

**LEICESTERSHIRE
ENTOMOLOGICAL SOCIETY**

**The status of Diptera
in VC55**

Tephritidae

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Tephritis cometa (Annie Smith, NatureSpot)

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Introduction

The Tephritidae are only small flies but, in many cases, are quite beautiful! Some of the species are gall-causers while others mine leaves enabling records to be accumulated without the necessity of requiring the adult insect. Historically, it has been difficult to find many publications describing these insects. Despite there having been much European work on the family, it was not until 1836 that the first English work appeared. (Walker, 1836) describing 34 species together with a plate of their wing patterns. Limited notes on distribution were also included but these were mostly centred in the south of England. As may be expected, much of the nomenclature he used is not that in current use but the article did contain numerous European references that he had perused and included the synonyms then being used for these flies. Following on from this treatise, shorter notes started to appear. Edward Newman produced short notes on four species (Newman, 1833) and *Tephritis cornuta* was treated in detail by John Curtis along with an accompanying plate (Figure 1) with abbreviated description of other species (Curtis, 1823-40).



Fig 1: *Tephritis cornuta* (Curtis 1823-40)

The larval activities of some of these flies were reported by Fitch (1882) and Inchbald (1882). Comments on the time of appearance and food plants in the Oxford district were recorded by Hamm (Hamm, 1918). Niblett (1934, 1936) described the association between a range of species and the plants their larvae inhabited noting that while some produced obvious galls, others were leaf miners or lived in flower heads without apparently forming any reaction from the host. The behaviour of larvae was summarised in Colyer & Hammond (1951) who distinguished four groups of activity summarised in Table 1.

Table 1: Grouping of larval activities (after Colyer & Hammond, 1951)

	Larval activity	Example species
Group 1	Developing in flower heads	<i>Urophora cardui</i> , <i>Tephritis bardanae</i> ,
Group 2	Leaf-miners	<i>Trypeta artemisiae</i> , <i>Acidia cognata</i>
Group 3	Developing in stems or roots	<i>Oxyna parietina</i> ,
Group 4	Developing in fruits	<i>Anomoia pumunda</i> , <i>Rhagoletis alternate</i>

The British status of the Tephritidae was reviewed in 1991 with the aim of identifying those species that were of conservation concern (Falk, 1991) listing the perceived conservation status of 32 species. Since that time recording of this family of flies has increased remarkably such that the provisional maps prepared by the Tephritidae Recording Scheme (Clemons, 2018) has produced maps that (a) confirm the rarity of some species but (b) show that some have increased in distribution and may, when data is critically analysed, result in some species being classed of being of less conservation concern. The maps currently available on the NBN Atlas are incomplete and thus the status of Leicestershire & Rutland species have been gauged against the Tephritidae Recording Scheme (TRS) maps.

Records of the Tephritidae from VC55 are scarce prior to 1990 with only two mentioned in the Leicester Victoria County History (Bouskell, 1907) and none in the Rutland issue. Since that time the number of records has changed as more interest in these flies has increased such that by 2000 a further 52 records had been accounted for. The next ten years (2001-2010) saw the total record number rise to 159 with the last decade (2011-2020) seeing a major increase to give an overall record total of 970. The records are as a result of recognition of the adult flies and identification of plants affected by the gall-causers and leaf miners. The Tephritidae exhibit a fondness (for galls and mines) with plants of the Asteraceae.

Identification of Tephritidae and data sourcing

Initially, the main keys used for identification of Tephritidae adults was produced as part of the Royal Entomological Society Handbook series (White, 1988). Since that time there have been several on-line modifications that included species not previously included along with short notes in the entomological press. The larval activities of Tephritidae allow identification without the adult being available and this has, in recent years, been advanced by the production of on-line photographic files (e.g. www.leafmines.co.uk; bladmineerders.nl) as well as using classical published keys e.g. Redfern & Shirley (2002 and subsequent editions for galls). Many recorders have referred to on-line experts such as Diptera Info and iSpot for aid with identification of photographed specimens of both the adult and the plant host if applicable.

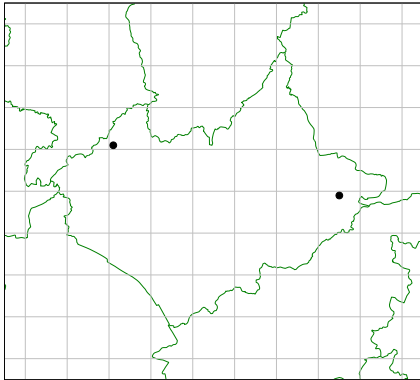
The historical literature and local Newsletters have been visited while the databases of NatureSpot, Leicestershire & Rutland Environmental Records Centre and the National Biodiversity Network Atlas website have similarly been used to locate record data.

Maps are produced on MapMate using known data to the end of 2020.

The images have been sourced, with permission, from the NatureSpot website.

The VC55 species

Species are listed alphabetically following the current taxonomy of the checklist of the Dipterists Forum (January 2021) with 48 out of a national list of 77 having been seen in VC55. Records obviously reflect bias of recorder activity and expertise at identification locally and nationally. Thus the data must be considered, at best, provisional.



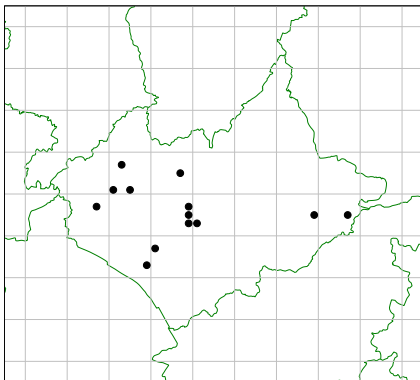
Acanthiophilus helianthi

Fig 2 (adult).

TRS status: scattered throughout England & Wales. Considered Notable by Falk (1991).

Larval activity: associated with Common Knapweed (*Centaurea nigra*) flower heads.

VC55 records: first found at 2015 at Cloud Wood NR during a visit by members of the Dipterists Forum. The only other record came from an Empingham garden in 2019 seen by Andrew Dejardin and confirmed by National Recorder Laurence Clemons.



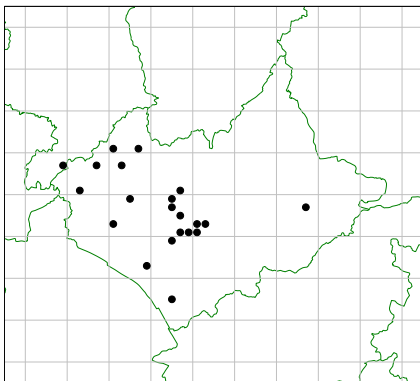
Acidia cognata

Fig. 18 (mine).

TRS status: fairly widespread throughout Britain.

Larval activity: leaf miner of Butterbur (*Petasites*) and Coltsfoot (*Tussilago*).

VC55 records: 18 records - first recorded in 2011 in the vicinity of Mountsorrel Quarry as part of an ecological survey by Andy Godfrey. Since 2018 found regularly mining leaves of the host plants.



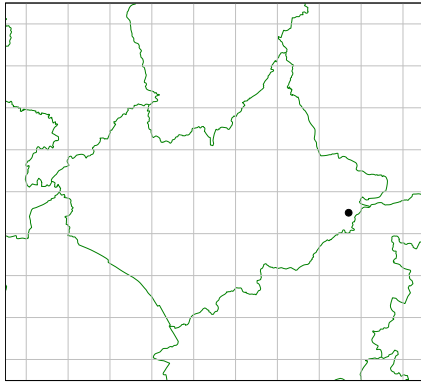
Anomoia purmunda

Fig 3 (adult).

TRS status: widespread in England but scattered elsewhere.

Larval activity: attacking fruit of Hawthorn (*Crataegus*) and *Berberis*.

VC55 records: 53 records with the first record coming from Cloud Wood NR in 1991 (Neil Frankum). Since 2011 the fly has been regularly recorded.

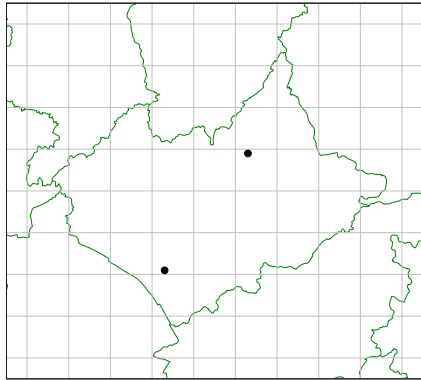


Campiglossa absinthii

TRS status: scattered through Britain. Regarded as Notable by Falk (1991) although now slowly spreading.

Larval activity: attacks flower head of Mugworts (*Artemisia*).

VC55 records: rare in VC55 with a single record to date from a disused quarry at Edith Weston (Rutland) during an ecological survey in 1999 by national dipterist Peter Kirby.



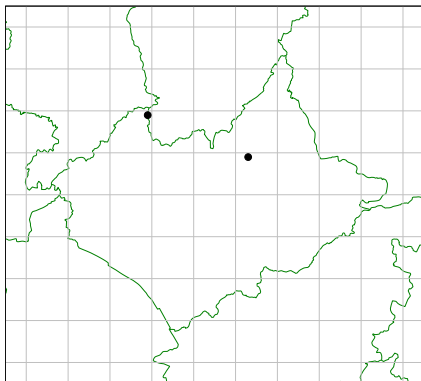
Campiglossa malaris

Fig 4 (adult).

TRS status: south-east England and scattered elsewhere south of the Humber.

Larval activity: believed to frequent Ragwort (*Senecio*) flowers.

VC55 records: recorded in 2009 at Asfordby during an ecological survey and more recently at an old brick quarry at Broughton Astley (David Nichols) in 2020 (confirmed from a photograph by national dipterist Tony Irwin of Norwich Museum).

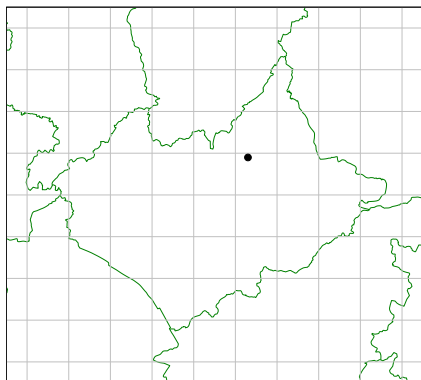


Campiglossa misella

TRS status: scattered through England.

Larval activity: stem gall in Mugworts (*Artemisia*) caused by the first generation; the second generation is located in the flower head.

VC55 records: appears in a 1987 Invertebrate Site Register from Enderby and then Lockington Marshes in 2009 where it was located by Keith Alexander.

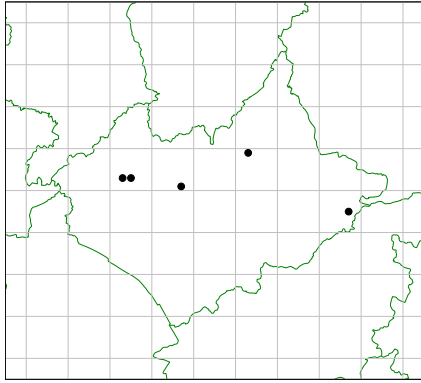


Campiglossa solidaginis

TRS status: relatively few scattered records
Regarded as notable by Falk (1991)

Larval activity: may attack flower head of Goldenrod (*Solidago*).

VC55 records: the single record of this fly came from a 2009 ecological survey at the former works at Asfordby.

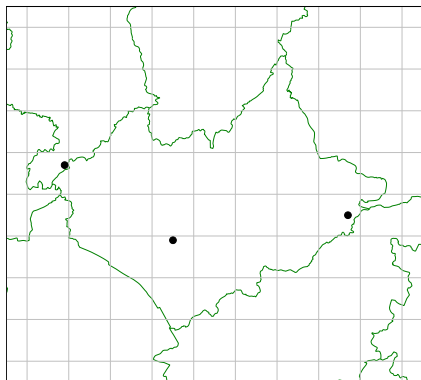


Chaetorellia jaceae

TRS status: widespread in England.

Larval activity: attacks flower head of Common Knapweed (*Centaurea nigra*).

VC55 records: the first of the eight VC55 records came during an ecological survey of an old orchard at Edith Weston in 1997 by Peter Kirby and also at three nearby sites. The other records came from Asfordby, Ellistown and Leicester between 2009-2018.

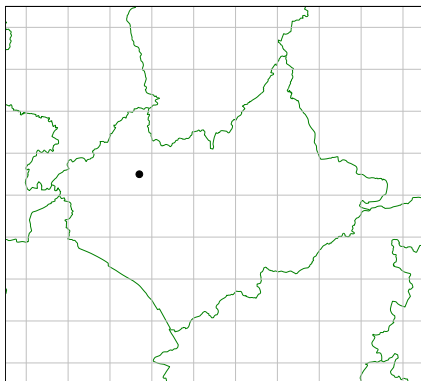


Chaetostomella cylindrica

TRS status: Widespread throughout Britain.

Larval activity: attacks flower head of Thistles (*Carduus*).

VC55 records: first noted at Narborough Bog in 1933 by PAH Muschamp with 2 specimens in the County Collections. The next came from the Ashby Would area (1997) and from two Edith Weston sites (1999) as part of ecological surveys.



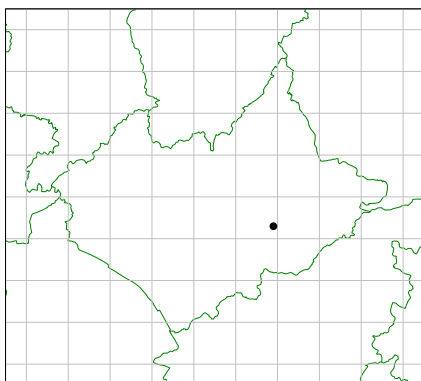
Chetostoma curvinerve

Fig 5 (adult).

TRS status: scattered in England & Wales. Considered vulnerable by Falk (1991) but records now more numerous.

Larval activity: no information located

VC55 records: the sole VC55 record came from Charwood Lodge NR in 2016 when photographed by Kate Nightingale and confirmed by Tony Irwin & Laurence Clemons.

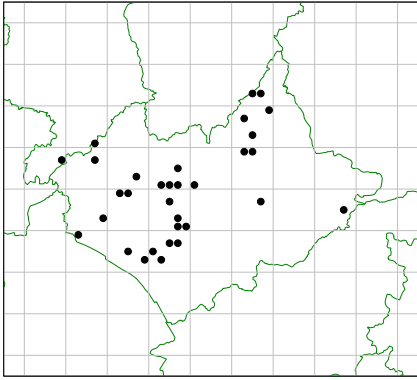


Dioxyna bidentis

TRS status: mainly southern England and scattered elsewhere.

Larval activity: feed in flower heads of Bur-marigold but is found in areas where the plant does not occur – so alternative foodplant is unknown at this time.

VC55 records: the only record of this tephritid came from the Rothamsted light trap operating at the Allerton Project, Loddington on 06/09/2020.



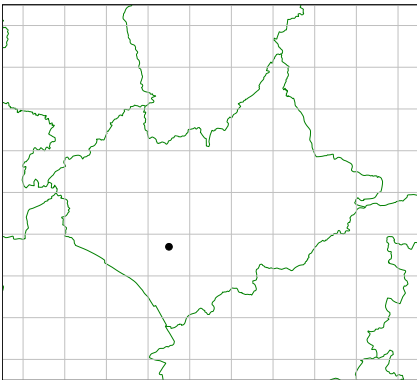
Euleia heraclei

Fig 6 (adult), 19 (mine).

TRS status: widespread in England, less so elsewhere.

Larval activity: leaf-miner of many umbellifers.

VC55 records: recorded by WA Vice at Blaby & Bradgate Park in 1884 and again at Bardon Hill in 1896 and Owston the following year with specimens in the County Collections. Recorded regularly since 1997 after a century of no reports. Recorded as adult and as leaf miner.

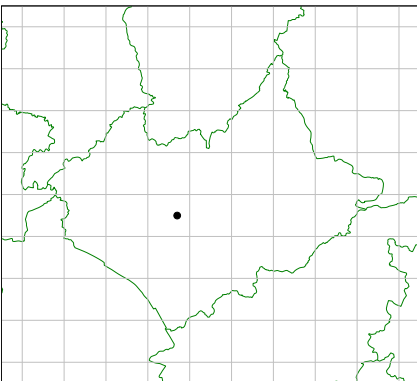


Euphranta toxoneura

TRS status: scattered throughout England. Falk (1991) considers it Notable.

Larval activity: attacks *Pontania* (sawfly) galls on *Salix*

VC55 records: a single record which came from Narborough Bog NR By David Nichols in 2017 confirmed by Ray Morris.

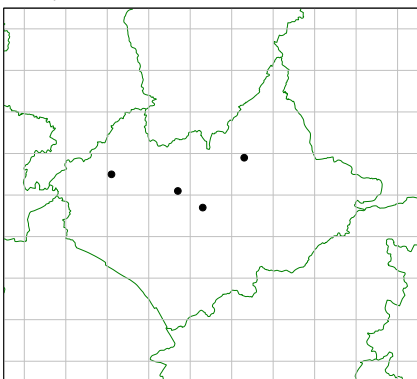


Goniglossum wiedemanni

TRS status: scattered in England.

Larval activity: attacks fruit of White Bryony.

VC55 records: the single observation of this species comes from the Groby Rd (Leicester) allotments when seen by HA Peacock in 2016.

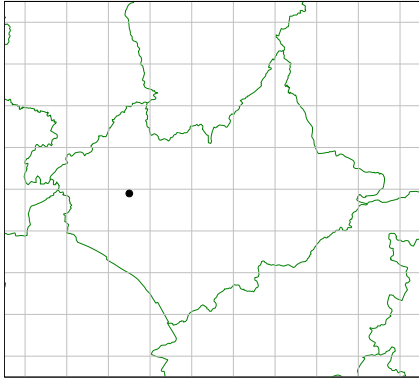


Merzomyia westermanni

TRS status: scattered in England. Notable by Falk (1991).

Larval activity: attacks flower head of Ragworts (*Senecio*).

VC55 records: four records between 2009 and 2019 from scattered locations all identified by ecological consultants.

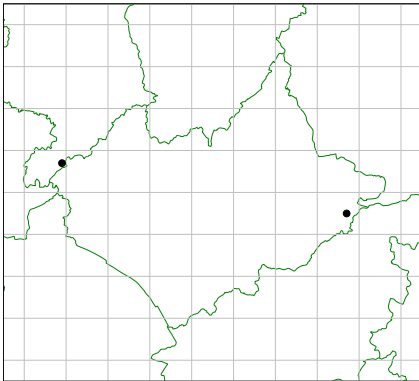


Myopites inulaedysenterica

TRS status: southern England, scarce elsewhere. Considered Rare by Falk (1991).

Larval activity: galls flower head of Fleabane (*Dittrichia*)..

VC55 records: sole record photographed on Fleabane at Bagworth (2019) by Sue Timms and confirmed by Ray Morris.

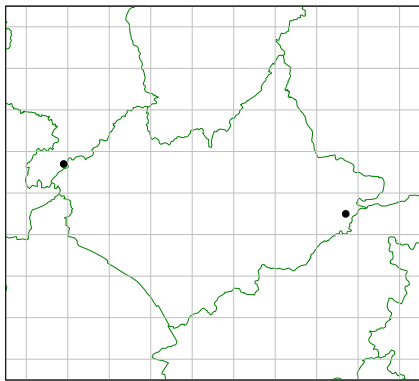


Noeeta pupillata

TRS status: scattered throughout.

Larval activity: swells flower head of Hawkweeds (*Hieracium*).

VC55 records: the two VC55 records come ecological surveys – Ashby Woulds (1997) and Ketton Quarry NR (2006).

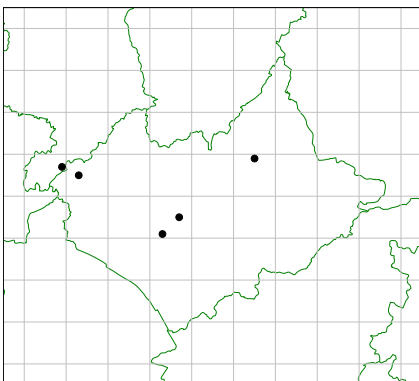


Oxyna flavipennis

TRS status: scattered southern England, cluster in East Anglia. Falk (1991) considers it Notable.

Larval activity: root gall of Yarrow (*Achillea millefolium*).

VC55 records: Steve Lane, ecological consultant found this at coal waste area Ellistown in 2014.

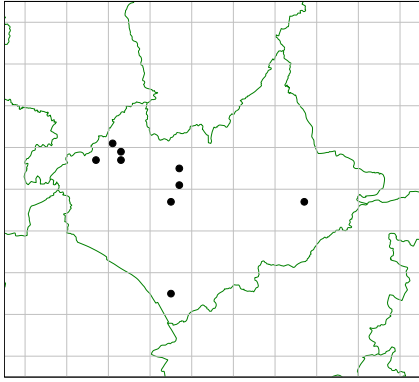


Oxyna parietina

TRS status: scattered throughout England.

Larval activity: stem-miner of Mugwort (*Artemisia vulgaris*).

VC55 records: first recorded from Enderby in 1905 and again in the same area in 1987 as part of an Invertebrate Site Register listing. Full record details for both are unavailable (obtained from NBN Atlas). Further recorded re from scattered locations.

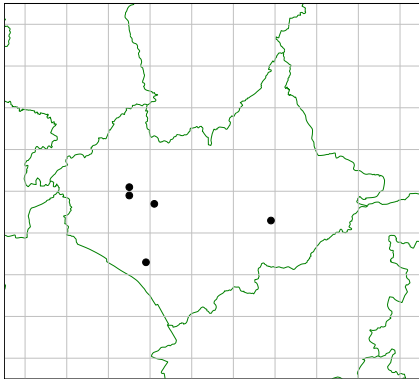


Philophylla caesio

TRS status: throughout Britain.

Larval activity: may be leaf-miner of Red Campion (*Silene dioica*).

VC55 records: first recorded in 2011 in the Charnwood area (Andy Godfrey at Mountsorrel Quarry area, Grace Die by Helen Ikin & Steve Woodward). Eight further scattered records since 2014 including one from a malaise trap at Heron Bay (Rutland Water NR) in 2015.

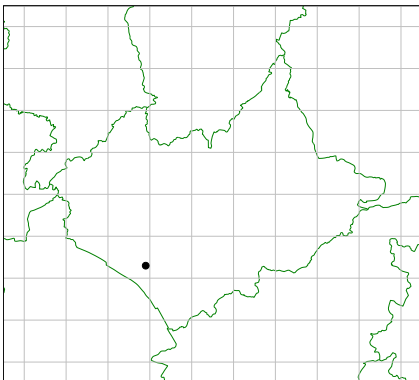


Rhagoletis alternata

TRS status: throughout Britain.

Larval activity: associated with *Rosa* fruits

VC55 records: six records to date first seen at Ratby (David Nichols) in 2011 and most recently at Long Clawson (Barbara Cooper) in 2020.

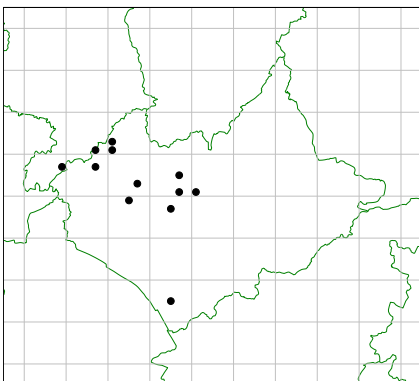


Rhagoletis meigenii

TRS status: few records the east and midlands of England. Falk (1991) is unsure of status.

Larval activity: associated with fruits of *Berberis*.

VC55 records: photographed at Sapcote by Graham Calow (confirmed by Ray Morris) 2013.

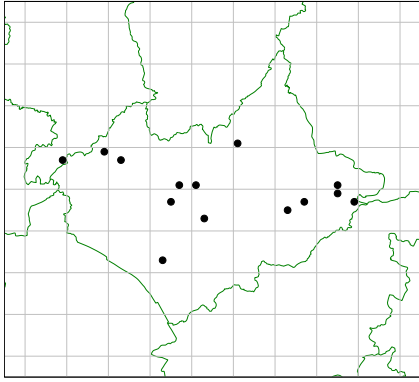


Sphenella marginata

TRS status: throughout England & Wales.

Larval activity: attacks flower head of Ragworts (*Senecio*).

VC55 records: first noted in 1997 from Ashby Wolds and them fairly regularly since 2008 from scattered locations.

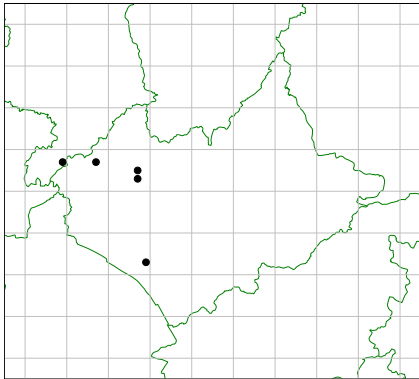


Tephritis bardanae

TRS status: throughout England & Wales.

Larval activity: attacks flower head of Burdocks (*Arctium*).

VC55 records: widely scattered records in VC55 with the first from Ashby Woulds in 1997 to Empingham in 2020. Has occurred on several occasions at Kate Nightingale's Cropston garden.



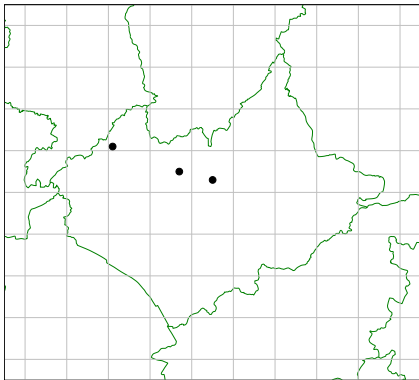
Tephritis cometa

Coverpage (adult)

TRS status: throughout England but scattered elsewhere.

Larval activity: attacks flower head of Creeping Thistle (*Cirsium arvense*).

VC55 records: all but one of the seven records come from the Charnwood area with two from Charnwood Lodge NR within a week in 2019.



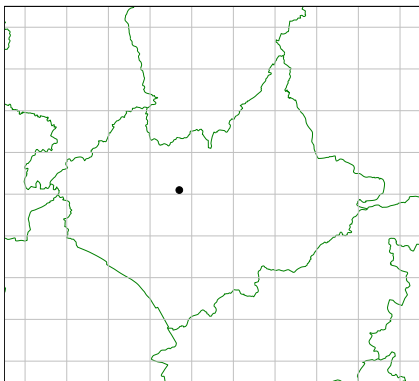
Tephritis conura

Fig 7.

TRS status: mainly Scotland scattered elsewhere.

Larval activity: attacks flower head of Thistles (*Cirsium*)

VC55 records: only three records of this species 2011 and 2015 as part of surveys) and in 2020 from John Tinnings' garden at Queniborough (confirmed by Ray Morris) when a pair *in cop* were photographed.

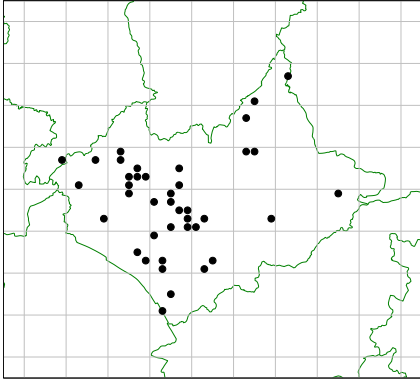


Tephritis divisa

TRS status: southern England.

Larval activity: develops in flower head of Oxtongues (*Picris*)

VC55 records: Kate Nightingale spotted the first for this species in her Cropston garden in 2017 with her identification being confirmed by Laurence Clemon.



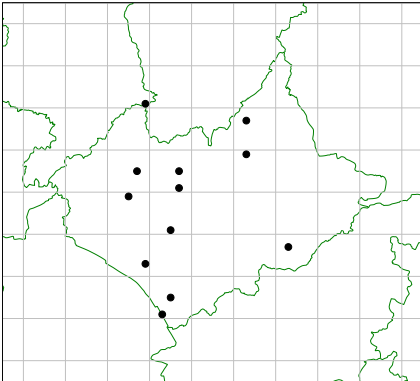
Tephritis formosa

Fig 8 (adult).

TRS status: throughout England few in Wales.

Larval activity: attacks & swells flower head of Sowthistles (*Sonchus*).

VC55 records: one of the most numerous of the tephritids recorded in VC55 with regular sightings from Loddington, Cropston, County Hall (Glenfield), Empingham and Sapcote.



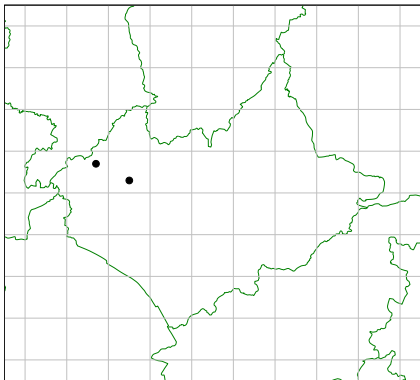
Tephritis hyoscyami

Fig 9 (adult).

TRS status: throughout England but scattered elsewhere.

Larval activity: attacks flower head of Thistles (*Carduus*).

VC55 records: only two records noted before 2009 since when the fly has been regularly seen at scattered locations.

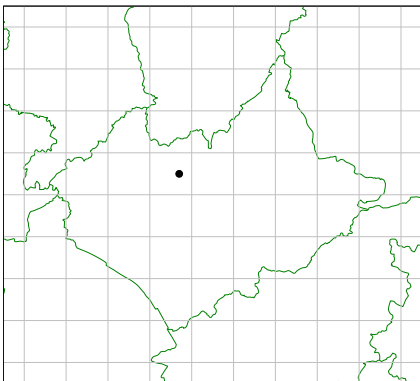


Tephritis leontodontis

TRS status: frequent in Scotland scattered elsewhere.

Larval activity: attacks flower head of Hawkbits (*Leontodon*).

VC55 records: the two records of VC55 come from disused coal mining sites as part of ecological surveys. Seen in 2012 at Lounge, near Ashby de la Zouch (Colin PLant) and at Ellistown in 2014 (Steve Lane).

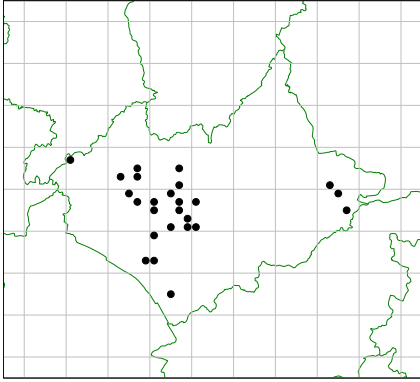


Tephritis matricariae

TRS status: south-east England but scattered elsewhere.

Larval activity: possibly associated with Smooth Hawks-beard (*Crepis capillaris*).

VC55 records: a species first recorded in Britain in 2000 (Clemons, 2000). Andy Godfrey identified the fly during a survey at the Mountsorrel Quarry area in 2012.



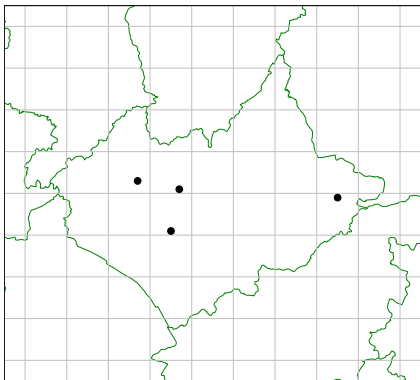
Tephritis neesii

Fig 10 (adult).

TRS status: throughout England, scattered elsewhere.

Larval activity: attacks flower head of Oxeye Daisy (*Leucanthemum vulgare*).

VC55 records: another of the more numerous of the VC55 tephritids with records tending to come from the west of VC55 first being seen in 2006 at Ketton Quarry NR (Jonathan Cole).

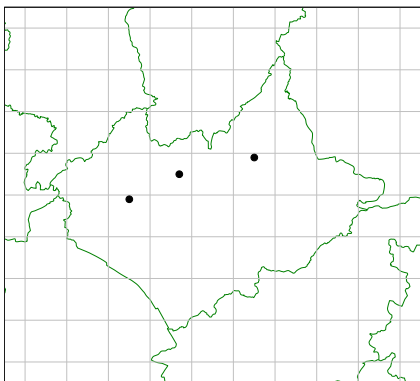


Tephritis praecox

TRS status: scattered in eastern England. Considered Endangered by Falk (1991).

Larval activity: host unknown?

VC55 records: first noted from a Leicester garden in 2008 (David Gould) and Bardon Hill the same year (Andy Godfrey). The remaining three records all came from 2019 twice at Cropston (Kate Nightingale) and Empingham (Andrew Dejardin).

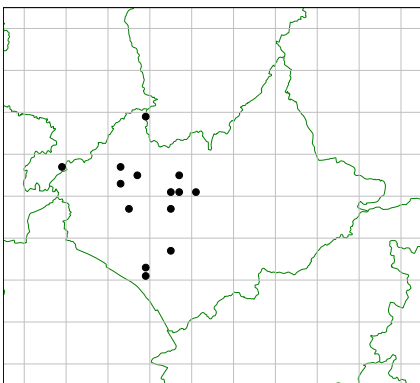


Tephritis ruralis

TRS status: scattered throughout Britain.

Larval activity: attacks flower head of Mouse-ear Hawkweeds (*Hieracium pilosella*).

VC55 records: four records coming from the Mountsorrel Quarry area on two occasions (Andy Godfrey 2012 & 2018), Melton Country Park (2015, Paul Ruddoch) and most recently from Bagworth in 2020 (Sue Timms).



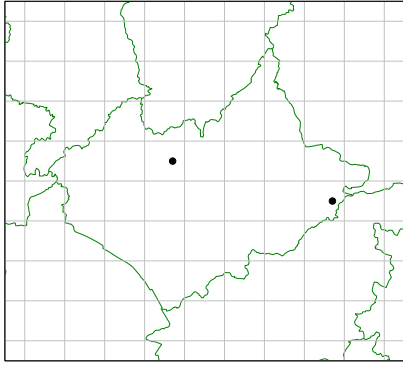
Tephritis vespertina

Fig 11 (adult)/

TRS status: throughout England & Wales, less so in Scotland.

Larval activity: attacks flower head of Cats-ear (*Hypochoeris radicata*).

VC55 records: 21 records since 1991, 19 of which have been since 2010. The westerly distribution probably indicated lack of recording effort rather than absence/

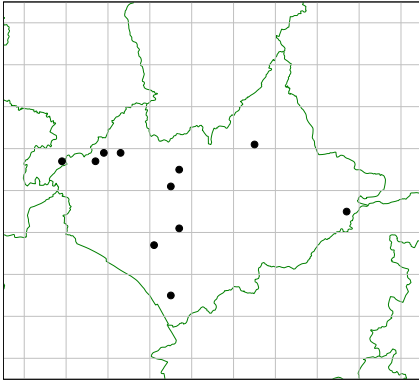


Terellia longicauda

TRS status: southern England.

Larval activity: attacks flower head of Woolly Thistle (*Cirsium eriophorum*).

VC55 records: the three VC55 records are all as a result of ecological surveys. First recorded at Ketton Quarry NR in 1996) then at an old orchard at Edith Weston (1999) and most recently (2018) at Mountsorrel Quarry.

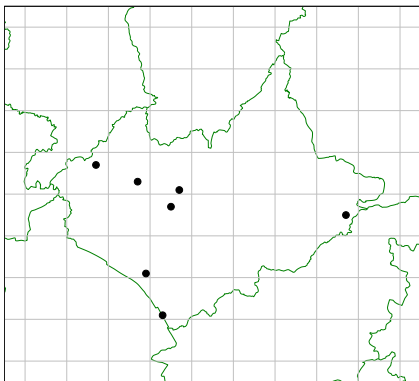


Terellia ruficauda

TRS status: throughout England, scattered Wales.

Larval activity: attacks flower head of Thistles (*Cirsium*).

VC55 records: Lount Meadows (Coleorton) gave the first VC55 record for this fly in 1992 (Neil Frankum) and then occasionally of succeeding years. Most recently (2018) seen at Mountsorrel Quarry and Misterton during ecological surveys.



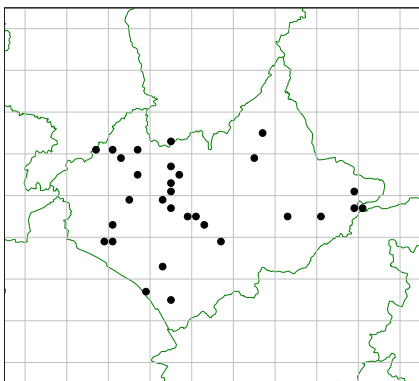
Terellia serratulae

Fig 12 (adult).

TRS status: mainly England, scattered elsewhere.

Larval activity: attacks flower head of Thistlers (*Carduus*).

VC55 records: first recorded in 1999 as part of the Edith Weston ecological survey by Peter Kirby and then only recorded between 2008 and 2017 in scattered locations.

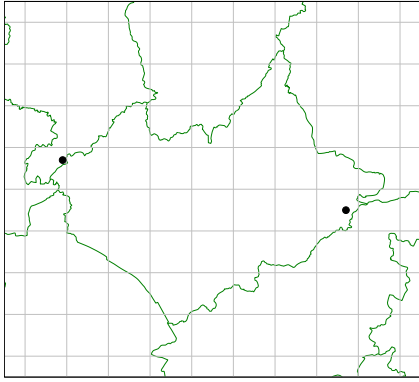


Terellia tussilaginis

TRS status: throughout England, scattered Wales.

Larval activity: attacks flower head of Greater Burdock (*Arctium lappa*).

VC55 records: one of the more commonly reported of the tephritids in VC55 first noted at Market Bosworth in 1963 (although details are incomplete) and then regularly since 2010 throughout much of the area.

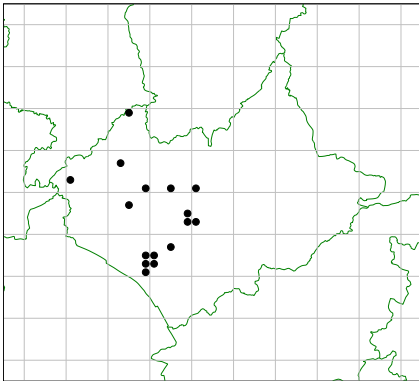


Trupanea stellata

TRS status: scattered throughout Britain.

Larval activity: attacks flowerhead of Ragworts (*Senecio*).

VC55 records: only recorded twice in VC55 – Ashby Woulds 1997 and at a disused quarry at Edith Weston 1999 as during ecological surveys.



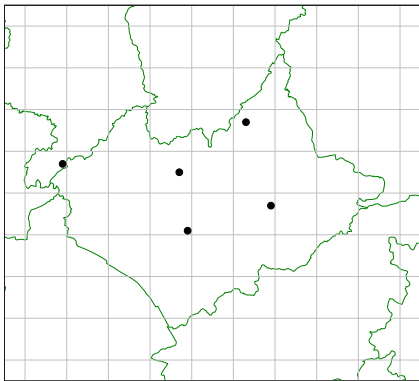
Trypeta artemisiae

Fig 20 (mine).

TRS status: scattered throughout Britain.

Larval activity: leaf-miner of e.g. *Achillea*, *Tanacetum* & *Senecio*.

VC55 records: should be more widely recorded in VC55 as the host plants are widespread. All records have occurred between 2010 and 2020 once from 16 locations.



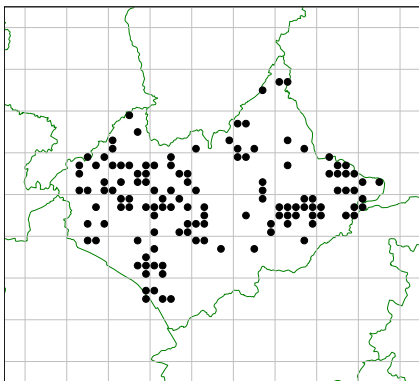
Trypeta zoe

Fig 21 (mine).

TRS status: scattered throughout Britain.

Larval activity: Leaf-miner of e.g. *Artemisia*, *Petasites*, *Senecio*, *Tussilago*.

VC55 records: first recorded in 1997 at Ashby Woulds and then on four occasions 2012-2018. The host plant tends to occur more to the west which may indicate where the fly would be most likely encountered.



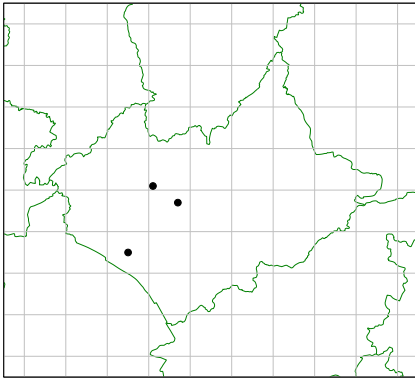
Urophora cardui

Fig 13 (adult), 22 (gall).

TRS status: from Yorkshire south.

Larval activity: galls stem of Creeping Thistle (*Cirsium arvense*).

VC55 records: probably the most familiar gall of Creeping Thistle often present in large numbers. Recorded widely throughout VC55. Neither the gall nor the adult are missable.

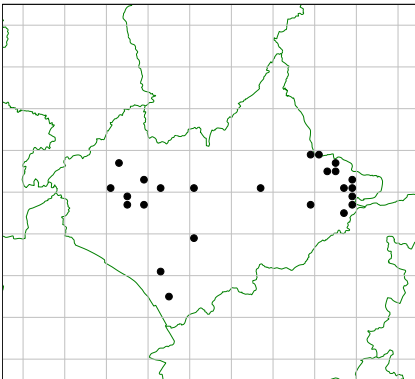


Urophora cuspidata

TRS status: southern England

Larval activity: galls flower head of Greater Knapweed (*Centaurea scabiosa*).

VC55 records: the three records come from grassy areas being seen at he Burbage Woods & Common complex (2011, Graham Calow), Goss Meadow, Leicester (2012 HA Peacock) and Lea Meadows NR (2015, Kate Nightingale).



Urophora jaceana

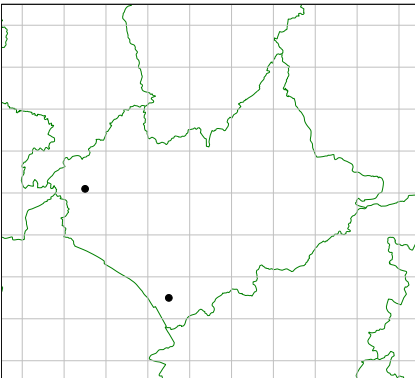
Fig 14 (adult).

TRS status: throughout Britain.

Larval activity: galls flower head of Common Knapweed (*Centaurea nigra*).

VC55 records: frequently encountered. PAH Muschamp

Saw it at Bradgate Park in 1933 collecting four specimens now in the County Collections. Fairly regularly seen since 1999.

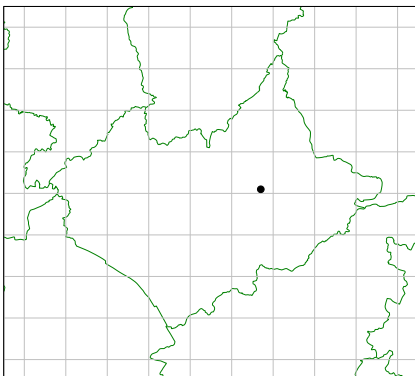


Urophora quadrifasciata

TRS status: mainly south of Yorkshire.

Larval activity: galls flower head of Common Knapweed (*Centaurea nigra*).

VC55 records: ecological surveys at Measham (2008, Keith Alexander) and Misterton SSSI (2018, David Gibbs) gave the two VC55 records.



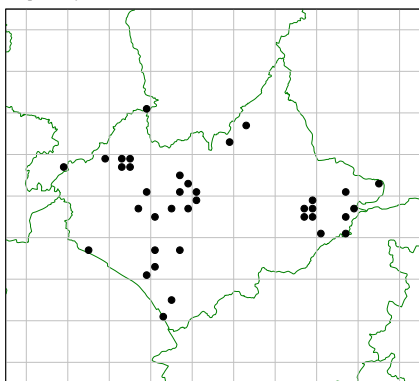
Urophora solstitialis

Fig 15 (adult).

TRS status: scattered in England. Falk (1991) considered it rare.

Larval activity: galls flowerhead of Musk Thistle (*Carduus nutans*).

VC55 records: Peter Smith photographed the only example of this fly in VC55 at Burrough Hill (2019) seen on its host plant.



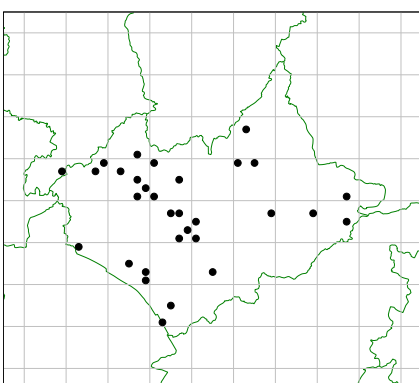
Urophora stylata

Fig 16 (adult).

TRS status: throughout England, scattered elsewhere.

Larval activity: galls flower head of Creeping Thistle (*Cirsium arvense*).

VC55 records: another of the more commonly recorded tephritids in VC55. First noted at Lount Meadows (Coleorton) in 1992 by Neil Frankum and then regularly seen in a range of locations over the last decade.



Xyphosia miliaria

Fig 17 (adult).

TRS status: throughout Britain.

Larval activity: attacks flower head of Thistles (*Cirsium*).

VC55 records: WA Vice recorded this fly at Owston Wood on two visits in 1897 with specimens in the County Collections. As may be expected from its national distribution, fairly regularly recorded throughout most of VC55.

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Fig 2. *Acanthiophilus helianthi*
Andrew Dejardin, NatureSpot

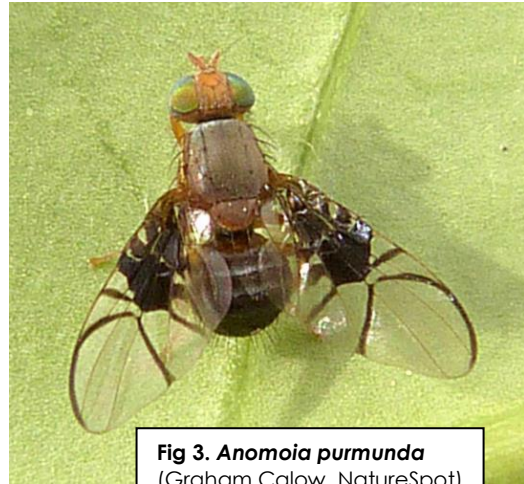


Fig 3. *Anomoia purmunda*
(Graham Calow, NatureSpot)

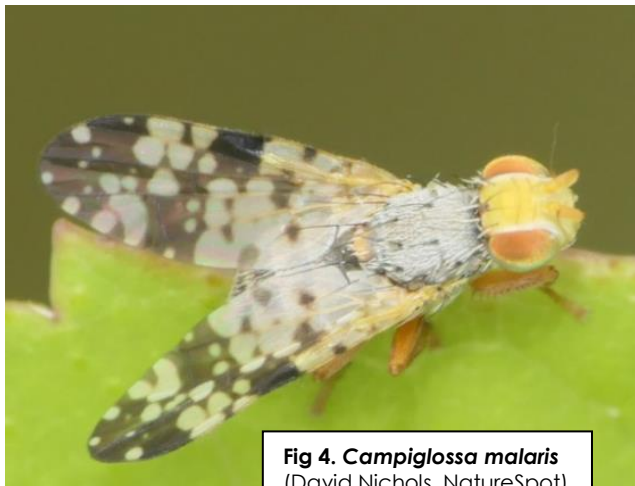


Fig 4. *Campiglossa malaris*
(David Nichols, NatureSpot)



Fig 5. *Chetostoma curvinerve*
(Kate Niahtinaale)



Fig 6. *Euleia heraclei*
(David Gould, NatureSpot)



Fig 7. *Tephritis conura*
(John Tinning)

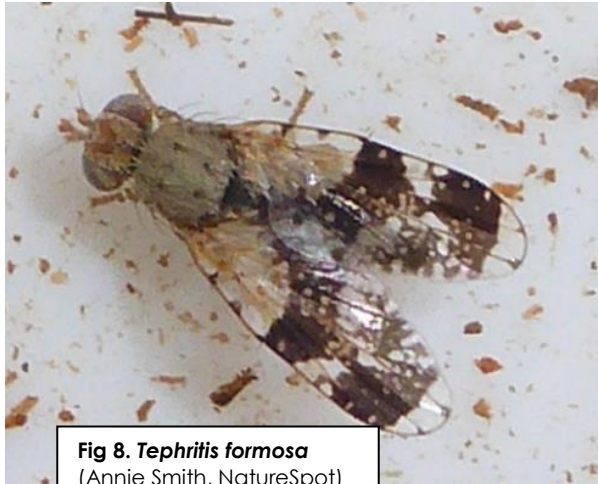


Fig 8. *Tephritis formosa*
(Annie Smith, NatureSpot)



Fig 9. *Tephritis hyoscyami*
(Kate Njathinaale)



Fig 10. *Tephritis neesii*
(Graham Calow, NatureSpot)



Fig 11. *Tephritis vespertina*
(Sue | Timms, NatureSpot)



Fig 12. *Terellia serratulae*
(Kate Nightingale)



Fig 13. *Urophora cardui*
(Stephen Lewis, NatureSpot)



Fig 14. *Urophora jaceana*
(David Nichols, NatureSpot)



Fig 15. *Urophora solstitialis*
(Peter Smith, NatureSpot)



Fig 16. *Urophora stylata*
(Peter Smith, NatureSpot)



Fig 17. *Xyphosia miliaria*
(Mike Higgott, NatureSpot)



Fig. 18 *Acidia cognata* mining Butterbur
(Melinda Bell, NatureSpot)

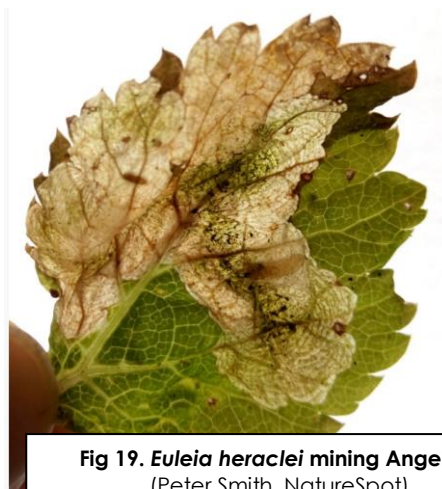


Fig 19. *Euleia heraclei* mining Angelica
(Peter Smith, NatureSpot)



Fig 20. *Trypeta artemisiae* mining Mugwort
(Saharima Roenisch, NatureSpot)



Fig 21. *Trypeta zoe* mining Marsh Ragwort
(Graham Calow, NatureSpot)



Fig 22, *Urophora cardui* gall on Creeping Thistle
(Annie Smith, NatureSpot)

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