodland stream		Arthropoda, Fagales
<i>Hilara albitarsis</i>	4	(LR);NS	tall sward & scrub	habitats >> unknown, soil humidity >> wet		Arthropoda
<i>Hilara albiventris</i>	4	(LR);NS	running water	wetland vegetation	ERS (Diptera): 3	Arthropoda
<i>Hilara biseta</i>	4	(LR);NS	running water	exposed riverine sediments	ERS (Diptera): 2	Arthropoda
<i>Hilara brevivittata</i>	4	(LR);NS	tall sward & scrub	habitats >> sward/field layer		Arthropoda
<i>Hilara hirtella</i>	8	NR;NT				Arthropoda
<i>Hilara pseudochorica</i>	4	(LR);NS	running water	unmodified fast flowing streams	ERS (Diptera): 3	Arthropoda
<i>Kowarzia tenella</i>	8	NR;NT	running water			Arthropoda
<i>Rhamphomyia curvula</i>	4	(LR);NS	peatland	base status >> acid, wet/damp peat		Arthropoda
<i>Rhamphomyia murina</i>	4	(LR);NS	peatland			Arthropoda

Species	SQS	Conservation status	Habitat	Resources	Habitat score	Associations
<i>Rhamphomyia sulcatina</i>	4	(LR);NS				Arthropoda
<i>Drapetis infitalis</i>	8	DD;NR				
<i>Leptopeza borealis</i>	8	NR;NT				
<i>Platypalpus aeneus</i>	8	NR;NT	shaded woodland floor	conifer or broadleaved >> broadleaved only, humidity >> dry, woodland habitat >> woodland litter		Arthropoda, Plantae
<i>Platypalpus articulatoides</i>	4	(LR);NS				
<i>Platypalpus articulatus</i>	4	(LR);NS	marshland; running water	drawdown zone: mud/shallow litter		Arthropoda
<i>Platypalpus carteri</i>	8	NR;NT	shaded woodland floor			Plantae
<i>Platypalpus divisus</i>	4	(LR);NS				
<i>Platypalpus excisus</i>	4	(LR);NS	tall sward & scrub	habitats >> litter & ground layer		Arthropoda
<i>Platypalpus infectus</i>	4	(LR);NS	tall sward & scrub	habitats >> litter & ground layer		Arthropoda
<i>Platypalpus melancholicus</i>	8	NR;NT	running water	exposed riverine sediments >> riparian sand, exposed riverine sediments >> riparian shingle, flow >> fast flow, unmodified fast flowing streams	ERS (Diptera): 3	
<i>Platypalpus ochrocera</i>	8	DD;NR	shaded woodland floor			Plantae
<i>Platypalpus pseudociliaris</i>	4	(LR);NS	shaded woodland floor			Plantae
<i>Platypalpus subtilis</i>	4	(LR);NS	running water	exposed riverine sediments		
<i>Stilpon lunatus</i>	4	(LR);NS				

Species	SQS	Conservation status	Habitat	Resources	Habitat score	Associations
<i>Rhamphomyia lamellata</i>	4	(LR);NS	peatland		ERS (Diptera): 3	Arthropoda
<i>Symballophthalmus dissimilis</i>	4	(LR);NS				
<i>Symballophthalmus pictipes</i>	4	(LR);NS	running water	flow >> slow flow, unmodified fast flowing streams		
<i>Tachydromia connexa</i>	8	NR;VU	running water	drawdown zone: mud/shallow litter, exposed riverine sediments >> riparian sand		
<i>Tachydromia costalis</i>	8	NR;NT	running water	flow >> fast flow, unmodified fast flowing streams	ERS (Diptera): 1	
<i>Tachydromia halidayi</i>	4	(LR);NS	running water	exposed riverine sediments >> riparian shingle, unmodified fast flowing streams	ERS (Diptera): 1	
<i>Tachydromia woodi</i>	8	NR;NT	running water	exposed riverine sediments >> riparian sand, exposed riverine sediments >> riparian shingle, unmodified fast flowing streams	ERS (Diptera): 2	
<i>Tachypeza fuscipennis</i>	4	(LR);NS	decaying wood	conifer or broadleaved >> broadleaved only, heartrot >> hollow tree cavities, wet hollows >> rot holes		Fagales
<i>Trichina opaca</i>	4	(LR);NS				

## Appendix: notes on regional status of species

This Appendix covers those species for which there are five or fewer records or are recorded from only one of the three vice-counties, and also those which have disappeared or appeared on the regional list since 1970. Some other species where there are particular uncertainties in identification are also included. This section is arranged in the taxonomic order of the families, subfamilies and genera (and for *Empis* and *Rhamphomyia* subgenera) which are represented in the regional list.

This Appendix follows the full taxonomic order with subfamilies and subgenera as specified in the British checklist (<https://www.dipterists.org.uk/checklist>).

### Family Atelestidae

#### *Atelestus pulicarius*

This species is a post-1970 addition with six records spread evenly across the three VCs. It has a distinctive wing venation. The ERS has 41 sites spread across England and just into Wales. Collin stated that it was “not uncommon” in East Anglia. As a small 2-3mm long species, it may be one of the more elusive Empidoidea keeping close to the ground and therefore under-recorded in typical sweep-netting. The regional data do not indicate any strong habitat preference.

### Family Hybotidae

#### Subfamily Hybotinae

#### Genus *Bicellaria*

The very frequently recorded species *B. vana* presents some taxonomic difficulty as separation from *B. sulcata* is difficult, especially for females. The species were only distinguished by Collin in 1926, and Ref 10 reports that more recent research suggests that even he confused the two at times. All the pre-1970 records are of *sulcata*. There is only one pre-1970 record for *B. vana*, indicating that it is the even greater uncertainty before the publication of Collin’s book in 1961 that is dominating the results rather than any real change over time in the fortunes of the two species.

Ref 8 states (p15) that *B. sulcata* is one of a small number of species “which are regarded by experienced dipterists as being uncommon, some of which could reasonably be considered for inclusion in a future review”. The ERS has only 58 sites for *B. sulcata* compared to 1265 for *B. vana*. The map for *B. sulcata* shows the sites scattered from Shropshire northwards, so it should be present throughout the local region. This species pair is perhaps best treated as an aggregate, though that recording option is not currently available in the on-line UK Species Index.

*B. intermedia* is relatively easy to identify and generally but by no means confined to damp, acidic grasslands, bogs and moors<sup>10</sup>. Given the prevalence of such habitats in the region, it is significant that the 31 records are concentrated in just 4 hectads spanning the Delamere Forest area and the earliest was in 1989. Does this represent a population explosion from an undetectable base, or an actual introduction by some means? *B. pilosa* is mainly separated from *B. intermedia* by its greater bristliness and there are some 1920s records including from Delamere.

The addition of *B. nigra* to the regional list in recent years is not surprising, as the NBN Atlas shows it well distributed across Wales, Cumbria and Scotland. There are two rather similar species, one confined to southern England and the other to Scotland<sup>10</sup>.

#### Genus *Hybos*

Two of the three British species of this genus are amongst the most frequently recorded Hybotids, and the males are certainly very distinctive. *H. grossipes* was historically not well distinguished from *H. culiciformis*<sup>7</sup> so it possibly is somewhat overlooked, but our three records are from recognised dipterists.

### *Subfamily Ocydrominae*

#### Genus *Leptopeza*

The three records of *L. borealis* should really be two, as two from the Goyt Valley in 1988 appear to be duplicates via the ERS and RECORD. The status review rates it as “LOWER RISK (Near Threatened)” though there are only a handful of other locations. I found the species in the Delamere Forest in 2017: it is clearly distinct from the larger *L. flavipes*, particularly the nearly all-black females.

#### Genus *Ocydromia*

The only species on the regional list is the very common *Ocydromia glabricula* with its distinctive short rounded antennae.

#### Genus *Oropezella*

This is a genus with a single species *O. sphenoptera* and so is easy to identify. The spread of records does not indicate any special habitat requirements. The ERS has 261 records scattered around England and Wales up to Cumbria.

### *Subfamily Oedaleinae*

#### Genus *Euthyneura*

This is a genus of small shining black flies with four of the six British species recorded in the region. The *E. halidayi* records are from a wide range of locations all in VC59. There three records of *E. gyllenhali* are all from the Goyt Valley but span 51 years.

#### Genus *Oedalea*

*O. tibialis* has been recorded in Cheshire three times over 15 years in two adjacent hectads. The two VC60 records may be duplicates from Leighton Moss in 1999. The records of *O. zetterstedti* are all by experienced dipterists. The Cheshire record is from a specimen I found in the WML collection, not found in any of the source datasets.

### *Subfamily Tachydromiinae*

#### Genus *Chersodromia*

*Chersodromia* species are all associated with the coast, running over sand or lurking under seaweed<sup>7</sup>, or around woody material at the drift line<sup>9</sup>, so it is not surprising that all the regional records are from the Sefton coast. What is surprising is that there are none since 1959, contrary to the overall trend seen for most of the smaller species in this report. Ref 9 has some useful tips for catching them on p277.

#### Genus *Crossopalpus*

This is a genus of small black dumpy flies, occurring in heaps of vegetable matter, horse dung, flood refuse or seaweed according to Collin. Their ground-dwelling habit makes them difficult to sample by trapping or sweep-netting<sup>8</sup>: this probably accounts for the paucity of regional records.

#### Genus *Drapetis*

The difficulties with sampling the previous genus probably apply to this one as well. *D. infitalis* was listed by Collin as a subspecies of *D. exilis*, but as likely to prove a separate species, a status confirmed in 1975. It is given the designation of “Data deficient” in Ref 8. The VC58 records of these two species remain to be confirmed.

#### Genus *Elaphropeza*

Collin states that the sole species, *E. ephippiata*, is easily distinguished by the yellow thorax with dark markings. The spate of post-2000 records in Cheshire was along the Weaver Valley in the row of hectads SJ64, 65, 66 and 67: this area was little sampled by the pre-1970 dipterists. The VC60 record is from woodland.

### Genus *Stilpon*

Adults of this genus are little more than a millimetre in length, accounting perhaps for the very few records. *S. lunatus* was recorded in Delamere by Harry Britten in 1922, though this is a nationally scarce species mainly recorded from coastal sites. Ref 8 includes Cheshire amongst the six known post-1960 sites, and the NBN Atlas has a record on Hilbre from 1979. This is ascribed to the Invertebrate Site Register of English Nature, but RECORD has *S. nubilus* at the same location and date – the latter is in fact correct, as the specimen is in the WML collection, identified as such by Roy Crossley but with an earlier label naming it as *lunatus*. The other *S. nubilus* record is from the ERS in inland Cheshire.

### Genus *Symbollophthalmus*

*S. dissimilis* was the only British species until Collin<sup>7</sup> described two new species which were later matched to the continental species *S. pictipes* and *S. fuscitarsis*. Hence the older Cheshire records from the Harry Britten cards could be any of these species. *S. fuscitarsis* was “de-listed” in the status review<sup>8</sup>, but the other two species remain Nationally Scarce. *S. pictipes* is mainly known from Scottish rivers, but there are other English records: the two Cheshire records are from the ERS with the location named as Mottram in SJ87, and probably come from the River Bollin near Mottram St Andrew.

### Genus *Platypalpus*

This is the largest of the genera in the whole group and has not been split into subgenera. 17 species have been added to the British list since the publication of Collin’s book in 1961, which itself described several new species in its list of 73. So it is not surprising that there have been numerous post-1970 additions to the regional list. Ref 12 describes the genus as not easy to identify correctly, but not difficult either and provides a comprehensive key. Many species can be swept from foliage at woodland edges and rides or scrub on post-industrial sites, where though small they stand out from their running habit and the inflated mid femora. There are a few species with more specialised habitats.

The two records in VC58 of the “near-threatened” species *P. aeneus* are from independent experienced sources, one being on the ERS. The sites listed in Ref 8 are all well towards the south or east of England, while the habitat is usually broad-leaved woodland.

*P. albifacies* is a post-1970 entry on the list, but with 6 well-scattered records and well within its national range on the ERs map – England and Wales except the far south-west and far north.

Collin<sup>7</sup> mentions a specimen of *P. albiseta* from Lancashire captured by Harry Britten, but this record has not appeared anywhere in the datasets examined. The ERS has a distribution of 39 sites south of the Mersey-Humber line, mainly coastal sites but also inland in southern England and East Anglia. Our 5 post-1970 records are from coastal or saline-influenced open habitats, which seems consistent.

*P. articulatus* is listed as nationally scarce and associated with wetlands including fen and damp heathland<sup>8</sup>. Both of the two VC58 records are from the ERS, at sites on or near the Rivers Dane and Bollin. The very similar nationally scarce species *P. articuloides* was recorded during the surveys of the river Bollin in 2008<sup>11</sup> though Ref 8 suggests a wider range of habitats.

*P. australominutus* was separated from the very common *P. minutus* in a European publication of 1989. The differences in the male genitalia are small and the females are inseparable<sup>12</sup>. The ERS has introduced the recording concepts *P. minutus* agg. and *P. minutus* sens. str. to deal with this difficulty and that has been followed here. Most of the records of *P. minutus* have been assigned to the aggregate in the absence of any indication that the determination was made with awareness of the new species. The aggregate and strict records have been combined in the overall checklist in Table 5. The four Cheshire records of *P. australominutus* are from the ERS.

*P. bilobatus* was first described in 1972 and for Ref 8 it was too early to assess its national status. The Cheshire record comes from the Bollin survey<sup>11</sup> in which the species is listed without comment, but tagged as “local”. The ERS has only 5 sites nationally.

The number of records of *P. calceatus* in VC58 is boosted by a series from ERS appearing to relate to systematic surveys along the Rivers Bollin, Dane and Weaver. The other regional records are also near rivers. This species was first described early in the 19<sup>th</sup> century, so its absence from the pre-1970 data may be indicative of a real increase in numbers.

The near-threatened *P. carteri* was recorded from VC60 in 1968 according to the ERS. The site was Hawes Water near the Gait Barrows NNR, though Ref 8 mistakenly places this in Westmoreland.

*P. ciliaris* is another addition to the regional list from a range of different locations but was not recorded before 1970 despite being a distinctive species known since the early 19<sup>th</sup> century.

*P. cothurnatus* was also unrecorded in the region before 1970, but is now represented at a wide range of sites across VC58. The national distribution extends over the whole of England and Wales apart from the western extremities.

The two VC60 records of *P. divisus* are almost certainly duplication of a single record from Gait Barrows during the 1999 Dipterists Forum field meeting. The account of this nationally scarce species in Ref 8 gives a range of habitats, so this location may not be significant but just a reflection of the amount of attention given to it by dipterists over many years.

*P. excavatus* is a new name for what was called *P. excisus* in Ref 8, which finds it to be nationally scarce but recorded from a wide range of habitats. It is similar to the common *P. nigritarsis* and so could be have been misrecorded as that. Two of our 4 records are from the Ainsdale Hills, 18 years apart.

*P. exilis* is another species which has been recorded quite frequently since 1970 but not before.

The four Cheshire records of *P. kirtlingensis* are on the ERS from the River Weaver in 2006. This species was only separated from *P. pictitarsis* on 1986, and Ref 8 states (p15) that most former British records of the latter have proved to be the new species. *P. pictitarsis* has not been recorded in Lancashire or Cheshire.

Though *P. incertus* was de-listed by Ref 8, the ERS map shows its 132 sites to be restricted to the south of the Severn-Wash line: there is one other northern outpost in South Yorkshire. My re-examination of the sole VC59 specimen has given confidence that the identification is correct.

There are three Cheshire records for the nationally scarce *P. infectus*, two from the ERS and one from RECORD. Ref 8 mentions woodland, grassland and fen as habitats.

*P. maculipes* is another species with a surge of records in Cheshire over the last two decades, but with no pre-1970 records, suggesting that it may now be more common. The VC59 record in SJ48 is attributed to the Invertebrate Site Register though no details of location or recorder are given.

As its name suggests, *P. major* is a larger species, between 3.5 and 5mm in length. The VC60 records are from the 1999 Dipterists Forum field meeting, probably duplicates, at Gait Barrows.

According to Ref 8, the near-threatened *P. melancholicus* was known only from the River Monnow on the Welsh border and from a few rivers in Scotland. So the multiplicity of records from recent river surveys in the Cheshire<sup>11</sup> represents a significant addition to the national data for this species. In describing this as a new species, Collin<sup>7</sup> stated he did originally regard it as a variety of *P. annulatus*, but pre-1970 records for that in the region are few and mostly not located on rivers.

The recent flurry of records of *P. niger* in VC58 all come from the commissioned river surveys<sup>11</sup>. The NBN Atlas shows this species to be mainly confined to East Anglia and South Wales. Collin<sup>7</sup> mentions

*P. niger* as “not uncommon” on the River Monnow where *P. melancholicus* was also found, but indicates that it has a wider range of habitats.

The only British record of *P. ochrocer*a in the 20<sup>th</sup> century was of a single male in 1911 in Herefordshire, though it had to wait to be named as a new species in Collin’s 1961 book. There are now British records from Yorkshire, Cumbria, Selkirkshire and Perthshire, mainly from exposed sandy sediments in rivers in addition to a find of three males and two females during a survey on the River Bollin<sup>13</sup>.

*P. optivus* is another species which may have increased in Cheshire in recent years, having been described by Collin in 1926 but not recorded here until 1999.

The sprinkling of records of *P. pallidicornis* across the region since 1999 show no consistent association with habitats. Other post-1970 additions which now seem fairly frequent, at least in Cheshire, are *P. pectoralis* and *P. pseudofulvipes* (previously known in Britain as *P. coarctatus*).

*P. pseudociliaris* (formerly *calcaratus*) is a nationally scarce species which according to Ref 8 has been recorded from woods and riverbanks, but it was not found in the Cheshire river surveys<sup>11</sup>.

*P. politus* is one of the species which were “de-listed” in Ref 8. Our single record in VC58 requires confirmation. According to the ERS map, there are records of this species occurs in the eastern half of Britain from the south coast to Northumberland, and also around the Bristol Channel.

*P. stabilis* is another species which was first described by Collin only in 1961, but is no longer considered particularly rare or scarce, though still with only 3 or 4 records in the region.

My single record of the nationally scarce *P. subtilis* from Ness Gardens has been double-checked. It may have some affinity for river banks, but the overall pattern of records does not rule out other habitats.

#### Genus *Tachydromia*

This name was used by Collin for the genus *Platypalpus*, and he called this genus *Sicodus*. They are mostly small black species with dark or banded wings which run over bare surfaces such as tree trunks, rocks or sand. As a result, they seldom turn up in general sweep-netting, but nevertheless 9 of the 14 British species have been recorded in the region. Most of the records for the near-threatened *T. costalis* and *T. woodi*, and for the commoner *T. morio*, are from the dedicated river surveys in Cheshire. In VC60, *T. halidayi* and *T. edenensis* are also associated with rivers, particularly exposed shingle deposits. The first is nationally scarce<sup>8</sup> while the latter was described as new to science from the River Eden in Cumbria.

*T. connexa* has been designated “vulnerable” in Ref 8. The two Cheshire records on RECORD may well represent a single observation, by Peter Skidmore at Dunham Park, though this species also seems mainly associated with river shingle: there is no corresponding specimen in the relevant section of Liverpool collection to support this record.

#### Genus *Tachypeza*

Only the common *T. nubila* can be listed for the region. A record of the nationally scarce *T. fuscipennis* on the Sefton coast was traced to a specimen in the Liverpool collection, which proved to be wrongly identified.

#### Subfamily *Tricininae*

##### Genus *Trichina*

All 5 British species are included in the regional list. The records have been much more frequent in the last two decades, with only *T. clavipes* found before 1970. *T. bilobata* is one of the species rather mysteriously mentioned on p15 of Ref 8 as “regarded by experienced dipterists as being uncommon” and so to be considered for inclusion in a future review. *T. opaca* is already listed as nationally scarce, while *T. pallipes* has been de-listed.

### Genus *Trichinomyia*

The only British species, the fairly common *T. flavipes*, was included in the previous genus, *Trichina*, until 1959.

## Family Empididae

### Subfamily Clinocerinae

#### Genus *Clinocera*

The only record of *Clinocera nigra* is an undated one from Blaze Moss (SD65) ascribed to Alan Brindle in the Harry Britten card index. As Brindle was active from 1937 to around 1980, this cannot be pinned down to either side of 1970. There are similar records for *C. wesmaeli* and for the common *C. stagnalis* from the same location, which raises suspicions. According to Chapter 4 of Ref 9, *C. nigra* is associated with vertical seepages on soft coastal cliffs, while *C. wesmaeli* is indeed an upland species. *C. wesmaeli* was also recorded from the Goyt Valley in 1956 by Leonard Kidd. All seven VC59 records of *C. fontinalis* are from around the West Pennine moors, fitting the expectations of Ref 9.

#### Genus *Dolichocephala*

The taxonomy of this genus was revised in 1997 with the re-instatement of *D. oblongoguttata* as a valid species but only distinguishable from *D. guttata* by the male genitalia<sup>14</sup>. My own recent records suggest that there is no great difference in the abundance of the two, so the preponderance of *D. guttata* in our records is questionable.

Ref 9 (p282) cites *D. ocellata* as a species of vertical seepages on soft coastal cliffs. The sole regional record is from the ERS, and is from woods near Preston which do have steep slopes down to the Ribble.

#### Genus *Kowarzia*

The old Cheshire record of the near-threatened *K. tenella* is endorsed by Ref 8: the habitat is stated to be usually small rocky streams and waterfalls, fitting the Goyt Valley location. The species is said to be hard to catch by normal methods, which may also be true of the undesigned *K. bipunctata* judging from the small number of records.

#### Genus *Wiedemannia*

*Wiedemannia* species are associated with both running and still water according to Ref 9 (pp223 and 231). The Cheshire records of *W. insularis* are all from the Pennine fringe and all pre-1970, and the NBN Atlas records (mostly as *W. rhynchops*) are also confined to upland areas. The VC60 records of *W. bistigma* are both from the ERS in 2013.

## Subfamily Empidinae

#### Genus *Empis*

The division into subgenera is a helpful feature of the identification keys, although some species have changed subgenus since Collin's publication<sup>7</sup>. Also the former *Rhamphomyia* subgenus *Aclonempis* has now been absorbed into the subgenus *Empis* sensu stricto.

#### (Subgenus *Anacrostichus*)

The only records for *E. verralli* are two pre-1970 ones and a modern one on the ERS. Ref 9 (pp190-4) describes it as one of the commonest upland flies, abundant and widely distributed on blanket bog. This certainly does not seem to be true in our region, with the modern record being from the Lancashire plain. The ERS map shows concentrations of records in Wales, Cumbria and Northumberland, but also some sites in the more southerly Pennines, so there ought to be more records from the regional uplands.

#### (Subgenus *Coptophlebia*)

*E. albinervis* is now fairly frequent throughout the region though not recorded before 1999. Collin stated that it was more commonly found in the southern half of England, though he had one record

from Westmoreland. ERS map shows some records from Cumbria northwards, so this does appear to be a case of a real spread during the last half-century.

The two records of *E. hyalipennis* in VC58 at Alderley Edge are undoubtedly duplicates. This species is not mentioned in the conservation status review (Ref 8). Collin<sup>7</sup> states that it was found at several locations in Scotland and also one in Wales. The ERS has it at 31 sites, which their map shows to be predominantly in upland areas of Scotland, Wales and Northern England. The Liverpool collection should be checked for the specimen.

(Subgenus *Empis* sensu stricto)

This is the largest subgenus, featuring smallish black or grey species. It contains several of the commonest empids, with *E. nigripes*, *E. praevia* and *E. albohirta* all in the top twenty by number of records, and with *E. chioptera* and *E. nuntia* not far behind. It is interesting that *E. praevia* is not represented in the pre-1970 records. The other species were attributed various degrees of commonness by Collin<sup>7</sup>, but *E. praevia* was known to him from few locations. It has evidently increased greatly in the last half-century, probably spreading northwards as the ERS map shows its distribution extending only just north of the Mersey-Humber line.

*E. caudatula* is another species new to the region since 1970, and Collin reported it as confined to the south of England. The ERS map shows it extending into Northumberland.

The VC60 records of the near-threatened *E. prodromus* are cited in Ref 8, doubtless on the basis of Kidd and Brindle's publication<sup>1</sup>. However the entries on the Harry Britten card index are undated and I am doubtful about their reliability.

(Subgenus *Euempis*)

*E. tessellata* has been put in this new subgenus since the publication of Collin's book. It is one of the largest Empids, frequently seen on hogweed flowers and other umbellifers. I have ignored the numerous unverified photographs on IRECORD, which would require close examination to check for similar species such as *E. livida*.

(Subgenus *Kritempis*)

As noted in the previous paragraph, the only species in this subgenus, *E. livida*, is likely to attract the attention of photographers. Such records have not been included as they would require careful checking and would potentially distort the frequency statistics for these already well-recorded species.

(Subgenus *Leptempis*)

The only British species *E. grisea* shows a good spread of records across the region.

(Subgenus *Lissemis*)

*E. nigratarsis* is the only British species. The scarcity of regional records is consistent with the southern distribution shown on the ERS map.

(Subgenus *Pachymeria*)

All three species in this subgenus are scarce in the region, though not having a conservation designation. The record of *E. femorata* is on the ERS from the 1999 Dipterists Forum field meeting. 3 of the 4 records of the scarcer *E. scotica* also come from the ERS: this seems to be an upland species judging from the national distribution. *E. tumida* is a more lowland species with two independent records from the Cheshire plain.

(Subgenus *Polyblepharis*)

This another subgenus with a single British species, *E. opaca*, a rather conspicuous species with its red legs which could be why it is relatively well recorded - Collin considered that it could not be called common.

(Subgenus *Xanthempis*)

As the name implies, this subgenus contains species which are more or less yellow, with all of the nine British species represented in the regional records. The large size of most of the species may also contribute to this good coverage, with only two species being new after 1970. These two are *E. concolor* and *E. laetabilis* which have both been recorded from the limestone area of VC60. *E. laetabilis* is a nationally scarce species particularly associated with this habitat.

Genus *Hilara*

This is a large genus of 70 British species, seven being added to those covered in Ref 7 and predominantly small and black or grey. The males of the genus are mostly readily distinguished on capture in a net by the swollen fore metatarsi.

*H. albipennis* was one of the species de-listed in Ref 8. Though small, its light grey body and milky wings with white veins are distinctive so the several pre-1970 records are credible, though apparently unknown to Collin. *H. albitarsis* is nationally scarce and the single Cheshire record particularly needs confirmation, as the risk of a transcription error must be quite high. *H. albiventris* is also nationally scarce and is deemed a strictly riparian species in Ref 8. The white segments of the male make this an easy species to identify, and most of the regional records come from the Cheshire river surveys.

Collin<sup>7</sup> regarded *H. anglodanica* as common throughout the southern half of England, but the ERS map now shows its distribution extending to Cumbria and North Yorkshire with outliers in southern Scotland. It appears that it was not documented in the British literature before 1961, and so may have been overlooked in the region before the first record in 1999.

*H. apta* was first described by Collin in 1927 and remains only sparsely recorded across England despite being de-listed in Ref 8.

*H. biseta* is another nationally scarce species from river banks<sup>8</sup> whose presence in the region has been revealed by the Cheshire surveys of this habitat, apart from a 1982 VC60 record from the ERS.

The old records of *H. bistrata* in Cheshire are corroborated by Ref 7, but the lack of records since 1944 runs against the trend for most *Hilara*. Collin knew it chiefly from Scotland and the ERS map shows a disjunct distribution in northern Scotland and north Yorkshire, so it may have contracted in range.

*H. brevivittata* is a nationally scarce species which remains poorly known according to Ref 8. The two regional records are separated by 88 years, and corroboration of the more recent one is desirable.

*H. canescens* is a northern species according to Collin but is also widely recorded in Wales, so the small number of regional records fill a gap in the distribution shown on the ERS map.

*H. clypeata* was de-listed in Ref 8 and the number of regional records since the first in 1979 suggest a real increase in abundance. In fact, although no such record has been traced in this review, Collin<sup>7</sup> had already recorded from Lancashire before 1961.

*H. discoidalis* is another species which seems to be widespread but not common across most of the country, and was de-listed in Ref 8.

The milky-winged *H. galactoptera* has been recorded at Warton Crag in VC60 twice just seven years apart and the ERS map shows several records in the neighbouring area of Westmoreland (VC69). The wide distribution across England and Scotland does not indicate any close association with limestone.

The only regional record of the near-threatened *H. hirtella* is from VC60 in 1999 – Ref 8 suggests that it may now be more restricted in range than when Collin found it not at all uncommon in East Anglia: the ERS has only 7 sites.

The two Cheshire records of *H. hirtipes* are from the river surveys. There are 76 sites on the ERS and it has never had any conservation status.

Collin's comments<sup>7</sup> and the ERS distribution make it surprising that we have only a single record of *H. intermedia*. Although it is rather similar to the common *H. quadrifasciata*, my specimen has very hairy mid tibiae quite different from the strongly bristled ones of the latter. The British checklist shows that *H. quadrifasciata* was long misidentified as the non-British *H. quadrivittata*, appearing under that name even in Ref 7.

*H. longivittata* was regarded by Collin as common, and the ERS has 47 sites well scattered from southern England to northern Scotland. It is not mentioned in Ref 8 and the Cheshire records are from more than one observer, so it can be regarded as a reliable post-1970 addition to the regional list. On the other hand, *H. lurida* was said to be not common and known only from the southern half of England though the ERS now has 303 sites extending across England and Wales. The 6 well-scattered regional records are from several different observers.

The VC60 records of the de-listed *H. morata* are all from the ERS. The two Cheshire records of *H. nigrohirta* are from independent observers at separate locations. Both these species were de-listed in Ref 8.

*H. nitidula* is not mentioned in Ref 8, and the ERS has 62 sites many in north-east Scotland but also a sprinkling in the south including East Anglia, where it was known to Collin. The single 1928 record in our region seems therefore feasible, though isolated.

All the Cheshire records of the nationally scarce *H. pseudochorica* (*H. woodi* in Ref 7) come from the river surveys, matching the habitat as described in Ref 8. The VC60 records are from near or on the River Lune.

The three records for *H. pilosa* on RECORD are from the 1970s by two observers not otherwise represented in the data. The national distribution is strongly biased to the south, becoming sparse in the Midlands. These records are regarded as doubtful unless specimens can be found in the Liverpool collection.

*H. pseudocornicula* was called *H. subpollinosa* by Collin, who predicted that it would be found further north than the southern sites known to him. It now extends well into Scotland.

*H. sturmii* was added to the list for VC60 from two separate locations during the 1999 Dipterists Forum field week. The British checklist states that it was previously misidentified as *H. cingulata*. The latter name does appear in Collin<sup>7</sup>, and the possibility of synonymy of the two names is discussed there. There are 45 sites on the ERS database, but no mention in Ref 8.

### Genus *Rhamphomyia*

Like *Empis* this large genus is divided into subgenera: these are the same as in Ref 7 (though in a different order) apart from *Aclonempis* which has been moved to *Empis*.

#### (Subgenus *Amydroneura*)

It is stated in a note to the British checklist that it is "practically certain" that *R. hirsutipes* is simply a more hirsute form of *R. erythrophthalma*, which is frequent in early autumn. It is interesting that the third British member of this subgenus *R. gibba* has not been recorded in VC58 since 1943.

#### (Subgenus *Holocera*)

This subgenus contains seven species on the local list, only two requiring mention here.

*R. culicina* was de-listed in Ref 8. Our only record is an anonymous one in 1959 on the Sefton coast attributed to Liverpool Museum – but there is no specimen in the collection. *R. lamellata* is a nationally scarce species associated with peatland discovered at Sound Common (SJ64) in 2018: this record was verified at the DF Workshop in February 2019.

(Subgenus *Lundstroemiella*)

The only British species *R. hybotina* is rather distinctive. While the ERS has many records in the north Pennines and in Wales, it seems to have become scarcer in recent decades in the local region.

(Subgenus *Megacyttarus*)

The three British species are all represented in the regional records, and one of them has a conservation designation. Our records of *R. maculipennis* are all from coastal or estuarine locations, and the ERS map also shows an almost exclusively coastal distribution.

(Subgenus *Pararhamphomyia*)

This is the largest subgenus with 11 species on the regional list, only two of which have been added since 1970. Two of our species are mentioned in Ref 8.

Our two records of *R. atra* are somewhat beyond the main south-easterly range but there are also a fair number of records elsewhere in northern England. From the description in Ref 7, there is some potential for confusion with the much commoner *R. tarsata*.

Although *R. caesia* (*R. filata* in Ref 7) has a sparse distribution of just 34 sites on the ERS, it is not listed in Ref 8. Our two independent records are both from the last few years and confirmation would be desirable, though Collin comments that males are easily recognised by the peculiar genitalia.

*R. curvula* is a nationally scarce species particularly associated with peat-bogs and fen woodland, and all the regional records are consistent with this. A 1921 record by Harry Britten in the Delamere Forest is matched by two in 1971, while the 3 VC59 records are all from the Manchester Mosses in the last few years.

The nationally scarce *R. murina* has been mainly found in Scotland, but also at Chippenham Fen in Cambridgeshire. Ref 8 states: "Shrub-fringed riverside situations in upland areas, and fens, are probably the most likely habitats." The species requires careful separation from *R. albipennis* which is much more frequent and widespread. The single VC58 record requires confirmation.

Collin<sup>7</sup> stated that *R. simplex* is undoubtedly a salt-marsh species and the Cheshire records are consistent with this, as is the national distribution. However, the two pre-1970 VC59 records are from inland locations raising doubts about their accuracy.

(Subgenus *Rhamphomyia* sensu stricto)

Only one of the five records of *R. laevipes* is definitively from the post-1970 period, suggesting that this species may have decreased, particularly as the overall recording effort has increased. Collin regarded it as "very little known in Britain"; nevertheless ERS has 58 sites, scattered over most of England with concentrations around the Humber and Thames estuaries. There is potential confusion with the more frequent *R. stigmosa*.

The single record of the nationally scarce *R. sulcatina* requires confirmation, particularly as there are the similar and similarly named *R. sulcata* and *R. sulcatella*.

*R. tibialis* was de-listed in Ref 8 and seems to be mainly an upland species from the rather sparse NBN records. Both our records are recent, but have been confirmed by the recorders.

### *Subfamily Hemerodromiinae*

#### Genus *Chelipoda*

Both of the British species are represented regionally, with *C. vocatoria* being first recorded in 1997, though it is more frequent nationally according to the ERS. There is some possibility of confusion between the two<sup>7</sup>.

### Genus *Phyllodromia*

The single British species *P. melanocephala* is by far the most frequently recorded species in this subfamily. Regionally it seems particularly frequent on mossland sites, though doubtless on the marginal scrub and woodland.

### Genus *Chelifera*

This genus with raptorial front legs has 13 British species, of which 8 were first described by Collin and 9 have been recorded in the region. The females are difficult or impossible to distinguish: even Ref 7 gives only vague indications. *C. precatoria* is relatively common accounting for well over half of the regional records. Five species have been recorded only once, and of these three before 1970.

Of these five, Ref 8 classes *C. stigma* as “data deficient” and the Sabden location of the undated record from Alan Brindle (presumably originating from Ref 1) is noted amongst 7 locations scattered across England, Wales and Scotland. *C. concinnicauda* is nationally scarce and Lancashire is listed in Ref 8. The record of *C. pectinicauda* from VC58 is listed in the Harry Britten cards as determined by J. E. Collin. *C. precabunda* is the only recent addition to the regional list and requires confirmation. *C. subangusta* is represented only by a 1939 record from the Goyt valley attributed to F. W. Edwards.

Ref 8 makes a generic statement that this genus is to be found by sweeping foliage near streams and rivers, so it is surprising that there are few records from the Cheshire river surveys.

### Genus *Hemerodromia*

Members of this genus are rather similar to *Chelifera* but with differing wing venation. Almost all the Cheshire records of *H. baetica* and *H. unilineata* come from the river surveys, though these picked up only two of the five species on the regional list. Records of the other species are mostly pre-1970, but the nationally scarce *H. adulatoria* is recorded for 2006 in VC60 on or near the Lune by the ERS.

### Family *Brachystomidae*

This family was only recently split off from Empididae. The regional list includes three of the four British species: *Gloma fuscipennis*, *Heleodromia immaculata*, and *Trichopeza longicornis*. All of these have a reasonable number of records from a variety of woodland locations across the three vice-counties.

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