Psyllids of Norfolk

Copyright

Data and maps

The majority of maps are based on data supplied until the end of 2023 (three species with significant records submitted in 2024 have updated maps). Records have been mapped at tetrad (2km^2) level, however several hectad (10km^2) resolution records have been included for species with few records. Several records in the database contain a location but no grid reference, which explains why a few sightings that are mentioned in the text are not plotted.

In addition to data collected directly by the county recorder and submitted by other local naturalists, records have also been taken from a wide range of sources. These include collections held by the Norwich Castle Museum, Norfolk Biodiversity Information Service (NBIS), iRecord, the Royal Horticultural Society (RHS) and Norfolk & Norwich Naturalists' Society (NNNS) publications.

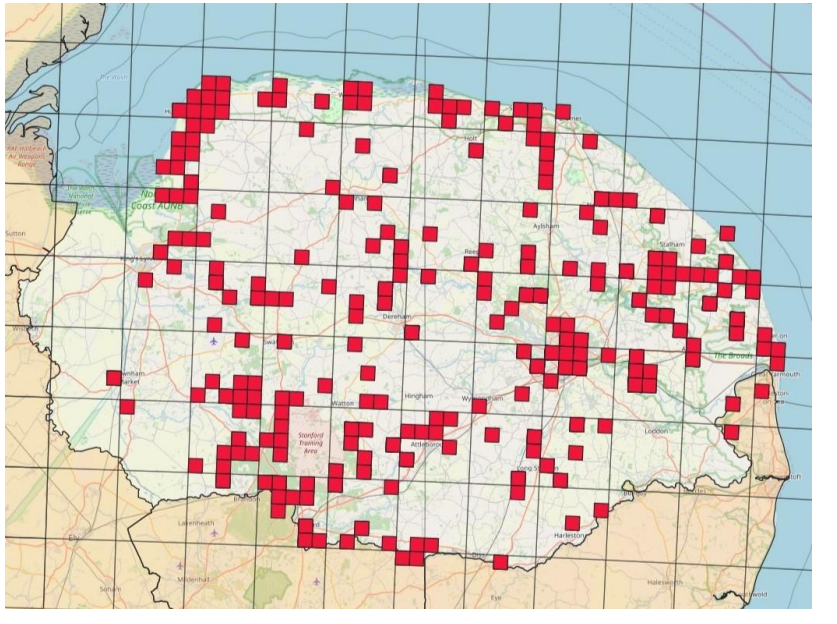
Maps were produced using QGIS and the TomBio plugin, using OpenStreetMap imagery. My thanks to Andy Musgrove, Richard Wilson and Rob Yaxley for help and support using QGIS.

Introduction

Psyllids (Hemiptera, sub-order Stenorrhyncha, superfamily Psylloidea), sometimes known as Jumping Plant Lice, are an under-recorded group of sap-feeding bugs with about 100 species present in the UK.

In June 2024 the author published an article in NNNS Transactions setting out the current county list and documenting the changes in taxonomy that have occurred since the previous published work on Norfolk's psyllids in the late 19th and early 20th century. One of the barriers to recording of psyllids is the lack of an up-to-date field guide or set of keys. This species guide builds on the aforementioned article by providing pictures, highlighting key ID features and linking to additional sources of information aimed at helping interested naturalists to identify each species. It is intended to complement existing resources such as the British Bugs website and the RES Handbook by Hodkinson & White (1979).

At the time of writing, the county database features around 950 records relating to 57 species. Of these, 54 are covered by the Transactions article, with *Aphalara maculipennis, Aphalara polygoni* and *Cacopsylla rhamnicola* being recorded in late 2023/early 2024 respectively. The map on the right shows the distribution of psyllid records as occupied tetrads.

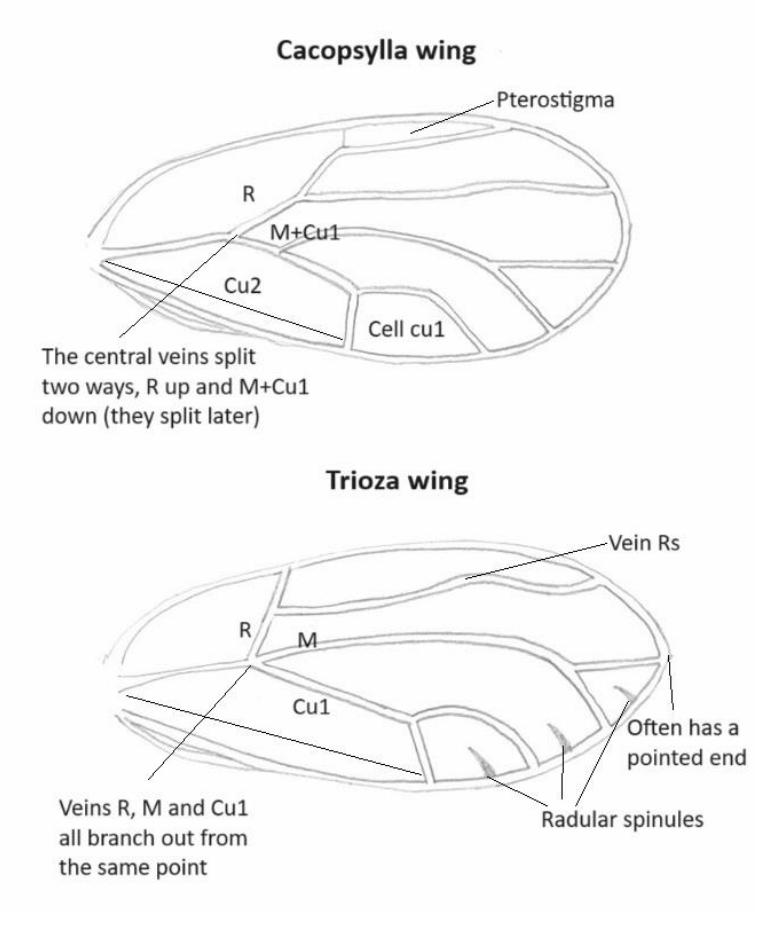


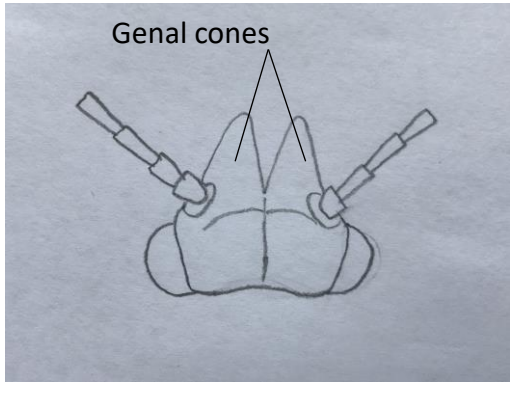
Psyllid taxonomy has extensively changed since the RES handbook. The names given primacy here are those in the most recent British checklist, published in the Entomologists' Gazette by Greenslade *et al.* (2020). Additional names are noted where this is considered to be helpful.

Psyllid morphology

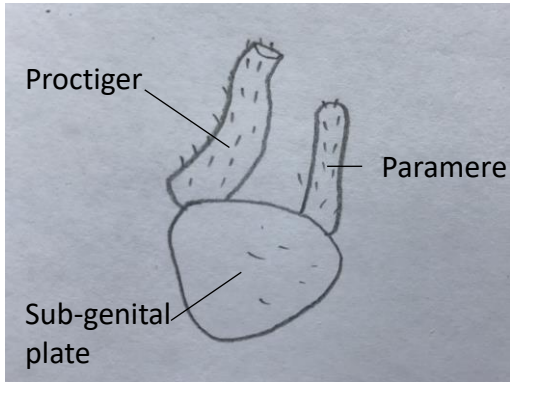
Useful features when identifying psyllids include the shape of the wing, length and placement of the wing veins, presence or absence of wing spinules (and how dense they are), the number of spines at the end of leg segments, size, colour and shape of the genal cones plus features of the terminalia/genitalia.

Simplified diagrams of some of these features are shown below:

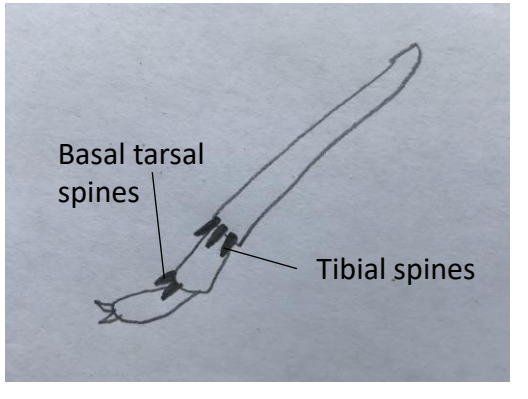




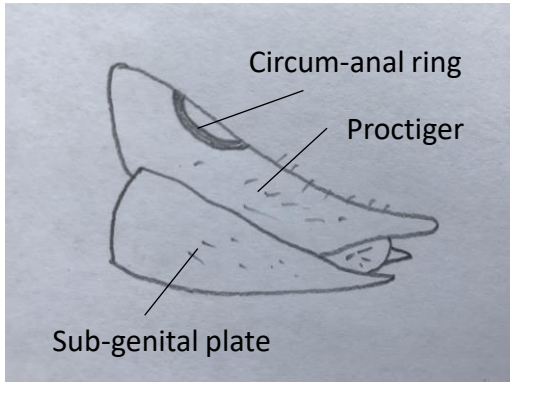
Top down view of head



Male genitalia



View of leg & spines

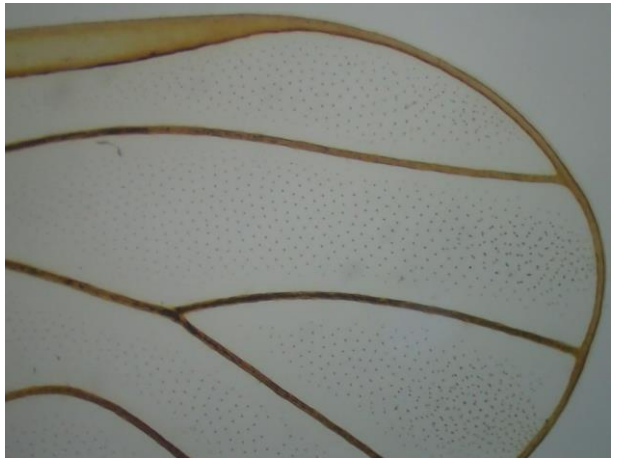


Female terminalia

Wing spinules

One of the key features where wing spinules are present is how much of the cell they take up. This is usually described in terms of the size of the 'spinule-free bands' along the veins. Some of the common variations are shown below. These are best viewed under a microscope at around 100x magnification.

Cacopsylla pyricola
(spinules in centre of the cells)



Cacopsylla melanoneura
(spinules take up most of the cell but leave obvious spinule-free bands)

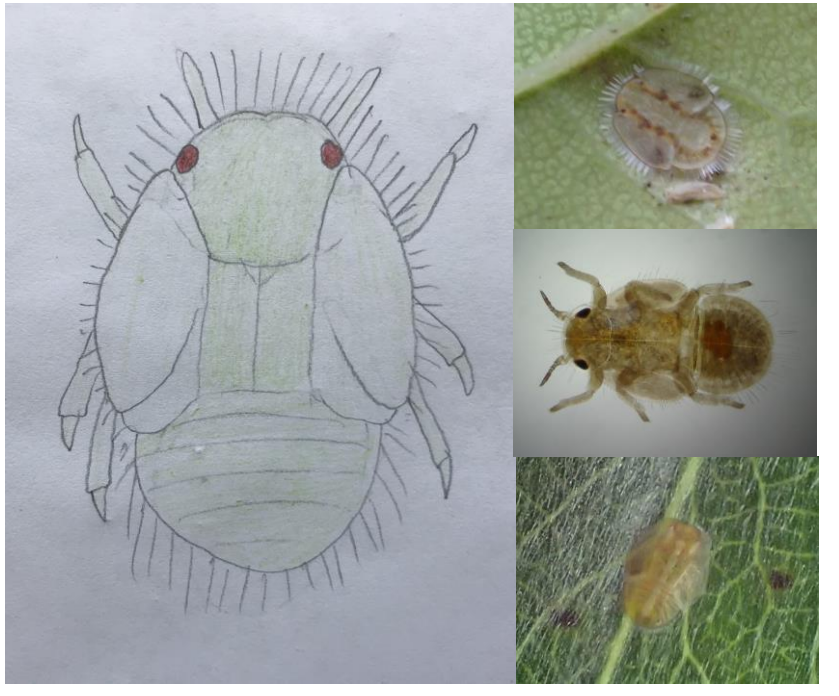
Cacopsylla cf. affinis
(spinule-free bands are present but very narrow)

Nymphs

Identification of nymphs is covered by the RES Handbook volume 2 part 5(b) “Psylloidea (Nymphal stages) Hemiptera, Homoptera” by White & Hodkinson (1982). It is based on close examination of cleared specimens so will be of limited help to those hoping for a field ID. It is however useful to be able to separate *Psyllidae* and *Triozidae* nymphs, as some host plants support representatives of both families. These pictures should help:

Psyllidae-type nymphs

Body has a rectangular shape with a rounded rear end. Wingbuds join the body before the head.



Triozid-type nymphs

Wingbuds curve onto the head, which gives the nymph an oval shape. Stiff hairs/bristles often extend all of the way around the body.

Galls

A large number of psyllids can cause galling on their host plant. Some of these galls are distinctive and can be used as evidence of the presence of a particular species, but others are not so distinctive and should be recorded with care or without assigning a definite species.

Information regarding which species are considered gall causers has largely been taken from Spooner, B. 2014. Checklist of British Galls and Gall-causing Organisms: 10. Hemiptera Part 2. Auchenorrhyncha & Sternorrhyncha other than Aphidoidea: Preliminary List. Cecidology 29(2): 80-104. See the bibliography page for details of other useful books relating to plant galls. In the case of recently described species or those that have been ‘split’, it is not always clear if older information related to one or both of the new species. Information about specific galls is included within the species accounts.

Main host plants

This list covers plants that are known regular hosts for UK psyllid species. Where a species has multiple hosts only the main one or two are listed, so it does not claim to be completely definitive. Species recorded in Norfolk have a link to their species page, whilst those not yet recorded in the county are listed in red text.

Acacia: *Acizzia acaciaebaileyanae, Acizzia uncatoides*

Alder: ***Baeopelma foersteri***, ***Psylla alni***

Apiaceae (Angelica, Hogweed etc): *Trioza anthrisci*

Apple: ***Cacopsylla mali***, *Cacopsylla picta*

Ash: *Psyllopsis discrepans, Psyllopsis distingeunda,* ***Psyllopsis fraxini***, ***Psyllopsis fraxinicola***

Bay: ***Trioza alacris***

Bedstraw: ***Trioza galii***, *Trioza velutina*

Birch: ***Cacopsylla affinis, Chamaepsylla hartigi***, ***Psylla betulae***

Box: ***Psylla buxi***, ***Spanioneura fonscolombii***

Broom: ***Arytaina genistae***, ***Ayrtainilla spartiophila***, *Livilla ulicis*

Buckthorn: *Cacopsylla alaterni,* ***Cacopsylla rhamnicola***, ***Trioza rhamni***, ***Trichochermes walkeri***

Buttercup (*Ranunculus*): *Aphorma lichenoides*

Carrot: ***Trioza apicalis***

Eleagnus: ***Cacopsylla fulguralis***

Elm: *Cacopsylla ulmi*

Eucalyptus: ***Ctenarytaina eucalypti***, *Ctenarytaina peregrina, Ctenarytaina spatulate*

Field Maple: ***Rhinocola aceris***

Main host plants

Fig: *Homotoma ficus*

Goosefoot, Fat Hen etc: ***Trioza chenopodii***

Ground Elder: ***Trioza flavipennis***

Hawkbit and similar species: *Craspedolepta flavipennis*

Hawkweed: *Trioza proxima*

Hawthorn: ***Cacopsylla affinis***, ***Cacopsylla crataegi***, ***Cacopsylla melanoneura***, ***Cacopsylla peregrina***

Heather: *Strophingia cinerea* (on Bell Heather), ***Strophingia ericae*** (on Ling)

Japanese Knotweed: *Cacopsylla itadori*

Judas Tree (*Cercis siliquastrum*): *Cacopsylla pulchella*

Laburnum: ***Livilla (= Floria) variegata***

Marsh Cinquefoil: *Bactericera acutipennis*

Mistletoe: ***Cacopsylla visci***

Nettle: ***Trioza urticae***

Oak: ***Trioza remota***

Olive: *Euphyllura olivina*

Pear: ***Cacopsylla pyri***, ***Cacopsylla pyricola***, *Cacopsylla pyrisuga*

Persicaria & Polygonum: Aphalara avicularis, Aphalara borealis, ***Aphalara freji***, ***Aphalara maculipennis***

Pistaccio: *Agonoscena targionii*

Pittosporum: ***Trioza vitreoradiata***

Main host plants

Poplar: *Camarotoscena speciosa*

Prunus: ***Cacopsylla pruni***

Red Valerian: ***Trioza centranthi***

Rock Samphire: *Bactericera crithmi*

Rosebay Willowherb: ***Craspedolepta nebulosa***, ***Craspedolepta subpunctata***

Rowan & other *Sorbus*: *Cacopsylla albipes*, ***Cacopsylla sorbi***

Rushes: ***Livia junci***

Scabious: *Trioza munda*

Sea Buckthorn: ***Cacopsylla hippophaes***, *Cacopsylla zetterstedti*

Sea Wormwood: ***Craspedolepta pilosa***

Sedges: ***Livia crefeldensis***

Sorrels & Docks (Rumex): *Aphalara exilis, Aphalara purpurescens*, ***Aphalara polygoni***, ***Aphalara ulicis***

Sow-thistles and other composites: *Craspedolepta sonchi*

Sumac (*Rhus coriaria*): *Calophya rhois*

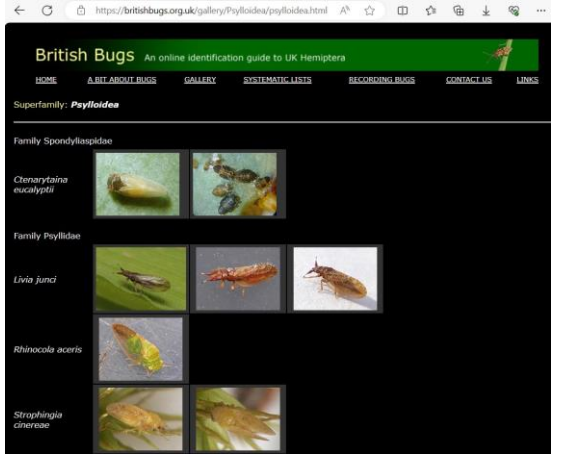
Viburnum: *Cacopsylla viburni*

Willow: ***Bactericera albiventris***, ***Bactericera silvarnis***, *Bactericera salicivora, Bactericera substriola,* ***Cacopsylla ambigua***, ***Cacopsylla brunneipennis***, ***Cacopsylla moscovita***, ***Cacopsylla pulchra***, *Cacopsylla saliceti*

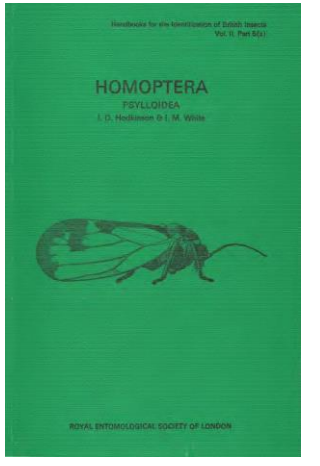
Wormwood: *Craspedolepta malachitica*

Yarrow: ***Craspedolepta nervosa***, *Trioza abdominalis*

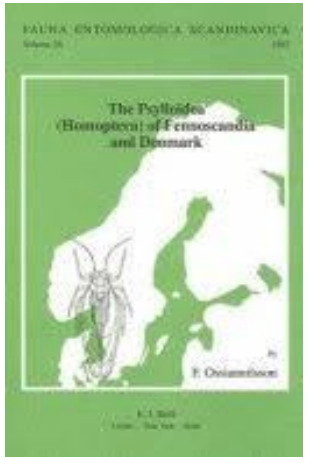
Useful resources



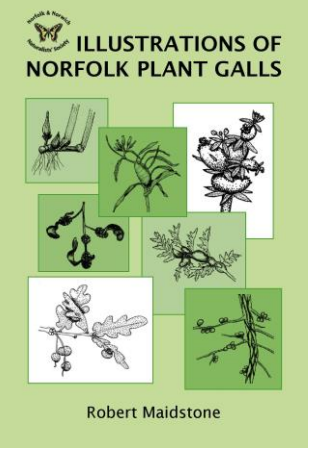
The British Bugs website has a gallery with photos and information about 45 of the UK psyllid species and should be your first port of call if attempting ID from a photo.



The RES handbook to Psylloidea by Hodkinson & White (1979) is out of print but free to download from the RES website. Despite being over 40 years old it is still the main key to identify psyllids from specimens. It covers c80% of the UK species. Many names have changed since it came out.



The Psylloidea (Homoptera) of Fennoscandia and Denmark by Ossiannilsson (1992) contains detailed diagrams of both adults and nymphs of a range of species, including most (but not all) UK species. It is still in print but retails at over £100 new.



Illustrations of Norfolk Plant Galls by Robert Maidstone (2021) was sent out free to NNNS members and contains diagrams of ten psyllid galls, including all of the common ones you are likely to come across in Norfolk.

Bibliography

The resources listed below contain useful information relating to the identification of psyllids

- **Bantock, T. & Botting, J.** 2024 - https://britishbugs.org.uk/
- **Emerson, J.** 2024. A review of psyllids (Hemiptera: Stenorrhyncha, superfamily Psylloidea) in Norfolk. Transactions of the Norfolk & Norwich Naturalists' Society, 2023, Vol 56(1), pages 9-49.
- **Hodkinson, I.D. & White, I.M.** 1979. Psylloidea. RES Handbooks for the Identification of British Insects 5(2)
- **Maidstone, R.** 2021. Illustrations of Norfolk Plant Galls. NNNS. Occasional Publication no.19.
- **Ossiannilsson, F. 1992.** The Psylloidea (Homptera) of Fennoscandia and Denmark. Fauna Entomologica Scandinavica 26.
- **Redfern, M., Shirley, P. & Bloxham. M.** 2023. British Plant Galls edition 3. AIDGAP Guide. Field Studies Council. Occ. Pub. 206
- **Spooner, B.** 2014. Checklist of British Galls and Gall-causing Organisms: 10. Hemiptera Part 2. Auchenorrhyncha & Sternorrhyncha other than Aphidoidea: Preliminary List. Cecidology 29(2): 80-104.

Details of additional papers that are useful for particular species are included within the species accounts

Aphalaridae

Genera

- *Aphalara*
- *Craspedolepta*
- *Ctenarytaina*
- *Rhinocola*

These species are easily separated from the remaining families due to the lack of genal cones and the absence of a pterostigma. The *Craspedolepta* tend to have yellowy-green thoraxes and can often be identified by their wing pattern and host plant. The *Aphalara*, with orangey-red thoraxes, are more tricky, a situation made more complicated by various name changes and the lack of accessible recent literature. Most require close examination of both the wing spinules and terminalia to confirm the species involved. *Ctenarytaina* species are only found on Eucalyptus, whilst *Rhincola aceris* is a distinctive species found on Field Maple.

Aphalara polygoni female.
Photo: Dave Appleton

Aphalara freji Burckhardt and Lauterer 1997 *Aphalaridae*

Hostplant: *Polygonum* spp.

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes

Norfolk status: Rare/under-recorded

Identification difficulty: Specimen always needed (as very similar to *Aphalara polygoni*)

Naming confusion: although only formally named in 1997, this species had previously been recorded as *Aphalara polygoni* as a result of the similarity between the two species. It is now thought that this is the species found on *Polygonum* (and therefore more likely to occur in damp habitats) whilst *Aphalara polygoni* s.s. is associated with *Rumex* and is more likely to occur near acid grassland. Both overwinter on shelter plants so could be found away from foodplants during autumn/winter.

This species has no genal cones, clear wings and wing spinules arranged in squares or rhombi. The spinules are less dense than in *A. polygoni*. ID requires examination of the terminalia and wing spinules. The only confirmed Norfolk record so far is a male from Thompson Common collected in 1987.

<u>Important identification resources</u>

Not included in the RES Handbook key. Described in Burckhardt, D. & Lauterer, P. 1997. Systematics and biology of the *Aphalara exilis* (Weber & Mohr) species assemblage (Hemiptera: Psyllidae). *Entomologica Scandinavica* 28: 271–305 but best identified using Ossiannilsson, F. 1992. The Psylloidea (Homoptera) of Fennoscandia and Denmark. Fauna Ent. Scand. 26, where it is listed as *Aphalara polygoni.*

♂ *Aphalara freji* from collection of Tony Irwin

Aphalara itadori (Shinji, 1938) *Aphalaridae*

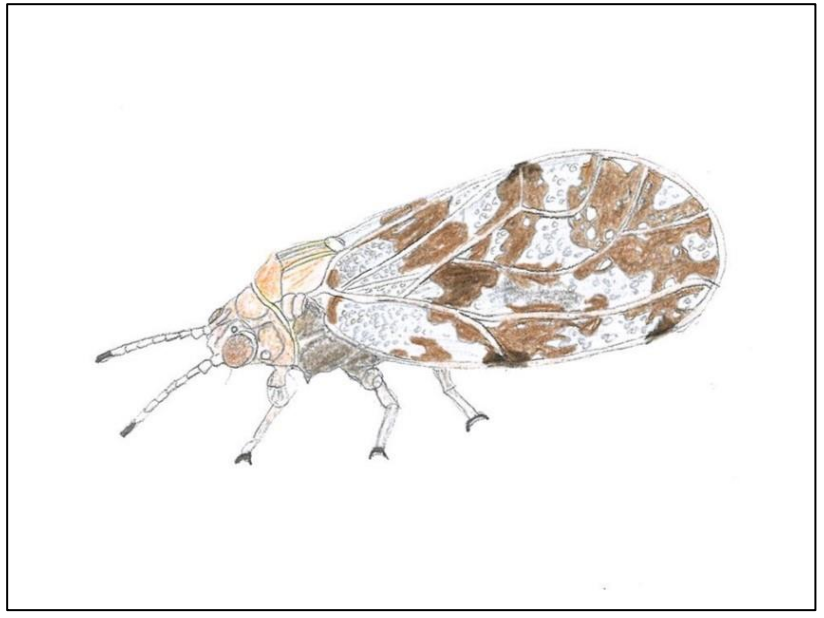
Hostplant: Japanese Knotweed *Fallopia japonica*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes - causes leaf distortion

Norfolk status: Introduced as a biocontrol agent – current status unknown.

Identification difficulty: Straightforward



Aphalara itadori

A distinctive species. The lack of genal cones and pterostigma, plus the orangey head and thorax should identify it as an *Aphalara* species. The brown-banded pattern on the wings should then identify it as *A. itadori* (*Aphalara exilis* and *A. ulicis* have some brown markings but these do not cover as much of the wings). Several patches are darker brown, particularly at the wing edge, and the wing spinules are arranged in a way that gives a granular looking texture to the clear areas.

The status of this species in Norfolk, and indeed Britain as a whole is unclear. It was released at a site somewhere in Norfolk as part of a trial looking at its potential as a biocontrol agent for Japanese Knotweed, but it is not known if it survives at the site, has spread elsewhere or if there have been subsequent releases. Any sightings or further information regarding this species would be welcome.

<u>Important identification resources</u>

Not included in the RES Handbook key. A diagram showing the wing patterning and several photos of live individuals can be found on the British Bugs website here: https://britishbugs.org.uk/homoptera/Psylloidea/Aphalara_itadori.html

Aphalara maculipennis (Löw, 1886) *Aphalaridae*

Hostplant: *Polygonum & Persicaria* – see comments

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Inconclusive

Norfolk status: New to Norfolk at Dickleburgh Moor in May 2024. Seemingly a rare species nationally.

Identification difficulty: Identifiable from a good picture of the wings.

♀ *Aphalara maculipennis* from Dickleburgh Moor

This species is noted in the RES handbook as only recorded from Aviemore, and there are currently no NBN Atlas records. Host plant is given as *Polygonum aviculare* and *P. lapathifolium*, however Bladmineerders says it feeds on *Persicaria amphibia* (which did used to be classified as a *Polygonum*). The Norfolk record was found on *Persicaria amphibia* on a bank at the edge of Dickleburgh Moor, a former glacial lake being restored to water meadows.

Close up of wing pattern

Spooner (2014) excludes from list of galling psyllids due to insufficient evidence of galling in the UK. Bladmineerders shows a gall made of twisted leaves of *Persicaria amphibia* but further research is needed to see if this is definitely a *maculipennis* gall.

<u>Important identification resources</u>

Included in the RES Handbook key. A gall possibly caused by this species is shown at: *https://bladmineerders.nl/parasites/animalia/arthropoda/insecta/hemiptera/sternorrhyncha/psylloidea/aphalaridae/aphalarinae/aphalara/aphalara-maculipennis/*

Aphalara polygoni (Förster, 1848) *Aphalaridae*

Hostplant: Common & Sheep's Sorrel *Rumex spp.*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes (shallow depressions on leaves)

Norfolk status: Several old records can only be considered as *Aphalara polygoni/freji agg.* Therefore new to Norfolk at North Elmham in 2023.

Identification difficulty: Microscopy needed

Note that the species included in the RES handbook as *Aphalara polygoni* is actually *A. freji*. Identification of this species depends on examination of the terminalia and the wing spinules, which are denser in this species than *A. freji* .If found on *Rumex* that would also be supporting evidence as *A. freji* is associated with *Polygonum*.

If in doubt please retain the specimen and contact the author for advice.

Dense wing spinules
Photo: Dave Appleton

♀ *Aphalara polygoni*. Photo: Dave Appleton

<u>Important identification resources</u>

Mentions of *Aphalara polygoni* in the RES Handbook key refer to what is now known as *Aphalara freji*. This species is best identified using Ossiannilsson, F. (1992) *The Psylloidea (Homoptera) of Fennoscandia and Denmark*, where it is listed as *Aphalara rumicicola* (again, what is listed there as *A. polygoni* actually = *A. freji*).

Aphalara ulicis (Förster, 1848) *Aphalaridae*

Hostplant: Sorrels *Rumex spp.*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes (shallow depressions on leaves)

Norfolk status: Old records can only be considered as *Aphalara exilis/ulicis agg.* Sole confirmed record from Winterton Dunes.

Identification difficulty: Requires examination to separate from *Aphalara exilis*.

The lack of genal cones and distinctive wing patterning are enough to narrow the ID down to either *Aphalara exilis* or *A. ulicis* (this species was referred to as *A. pauli* in the past, which is a valid species but now not thought to occur in Britain).

There is a key to *Aphalara* (Burckhardt & Lauterer 1997) however it is paywalled. *A. ulicis* and *A. exilis* are best separated by the male terminalia and patterning of the wing spinules.

Wing spinule pattern showing arrangement in rows

♀ from research project at Winterton Dunes

<u>Important identification resources</u>

Not included in the RES Handbook key. Best identified using Burckhardt, D. & Lauterer, P. 1997. Systematics and biology of the *Aphalara exilis* (Weber & Mohr) species assemblage (Hemiptera: Psyllidae). *Entomologica Scandinavica* 28: 271–305.
Photos of adults can be seen on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Aphalara_pauli.html

Craspedolepta nebulosa (Zetterstedt, 1828) *Aphalaridae*

Hostplant: Rosebay Willowherb *Chamerion angustifolium*

Life cycle: Adult present in spring, nymphs develop amongst the roots.

Gall causer: Yes – causes thickening/curling of the leaves and also galls on the roots.

Norfolk status: Rare/under-recorded

Identification difficulty: Adults are straightforward to ID. Galls cannot be identified without examining the nymphs.

This species has no genal cones and a distinctive pattern of dark blotches on the wings. These occur where the veins meet the wing edge, but also follow the length of the shorter veins

♀ from Edwards Collection

The only confirmed Norfolk record is from Wells-next-the-sea in 1982 by Ken Durrant. Edwards did not record it from Norfolk (material in his collection is presumably from Gloucestershire). It is apparently a common species nationally - a possible reason for the lack of records could be that the adults are only present for a few months in spring and the nymphs spend some of their lives below ground so there is a narrow window for finding it.

<u>Important identification resources</u>
Included in the RES Handbook key.
You can see an image of an adult on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Craspedolepta_nebulosa.html

Craspedolepta nervosa (Förster, 1848) *Aphalaridae*

Hostplant: Yarrow *Achillea millefolium*

Life cycle: Adult occurs spring/summer. Overwinters as a nymph.

Gall causer: Yes, leaf roll galls.

Norfolk status: Historical only - no recent records.

Identification difficulty: Adults are straightforward to ID

The only UK psyllid without genal cones associated with Yarrow.

The combination of lack of genal cones, green body and thick brown-lined veins make this a reasonably distinctive species.

This species was recorded by James Edwards on his county list in 1899, but I have not found the full record details. This species does not appear to have been recorded in Norfolk for over 100 years but given how widespread Yarrow is, it hopefully persists somewhere in the county.

♀ from Edwards Collection

<u>Important identification resources</u>
Included in the RES handbook
A photo of an adult can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Craspedolepta_nervosa.html

Craspedolepta pilosa (Oshanin, 1870) *Aphalaridae*

Hostplant: Sea Wormwood *Artemisia maritima*

Life cycle: Adult occurs spring/summer, overwintering as a nymph.

Gall causer: No

Norfolk status: Rare (range is restricted by presence of host plant, which is coastal)

Identification difficulty: Straightforward to ID.

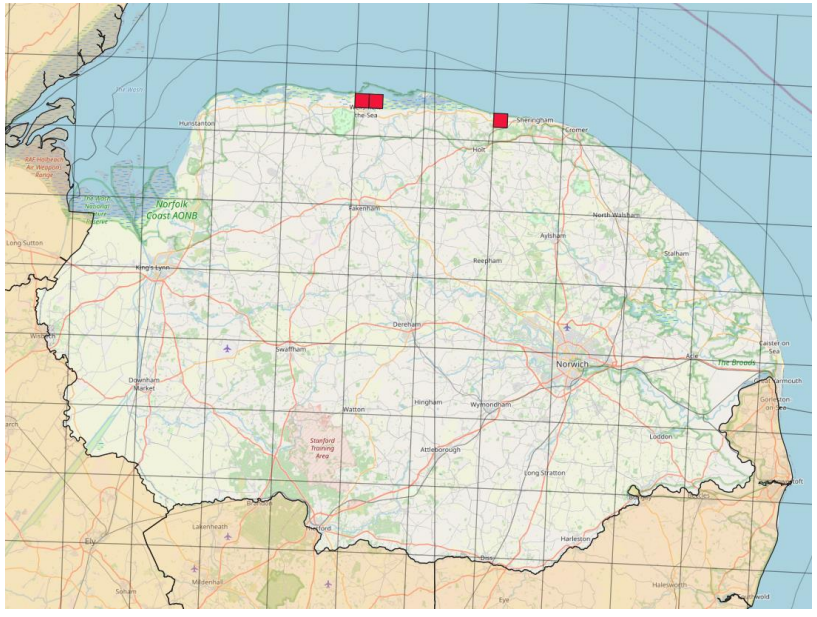
An easily identifiable species, with no genal cones, a pale 'mint green' colouration and brown speckled wings. This pattern does however match very well with the appearance of the foodplant, Sea Wormwood, and as a result it is very difficult to find by eye.

James Edward recorded it from Weybourne in the early 1900s. All other records come from the Wells-next-the-sea area - there are specimens in the Natural History Museum collection dating from 1950 but more recently it has been seen there again, at East Hills and latterly Wells harbour.

<u>Important identification resources</u>
Included in the RES handbook.

Side view showing wing patterning. Photo: Tim Hodge

Craspedolepta pilosa on Sea Wormwood



Craspedolepta subpunctata (Förster, 1848) *Aphalaridae*

Hostplant: Rosebay Willowherb *Chamerion angustifolium*

Life cycle: Adult present in spring, nymphs develop amongst the roots.

Gall causer: Yes, leaf rolls indistinguishable from *C. nebulosa*.

Norfolk status: Rare/under-recorded

Identification difficulty: Adults identifiable from photos, galls not identifiable.

A green psyllid with no genal cones and milky-white wings that have small dark areas where the veins meet the outer edges.

The sole Norfolk record comes from the King's Row area in 1988, possibly linked to the large-scale Fen Invertebrate Survey that took place 1988-1990.

Craspedolepta subpunctata (stylised illustration)

<u>Important identification resources</u>
Included in the RES handbook.
Adult are shown on the British Bugs website here:
https://britishbugs.org.uk/homoptera/Psylloidea/Craspedolepta_subpunctata.html

Ctenarytaina eucalypti (Maskell, 1890) *Aphalaridae*

Hostplant: Eucalyptus *Eucalyptus spp.*

Life cycle: Found as an adult all year round

Gall causer: No

Norfolk status: Rare/under-recorded

Identification difficulty: Specimen sometimes needed (depending on host tree)

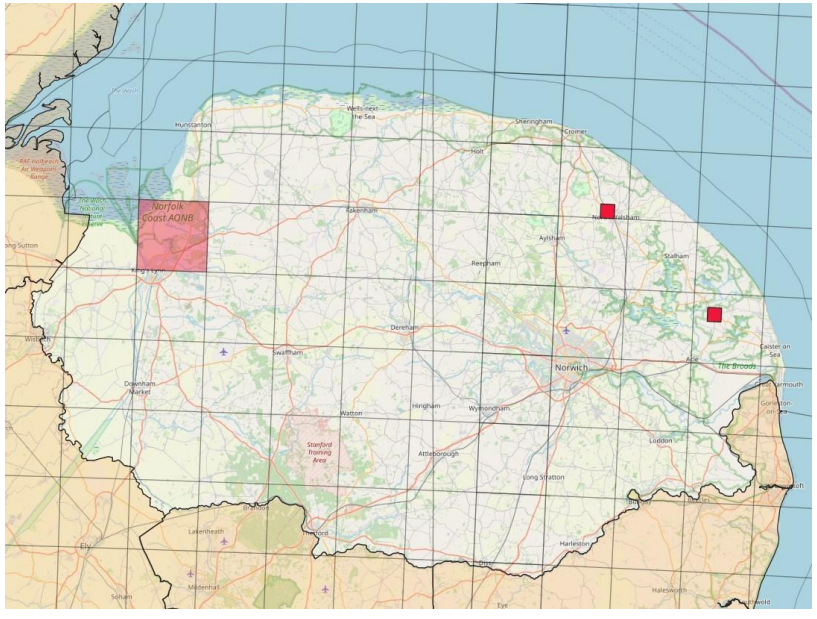
A small species with a dark head and thorax and yellow wings. This is one of three non-native *Ctenarytaina* species that can be found in the UK on Eucalyptus species. Of the three, *C. spatulata* can be easily separated as it has a pale thorax with dark spotting. The third species, *Ctenarytaina peregrina,* is very similar to *C. eucalypti* however it appears to be limited to *Eucalyptus parvula,* so colonies of psyllids with a dark thorax on *Eucalyptus* species other than *E. parvula* should be this species.

So far this species has only been recorded from three sites in Norfolk. The first Norfolk record is from the King's Lynn area (grid ref is only at the hectad level). More recently it has been found in North Walsham and Repps-with-Bastwick. This species is likely to be under-recorded, as it is more likely to occur in private gardens than nature reserves etc.

Important identification resources

This species is included in the RES handbook and on the British Bugs website (https://britishbugs.org.uk/homoptera/Psylloidea/Ctenarytaina_eucalypti.html), however the two other species of *Ctenarytaina* are not included and therefore care should be taken over the ID. For an updated key see Hodkinson, I.D. 2007. A new introduced species of *Ctenarytaina* (Hemiptera, Psylloidea) damaging cultivated *Eucalyptus parvula* (= *parvifolia*) in Europe. Dtsch. Entomol. Z. 54(1): 27–33.

Adults and exuvium on Eucalyptus



Rhinocola aceris (Linnaeus, 1758) *Aphalaridae*

Hostplant: Field Maple *Acer campestris*

Life cycle: Adult occurs spring/summer, overwintering as a nymph.

Gall causer: No

Norfolk status: Rare/under-recorded

Identification difficulty: Distinctive

A small species but distinctively-shaped. The photo is a preserved specimen, but when fresh the body is green, with wings that are brown towards the tips and with some brown speckling. The head is flattened and sloping ("shovel-like").

A specimen taken at Ringland in 1879 is in the Edwards collection, however there have been no records since. It is apparently a locally common species nationally so should be searched for on Field Maple in the hope of rediscovery.

Adult from the Edwards collection

<u>Important identification resources</u>
Included in the RES handbook.
A picture of an adult can be found on the British Bugs website here:
https://britishbugs.org.uk/homoptera/Psylloidea/Rhinocola_aceris.html

Liviidae

Genera

- *Livia*
- *Psyllopsis*
- *Strophingia*

There are two species of *Livia*, which are distinctive compared to other genera of psyllids.

The *Psyllopsis* species all occur on Ash – there are four present in the UK but so far only two in Norfolk. Three of the four have patterned wings, whilst *Psyllopsis fraxinicola* is green-bodied with clear wings.

The *Strophingia* species are both tiny psyllids found on heather. One usually occurs on Ling and one on Bell Heather, but as these plants often grow together the plant they are found on cannot be assumed to be the host plant.

Psyllopsis fraxini

Livia crefeldensis Mink, 1855

Liviidae

Hostplant: Sedges *Carex spp.*

Life cycle: Uncertain (possibly overwinters as an adult)

Gall causer: Yes – twisting/bunching and yellowing of leaves

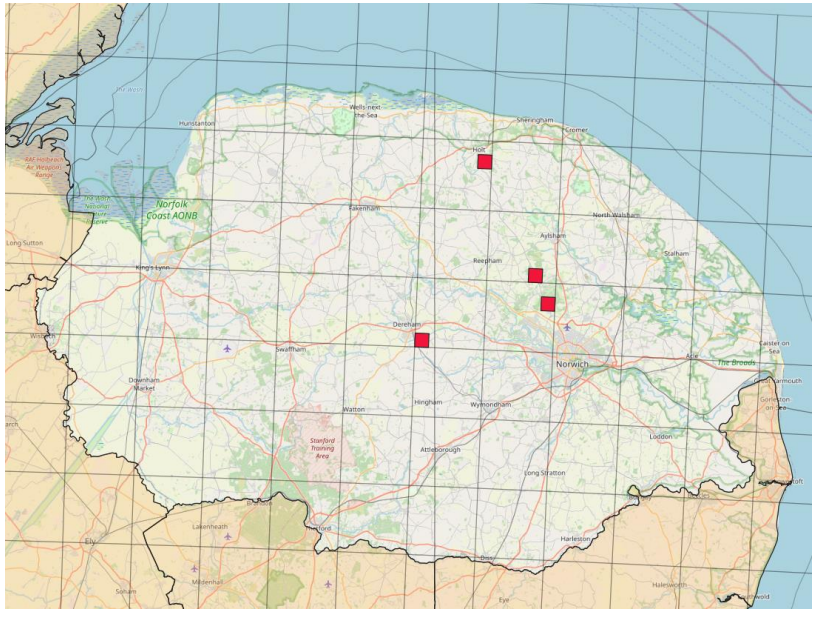
Norfolk status: Rare

Identification difficulty: Distinctive - can be identified from photos.

This is the sole British psyllid species associated with sedges. The only species that it could be confused with is the commoner *Livia junci,* which is associated with rushes, however good views from above and the side can confirm *crefeldensis*.

Specimens of this species from Norfolk from 1911 and 1913 are included in the Natural History Museum psyllid collection. More recently it was recorded from three locations during the Fen Invertebrate Survey 1988-1990 but there have been no sightings in the past 30 years.

Comparison: *L. crefeldensis* (left) and *L. junci* (right)



<u>Important identification resources</u>

Included in the RES handbook.

Livia junci (=juncorum) (Schrank, 1789) *Liviidae*

Hostplant: Rushes *Juncus spp.*

Life cycle: Overwinters as an adult on the host plant

Gall causer: Yes – a 'tassel' gall.

Norfolk status: Widespread

Identification difficulty: Distinctive – can be identified from photos.

The only British species associated with rushes. It causes 'tassel' galls that are distinctive (although note that some rushes are viviparous). Adults can only really be confused with *L. crefeldensis*, but the head and swollen antennal shape is different, whilst this species also has more obvious brown spotting around the edge of the wings.

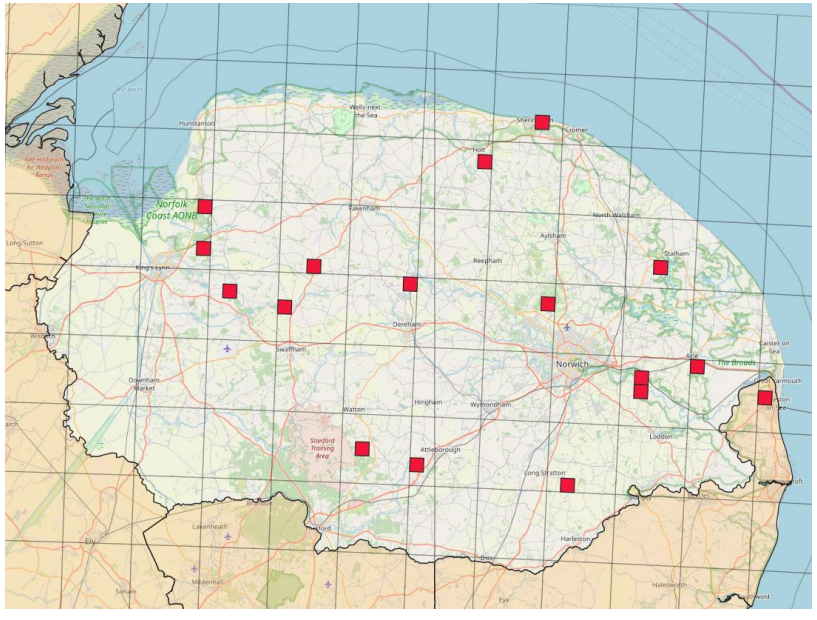
Nymphs are predated by larvae of the hoverfly *Trichopsomyia flavitarsis*.

Important identification resources
Included in the RES handbook.
Adults are shown on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Livia_juncorum.html

Tassel gall on rush.
Photo: Brian Eversham.

Top view of antennae.
Photo: Andy Beaumont.

Livia junci adult. Photo: Andy Beaumont



Psyllopsis fraxini agg.

Liviidae

Hostplant: Ash *Fraxinus spp.*

Life cycle: Adults present in summer, overwinters as an egg

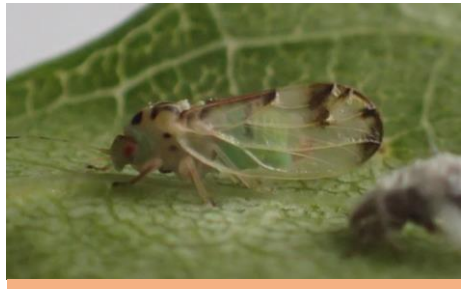
Gall causer: Yes – a red/purple veined distorted leaf

Norfolk status: Very common

Identification difficulty: Galls should be recorded as this aggregate (see *Psyllopsis fraxini s.s.* account for details of the adults)

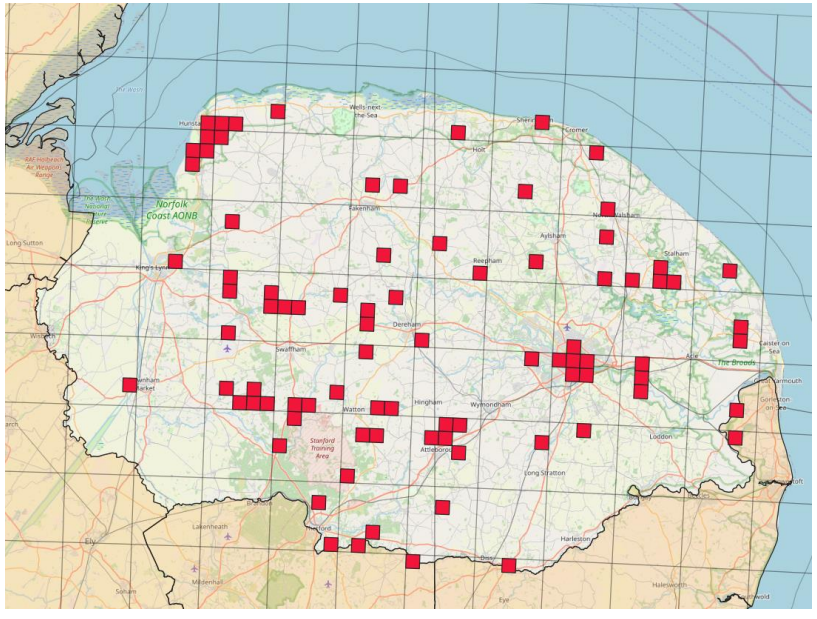
Psyllopsis fraxini agg. gall on Ash

There are four *Psyllopsis* species that can be found on Ash. Three of them, *Psyllopsis discrepans, distinguenda* and *fraxini* all have marked wings and can make similar galls. In the past, galls like the one shown have all been recorded as *Psyllopsis fraxini*, however the current thinking is that the galls cannot be separated and they should only be recorded to species level if the nymph has been examined.



This female *Psyllopsis sp*. was bred from a leaf-roll gall and at first appeared to be one of the scarcer species, but the wing-markings darkened with time.

Similarly whilst adults might appear to have different wing-markings, these are variable and adult females should also be recorded as the aggregate, at least for now.



<u>Important identification resources</u>

Adults are included in the RES handbook.
Nymphs are included in a different RES handbook and in Ossiannilsson.
Galls are best identified using Redfern & Shirley (2023).

Psyllopsis fraxini s.s.(Linnaeus, 1758) *Liviidae*

Hostplant: Ash *Fraxinus spp.*

Life cycle: Adults present in summer, overwintering as an egg

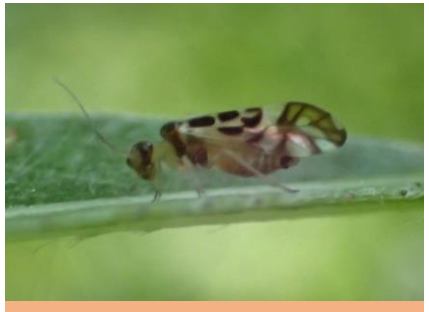
Gall causer: Yes – a red/purple veined distorted leaf

Norfolk status: Uncertain, probably very common

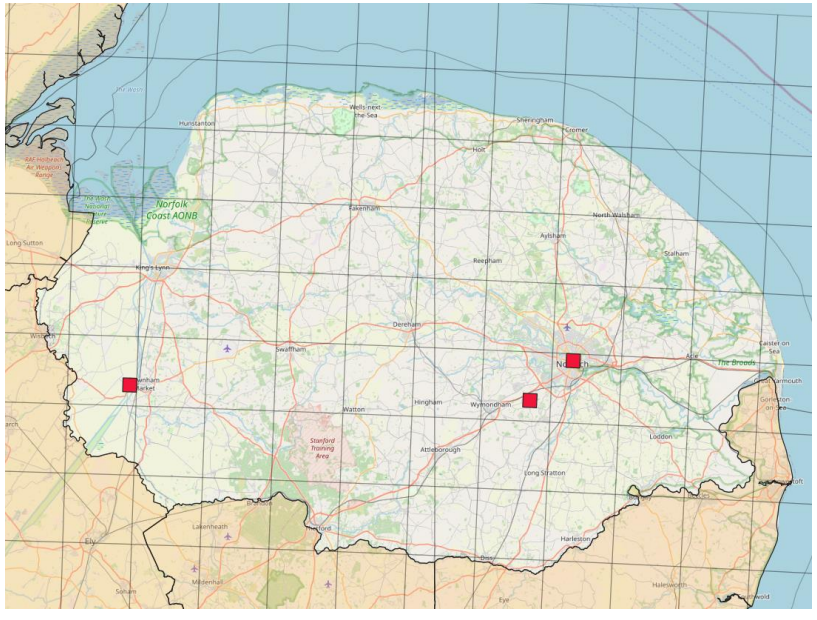
Identification difficulty: Galls should be recorded *Psyllopsis fraxini* agg. The male terminalia are distinctive, females are harder to confirm.

♂ *Psyllopsis fraxini & male terminalia*

There are three *Psyllopsis* species that can easily be separated as a group from other psyllids because of their wing pattern. However, separating them from each other is trickier because the wing patterns appear to be variable. Based on the ones raised from galls, the depth of colour seems to vary over time (like teneral colouring in Odonata) and also seem to be paler in females than in males. The female terminalia is also quite similar between all three, so to be sure of this species the male terminalia should be checked. This can sometimes be done in live specimens with a good photo.



Be aware that the Barkfly *Graphopsocus cruciatus* is superficially similar but has two black 'lozenge' marks along the upper wing edge.



<u>Important identification resources</u>

Psyllopsis species are all included in the RES handbook.
Nymphs are included in a different RES handbook or in Ossiannilsson.
Galls are best identified using Redfern & Shirley (2023).
Pictures of adults can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psyllopsis_fraxini.html

Psyllopsis fraxinicola (Förster, 1848) *Liviidae*

Hostplant: Ash *Fraxinus spp.*

Life cycle: Adults summer/autumn

Gall causer: The nymphs sometimes cause bumps on Ash leaves

Norfolk status: Fairly common

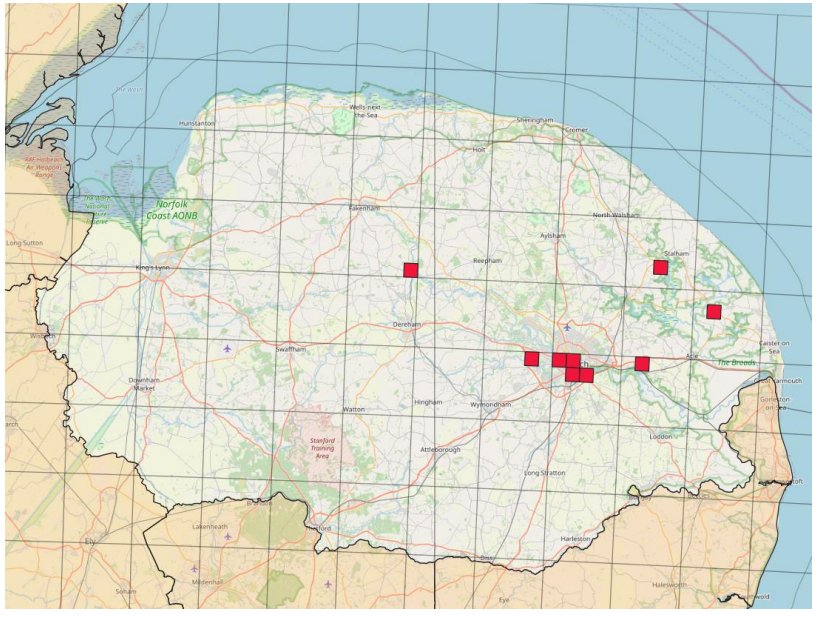
Identification difficulty: All-green psyllids with clear wings found on Ash are likely to be this, but be aware of out-of-place green *Cacopsylla* species.

A fairly distinctive species when found on Ash as the other *Psyllopsis* species all have patterned bodies and wings. The female terminalia are distinctive and give it a stubby appearance. From a specimen this species could be separated from green *Cacopsylla* species by counting the metatibial spines (9-10 rather than the 6 in similar species).

Psyllopsis fraxinicola nymph.

Nymphs can be free-living on Ash leaves or found beneath slight depressions. Confusingly they are also sometimes found within galls caused by *Psyllopsis fraxini* agg., although are easily separated as they do not have black abdominal markings.

♀ *Psyllopsis fraxinicola*



<u>Important identification resources</u>

Adults are included in the RES handbook.

Pictures of adults can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Psyllopsis_fraxinicola.html

Strophingia ericae (Curtis, 1835) *Liviidae*

Hostplant: Ling *Calluna vulgaris*

Life cycle: Nymphs

Gall causer: No

Norfolk status: Scarce, probably overlooked

Identification difficulty: Easily identifiable to genus, examination needed to separate from *Strophingia cinereae* (not yet recorded in Norfolk)

There are two *Strophingia* species in Britain, both tiny (about 2mm long) with no genal cones and associated with heather. This species is associated with Ling (*Calluna vulgaris*), whilst *S. cinerea* is associated with Bell Heather (*Erica cinerea*). As these species often grow together, it is necessary to check the ID carefully rather than assume the species based on the plant the specimen was on.

Close up of *Strophingia ericae* wing, showing the obvious maculations (spotting).

Separation can be made by examination of the wings, which are rounded and lightly mottled in this species (trapezoidal-shaped and plain yellow in *S. cinereae*).

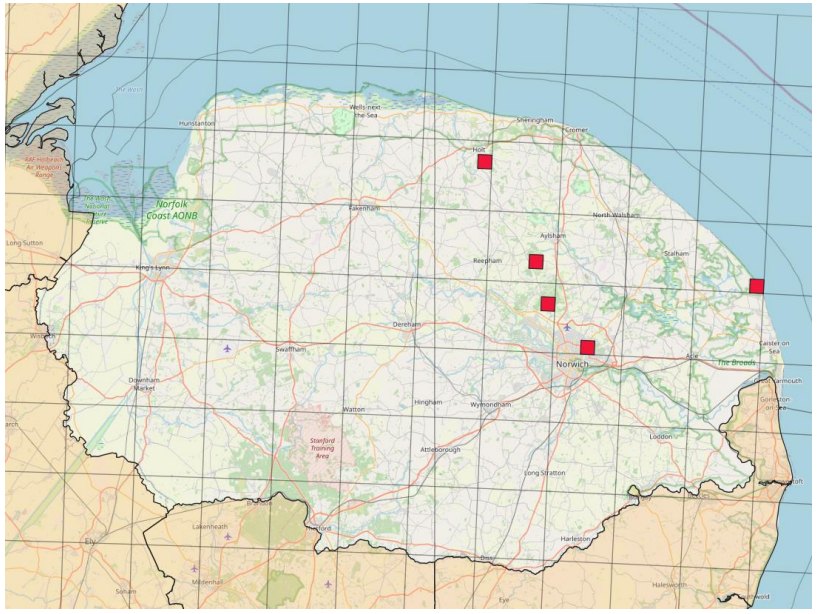
Important identification resources

Both *Strophingia* species are included in the RES handbook.

Pictures of live specimens can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Strophingia_ericae.html

♀ *Strophingia ericae*



Psyllidae

Genera

- *Accizzia*
- *Arytaina*
- *Arytainilla*
- *Baeopelma*
- *Chamaepsylla*
- *Cacopsylla*
- *Psylla*

The largest family, and containing the large (and often tricky-to-ID) genus *Cacopsylla*. Reliable ID is often based on the male genitalia, so not all females can be confirmed. Abdomen colour is variable in some species depending on age and time of year, adding another variable.

A *Psyllidae* wing, with the pattern of veins allowing easy separation from the *Triozidae*.

Acizzia uncatoides (Ferris & Klyver, 1932) *Psyllidae*

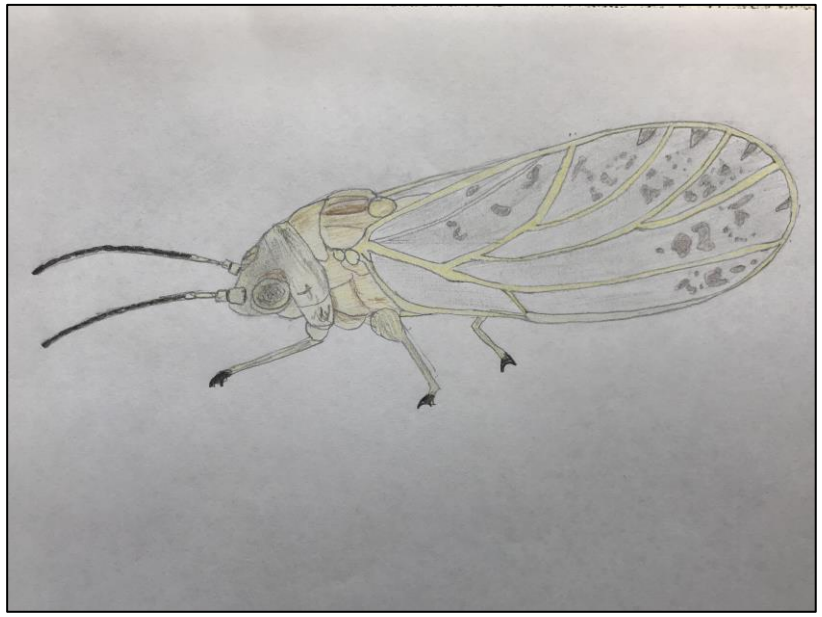
Hostplant: *Acacia* and *Albizia*

Life cycle: Unknown

Gall causer: No

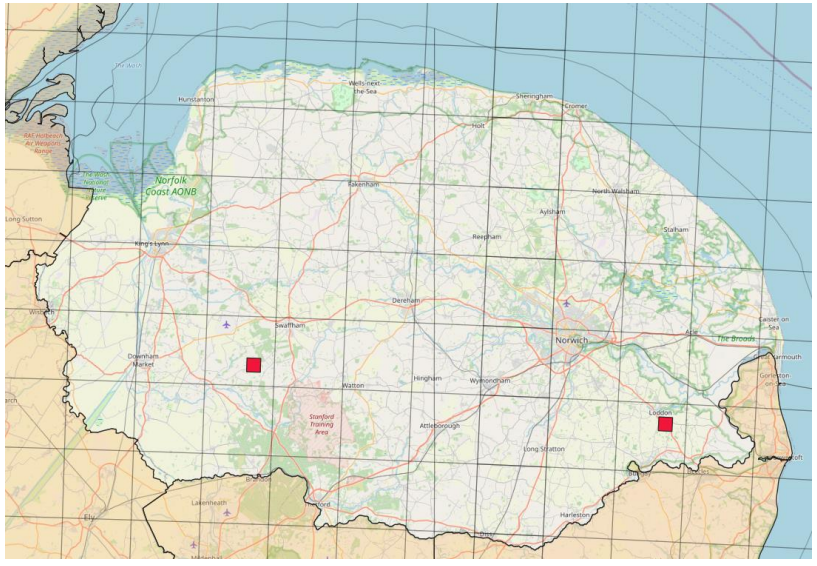
Norfolk status: Two records, from Loddon and Gooderstone.

Identification difficulty: Needs to be keyed out due to the possibility of other *Acizzia* species.



Acizzia uncatoides to show wing pattern

Acizzia species are non-native, and their distribution is discussed in Malumphy, C. & Luker, S. 2014. The status of *Acizzia acaciaebaileyanae* (Froggat), *A. jamatonica* (Kuwayama) and *A. uncatoides* (Ferris & Klyver) (Hemiptera: Psyllidae) in Britain. Entomologists Gazette 65, 161-167. In that paper it is concluded that *Acizzia uncatoides* and *A. acaciaebaileyanae* are both locally naturalized in parts of southern England, whereas *A. jamatonica* is not established, but has been intercepted and is therefore a possible future colonising species. The paper does not include a key or terminalia diagrams, so species should be keyed using Hodkinson (1987), which includes a key and diagrams of the two established species. *A. jamatonica* is not included but can be separated as it has two apical spurs on the hind metatarsus (the other two species only have one).



Acizzia uncatoides mostly feeds on *Acacia*, but has also been recorded on *Albizia* and *Paraserianthes*.

<u>Important identification resources</u>

Hodkinson, Ian. (1987). The legume-feeding psyllids (Homoptera) of the west Palaearctic Region. Bulletin of the British Museum (Natural History) Entomology Series. 56. 1-86.

Arytaina genistae (Latreille, 1804) *Psyllidae*

Hostplant: Broom *Cytisus scoparius*

Life cycle: Adults occur all year round, overwintering on conifers

Gall causer: No

Norfolk status: Widespread

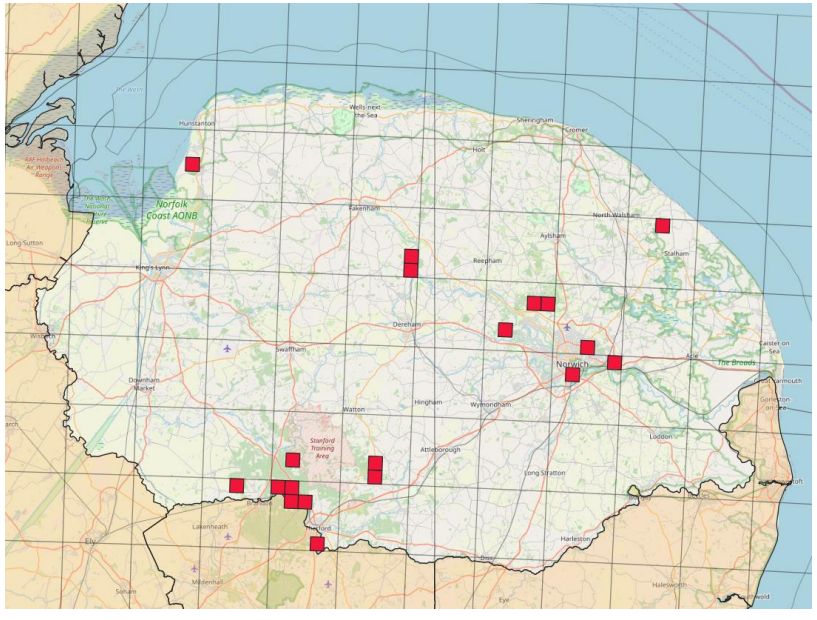
Identification difficulty: Distinctive (dark streak on the wing)

A common species in Norfolk, best searched for on heathland (e.g. in Breckland or north of Norwich), but also sometimes occurring on Broom in gardens.

The body colour is variable, but this species consistently has a dark streak on the wing that is not present on the other common species found on Broom, *Arytainilla spartiophila.*

Body colour is variable, darkening as shown here in this picture by Vanna Bartlett

♀ *Arytaina genistae*



<u>Important identification resources</u>
Adults are included in the RES handbook.
Photos of adults and a nymph can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Arytaina_genistae.html

Arytainilla spartiophila (Förster, 1848) *Psyllidae*

Hostplant: Broom *Cytisus scoparius*

Life cycle: Adults found in spring and summer

Gall causer: No

Norfolk status: Scarce

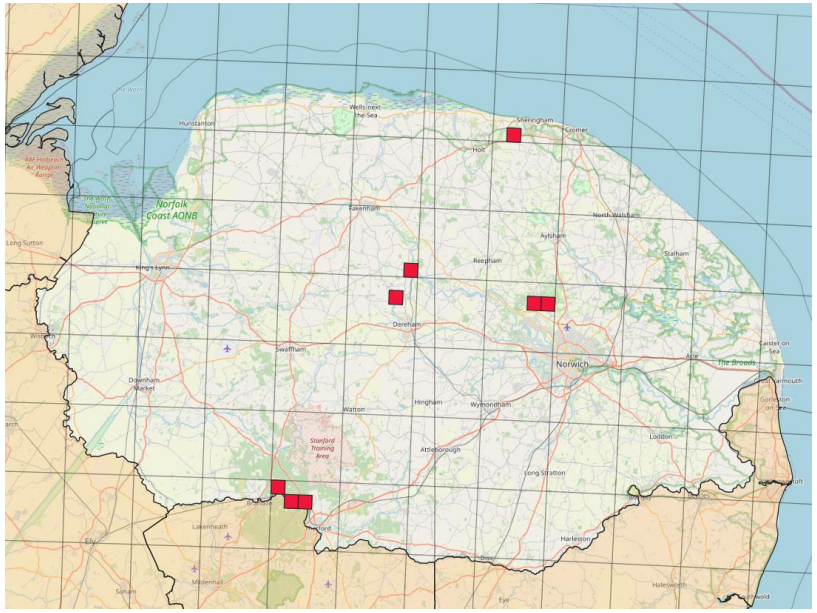
Identification difficulty: Identifiable from good photos.

♀ *Arytainilla spartiophila*

This species is found in similar places (and sometimes alongside) *Arytaina genistae* on Broom in Breckland or north of Norwich.

This species never has the dark wing streak found on *Arytaina genistae.* The genal cones are reduced in size so if only viewed from above it could possibly be confused with one of the *Aphalaridae.* The female terminalia is distinctive as it curves up at the tip.

Female terminalia of a cleared specimen, showing the upturned tip.



<u>Important identification resources</u>
Adults are included in the RES handbook.
Photos of adults can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Arytainilla_spartiophila.html

Baeopelma (=Psylla) försteri (Flor, 1861) *Psyllidae*

Hostplant: Alder *Alnus* spp.

Life cycle: Adults found in summer

Gall causer: No

Norfolk status: Widespread

Identification difficulty: Usually identifiable from good photos.

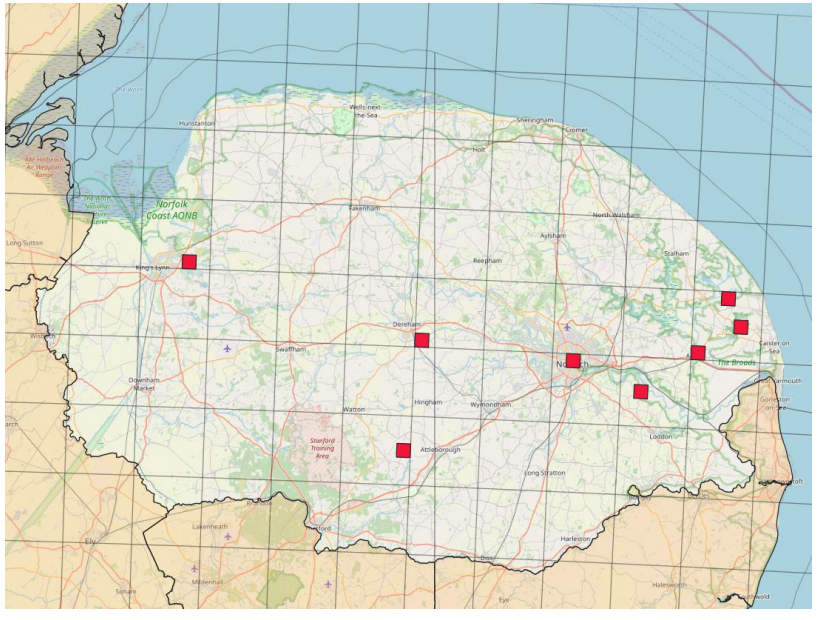
♀ *Baeopelma försteri*

A large green psyllid associated with Alder and superficially similar to the commoner *Psylla alni.* The most obvious difference is in the wings, which have a yellowy translucence with yellowy-brown veins in this species (clear wings with black veins in *Psylla alni*).

Wing showing pale veins

If you have a female specimen then under high magnification *Baeopelma försteri* has a finely serrated top edge to the upper part of the terminalia as shown in the insert to the right. The female terminalia also tend to be all pinkish-orange, rather than half green.

Female terminalia showing serrated top edge to the upper part.



<u>Important identification resources</u>

Adults are included in the RES handbook.

Photos of adults can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_foersteri.html

Cacopsylla affinis (Löw, 1880) = ***Psylla subferrugineus*** *Psyllidae*

Hostplant: Birch *Betula* and Hawthorn *Crataegus*

Life cycle: Adults occur all year round, overwintering on shelter plants

Gall causer: No

Norfolk status: Rare

Identification difficulty: Males can be identified from a specimen, females are currently thought to be indistinguishable from the commoner *Cacopsylla melanoneura*.

♂ from Edwards collection

A dark *Cacopsylla*, very similar in appearance to *Cacopsylla melanoneura*. Using the RES handbook the two would separate out with *C. affinis* having a yellow tint to the wings (clear in *melanoneura*) and using Ossiannilsson the separating couplet is based on *affinis* having slightly narrower spinule-free bands along the wing veins. Both of these features are tricky to judge and as a result it is now widely accepted that this species can only be accurately determined in male specimens by checking the terminalia.

Edwards recorded this species in Norfolk (the only record with full details is from Blakeney Point, at tetrad resolution so not plotted here). In the past 50 years the sole confirmed record is therefore a male found on birch at Bawsey Pits, although I have recorded a likely female at Whitlingham C.P. on Hawthorn.

<u>Important identification resources</u>
Adults are included in the RES handbook as *Psylla subferrugineus*.
Photos of adults can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_affinis.html

Cacopsylla ambigua (Förster, 1848) *Psyllidae*

Hostplant: Willow *Salix spp.* (mostly Sallows)

Lice cycle: Adults occur in the summer, overwinters as a nymph.

Gall causer: Yes (inrolling of leaf margins)

Norfolk status: Rare

Identification difficulty: Possibly identifiable from photos, but due to the lack of Norfolk records ideally confirmed from a specimen.

A pale green psyllid, with an orange thorax once mature. The wings are slightly opaque ('milky') and the antennae are mostly black (pale near the base). The veins are pale and the pterostigma is long. The wing spinules are lightly coloured but densely distributed across the wing with no spinule-free bands along the veins.

Only one confirmed Norfolk record, from Wendling Beck in 2022.

Cacopsyllla ambigua wing showing the dense wing spinules. Photo: Dave Appleton

♀ *Cacopsylla ambigua. Photo: Dave Appleton*

<u>Important identification resources</u>
Adults are included in the RES handbook.
An adult is pictured on the British Bugs website here:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_ambigua.html

Cacopsylla brunneipennis (Edwards, 1896) *Psyllidae*

Hostplant: Willows *Salix spp.*

Lice cycle: Adults occur all year round, overwintering on shelter plants.

Gall causer: No

Norfolk status: Widespread

Identification difficulty: Sometimes identifiable from photos, but best confirmed from a specimen.

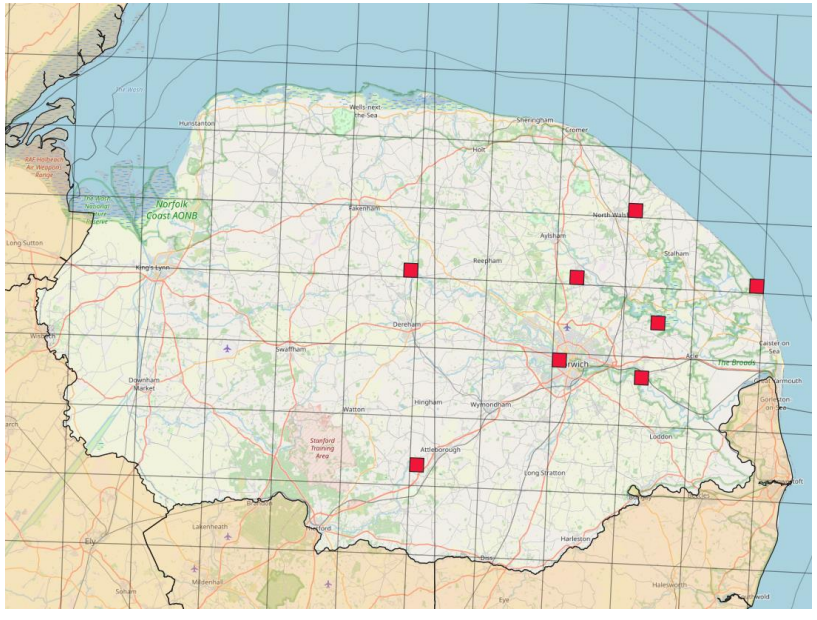
A variable species. Mature specimens of the typical form are brown with brown wings and slender genal cones. Form *klapalecki*, considered by some authors to be a separate species, is clear-winged. Maturing specimens look different again, with green bodies and dark wing apexes (see photo on right). The female terminalia has a distinctive overhanging top section, but the male terminalia needs closer inspection to confirm.

f. klapaleki. Photo: Dave Appleton

Teneral f. typica

Female terminalia showing overhang of top part.

♀ *Cacopsylla brunneipennis Photo: Vanna Bartlett*



<u>Important identification resources</u>

Adults are included in the RES handbook.

Pictures of adults included on British Bugs website: https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_brunneipennis.html

Cacopsylla crataegi (Schrank, 1801) *Psyllidae*

Hostplant: Hawthorn *Crataegus spp.*

Life cycle: Adults occur all year round, overwintering on shelter plants.

Gall causer: Yes (small red bumps on leaves)

Norfolk status: Historical only – no confirmed records for 100 years

Identification difficulty: Distinctive

Specimen from the Edwards collection

This species is distinctive because of the dark marks around the edge of the wing (visible but faded in the museum specimen pictured). It is associated with Hawthorn – the British Bugs website suggests that it might be particularly associated with Midland Hawthorn, which might explain the lack of records as this is a scarce species in Norfolk.

The historical records from James Edwards (under the names *Psylla costatopunctata* and *P. ferruginea*) were apparently found on Blackthorn. An adult specimen in Ken Durrant's collection labelled *Psylla crataegi* appears to actually be *Cacopsylla melanoneura* as it lacks the dark wing markings.

Galls would not be enough to confirm this species as several aphids and a fungus can also cause reddening and distortion of Hawthorn leaves.

<u>Important identification resources</u>
Adults are included in the RES handbook.
An adult is pictured on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_crataegi.html

Cacopsylla fulguralis (Kuwayama, 1908) *Psyllidae*

Hostplant: *Eleagnus spp.*

Life cycle: Thought to overwinter as eggs. Gets through several generations per year.

Gall causer: Apparently can cause some leaf distortion

Norfolk status: Common

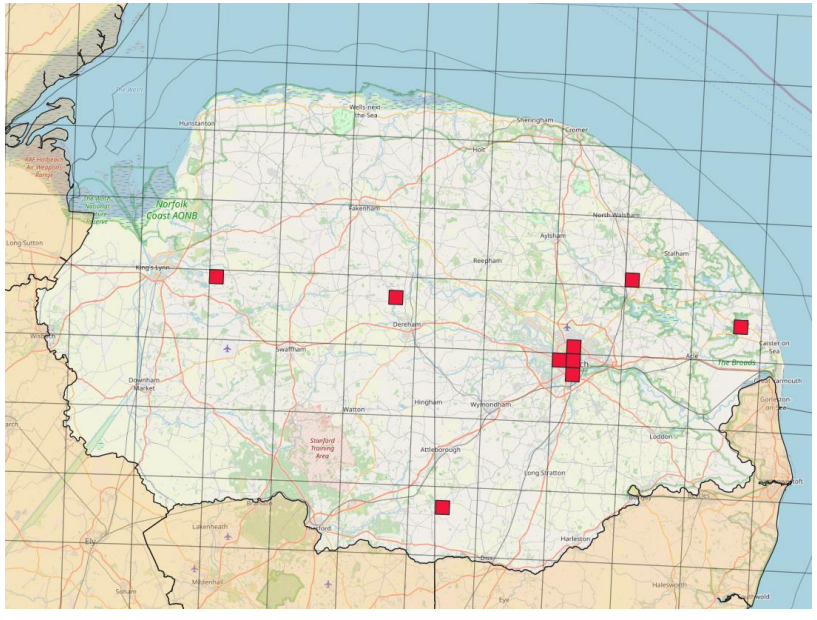
Identification difficulty: Distinctive

Cacopsylla fulguralis adult

First reported from Britain in 2000 and described in: Malumphy, C.P. & Halstead, A.J. (2003) *Cacopsylla fulguralis* (Kuwayama), an Asian jumping plant louse (Hemiptera: Psyllidae), causing damage to *Eleagnus* in Britain. BR. J. ENT. NAT. HIST., 16: 2003

Close up of wing, showing patterning

This species is not included in the RES handbook, however fortunately the wing patterning is distinctive. It occurs on a range of *Eleagnus* species, particularly *E. x ebbingei*. If large numbers are present then the honeydew produced increases the growth of sooty moulds on the leaf surface.



Common around Norwich, also found in gardens or hedging elsewhere in Norfolk when searched for.

<u>Important identification resources</u>

Not included in the RES handbook.

Adults are pictured on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_fulguralis.html

Cacopsylla hippophaes (Förster, 1848) *Psyllidae*

Hostplant: Sea Buckthorn *Hippophaes rhamnoides*

Life cycle: Occurs as an adult over the summer, overwintering as an egg

Gall causer: No

Norfolk status: Common

Identification difficulty: Green psyllids on Sea Buckthorn are likely to be this species, however a specimen should be examined to confirm the ID.

Two species of psyllid feed on Sea Buckthorn. *Cacopsylla hippophaes* is the more widely distributed species and is typically a greeny-yellow colour. The wings have a slight yellow tint and the antennae have dark tips. The other species is *Cacopsylla zetterstedti*, which is usually red/brown and, at least at the time of the RES handbook, was restricted to a few sites including Sandwich Bay, Kent.

This species was recorded from Winterton in 1887 by James Edwards (no grid reference so not mapped), however the only recent record was when several were found in the large area of Sea Buckthorn at Snettisham Coastal Park in 2022. A large fire burnt much of this area later in that year, so it is not yet known if it survived there.

♀ *Cacopsylla hippophaes at Snettisham C.P.*

<u>Important identification resources</u>
Adults are included in the RES handbook.
Pictures of adults can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_hippophaes.html

Cacopsylla mali (Schmidberger, 1836) *Psyllidae*

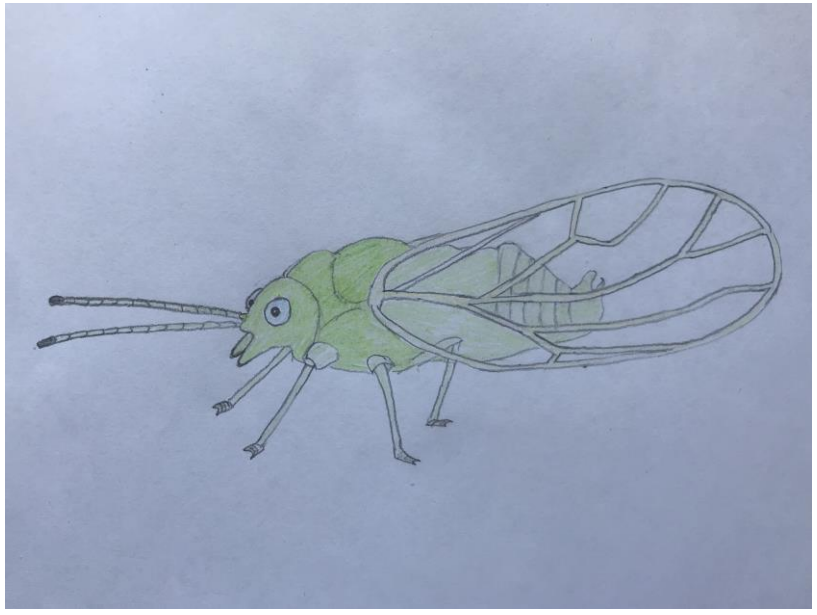
Hostplant: Apple *Malus spp (occasionally other related trees)*

Life cycle: Found as an adult over the summer, overwinters as an egg.

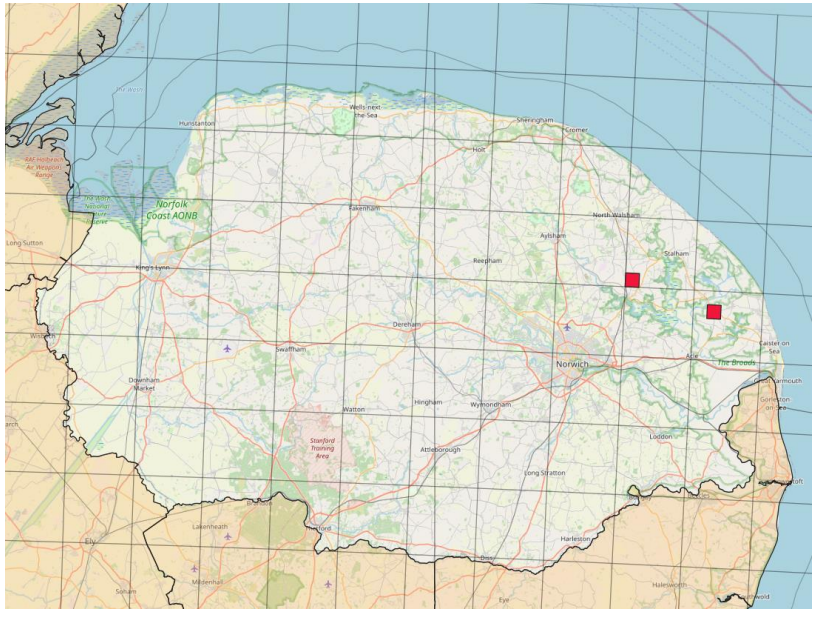
Gall causer: Can cause some leaf distortion that might class as a gall.

Norfolk status: Rare/under-recorded

Identification difficulty: Females are not reliably separable from *C. peregrina* and *C. visci*. Males determinable from a specimen, nymphs from photos if on apple and without brown streaks on the wingbuds.



♂ *Cacopsylla mali*



A green *Cacopsylla* species, although turning brown later in the season. Very similar to the common *Cacopsylla peregrina*, which might also be found occasionally on Apple. It is also similar to the rarer *C. visci,* which feeds on Mistletoe (which sometimes grows on Apple). As a result the females cannot be identified with certainty. There are differences in the male terminalia, so ID of adults should be carried out with reference to a male specimen. The nymphs lack the brown streaks on the wingbuds of *C. peregrina*, so nymphs found feeding on Apple with plain wingbuds are safe to record as this species.

Edwards recorded this species from Apple trees at Stratton Strawless, although I have not found full details of this record. In 2023 one observer found it at Repps-with-Bastwick and Hoveton Hall gardens, which become the first modern Norfolk records. It should be looked for on mature apple trees in gardens and orchards.

Important identification resources

Adults are included in the RES handbook.

Pictures of adults and a nymph can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_mali.html

Cacopsylla melanoneura (Förster, 1848) *Psyllidae*

Hostplant: Hawthorn *Crataegus* spp.

Life cycle: Occurs as an adult all year round, overwintering on shelter plants

Gall causer: Yes (causes blistering on Hawthorn leaves)

Norfolk status: Common

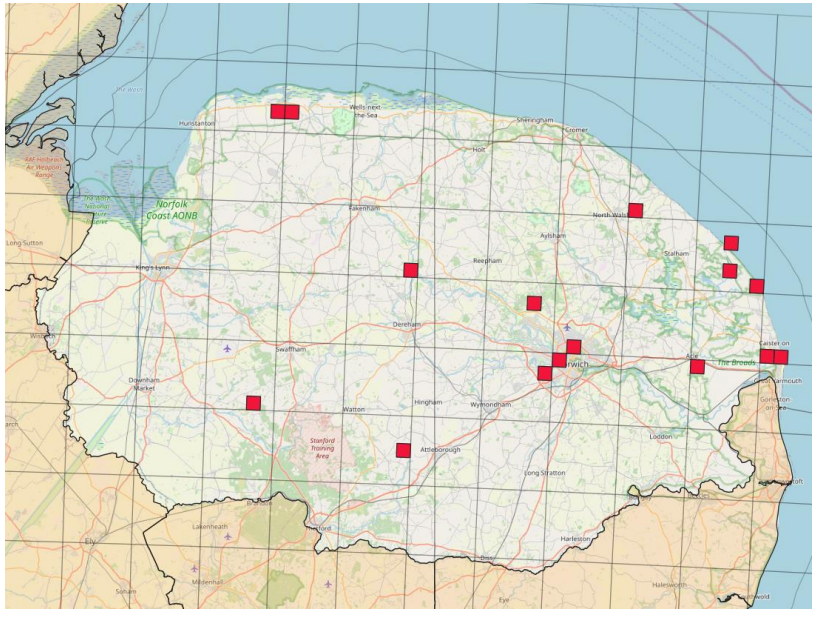
Identification difficulty: Close examination needed, females probably inseparable from *C. affinis*.

♂ *Cacopsylla melanoneura*. Photo: Tim Hodge

Probably one of the commonest Norfolk psyllids, but under-recorded as only males can be identified with confidence.

Mature (dark brown) males can be identified using the RES handbook, paying particular attention to the wing spinule pattern (including the spinule-free bands) and the terminalia. Early in the season green individuals may be found and these will not key properly at couplet 20 as this question separates based on body colour - if in doubt try with both options.

Close-up of *Cacopsylla melanoneura* wing showing the wing spinule pattern.



<u>Important identification resources</u>

Adults are included in the RES handbook.

Pictures of adults and a nymph can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_melanoneura.html

Cacopsylla moscovita (Andrianova, 1948) *Psyllidae*

Hostplant: Willow *Salix spp.*

Life cycle: Present as an adult all year round, remaining on host plant.

Gall causer: No

Norfolk status: Scarce, distribution seems to be centred on the Broads.

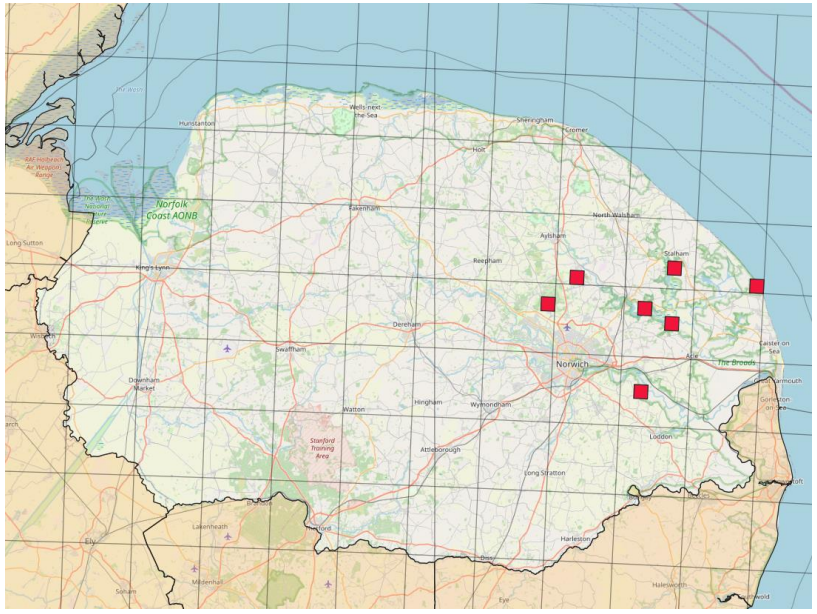
Identification difficulty: Adults are similar to other *Cacopsylla* species so determination from a specimen is needed.

Cacopsylla moscovita from Edwards collection

One of several species that feed on willows. The colouration is variable, younger adults can have orange thoraxes and green abdomens, darkening to red and 'plum' colouring when mature. It is one of the last species to key out in the RES handbook, but the shape of the male parameres is distinctive.

James Edwards recorded this species from St Faiths and Stratton Strawless, there were four Broadland records (Wheatfen in 1937 then Bure Marshes, Ranworth and Sutton Fen in 1988) with the only post 2000 record from Winterton Dunes in 2014.

Cacopsylla moscovita cleared male terminalia showing denticle and bump below.



<u>Important identification resources</u>
Adults are included in the RES handbook.

Cacopsylla peregrina (Förster, 1848) *Psyllidae*

Hostplant: Hawthorn *Crataegus spp.*

Life cycle: Adults occur summer/autumn, overwintering as an egg.

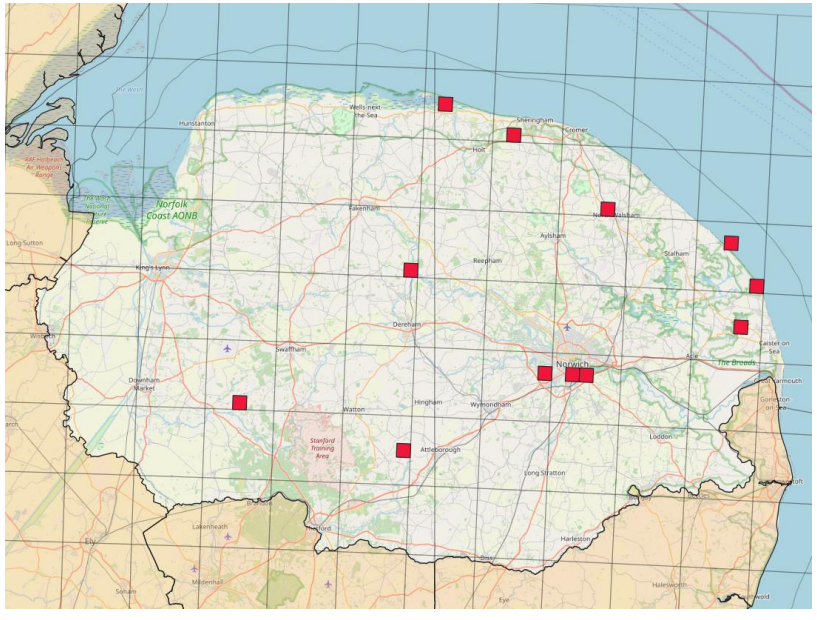
Gall causer: Yes (small depressions on leaves)

Norfolk status: Common
Identification difficulty: Females not separable from other green *Cacopsylla spp*. Males can be confirmed from a specimen. Nymphs found on Hawthorn can be identified from the brown streaks on the wing-cases.

Cacopsylla peregrina

A nymph showing brown streaks on the wings. Photo: Dave Appleton

An empty nymphal case still shows brown streaks on the wing-cases.



A small green psyllid, very similar in appearance to *Cacopsylla mali.* As a result identification should be based either on the nymphs or examination of male specimens. Later in the year both *C. peregrina* and *C. mali* darken along the thorax and back of the abdomen.

This species is probably more widespread than the distribution map suggests.

<u>Important identification resources</u>
Adults are included in the RES handbook.
Adults and a nymph are pictured on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_peregrina.html

Cacopsylla pruni s.l. (Scopoli, 1763) *Psyllidae*

Hostplant: *Prunus spp.*

Life cycle: Occurs as an adult all year round, overwintering on shelter plants

Gall causer: Yes (small bulges on leaf)

Norfolk status: Rare/overlooked

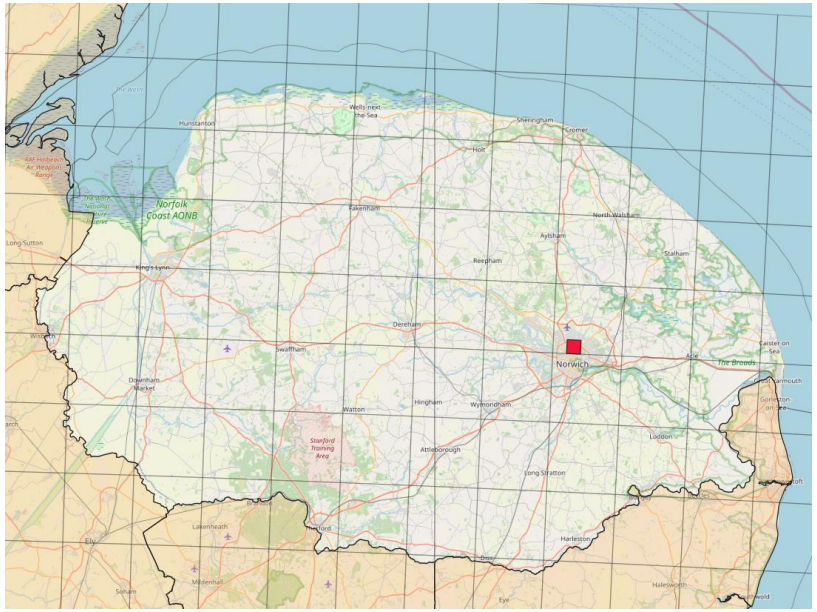
Identification difficulty: Best identified by examining a specimen. Apparently there are two cryptic species, the second as yet un-named, that can only be separated by checking certain molecular markers, so please retain any specimens.

One of a small group of psyllids with an orangey body and yellowy-brown wings that requires keying out to be sure of the identity. It is currently unknown which of the cryptic species is present in Norfolk.

Cacopsylla pruni wing.

James Edwards described this species as being common on Blackthorn, however none of his specimens are accompanied by metadata to provide biological records. The only recent record is a male attracted to an actinic light trap in North Norwich in 2023.

♂ *Cacopsylla pruni*



Important identification resources

Adults are included in the RES handbook.

Details of the cryptic species can be found in: Sauvion N, Peccoud J, Meynard CN, Ouvrard D. (2021) Occurrence data for the two cryptic species of *Cacopsylla pruni* (Hemiptera: Psylloidea). *Biodivers Data J.* 2021.

Cacopsylla pulchra (Zetterstedt, 1840) *Psyllidae*

Hostplant: Willow *Salix spp.*

Overwinters as: Occurs as an adult all year round, overwintering on shelter plants

Gall causer: No

Norfolk status: Rare/overlooked

Identification difficulty: Examination of a specimen needed.

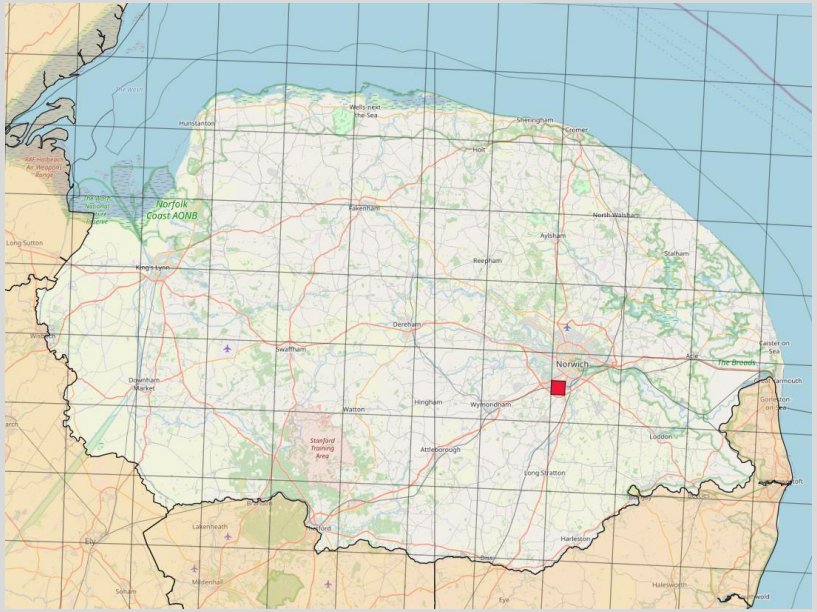
This species has been known under the names *Psylla nigrita* and *Psylla pineti* in the past. Young specimens can be green, however adults are typically dark red/brown with pale stripes on the thorax.

This species was found on several occasions by James Edwards in the early 1900s. Data only exists relating to a record from Eaton in 1923, but prior to that he had found it on Fir trees at Ringland and Sprowston.

This species is common across Europe on willows and the combination of a lack of psyllid recording and the similarity to other *Cacopsylla* species means it could be being overlooked in Norfolk.

Important identification resources
Adults are included in the RES handbook.

Cacopsylla pulchra from Edwards collection



Cacopsylla pyri (Linnaeus, 1758) *Psyllidae*

Hostplant: Pear *Pyrus spp.*

Life cycle: May go through multiple generations in a year, adults present all year round on host plant.

Gall causer: Causes leaf distortion

Norfolk status: One record of a nymph

Identification difficulty: Care needs to be taken to rule out *Cacopsylla pyricola*. Males probably identifiable from a side-on photo if the paramere is visible.

One of three *Cacopsylla* species that feed on Pear. It can be red-brown or black, with pale streaks on the thorax. The wings have a small black mark and may have dark 'clouds' in the middle of the cells (similar to *C. pyricola*), but the males of *C. pyri* can be distinguished easily because of the sickle-shaped paramere.

This species was previously rare in the UK, but is noted on British Bugs as now common in south-east England. The sole Norfolk record so far relates to a nymph.

Note that (albeit from a small sample), *C. pyricola* seems to be the commonest of the pear psyllids in East Anglia.

<u>Important identification resources</u>
Adults are included in the RES handbook.
Adults and a nymph are shown on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_pyri.html

Cacopsylla pyri

Cacopsylla pyricola (Förster, 1848) *Psyllidae*

Hostplant: Pear *Pyrus* spp.

Life cycle: Multiple generations per year, adults present all year round on the host plant.

Gall causer: No.

Norfolk status: Rare/under-recorded

Identification difficulty: Identifiable from photos but be aware of two other similar species that also occur on *Pyrus*.

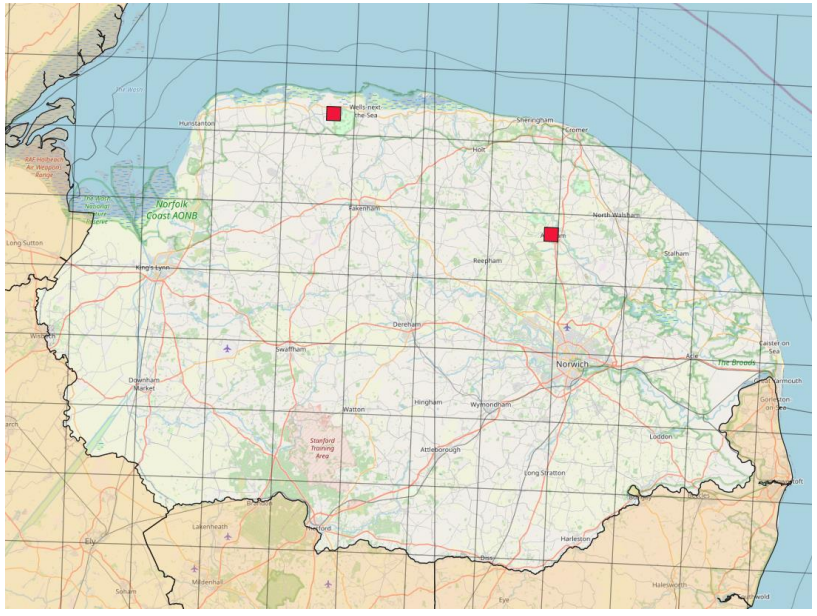
One of three species of *Cacopsylla* found on Pear. The summer generation have clear wings and are known as form *typica*, whilst the autumn generation have wing clouds and are called form *simulans.* Both forms have a large dark patch on the inner edge of the wing (i.e. held above the body).

There are currently only records from two sites in Norfolk, a private garden and the walled garden at Holkham, however more records may be generated by targeting stately homes and orchards with mature Pear trees.

Cacopsylla pyricola summer form wing.

Cacopsylla pyricola autumn form wing showing dark areas.

♂ *Cacopsylla pyricola from Holkham*



Important identification resources

Adults are included in the RES handbook.

Adults of the clear-winged generation are shown on the British Bugs website: https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_pyricola.html

Cacopsylla rhamnicola (Scott, 1876) *Psyllidae*

Hostplant: Buckthorn *Rhamnus cathartica*

Life cycle: Occurs as an adult all year round, overwintering on shelter plants

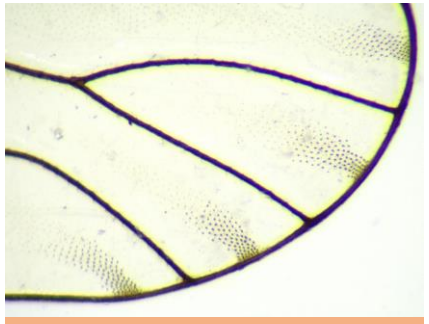
Gall causer: Yes (pit galls on leaves)

Norfolk status: Rare/overlooked (one record).

Identification difficulty: Can be identified from photos if the radular spinules are visible.

One of many *Cacopsylla* species with reddish-brown or black colouration, however fortunately this species can be separated from similar ones by the presence of radular spinules at the wing apex (see photo).

This species was new to Norfolk in February 2024 when one was beaten from a pine tree in Breckland.



Close-up of the wing of *Cacopsylla rhamnicola*, showing the dark radular spinules, similar to those on *Trioza* species.
Photo: Dave Appleton.

♀ *Cacopsylla rhamnicola. Photo: Dave Appleton*

<u>Important identification resources</u>
Adults are included in the RES handbook.

Cacopsylla saliceti (Förster, 1848) *Psyllidae*

Hostplant: Willow *Salix spp.*

Overwinters as: Occurs as an adult all year round, overwintering on shelter plants

Gall causer: Causes some leaf distortion but possibly not true galling.

Norfolk status: Rare/under-recorded

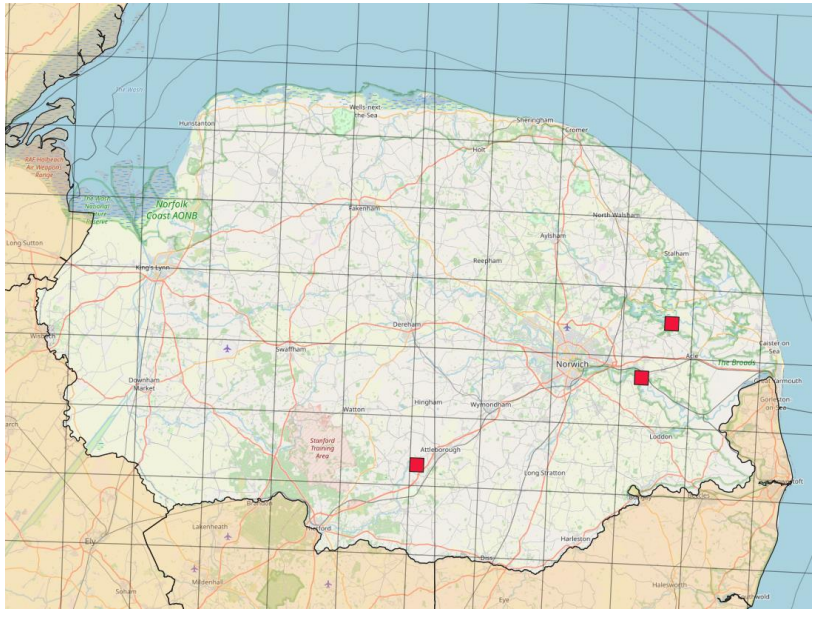
Identification difficulty: Close examination needed

One of many orangey-red *Cacopsylla* species with pale streaks on the thorax. The wing is broadest in the apical third, which helps separate it from *Cacopsylla moscovita* (a similar species also associated with willows), in which the wing is equally broad at the centre and apical third. The male paramere is a distinctive shape, strongly swollen near the base, concave and then a prominent denticle near the tip.

There are four records, all from 1988 so presumably most relating to the East Anglian Fen Survey. The locations are King's Lynn (grid reference not plotted), Ranworth, Swangey Fen and Wheatfen.

<u>Important identification resources</u>
Adults are included in the RES handbook.

Cacopsylla saliceti from Edwards collection



Cacopsylla sorbi (Linnaeus, 1758) *Psyllidae*

Hostplant: Rowan *Sorbus aucupariae*

Life cycle: Adults present over the summer, overwinters as an egg

Gall causer: Yes (in-rolled leaves)

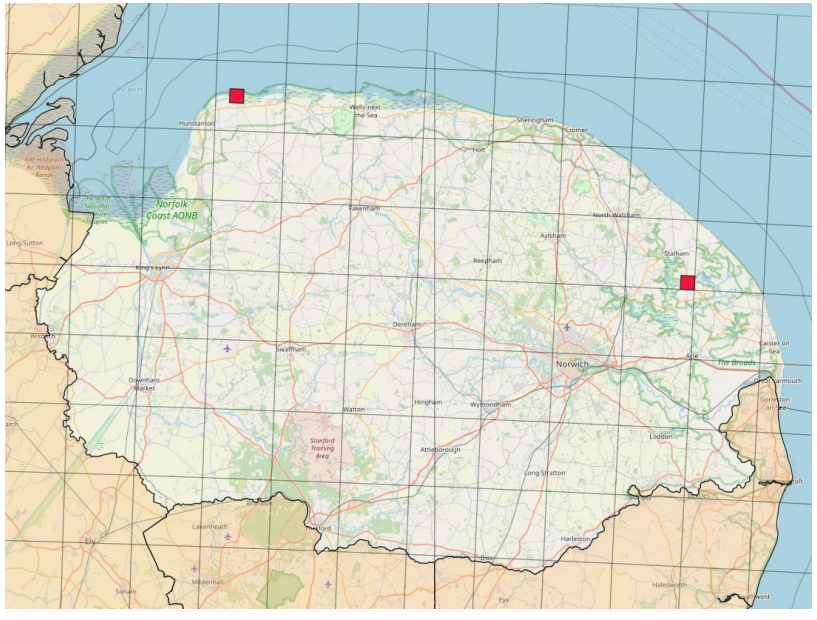
Norfolk status: Rare/overlooked

Identification difficulty: Close examination needed (height to width ratio of cell cu_1 is noted as a useful character by Hodkinson & White)

Cacopsylla sorbi. Photo: Andy Beaumont

One of the *Cacopsylla* species that varies in appearance depending on the season. In spring adults are typically green with pale wing veins, before turning orange. In late summer and autumn individuals might be dark red/brown and the veins are dark. This darker autumn form was occasionally misidentified as *Psylla costalis* in the past (along with darker forms of several other *Cacopsylla* spp.) This species will key out to a couplet with *C. mali*, at which point subtle features of the male parameres or female terminalia, plus the presence or absence of spinules in the cell c + cs are used to confirm the ID.

This species was added to the county list in 1983 at Holme Dunes, but was not seen again until 2022 when one was found at Catfield.



<u>Important identification resources</u>
Adults are included in the RES handbook.
An adult and a nymph are pictured on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Cacopsylla_sorbi.html

Cacopsylla visci (Curtis, 1835) *Psyllidae*

Hostplant: Mistletoe *Viscum album*

Life cycle: Adults occur over the summer, overwintering as a nymph.

Gall causer: Can cause leaf blistering, but not true galling.

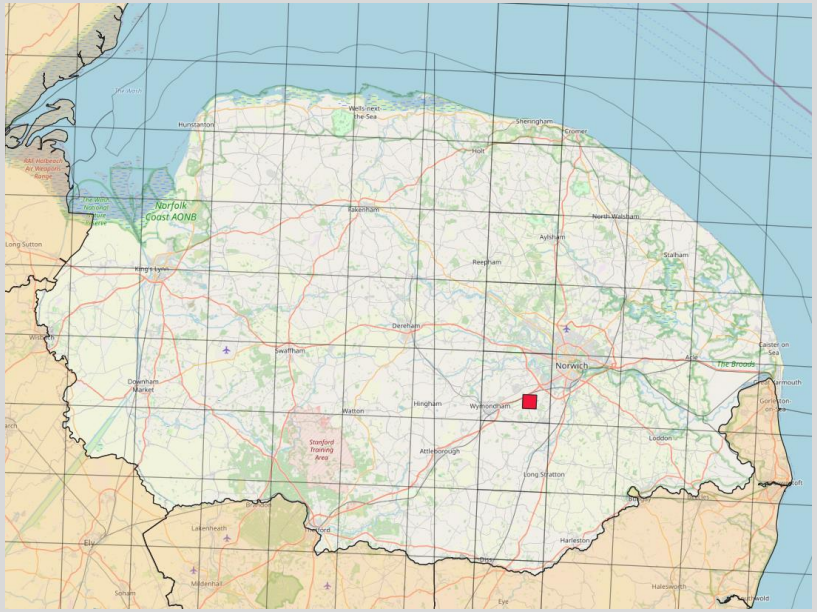
Norfolk status: Rare/under-recorded (no recent records)

Identification difficulty: Being found on Mistletoe is a good indicator, but females cannot be reliably separated from similar species (e.g. *Cacopsylla mali*) so ID should be based on examination of male specimens,

Cacopsylla visci from Edwards collection

A variable *Cacopsylla* species, green when young but maturing red/plum/dark brown with pale lines on the thorax. The wings can either be clear or have grey or brown 'clouds' in the cells. Where Mistletoe grows on Apple both this species and *Cacopsylla mali* might occur together.

Because Mistletoe often grows high up on trees, it is not surprising that species associated with it are seldom recorded. James Edwards recorded *Cacopsylla visci* on Mistletoe at East Carleton, so that area perhaps holds the best chance of rediscovering it.



<u>Important identification resources</u>
Adults are included in the RES handbook.
An adult is pictured on the British Bugs website:
https://www.britishbugs.org.uk/homoptera/Psylloidea/Psylla_visci.html

Chamaepsylla (=Psylla) hartigii (Flor, 1861) *Psyllidae*

Hostplant: Birch *Betula spp.*

Life cycle: Adults present spring/summer, overwintering as an egg.

Gall causer: No

Norfolk status: Scarce

Identification difficulty: Females can be identified from the orange body & wings plus the long terminalia. Males should be examined to confirm.

♀ *Chamaepsylla hartigi. Photo: Dave Appleton*

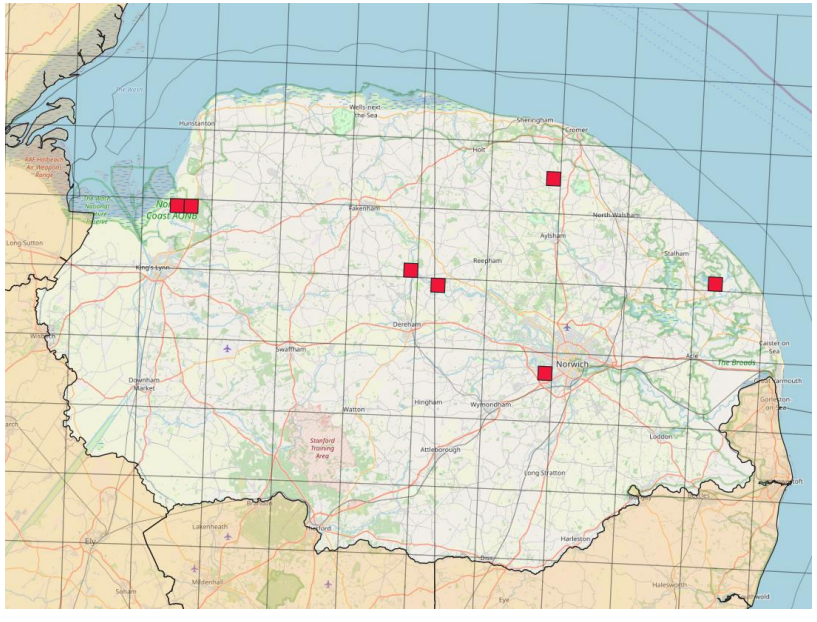
A fairly distinctive species, usually orange-bodied and with yellow or orange tinted wings. Females have long terminalia that should be visible through the wings. Males are similar to *Cacopsylla pruni* and should be separated by examining the genitalia.

Wing showing veination
Photo: Dave Appleton

A scattering of records, possibly under-recorded elsewhere. It has been attracted to light traps on multiple occasions.

Long female terminalia
Photo: Dave Appleton

Naming: Recent studies suggest returning this species to *Psylla*. The UKSI spells the species epithet "hartigi" but the original description was "hartigii"



<u>Important identification resources</u>
Adults are included in the RES handbook.
There are pictures of adults on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_hartigi.html

Livilla (=Floria) variegata (Löw, 1881) *Psyllidae*

Hostplant: *Laburnum anagyroides*

Life cycle: Adults spring/summer, overwinters as a nymph

Gall causer: No

Norfolk status: Rare/under-recorded

Identification difficulty: A distinctive species

The only British psyllid associated with Laburnum. The adults have quite a distinctive posture that makes the wings stick up at about a 45ºC angle.

The wings are relatively long, slightly yellowed and darker at the apex.

This species is sometimes referred to as *Floria variegata*, as on the British Bugs website: https://britishbugs.org.uk/homoptera/Psylloidea/Floria_variegata.html

Wing of *Livilla variegata* showing the darkening towards the apex

♀ *Livilla variegata on Laburnum*

Important identification resources

This species is not included in the RES handbook, however additional information and update couplets to add this species into the key can be found in Hodkinson, I.D. & Hollis, I. 1980. *Floria variegata* Löw (Hompotera: Psylloidea) in Britain. Entomologists Gazette. 31: 171, 172.

Psylla alni (Linnaeus, 1758) *Psyllidae*

Hostplant: Alder *Alnus spp.*

Life cycle: Adults present summer/early autumn, overwintering as an egg

Gall causer: No

Norfolk status: Common

Identification difficulty: Identifiable from good views or photographs, but care should be taken to eliminate the scarcer *Baeopelma foersteri*.

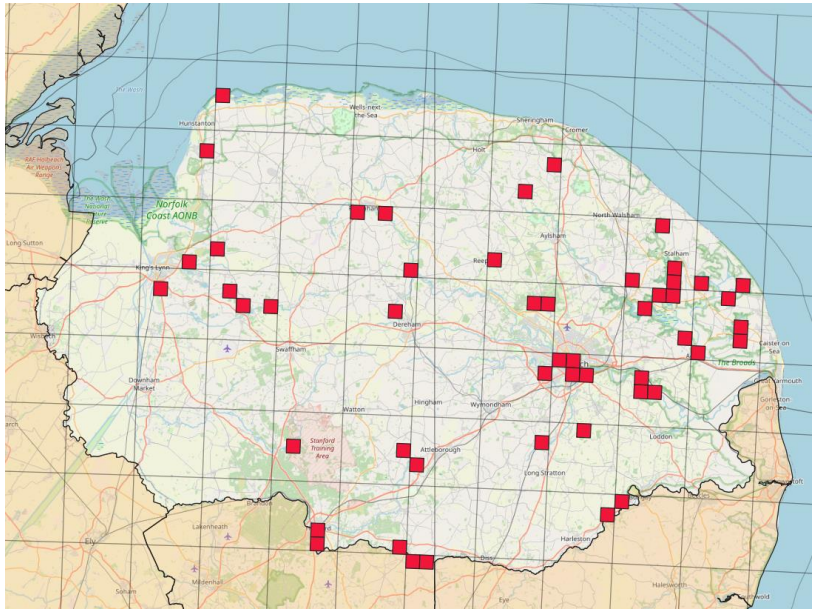
♀ *Psylla alni*

This is probably our largest psyllid and is common on Alders, including street-planted Grey Alder as well as Common Alder. Nymphs can easily be located and recorded because they live amongst large patches of waxy threads.

Psylla alni nymphs amongst waxy threads.

Adults are green, although the body sometimes develops brownish markings later in the year. The wings are clear, with the central veins dark and contrasting. This separates it from *Baeopelma foersteri*, which is also large, green and on Alder, but has yellowish wings with pale central veins.

Psylla alni wing, showing the dark central veins.



<u>Important identification resources</u>
Adults are included in the RES handbook.
Pictures of adults and nymphs can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_alni.html

Psylla betulae (Linnaeus, 1758) *Psyllidae*

Hostplant: Birch *Betula spp.*

Life cycle: Adults present summer/early autumn, overwintering as an egg

Gall causer: No

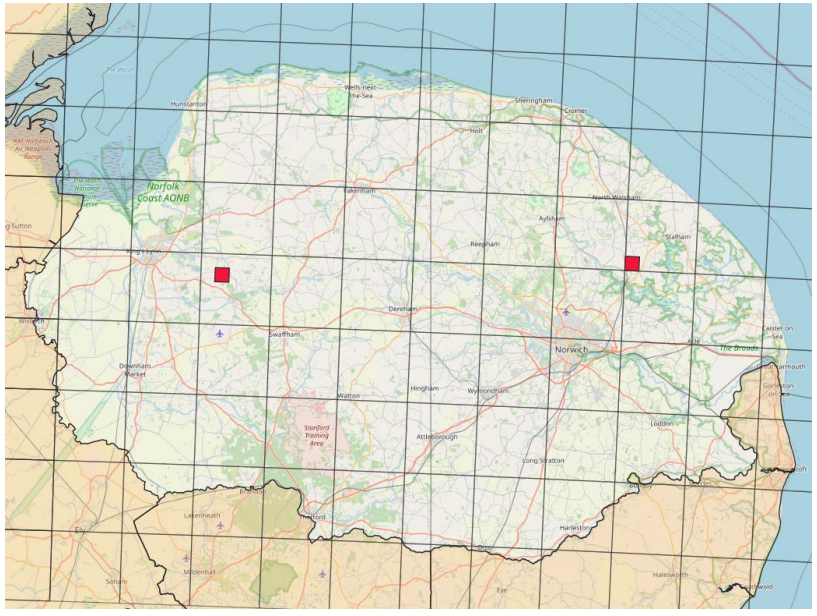
Norfolk status: Rare/under-recorded

Identification difficulty: A specimen is required to confirm ID.

Psylla betulae from Edwards collection

A fairly-large psyllid with a red/brown body and yellow tinted wings. The female terminalia is quite long (similar to *Psylla alni*) and the male parameres are club-shaped. According to the Bladmineerders website the nymphs produce waxy threads.

Only two recent records, one collected by Ken Durrant in 2000 and a recent (2022 or 2023) but undated record from Hoveton.



<u>Important identification resources</u>
Adults are included in the RES handbook.

Psylla (=Spanioneura) buxi (Linnaeus, 1758) *Psyllidae*

Hostplant: Box *Buxus* spp.

Life cycle: Adults present in summer, overwintering as an egg

Gall causer: Yes ('cabbage' galls caused by swollen leaves)

Norfolk status: Common

Identification difficulty: Identifiable from photos.

♀ *Psylla buxi*

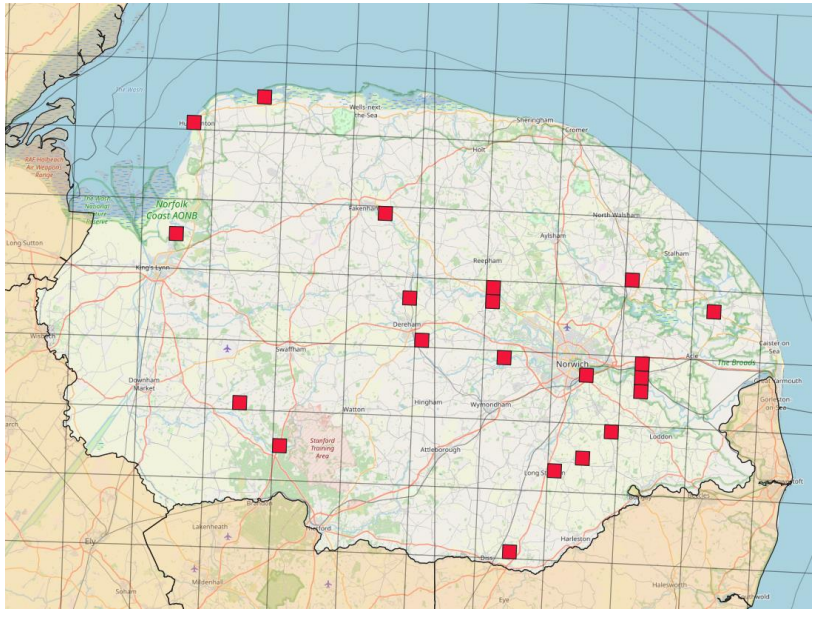
Although best known as *Psylla buxi* in the UK, it has been suggested that this species should be known as *Spanioneura buxi*.

This is a large green species with an orange tip to the abdomen and a greyish head and thorax. The wings have a yellow tint. It has been widely found, mostly on Box hedging.

Nymphs occur early in the spring as the eggs hatch and are covered in white waxy threads.

Psylla buxi nymph, cleaned of waxy threads.

Psylla buxi wing, showing yellow tints



<u>Important identification resources</u>
Adults are included in the RES handbook.
Pictures of adults can be found on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Psylla_buxi.html

Spanioneura fonscolombii (Linnaeus, 1758) *Psyllidae*

Hostplant: Box *Buxus* spp.

Life cycle: Adults found all year round on Box

Gall causer: No

Norfolk status: Widespread

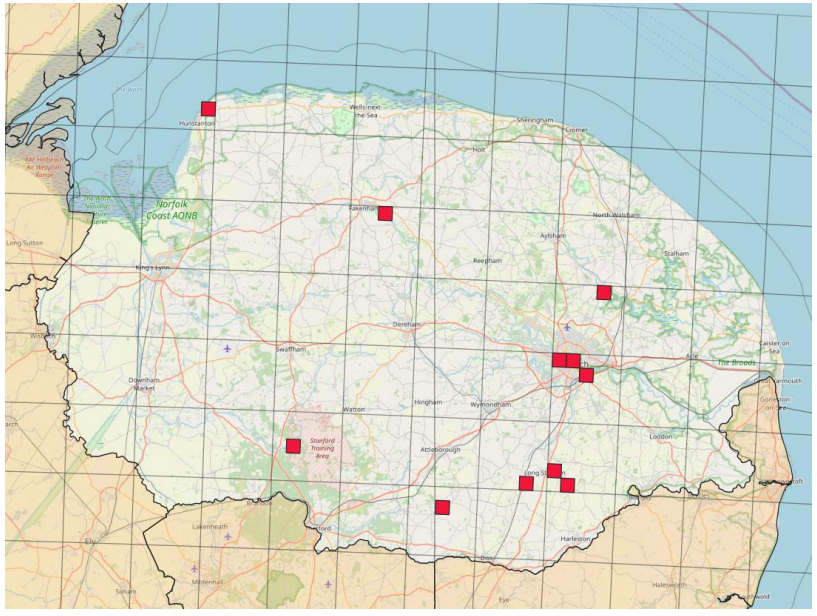
Identification difficulty: A very distinctive species

Spanioneura fonscolombii is a distinctive species, green bodied with long pointed genal cones, yellowish wings and black dots on the edges of the apical cells.

This species occurs as an adult all year round on Box (the other species on Box, *Psylla buxi*, overwinters as an egg. Other psyllid species can be found overwintering on Box as a shelter plant). Most records come from Box used as hedging or in gardens as opposed to woods or more natural settings. It is hard to see by visual inspection unless present in large numbers, so is typically best found by sweeping or beating.

Spanioneura fonscolombii wing showing dark patches.

♀ *Spanioneura fonscolombii*



Important identification resources

Adults are included in the RES handbook.

Photos of adults can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Spanioneura_fonscolombii.html

Triozidae

Genera

- *Bactericera*
- *Trichochermes*
- *Trioza*

Triozidae wing

Species in the family *Triozidae* can be easily separated from the other families by checking the wing veination – the three long central veins all begin from the same point near to the body. Radular spinules are usually visible.

Trichochermes walkeri has a distinctive wing shape and pattern. To key out the other species the length of the R_s vein (the top one on the picture), the number of metatibial spines and the presence and location of wing spinules are all key features.

Bactericera (=Trioza) albiventris (Förster, 1848) *Triozidae*

Hostplant: Willows *Salix* spp. – apparently narrow-leaved species.

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Possibly can cause galling of stem (and maybe leaves)

Norfolk status: Rare/under-recorded

Identification difficulty: Close examination needed to separate from *Bactericera silvarnis*, also on *Salix*.

Very similar to *Bactericera silvarnis*. *B. albiventris* has the typical triozid wing veination, a long sinuous Rs vein and slender black genal cones. It is typically a reddish-brown colour (darkening to black) with a creamy-white underside. Unlike *B. silvarnis* the wings of this species do have spinules (in my experience these are quite pale, so this requires checking at high magnification, e.g. 100x, and is best done before clearing the specimen).

Nationally this is apparently the commoner of the two, however so far in Norfolk there are fewer record of *albiventris* than of *silvarnis*.

A close up of the apical part of the wing, showing the wing spinules. These are pale and could be difficult to see, e.g. if mounted in a mountant that yellows with age.

Bactericera sp. Photo: Vanna Bartlett

<u>Important identification resources</u>
Adults are included in the RES handbook.
A photo of an adult can be seen on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Bactericera_albiventris.html

Bactericera (=Trioza) silvarnis (Hodkinson, 1974) *Triozidae*

Hostplant: Willows *Salix* spp. (round-leaved species, i.e. sallows)

Life cycle: Overwinters as an adult on shelter plants

Gall causer: No

Norfolk status: Scarce

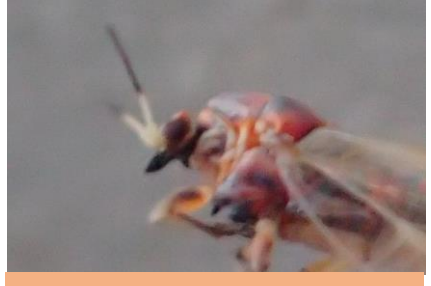
Identification difficulty: Close examination needed to separate from *Bactericera albiventris*, also on *Salix*.

♀ *Bactericera silvarnis*

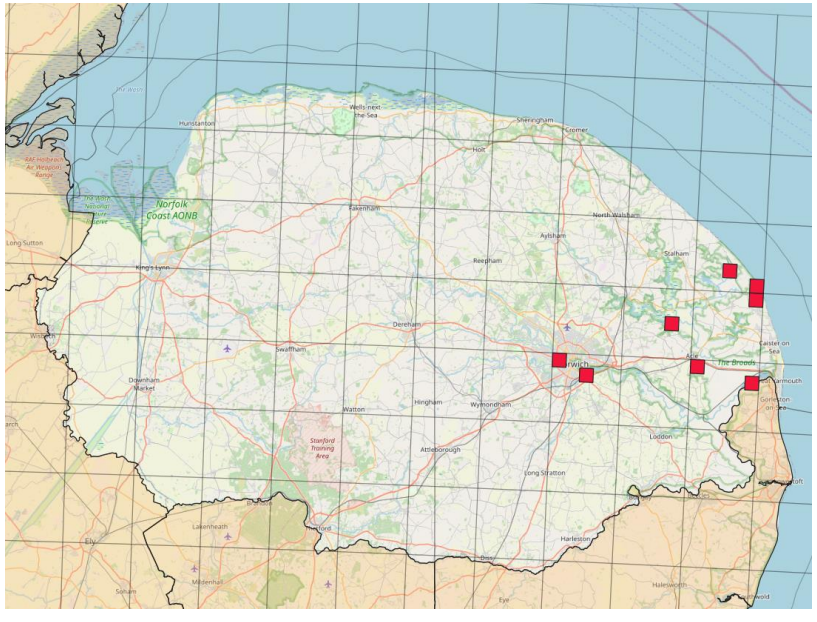
Note that in the RES handbook and many other sources this species is still listed as *Trioza curvatinervis*. Hodkinson proposed that British specimens were a distinct subspecies, ssp. *silvarnis*, and this has now been raised to full species level, as well as having the genus changed. True *Bactericera curvatinervis* is now not thought to occur in Britain.

Bactericera silvarnis wing. Radular spinules are present but wing spinules are absent.

B. silvarnis has the typical triozid wing veination, a long sinuous Rs vein and slender black genal cones like *Bactericera albiventris,* and also shares the reddish-brown colour with a creamy-white underside. However the genitalia are different and the wings have no spinules (but this requires checking at high magnification, e.g. 100x, to confirm absence.)



Side view showing the black genal cones



<u>Important identification resources</u>

Adults are included in the RES handbook, listed as *Trioza curvatinervis.*

Trichochermes walkeri (Förster, 1848) *Triozidae*

Hostplant: Buckthorn *Rhamnus catharticus*

Life cycle: Overwintering status is uncertain

Gall causer: Yes, folded leaf edge

Norfolk status: Locally common

Identification difficulty: Adult and gall both distinctive

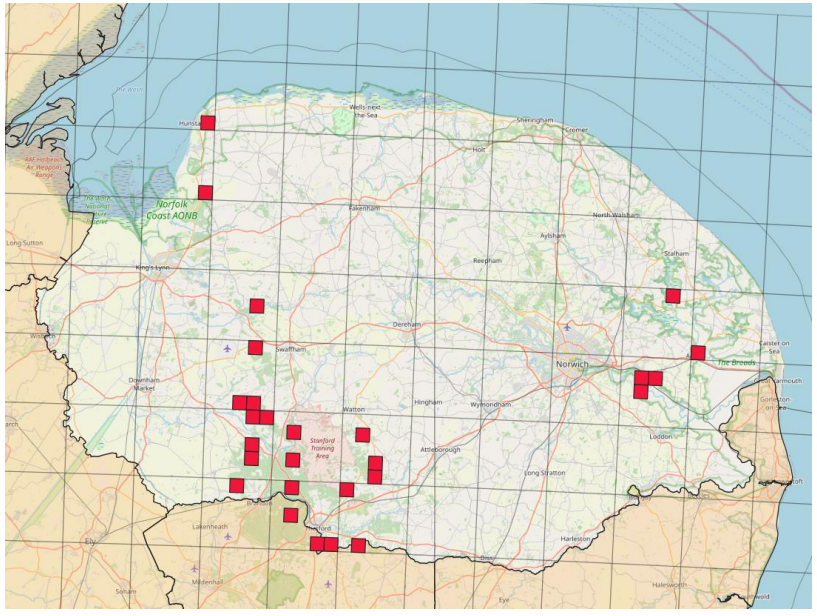
The wing patterning and shape make this a very distinctive species

The galls are made of leaf edges folded upwards.

The majority of Norfolk records come from Breckland, presumably because that is where the foodplant is commonest.

Gall on Buckthorn.

Trichochermes walkeri. Photo: Andy Brown



Important identification resources

Adults are included in the RES handbook.

Photos of adults and a galled leaf can be found on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Trichochermes_walkeri.html

Trioza (=Lauritrioza) alacris (Flor, 1861) *Triozidae*

Hostplant: Bay *Laurus nobilis*

Life cycle: Adults present on host plant all year round

Gall causer: Yes, swollen leaf edges.

Norfolk status: Common

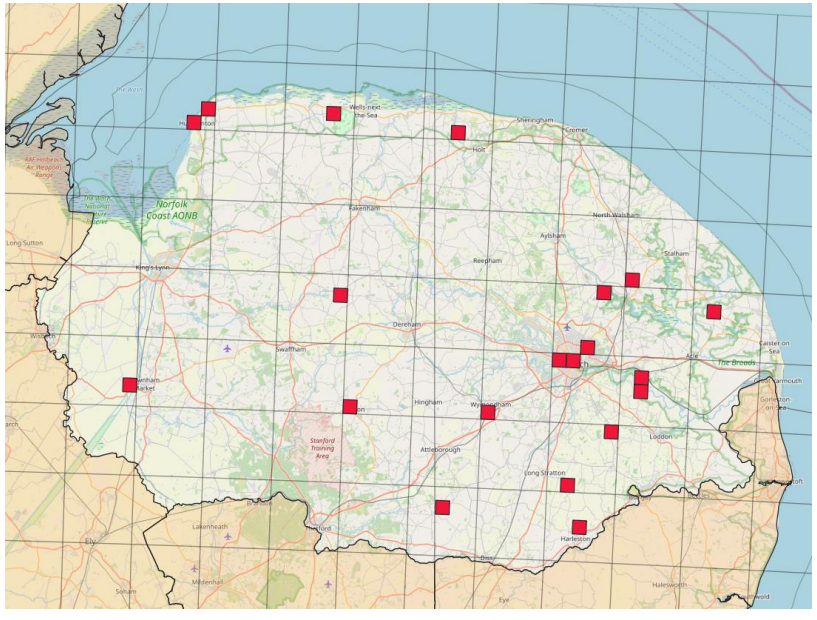
Identification difficulty: Galls distinctive, adults can be confirmed from photos.

♀ *Trioza alacris*

This is the only British psyllid found on Bay. The wings are relatively long and narrow, coming to a sharp point at the end. Body colouration varies with age.

Galls typically take the form of thickened leaf rolls, often a paler colour than the rest of the leaf. The nymphs within them produce waxy secretions.

A leaf-edge gall on Bay.



<u>Important identification resources</u>
Adults are included in the RES handbook.
Adults, nymph and galls are all shown on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Lauritrioza_alacris.html

Trioza apicalis (Förster, 1848) *Triozidae*

Hostplant: Carrot *Daucus carota* and other related umbellifers

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes, causes leaf distortion

Norfolk status: Rare

Identification difficulty: Can probably be identified from good photos, but ideally confirmed from a specimen.

This species can feed on various umbellifers, including carrot crops. It causes leaf distortion and increased secondary root growth in these crops, and has also recently been found to often carry the plant pathogen *Candidatus Liberibacter solanacearum* in Europe.

Trioza apicalis is a green and orange psyllid with a long Rs vein, antennae that are pale except for the two dark apical segments and dense wing spinules.

Trioza apicalis

<u>Important identification resources</u>
Adults are included in the RES handbook.
Photos of adults can be seen on the British Bugs website:
https://www.britishbugs.org.uk/homoptera/Psylloidea/Trioza_apicalis.html

Trioza centranthi (Vallot, 1829) *Triozidae*

Hostplant: Red Valerian *Centranthus ruber*, also *Valerianella* spp.

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes - causes thickened leaf rolls, often tinged pink

Norfolk status: Very common

Identification difficulty: Adults away from the host plant need examination to confirm. The galls are distinctive and easy to find.

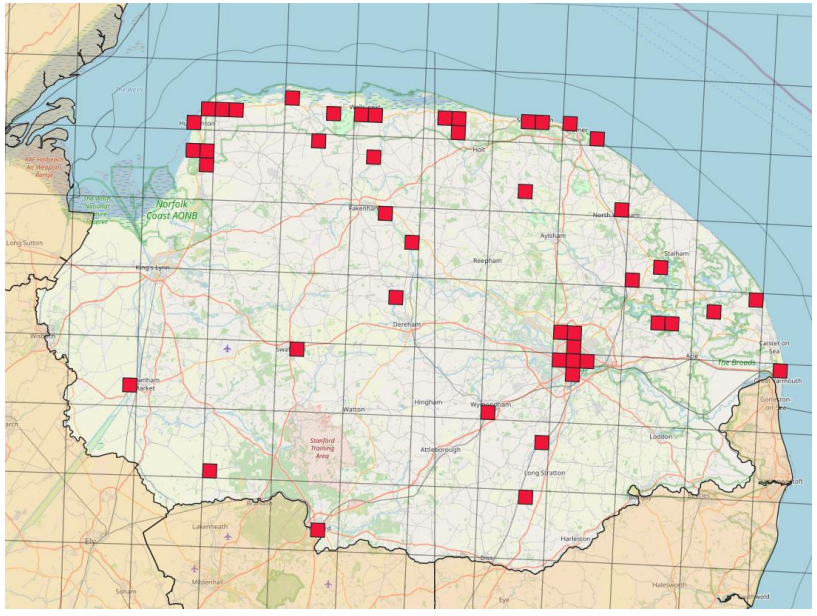
This species was formerly scarce, but in recent years has spread throughout the county and is likely to occur wherever the Red Valerian is grown (particularly coastal areas and towns etc).

The galls are very distinctive thickened leaf rolls as pictured here.

The adult could be confused with several other *Trioza* species. It has a relatively short Rs vein, 3 + 1 arrangement of metatarsal spines and spinules across the wing.

Swollen galls on Red Valerian, showing some pink tinges.

♀ *Trioza centranthi* reared from gall



Important identification resources

Adults are included in the RES handbook.

Photos of adults, nymphs and galls can be seen on the British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Trioza_centranthi.html

Trioza (= Heterotrioza) chenopodii (Reuter, 1876) *Triozidae*

Hostplant: *Chenopodium* and *Atriplex* spp.

Life cycle: Two generations a year, overwinters as an adult

Gall causer: Yes, thickened leaf roll galls (but beware of similar aphid galls)

Norfolk status: Rare / overlooked (one record)

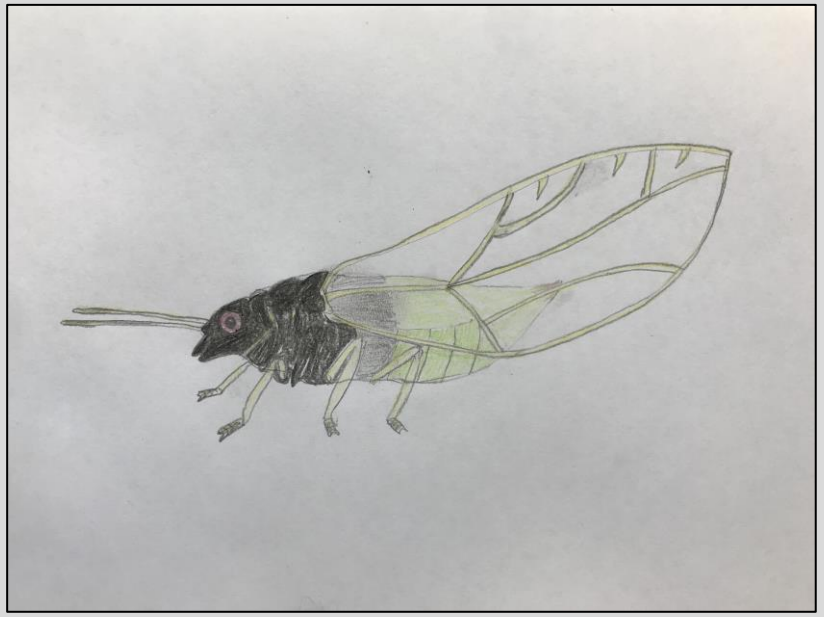
Identification difficulty: Might be identifiable from photos, straightforward with a specimen.

This species has seasonal forms with varying wing lengths. The summer form is known as *aestivalis* and has long wings, whilst the autumn/winter form has short wings and is called *autumnalis*. Young adults may be yellowish, but mature to have green abdomens with the rest of the body marked with brown or black.

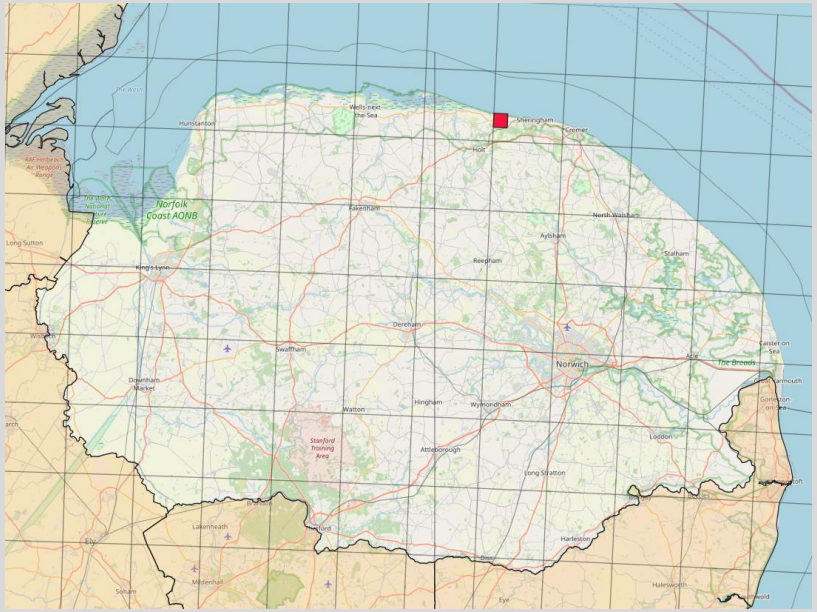
Form *aestivalis* should key out quite quickly (short Rs vein, forewing not as long and narrow as *Trioza alacris*, wing broadest beyond the middle, cell cu1 not short and high). Form autumnalis keys towards *T. gallii* but is easily separated if you can count the metatibial spines (it has 3, *gallii* has 4). Wing spinules are mostly in the basal half of the wing (i.e. nearest the body).

The only county records are from Weybourne, collected by James Edwards in 1913.

<u>Important identification resources</u>
Adults are included in the RES handbook.
Photos of galled plants, nymphs and an adult can be found on Bladmineerders:
https://bladmineerders.nl/parasites/animalia/arthropoda/insecta/hemiptera/sternorrhyncha/psylloidea/triozidae/heterotrioza/heterotrioza-chenopodii/



♀ *Trioza chenopodii*



Trioza flavipennis (Förster, 1848) *Triozidae*

Hostplant: Ground Elder *Aegopodium podagraria*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes, causes depressions on leaves

Norfolk status: Rare

Identification difficulty: Galls identifiable with care (check underside for nymphs). Adults may be identifiable from good photographs.

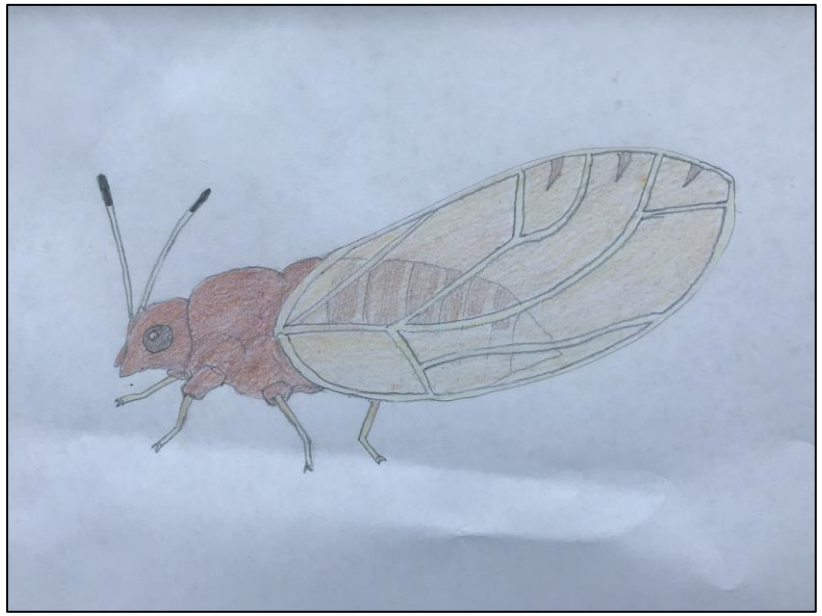
No adults of this species have yet been recorded in Norfolk, with its presence only detected as a result of the observation of the galls on Ground Elder at several sites in West Norfolk. The recorder is an experienced cecidologist and the records have been accepted, but care should be taken by those not so familiar with plant galls as some fungi, e.g. *Protomyces macrosporus* also make blister-like galls on Ground Elder. Interestingly when documenting the Dutch fauna den Bieman et al. (2019) noted that this species was thought to be common as the galls were well documented, but they could find no adult material. This suggests that for some reason the adults are hard to find!

If you do find an adult it should key out reasonably easily – they have orangey wings and the male genitalia in particular look quite distinctive. Please photograph it and/or retain a specimen.

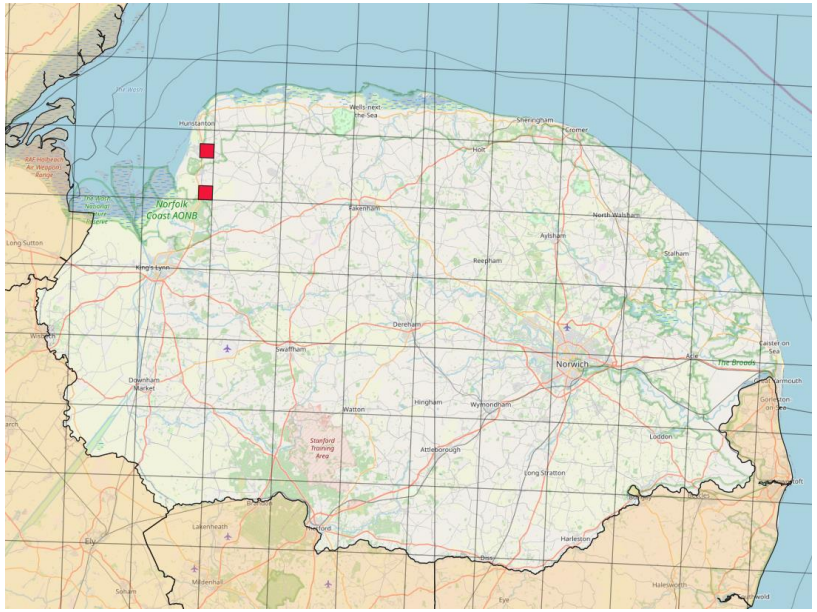
Important identification resources

Adults are included in the RES handbook.

Photos of galls are included on the Bladmineerders website here:
https://bladmineerders.nl/parasites/animalia/arthropoda/insecta/hemiptera/sternorrhyncha/psylloidea/triozidae/trioza/trioza-flavipennis/



Trioza flavipennis



Trioza galii (Förster, 1848) *Triozidae*

Hostplant: Bedstraws *Galium spp.*

Life cycle: Unknown – either overwinters as an egg or a nymph

Gall causer: Yes – terminal leaves enlarged and curved

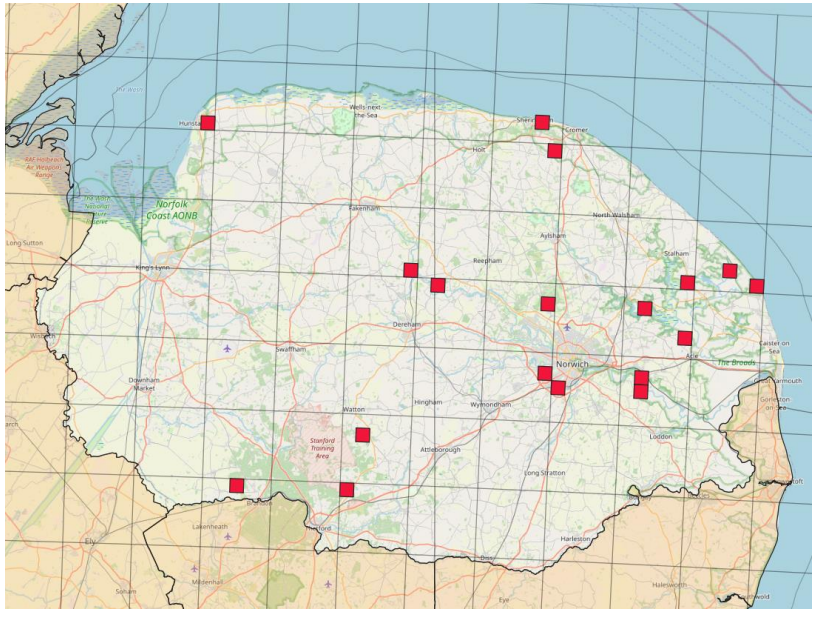
Norfolk status: Widespread

Identification difficulty: Close examination needed – presence and spread of wing spinules need to be checked.

The RES handbook describes two forms, *typica*, which only has spinules around the vein cu2, and form *velutina,* which has spinules in all apical cells. Form *velutina* is now considered to be a separate species, so wing spinules need to be checked for confident ID. The wings are relatively short and broad compared to others in the genus. The outer vein (Rs) is short and it has 4 (3 + 1) metatibial spines. Mature adults are largely glossy black.

Male terminalia

♀ *Trioza galii. Photo: Dave Appleton*



Important identification resources

Adults are included in the RES handbook.

Photos of adults are on British Bugs website:

https://britishbugs.org.uk/homoptera/Psylloidea/Trioza_galii.html

Details of separation from *Trioza velutina* can be found in: Burckhardt, Daniel and Lauterer, P. 2006. "The Palaearctic triozids associated with Rubiaceae (Hemiptera, Psylloidea): a taxonomic re-evaluation of the *Trioza galii* Foerster complex." Revue suisse de zoologie 113, 269–286. https://doi.org/10.5962/bhl.part.80350 .

Trioza remota (Förster, 1848) *Triozidae*

Hostplant: Pedunculate Oak *Quercus robur*

Life cycle: Overwinters as an adult on shelter plants

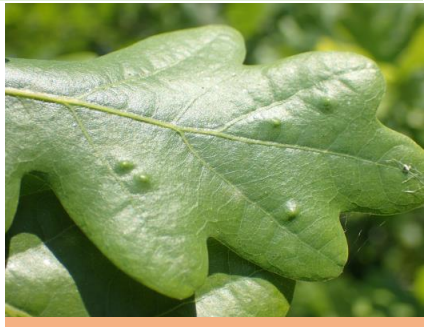
Gall causer: Yes, causes pimple-like galls on leaves

Norfolk status: Very common

Identification difficulty: Galls and nymphs identifiable from pictures. Adults sometimes identifiable from photos, straightforward from a specimen.

One of the commonest Norfolk psyllids. The easiest way to record this species is to look for the galls, which are distinctive once you get your eye in. In spring you can see small nymphs in the depression below the 'pimple', which have two orange stripes. As the nymphs grow they can be found living elsewhere on the leaf undersides.

This is our only Oak-feeing species. Adults start off a pale yellowy-green, before turning orange/brown. The wings are relatively long with a short outer vein (Rs) and tall Cu2 cell.

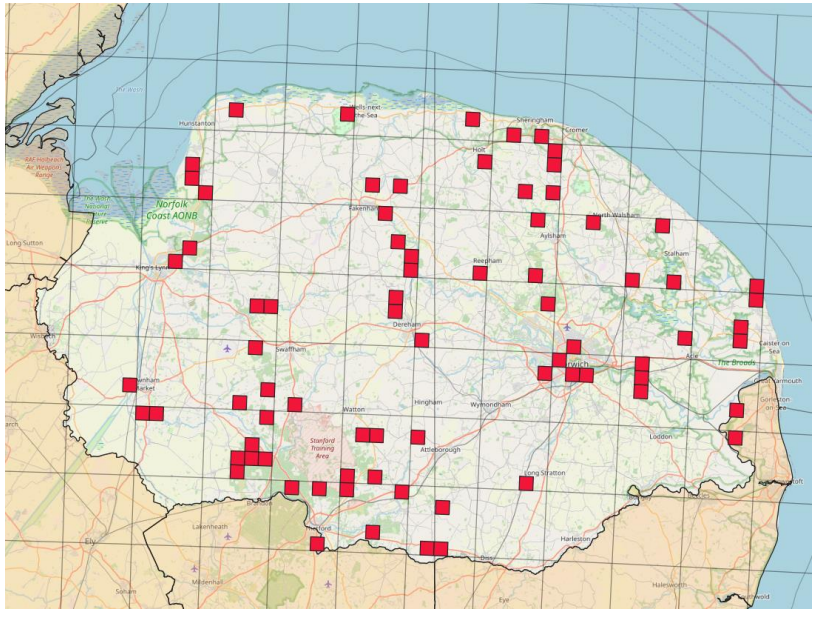


Galls on Pedunculate Oak.

Nymph on underside of an Oak leaf.

Important identification resources
Adults are included in the RES handbook.
Photos of adults, galls and an exuvium can be found on the British Bugs website here:
https://britishbugs.org.uk/homoptera/Psylloidea/Trioza_remota.html

♀ *Trioza remota*. Photo: Dave Appleton



Trioza rhamni (Schrank, 1801) *Triozidae*

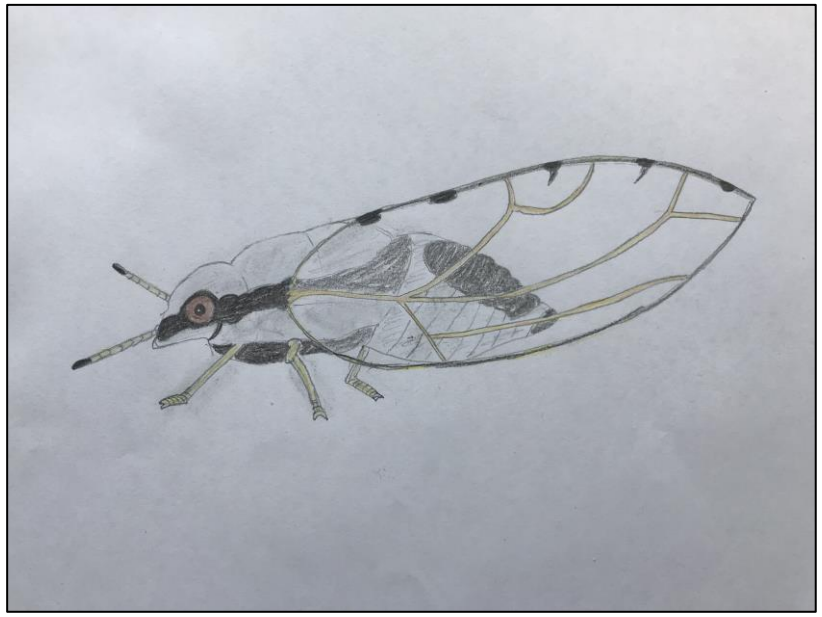
Hostplant: Buckthorn *Rhamnus cathartica*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes, causes shallow bumps on leaves

Norfolk status: Rare/overlooked (so far the only Norfolk record is of a nymph on Buckthorn at Thetford)

Identification difficulty: Adults and occupied galls probably identifiable from a good photo.



Trioza rhamni

Adult colouration varies from yellowy, green to dark brown, however they are often covered in a pale 'bloom', which in itself is fairly distinctive. The wings are clear with a long sinuous outer (Rs) vein and dark radular spinules. The female terminalia are quite long for a *Trioza* sp, whilst the male genitalia are distinctive.

Only one other member of the *Triozidae* occurs on Buckthorn (*Trichochermes walkeri*), which is a distinctive species, so if found on the host plant *Trioza rhamni* should be straightforward to ID. If examining a specimen, this species has 4 metatibial spines (3 + 1), spinules in all cells, spinule-free bands along the veins and relatively short antennae amongst other features.

<u>Important identification resources</u>

Adults are included in the RES handbook.

A large selection of pictures of the galls, nymphs and an adult can be found on the Bladmineerders website here:

https://bladmineerders.nl/parasites/animalia/arthropoda/insecta/hemiptera/sternorrhyncha/psylloidea/triozidae/trioza/trioza-rhamni/

Trioza urticae (Linnaeus, 1758) *Triozidae*

Hostplant: Nettles *Urtica spp.*

Life cycle: Overwinters as an adult on shelter plants

Gall causer: Yes, darkened and distorted upper leaves, mostly in summer

Norfolk status: Very common

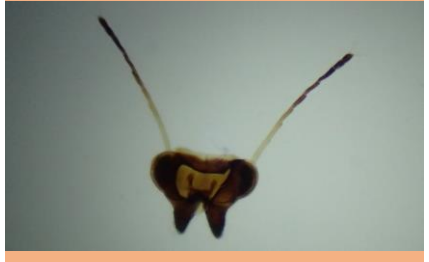
Identification difficulty: Can be identified from good photos.

♀ *Trioza urticae. Photo: Dave Appleton*

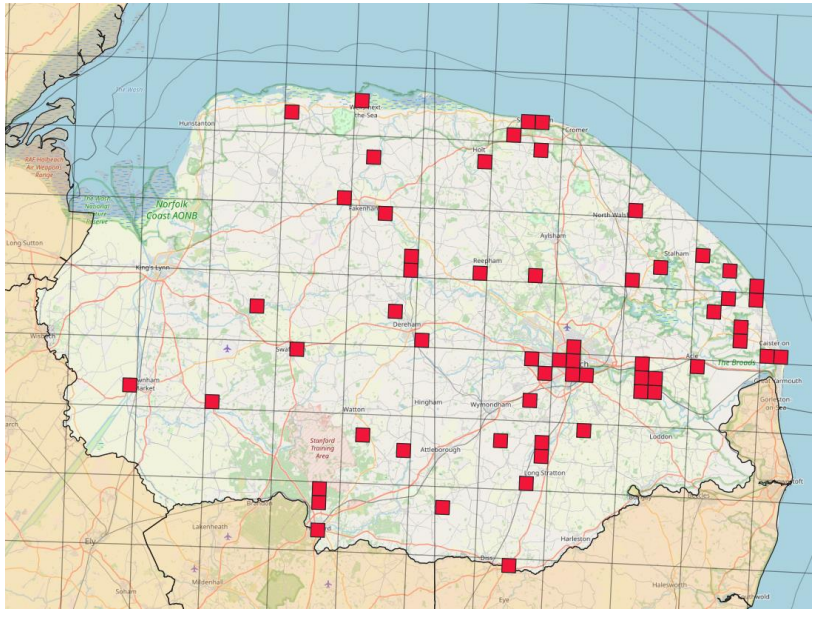
One of the commonest psyllids in Norfolk. Adults can be found all year round, often wintering on conifers or evergreen plants such as Box. Fresh adults have an orange thorax and green abdomen, which darkens to the typical colouration. Mature adults have pale sides and are dark underneath. The genal cones are relatively long, dark and divergent. The wings have a yellowy tint and a long outer vein.

Most records of the gall are from July/August. Once seen it is easily recognised, as many of the upper nettle leaves are wrinkled and darker green than usual.

Galled nettle leaves.



Close up of the genal cones and antennae



<u>Important identification resources</u>

Adults are included in the RES handbook.

Adults and a nymph are shown on the British Bugs website here:

https://britishbugs.org.uk/homoptera/Psylloidea/Trioza_urticae.html

Trioza (= Powellia) vitreoradiata (Maskell, 1879) *Triozidae*

Hostplant: *Pittosporum*

Life cycle: Can be found as an adult all year round

Gall causer: Yes, causes numerous depressions ("pit galls") on leaves

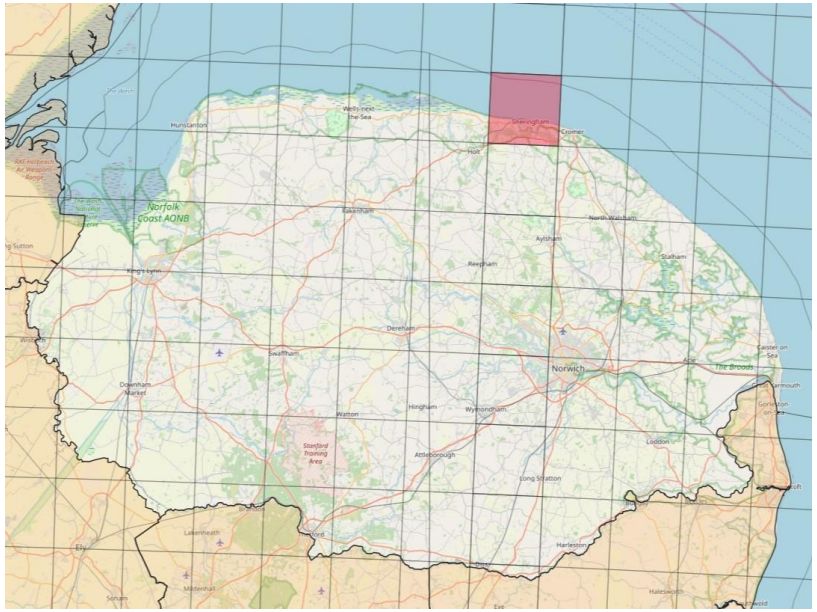
Norfolk status: Rare

Identification difficulty: Galls and nymphs both distinctive. Adults that are not found on the host plant require examination to confirm.

There is a single Norfolk record, from Sheringham in Nov 2008. This species is probably best found by looking for the pit galls on Pittosporum. The nymphs are surrounded by waxy fibres radiating out from all around the body.

Adults are a bluey-green colour when young, darkening to dark brown or black later. The wing has a particularly sinuous Rs vein and would key out at the same place as *T. urticae,* but see the Martin & Malumphy paper cited below for an additional couplet for the key to separate them.

Trioza vitreoradiata



<u>Important identification resources</u>

Galls, nymphs and adults are all shown on the British Bugs website:
https://britishbugs.org.uk/homoptera/Psylloidea/Trioza_vitreoradiata.html
This species is not included in the RES handbook, but an additional couplet to add it to the main key (along with terminalia and wing diagrams) can be found in Martin & Malumphy (1995) *Trioza vitreoradiata*, a New Zealand jumping plant louse (Homoptera: Psylloidea), causing damage to *Pittosporum spp*. in Britain.

Norfolk psyllid checklist

Name on UK checklist	Name in Hodkinson & White (1979)	Notes
Family: Aphalaridae		
Aphalara freji	N/A (would be included within *Aphalara polygoni*)	Only described in 1997, formerly considered to be variation within *Aphalara polygoni*.
Aphalara itadori	N/A	Released to control Japanese Knotweed
Aphalara maculipennis	*Aphalara maculipennis*	Recorded for the first time in May 2024
Aphalara polygoni s.s.	*Aphalara polygoni* form *rumicicola*	Confirmed for the first time in late 2023
Aphalara ulicis	N/A	For a time thought to be the similar species *Aphalara pauli*
Craspedolepta nebulosa	*Craspedolepta nebulosa*	
Craspedolepta nervosa	*Aphalara nervosa*	Historic records only
Craspedolepta pilosa	*Craspedolepta pilosa*	
Craspedolepta subpunctata	*Craspedolepta subpunctata*	
Ctenarytaina eucalyptii	*Ctenarytaina eucalyptii*	
Rhinocola aceris	*Rhinocola aceris*	Historic records only
Family: Liviidae		
Livia crefeldensis	*Livia crefeldensis*	No records in past 30 years
Livia junci	*Livia juncorum*	
Psyllopsis fraxini	*Psyllopsis fraxini*	Record galls as Psyllopsis fraxini agg. (see profile)
Psyllopsis fraxinicola	*Psyllopsis fraxinicola*	
Strophingia ericae	*Strophingia ericae*	
Family: Psyllidae		
Acizzia uncatoides	N/A	A published record in Malumphy & Luker (2014)
Arytaina genistae	*Arytaina genistae*	
Arytainilla spartiophila	*Arytainilla spartiophila*	
Baopelma foersteri	*Psylla foersteri*	
Cacopsylla affinis	*Psylla subferruginea*	Note the change of name
Cacopsylla ambigua	*Psylla ambigua*	

Name on UK checklist	Name in Hodkinson & White (1979)	Notes
Cacopsylla brunneipennis	*Psylla brunneipennis*	Occurs in two forms
Cacopsylla crataegi	*Psylla crataegi*	Historic records only
Cacopsylla fulguralis	N/A	
Cacopsylla hippophaes	*Psylla hippophaes*	
Cacopsylla mali	*Psylla mali*	Adults recorded at two locations in 2023 but a specimen not inspected yet.
Cacopsylla melanoneura	*Psylla melanoneura*	Common
Cacopsylla moscovita	*Psylla moscovita*	
Cacopsylla peregrina	*Psylla peregrina*	
Cacopsylla pruni	*Psylla pruni*	Now thought to be an aggregate of two cryptic species so please retain specimens where possible.
Cacopsylla pulchra	*Psylla pulchra*	Historic records only
Cacposylla pyri	*Psylla pyri*	Nymphs thought to be this species rather than *C. pyricola* recorded on Pear (2023) but so far no adults found.
Cacopsylla pyricola	*Psylla pyricola*	
Cacopsylla rhamnicola	*Psylla rhamnicola*	Recorded for the first time in 2024
Cacopsylla saliceti	*Psylla saliceti*	Per NBN Atlas/Lott et al. (2002)
Cacopsylla sorbi	*Psylla sorbi*	
Cacopsylla visci	*Psylla visci*	Historic records only
Chamaepsylla hartigii	*Psylla hartigi*	
Livilla variegata	N/A	*= Floria variegata*
Psylla alni	*Psylla alni*	Common
Psylla betulae	*Psylla betulae*	
Psylla buxi	*Psylla buxi*	Common
Spanioneura fonscolombii	*Spanioneura fonscolombii*	

Name on UK checklist	Name in Hodkinson & White (1979)	Notes
Family: Triozidae		
Bactericera albiventris	*Trioza albiventris*	
Bactericera silvarnis	*Trioza curvatenervis ssp. silvarnis*	
Trichochermes walkeri	*Trichochermes walkeri*	
Trioza alacris	*Trioza alacris*	*= Laurotrioza alacris*
Trioza apicalis	*Trioza apicalis*	Recorded on the Invertebrate Site Register - England (1738-2005) via NBN Atlas
Trioza centranthi	*Trioza centranthi*	Common
Trioza chenopodii	*Trioza chenopodii*	Historic records only
Trioza flavipennis	*Trioza flavipennis*	So far only recorded as the galls on Ground Elder
Trioza galii	*Trioza galii*	RES handbook treats *Trioza velutina* (so far not recorded in Norfolk) as a form of *T. galii*.
Trioza remota	*Trioza remota*	Very common
Trioza rhamni	*Trioza rhamni*	So far only an exuvium recorded on Buckthorn
Trioza urticae	*Trioza urticae*	Very common
Trioza vitreoradiata	N/A	A published record included in Salisbury et al. (2011)