

Neglected insects in Bedfordshire Conference

15th November 2014



An introduction to leafhoppers & allies

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Auchenorrhyncha Recording Scheme for Britain & Ireland
Leafhoppers, planthoppers, froghoppers, treehoppers & cicadas

Why leafhoppers?

1. A good sized group ~400 species
2. Easy to find, often the most numerous insects in grasslands
3. Many identifiable in the field
4. Improved identification aids (keys, websites)
5. Taxonomically stable
6. Good knowledge of the group (ecology, host-plants, status, distribution)
7. All plant-feeding - good indicators of site quality (grassland, heathland, mires)
8. Much scope for personal contribution
9. Often colourful and attractive



Order: Hemiptera

2 pairs of wings; piercing & sucking mouthparts (rostrum)

Suborder: Heteroptera

('true bugs')

forewings divided & overlapping

Suborder: Auchenorrhyncha

(leafhoppers and allies)

forewings uniform & not overlapping

- short antennae with terminal bristle

Suborder: Sternorrhyncha

(whiteflies, scales, aphids, psyllids)

forewings uniform & not overlapping

- long thread-like antennae



Auchenorrhyncha Recording Scheme for Britain & Ireland
Leafhoppers, planthoppers, froghoppers, treehoppers & cicadas



9 families in Britain:

Cicadidae (1)	Cicadas	Delphacidae (c 75)	Planthoppers
Cercopidae (1)	Froghoppers	Cixiidae (12)	
Aphrophoridae (9)		Issidae (2)	
Cicadellidae (c 290)	Leafhoppers	Tettigometridae (1)	
Membracidae (2)	Treehoppers		



Cicadellidae (leafhoppers)

- Most have rows of spines on hind tibiae



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Delphacidae (planthoppers)

- Hind tibia with large movable 'spur'
- Longitudinal keels on vertex and face



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Cercopidae & Aphrophoridae (froghoppers)

- 1 or 2 stout spines on hind tibiae & ring of spines at apex

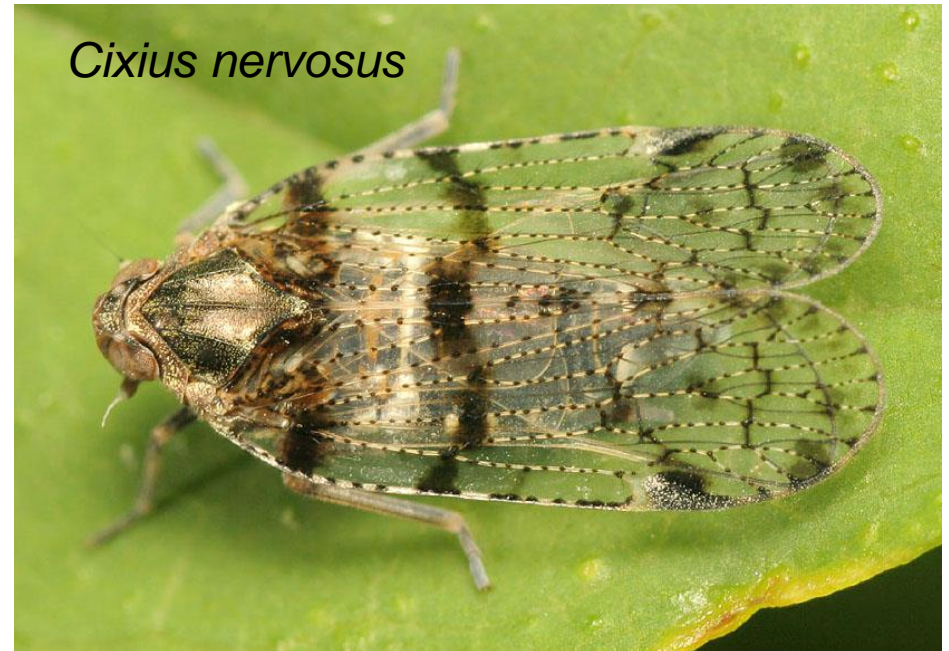


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Cixiidae (planthoppers)

- Forewings membranous with prominent tubercles and hairs along veins
- Pronotum with 3 or 5 keels
- 10 species



Membracidae (treehoppers)

- Backward extension of pronotum

Two species in Britain:

- *Centrotus cornutus* on oak
 - *Gargara genistae* on broom
-
- Both present in Bedfordshire

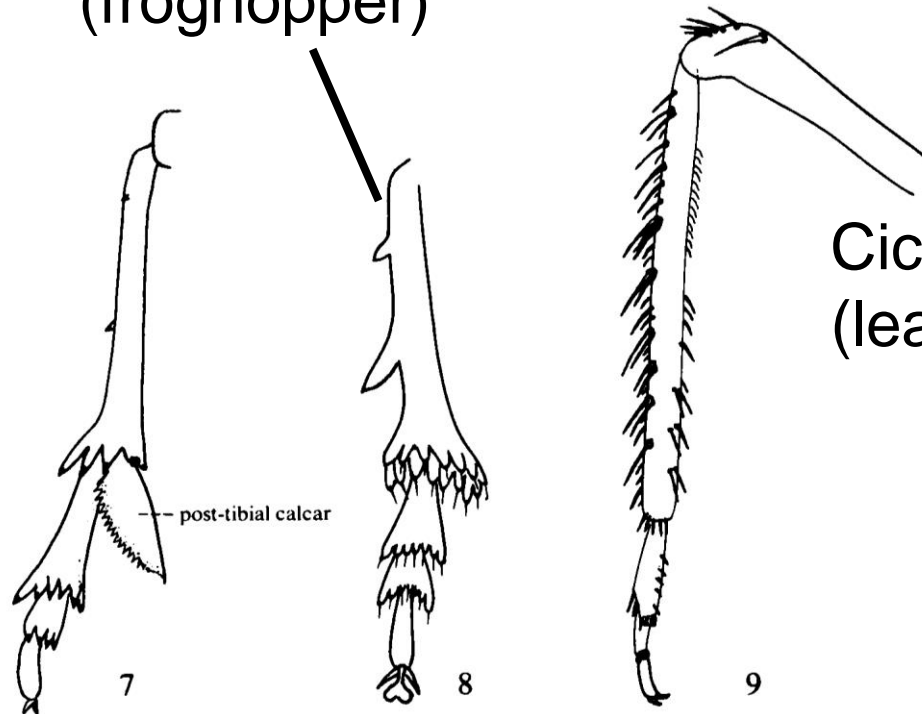


A simple starting point ...

Cercopidae &
Aphrophoridae
(froghopper)

Delphacidae
(planthopper)

Cicadellidae
(leafhopper)



Feeding strategies

- All species are herbivores
- Specialist \Leftrightarrow generalist

Eupteryx urticae



Graphocephala fennahi

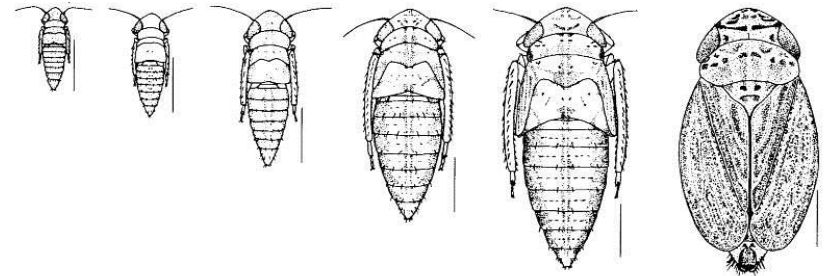


Philaenus spumarius



Life cycles

- Eggs usually laid inside plant tissue (stems, leaves, buds)

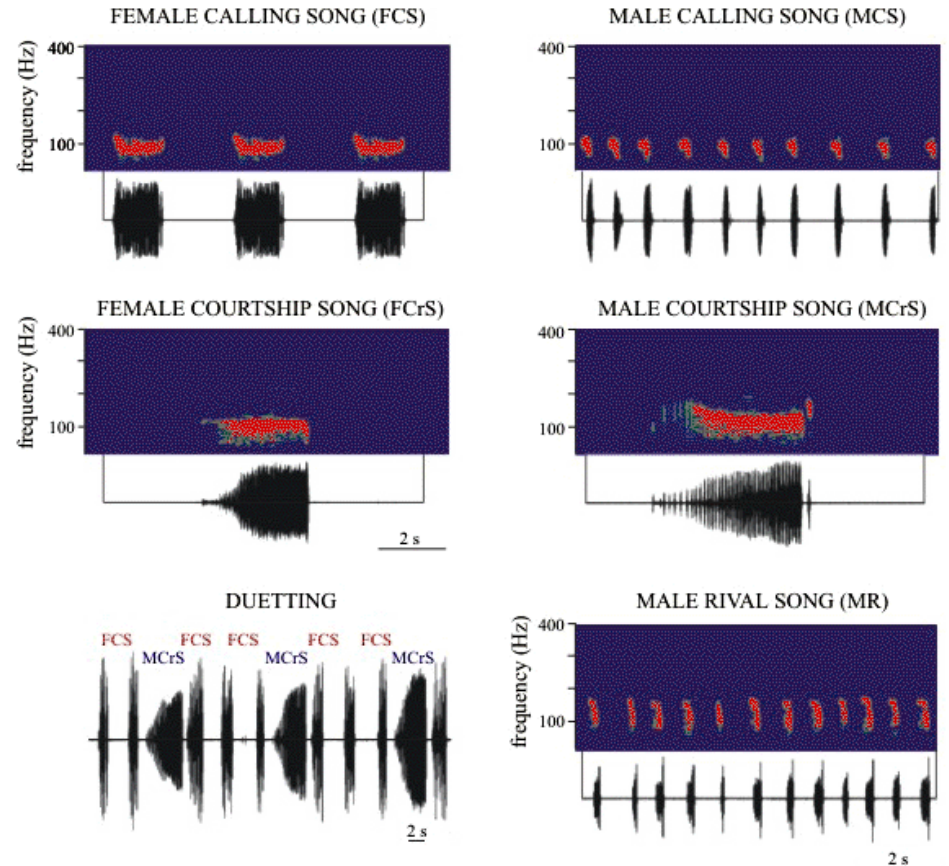


- Incomplete metamorphosis
- 5 nymphal instars
- 1 or 2 generations per year (rarely more)
- Over-wintering stage: egg, nymph, adult



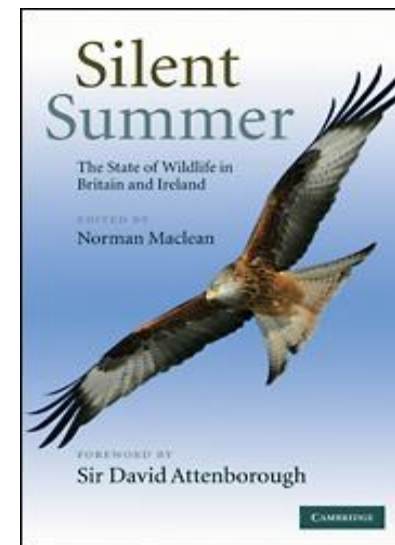
Adults 'sing'

- Vibrations sent through the plant
- Inaudible to human ear
- Species-specific signals
- Tymbal organ



Changes to the British leafhopper fauna

- Many recent additions:
 - New arrivals
 - Taxonomic splits
 - Overlooked species
- New arrivals
 - Assisted: horticultural imports
 - Unassisted: climate related range expansion
- Declines / contracting ranges
 - Species associated with vulnerable habitats



The Bedfordshire fauna

- c127 species as of 2014
- Almost a third of the British fauna (c400 sp)
- Includes all common and conspicuous species
- Still plenty of scope for recording



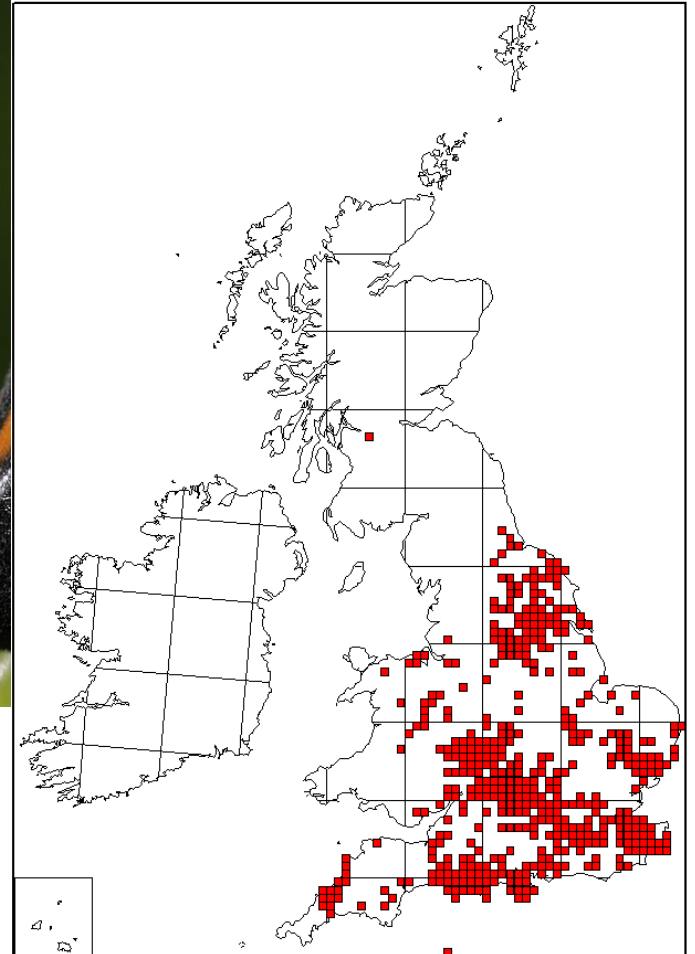
Cercopis vulnerata

- 'Red and black froghopper'
- Britain's only Cercopid
- Very conspicuous
- An early species (May-June)
- Nymphs develop underground
- Widespread in England & Wales



Recorded in Bedfordshire

Cercopis vulnerata



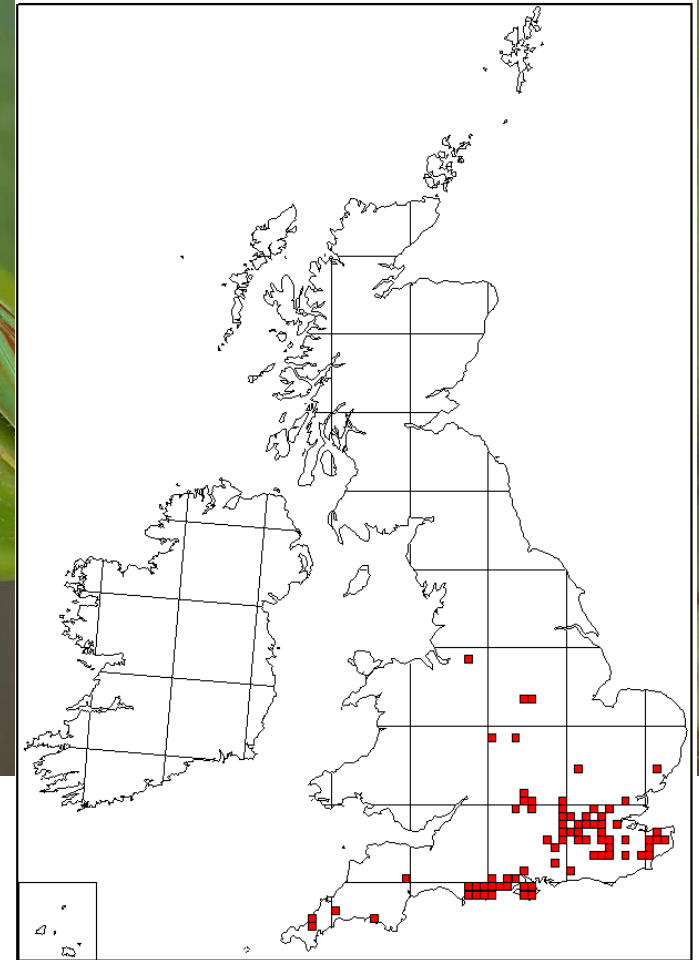
Graphocephala fennahi

- 'Rhododendron leafhopper'
- Large with distinctive green and red colouration
- Native to USA
- Introduced on imported Rhododendron in 1930s
- Widespread in S England



Recorded in Bedfordshire

Graphocephala fennahi

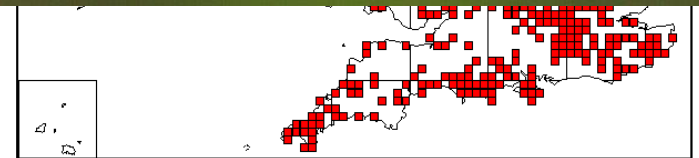


Cicadella viridis

Recorded in Bedfordshire

- Large with distinctive blue colouration
- Sexually dimorphic (males much darker than females)
- Rushes in damp grassland
- Can be locally abundant
- Widespread in Britain

Cicadella viridis

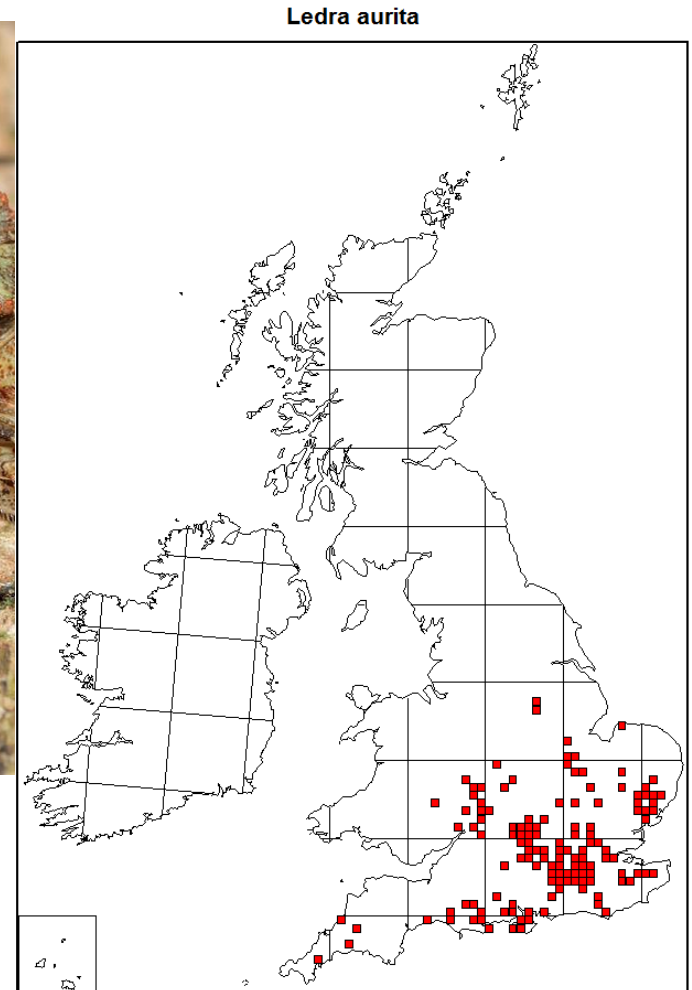


Ledra aurita

- 'Eared leafhopper'
- Britain's largest cicadellid (~2cm)
- Only member of Ledrinae
- Lacks obvious spines on hindlegs
- Exceptionally cryptic for its size!
- Bark dweller on deciduous trees
- Sometimes colonised by algae!
- 2 yr life cycle, nymphs overwinter
- Males stridulate audibly
- Sometimes comes to light
- Mainly southern England



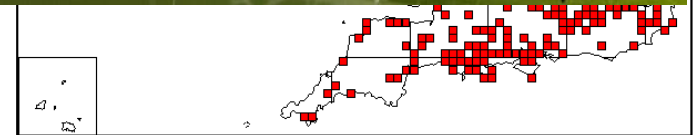
Recorded in Bedfordshire



Centrotus cornutus

Recorded in Bedfordshire

- One of two treehoppers in Britain (Membracids)
- 'Horned treehopper'
- Woodlands
- Nymphs terrestrial and probably ant-associated
- Widespread in England



Asiraca clavicornis

Recorded in Bedfordshire

- An unmistakable planthopper
- Long thickened antennae and front legs
- Largely ground-dwelling
- Dry grassland and ruderal habitats
- Scarce and mainly a SE sp



Species not yet recorded– but easy targets?



Species	Hostplant
<i>Cicadula quadrinotata</i>	Rushes
<i>Macropsis scotti</i>	Bramble
<i>Oncopsis carpini</i>	Hornbeam
<i>Zonocyba bifasciata</i>	Hornbeam
<i>Viridicerus ustulatus</i>	White Poplar
<i>Populicerus albicans</i>	White Poplar
<i>Iassus scutellaris</i>	Elm
<i>Ribautiana ulmi</i>	Elm
<i>Oncopsis alni</i>	Alder
<i>Javesella dubia</i>	Grasses
<i>Arthaldeus pascuellus</i>	Grasses
<i>Doratura stylata</i>	Grasses
<i>Graphocraerus ventralis</i>	Grasses
<i>Mocydiopsis parvicauda</i>	Grasses
<i>Arboridia ribauti</i>	Oak
<i>Thamnotettix confinis</i>	Oak
<i>Eurhadina concinna</i>	Oak
<i>Zyginella pulchra</i>	Sycamore
<i>Agallia consobrina</i>	Nettles
<i>Linnavuoriana sexmaculata</i>	Willow

Zyginella pulchra

- Small but distinctive
- Recent arrival (2001); now widespread
- Associated with Sycamore
- Unusual phenology
- Adults appear in autumn and overwinter on evergreens



Species on the horizon

Orientus ishidae

- 'Mosaic leafhopper'
- Native to Asia
- Introduced to Europe & USA
- Recent records from London & SE
- Horticultural introduction

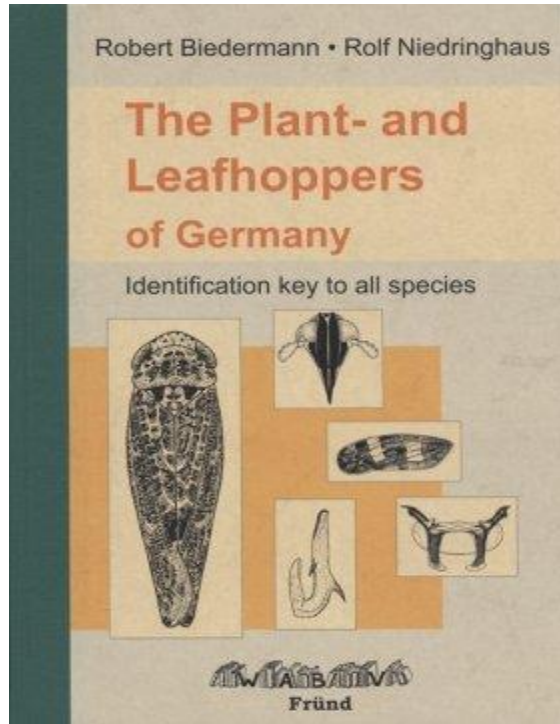


Synophropsis lauri

- Feeds on Bay laurel and Ivy
- Mediterranean species
- Recent records from London & SE
- Horticultural introduction on Bay



Recent literature



Biedermann, R. & Niedringhaus, R.
(2009) *The Planthoppers & Leafhoppers of Germany.*



Kunz, G., Nickel, H. & Niedringhaus, R.
(2011) *Fotoatlas der Zikaden Deutschlands*



British Bugs

An online identification guide to UK Hemiptera

- [HOME](#)
- [A BIT ABOUT BUGS](#)
- [GALLERY](#)
- [SYSTEMATIC LISTS](#)
- [RECORDING BUGS](#)
- [CONTACT US](#)
- [LINKS](#)

True bugs (Hemiptera) are one of the major groups of insects found in the UK, comprising nearly 2000 species.

The purpose of this website is to illustrate as many of these as possible, since they are poorly covered by popular field guides. The availability of digital cameras has now made recording images of insects easier than ever before - come and discover the world of bugs and be hooked!

If you're not sure where to start, read the 'bit about bugs' section, which contains information about their anatomy, taxonomy and ecology, before visiting the gallery, which is the portal to the various groups within the Hemiptera. If you already have a suspected name, or wish to check the details of a particular species, you can look it up in the systematic lists.

Do remember that while many bugs can be reliably identified from photos, separation of similar species ideally requires examination of actual specimens. For further details please see the [disclaimer](#).



more than 500 species illustrated

NEW Auchenorrhyncha Recording Scheme
website now live at www.ledra.co.uk



Website (<http://www.ledra.co.uk>)



Home	About	Species	Recording	Resources	News	Contact
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The Auchenorrhyncha are part of the Hemiptera ('true bugs') and include insects commonly referred to as leafhoppers, planthoppers, froghoppers, treehoppers and cicadas. Almost 400 species have been recorded in Britain and Ireland.

There has been a recent upsurge of interest in this group of insects, prompted largely by new identification resources. In particular, the English edition of *The Plant- and Leafhoppers of Germany* was published in 2009 and covers most of the British fauna.



This website provides a focus for this increased interest and is intended to stimulate wider recording of Auchenorrhyncha in Britain and Ireland. It contains much information that should help you find out more about this fascinating group of insects.

All records are welcomed; even casual sightings of common species can contribute to filling major gaps in geographic coverage and thereby help to improve our knowledge of Auchenorrhyncha distribution, ecology and conservation significance.

Alan Stewart (Auchenorrhyncha Recording Scheme Organiser)



Ledra aurita

-  [Auchenorrhyncha Recording Form \(xls\)](#)
-  [Newsletter \(LEDRA 1 Spring 2011\) \(pdf\)](#)



Forthcoming BENHS leafhopper workshops

Saturday 22 November 2014

Pelham-Clinton Building, Dinton Pastures Country Park, Reading

An introduction to leafhoppers and allied groups

Alan Stewart & Tristan Bantock

Saturday 24 January 2015

Pelham-Clinton Building, Dinton Pastures Country Park, Reading

An introduction to leafhoppers and allied groups

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Details on the BENHS website

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